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Reshaped Rivers, Ruins, and Renaissance:

The Politics of Hydro-Developmentalism in the Case of Tana-Beles, Ethiopia

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DECLARATION

I declare that this thesis, presented to the University of Edinburgh for the degree of *philosophiae doctor* (PhD), has been composed solely by me. It has not been submitted, in whole or in part, in any previous application for a degree. Except where stated otherwise by reference or acknowledgement, the work presented is entirely my own. The copyright for this thesis rests with the author.

Kristin Fedeler, 28th February 2021

ABSTRACT

Since the early 2000s, the Ethiopian government engaged heavily in the construction and expansion of large hydraulic infrastructures. This thesis explores the modern political history of one of Ethiopia's most controversial, yet scarcely analysed, schemes: Tana-Beles. Today, Tana-Beles refers to an infrastructure which transfers water from Lake Tana through a pressure tunnel to the Beles Valley; it generates hydro-electricity in an underground power station and avails water for large-scale irrigation. It materialised in 2010, but its history dates back to the early 20th century. In contrast to presentist scholarship on contemporary hydro-infrastructural projects, this thesis adopts a long-term perspective, starting in imperial Ethiopia. By scrutinising 'Tana-Beles' as a *colonial idea*, a *ruined project*, a *material infrastructure*, and as a part of an evolving *institutional architecture* for water governance, I show that the story is neither linear, nor one-dimensional. Myriad types of material and figurative 'ruins' emerge in the context of Tana-Beles. They constitute a contrast to the more recent 'renaissance' discourse promoted by the Ethiopian People's Revolutionary Democratic Front (EPRDF) in combination with its large infrastructural projects, which are not as novel as they seem.

Drawing on area studies literature and scholarly debates about the relationship between "water and the (infra-)structure of political rule" (Bichsel, 2016; Obertreis *et al.*, 2016), the thesis argues that the different interventions planned and implemented under the label of 'Tana-Beles' did not serve technical, economic, or humanitarian purposes alone. Through the notion of *hydro-developmentalism*, I demonstrate that they were also political undertakings to support the consolidation of central state power. In this thesis, I conceptualise hydro-developmentalism as both the *ideology* and *practice* of implementing large-scale water engineering and governance projects of the state. At the same time, a diverse assemblage of actors and interests contributes to the planning and implementation of these. Successive Ethiopian governments and foreign project partners converged around tactics to de-politicise their hydro-developmentalist visions of Tana-Beles, among others, by invoking urgency, or 'state[s] of exception' (Fantini & Puddu, 2016), in light of actual or projected emergencies, by constructing seemingly 'organic' intervention spaces, and by the purposeful shifting of water governance 'arenas' (Flinders & Buller, 2006). I found that the involvement of external bureaucracies and foreign companies was not only essential for the launch of the projects relating to Tana-Beles. It also served to reinforce the hierarchical relationship between the state and its subjects. However, hydro-developmentalism is equally fragile. Both internal and

external forces contest it, I argue with reference to Tana-Beles, *because* of its political underpinnings.

The thesis builds on extended fieldwork in Ethiopia, which incorporated archival research, site visits and in-depth interviews, among others, with officials, experts, and individuals involved in the various Tana-Beles projects. Despite the EPRDF government's official commitment to the concept of 'integrated' water resources management, my thesis reveals that the historical politics of vertical space-making for hydro-developmentalist aspirations continues to prevail in the 21st century. I conclude that the material infrastructure which connects Tana and Beles today reflects, on the one hand, the long-term persistence of hydro-developmentalism as a strategy in imperial, communist, and federalist Ethiopia. On the other hand, the different types of 'ruins' associated with Tana-Beles do not only underscore its continuous contestation. They also highlight the discrepancy between promissory assurances to vulnerable populations and their unfulfilled delivery in many areas which are affected by hydro-developmentalist projects. Yet, the most significant continuity I observe is the ability of successive Ethiopian regimes, with the assistance of foreign project partners, to occlude 'ruins' of the past and present, and to revive hydro-developmentalism within different development paradigms.

LAY SUMMARY

Large water management technologies can serve many purposes. They can, for example, store or divert water for general supply, produce electricity (hydropower), or make it possible to expand industrial agriculture by stretching out watering systems across wider areas of land (irrigation). However, such technologies can also represent political power. If a government owns and effectively operates infrastructures to control and reshape rivers and land for different uses, it is in a position of power over people as well. My thesis shows that governments cannot do this alone: they depend on experts and engineers who are able to plan and build such infrastructures. Because water management infrastructures create new patterns of distribution, inclusion, and exclusion, they are highly political. Therefore, governments and their project partners use different ways to make their interventions seem less political and more scientific or socially beneficial.

In order to explore this, I conducted research in a leading site of hydropower and irrigation: Ethiopia. Since the early 2000s, the former Ethiopian government (1991-2018) invested heavily in the construction of many new large dams and other water management infrastructures in suitable regions. The media often present these as new achievements. However, my thesis uses the example of Tana-Beles to show that this infrastructure has a long and complex political history. Tana-Beles is located in the so-called Blue Nile Basin in north-western Ethiopia. This area has many rivers and it receives much rain. Lake Tana, the source of the Blue Nile River, is the biggest water body there. The Blue Nile flows through Sudan to join the Main Nile. This is Egypt's most important source of water. Both the Egyptian and the Sudanese governments are opposed to the idea of water management infrastructures in Ethiopia's Blue Nile Basin. But between 2005 and 2010 an Italian construction company cooperated with the Ethiopian government to build the Tana-Beles scheme. Its technology diverts water through a long tunnel from Lake Tana to a river called Beles. In an underground power station the infrastructure generates electricity and it makes new water available in the Beles Valley to irrigate large areas of land.

In fact, the idea of Tana-Beles was almost one hundred years old before it was constructed. The first plans were made by British engineers in the early 20th century. Colonial Britain considered Tana-Beles, among others, as a possibility to control the Nile, and therefore Egypt. But it did not build the infrastructure. In my thesis, I show that different Ethiopian governments also planned to construct the Tana-Beles infrastructure and failed to achieve

this. Two governments were overthrown before they had succeeded. But one of them, the Derg government (1974-1991), managed to launch the first Tana-Beles Project in 1985. At that time, there was a severe famine in Ethiopia. The Derg explained that the project would help victims of the famine by moving them to the Beles Valley. Here, they wanted to promote mechanised agricultural development. The Italian government supported the initiative. But, as a second step, the project partners also planned to build the tunnel and hydropower plant between Tana and Beles. This was the objective which gave the project its name. Meanwhile, Ethiopia was under civil war. Rebel groups started attacking the project site in the Beles Valley. After the Derg was overthrown in 1991, the Ethiopian People's Revolutionary Democratic Front (EPRDF) took power. The war had completely ruined the Derg's Tana-Beles Project and many of the former famine victims had lost everything they owned.

For almost two decades, the EPRDF was silent to the public about Tana-Beles. It never mentioned the ruins of the past. But, after it had announced the launch of the Tana-Beles hydropower plant in 2010, the EPRDF started to widely advertise its plan to build a number of new large dams. The government claimed that this would boost the economy and reduce poverty. However, although many EPRDF speeches addressed the needs of poor people, the infrastructures, such as Tana-Beles, also created new inequalities and challenges for local populations. Nevertheless, the EPRDF aimed to expand large-scale irrigation schemes in the Beles Valley, using the diverted water from Lake Tana. In 2008, the World Bank agreed to promote these plans, but withdrew its support to this objective after a short time. Both Egypt and regional governments within Ethiopia had opposed the idea. These examples show how many purposes and meanings large water management infrastructures can have. Different Ethiopian governments considered the implementation of Tana-Beles as a way to strengthen their power. For project partners, Tana-Beles was profitable business. For some people, the infrastructure brought progress; for others, ruin. My work shows that Tana-Beles remains a project contested both from abroad and from within Ethiopia, even from within the state's own bureaucracies. Yet, a word that was very popular during EPRDF rule nicely describes the strength of the idea to manage water, land, and people through large infrastructures: 'renaissance'. My thesis shows that this idea was 'born again' several times in the course of an entire century. There are still parts of the Tana-Beles idea that are abandoned for now and that wait to be completed. At the same time, the top-down power that such infrastructures provide to central governments is a weakness. It provokes opposition and potential destruction.

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LIST OF ABBREVIATIONS

ABA	Abbay Basin Authority
AVA	Awash Valley Authority
BeSBO	Beles Sub-Basin Organisation
BoARD	Bureau of Agriculture and Rural Development (Amhara regional state)
BoWIED	Bureau of Water, Irrigation, and Energy Development (Amhara regional state)
CICS	Comitato Interministeriale per la Cooperazione allo Sviluppo (Inter-ministerial Committee on Development Cooperation, Italy)
CISP	Comitato Internazionale per lo Sviluppo dei Populi (International Committee for the Development of Peoples)
EEPCo	Ethiopian Electric Power Corporation
ENTRO	Eastern Nile Technical Regional Office
EPC	Engineering, Procurement, and Construction
EPLF	Eritrean People's Liberation Front
EPRDF	Ethiopian People's Revolutionary Democratic Front
ESC	Ethiopian Sugar Corporation
ETV *zena*	Ethiopian Television (*news channel*)
EVDSA	Ethiopian Valleys Development Studies Agency/Authority
FAO	Food and Agriculture Organisation (United Nations)
FDRE	Federal Democratic Republic of Ethiopia
GERD	Grand Ethiopian Renaissance Dam
GTP	Growth and Transformation Plan
IBWT	Inter-Basin Water Transfer
IEG	Independent Evaluation Group (World Bank)
IWRM	Integrated Water Resources Management
MoA	Ministry of Agriculture
MoFED	Ministry of Finance and Economic Development
MoWIE	Ministry of Water, Irrigation, and Electricity
MPP	Multi-Purpose Project
MW	Megawatt
NBI	Nile Basin Initiative
OLF	Oromo Liberation Front
PA	Peasant Association

PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PDO	Project Development Objective (World Bank)
PDRE	People's Democratic Republic of Ethiopia
PMAC	Provisional Military Administrative Council
RBO	River-Basin Organisation
RRC	Relief and Rehabilitation Commission
SpA	Società per azioni (comparable to a 'public limited company')
TaSBO	Tana Sub-Basin Organisation
TBIWRDP	Tana and Beles Integrated Water Resources Development Project
TBP	Tana-Beles Project
TBRP	Tana-Beles Resettlement Project
TPLF	Tigray People's Liberation Movement
TVA	Tennessee Valley Authority
UN	United Nations
USD	United States Dollar
USBR	United States Bureau of Reclamation
WCD	World Commission on Dams
WEC	World Energy Council
WPE	Workers' Party of Ethiopia
WRC/D	Water Resources Commission/Department
WRM	Water Resources Management

Chapter One

Introduction

> One should think that infrastructure development produces a kind of continuity. It was a general approach [of successive government administrations] to have development first and deal with the consequences later. But things can easily go out of hand.
>
> Senior Ethiopian WRM professional (Interview XVIII, 08/2018)

1.1 Thinking politically about hydro-infrastructure

The past two decades have featured an upsurge in the construction of large water management schemes in many regions of the world (Hathaway & Pottinger, 2009; Zarpfl *et al.*, 2014). This is often accompanied by narratives about the Malthusian relationship between population growth and water, food, and energy availability, as well as global discourses committing to the development of low-carbon 'green economies'. Thus promoted by governments and project planners alike, large hydro-infrastructures entail multiple technical functions and promises, such as: water regulation and supply, the generation of renewable high-voltage electricity, extensive irrigation, and the prospect of agro-industrial export revenues. Of all natural resources, none is more existential and indispensible to humanity – whilst in constant metamorphic motion – than water. Not only does its use affect cross-cutting sectors, issues, and livelihoods. The man-made reshaping of aquatic flows also has impacts far beyond the geographical expanse of the technologies supposed to regulate, divert, or exploit water. Nearly a century ago, Lasswell (1936) examined elite approaches to power, based on a distributional conceptualisation of politics: as a matter of 'who gets what, when and how'. Infrastructure can be a determining factor in the distribution and contestation of such elite power (Howe *et al.*, 2016) – even more so, when this infrastructure serves to reshape 'flows of water' and therewith 'flows of power' (Molle *et al.*, 2009).

In this thesis, I build on inter-disciplinary literature and analyse new empirical data in order to reveal *political* underpinnings and implications of three successive Ethiopian governments' commitment to large-scale water technologies in the Tana and Beles basins. For this purpose, I propose the notion of *hydro-developmentalism* as an over-arching framework to analyse

both official *visions* and actual *materialisations* of state-controlled hydro-infrastructures. By exploring the hydro-developmentalist plans and various interventions related to the Tana-Beles scheme in north-western Ethiopia, my thesis demonstrates the inherent fragility and fluidity of such projects and their fluctuating interdependencies with biophysical, social, and political environments. Rather than interpreting hydro-developmentalism as a phenomenon of nationalist state-building alone, my case study of Tana-Beles reveals that transnational linkages were not only essential for each respective Ethiopian government's pursuit of hydro-infrastructural state territorialisation. Foreign contractors involved in the planning, physical implementation, and strategic re-imaginations of 'Tana-Beles' did also significantly – albeit often implicitly – endorse and reinforce the vertical nature of this pursuit. 'Territorialisation' is a 'space-making' process through which resources and people are enframed within specifically delineated areas sought to be controlled from above (Scott, 1998; Elden, 2013). Planel (2008) comprehensively discusses how different Ethiopian governments have construed and recycled a patchwork of heterogeneous territorial orders from the late 19th century up to the introduction of *ethnic federalism* under the late Prime Minister Meles Zenawi. This thesis equally deals with processes of territorialisation – or the 'production of space' (Lefebvre, 1974/1991) – by means of hydro-developmentalism. However, my analysis deliberately moves *beyond* purely state-centric interpretations of these processes.

In Ethiopia, the construction of large hydro-infrastructure has expanded significantly within the past two decades (Moges *et al.*, 2010; Matthews *et al.*, 2013; Annys *et al.*, 2019). Against this background, academics and journalists alike have dedicated much attention to the most visible and superlative hydropower and irrigation projects. The set of Gilgel Gibe dams on the Omo River in southern Ethiopia is one example (Abbink, 2012a; Woldegebrael, 2018). The Grand Ethiopian Renaissance Dam (GERD), however, has by far generated the largest amount of publicity and scholarly debate. It is widely discussed not only as a 'game changer' for Eastern Nile Basin hydro-politics (Jima, 2016), but also as an icon of nationalist identity-building efforts by the former ruling coalition party, the Ethiopian People's Revolutionary Democratic Front (EPRDF, 1991-2019) (e.g. Abbink, 2012a; Verhoeven, 2013, 2015; Menga, 2016; Cascão & Nicol, 2016). In an article about the Rogun Dam in Tajikistan, Menga (2015: 479) explores "how a ruling elite can use the symbolic value of a large hydraulic project to construct and disseminate its own idea of the nation and legitimise its hold on power". A later publication by Menga (2017) analyses the GERD from a similar vantage point: as a symbolic reflection of the EPRDF government's material power.

By contrast, this thesis contributes a different perspective to the literature which investigates large hydro-infrastructure projects in general, and in the specific case of Ethiopia. As I discuss further below, the lens of hydro-developmentalism further complicates the notion of dam-building as a reflectance of state- or populist identity-building. In this vein, it must be emphasised that the most prominent dam projects, such as the GERD, are not the *only* variables one may consider in order to analyse Ethiopian hydro-developmentalism. Rather, I examine the politico-historical evolution of 'Tana-Beles' – a much less conspicuous, but controversial, case – from colonial times onwards. I particularly scrutinise the engagement, and its implications, of foreign, seemingly apolitical, project partners. At the same time, shedding light on the case of 'Tana-Beles', which is scarcely researched from a long-term perspective, also adds new perspectives on the characteristics, continuities, and ruptures of Ethiopia's modern state formation – a subject revisited abundantly in the Ethiopianist academic literature (e.g. Silberman, 1960; Clapham, 1969, 1988, 2002, 2018; McCann, 1995; Zewdie, 2002; Aalen, 2002; Vaughan & Tronvoll, 2003; Abbink, 2006, 2012; Hagmann, 2006; Planel, 2008; Markakis, 1981, 2011; Hagmann & Abbink, 2011; De Waal, 2012, 2018; Lefort, 2013, 2018b; Fantini & Planel, 2018).

Ethiopia's successive governments, starting from the reign of the former Emperor Menelik II (1889–1913) until the present administration of Prime Minister Abiy Ahmed's Prosperity Party, have remained continuously committed to high modernist, top-down development schemes. However, my thesis also provides empirical evidence which precludes deterministic readings of these. Instead, I highlight the plurality, circularity, fluidity, and various types of *ruins* associated with the ideational conception and material implementation of 'Tana-Beles'. I furthermore challenge two notions that have surfaced in the Ethiopianist literature: on the one hand, that of an intrinsic Ethiopian "political culture" and "strong state structure" (Abbink, 2006a, 2010); on the other hand, the suggested existence of a dichotomous frontier between highland and lowland, the political core and periphery, within Ethiopia. Successive attempts and processes of the state's material expansion into the 'Tana-Beles' waterscape degenerated into ruins of conflict and sudden abandonment as well as the emergence of "grey zones" (Fantini & Planel, 2018). In my empirical chapters I thus point to the feebleness and limitations of the territorial and the 'nationalistic' construct. I do so, also, by emphasising the significance of foreign experts and contractors who – rather than agents of 'the state' itself – predominantly envisioned, planned, designed, and constructed the various 'Tana-Beles' projects. This crucial reality is usually masked by nationalistic discourses with reference to

Ethiopia's major dam projects. Academic analyses of how governments portray such material flagship projects to bestow their administrations with legitimacy are crucial. It is equally important, however, to consider the existence of less prominent, yet equally incisive and large-scale infrastructural development projects. The Tana-Beles hydro-infrastructure, as a case in point, does not occupy a major place in Ethiopia's public development discourses despite its economic and political significance, as well as its ecological impacts. The same is true for a number of failed attempts to construct the infrastructure, and a variety of ruins which I address throughout this thesis. Located both in so-called geographical and political 'peripheries', but equally within the central administrative machineries of the respective imperial, socialist, and federalist Ethiopian governments, such ruins are deliberately occluded from the public eye and ear – not only by successive state agencies and political leaders, but also by foreign, corporate ones. The discovery of 'ruination' instances thus significantly informs my analysis of the politics of hydro-developmentalism in the case of 'Tana-Beles'.

'Tana-Beles' as a relevant case…

Defining 'Tana-Beles' as an object of case study research is not a straightforward task. Rather than referring to a fixed geographical space, I discuss a range of 'Tana-Beles' projects[1] which were implemented separately from each other across time. Yet, these projects are inherently related by a long-term vision starting from the early 20th century. This vision gained materiality in 2010, in the form of an inter-basin water transfer and underground hydropower station. Unlike the GERD, 'Tana-Beles', as I treat it in this thesis, does neither denote a singular and ostensible showcase object, nor has it – *per se* – been instrumentalised for any overarching nationalistic propaganda campaigns. Like the GERD, however, the Tana-Beles hydro-infrastructure is highly controversial in terms of Eastern Nile Basin geo-politics because the diversion tunnel taps the source of the Blue Nile and facilitates the consumption of water for large-scale irrigation in the Beles basin. The maps below situate the drainage areas of Lake Tana and the Beles River within Ethiopia (Figure 1.1) and within the Blue Nile (Abbay) Basin in which Tana and Beles form two of sixteen sub-basins (Figure 1.2). Lake Tana's catchment is located on the Ethiopian highland plateau; the Beles sub-basin drains its north-western escarpment as it slopes towards the western frontier with Sudan.

[1] When a distinction is necessary, I add single quotation marks to refer to 'Tana-Beles' as an idea, and in a conglomerated sense that captures the sum of the implemented projects. I omit the quotation marks to refer to the Tana-Beles hydro-infrastructure itself, around which the original idea revolved and to which all implemented projects relate.

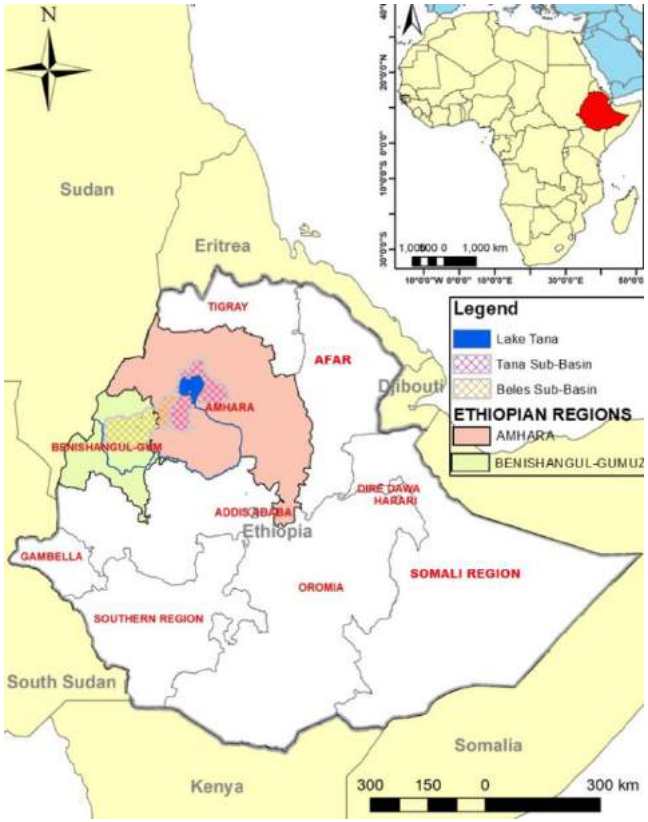

Figure 1.1 *Location of the Tana and Beles sub-basins within Ethiopia's regional states in 2018*[2]
©Getnet Taye Bawoke

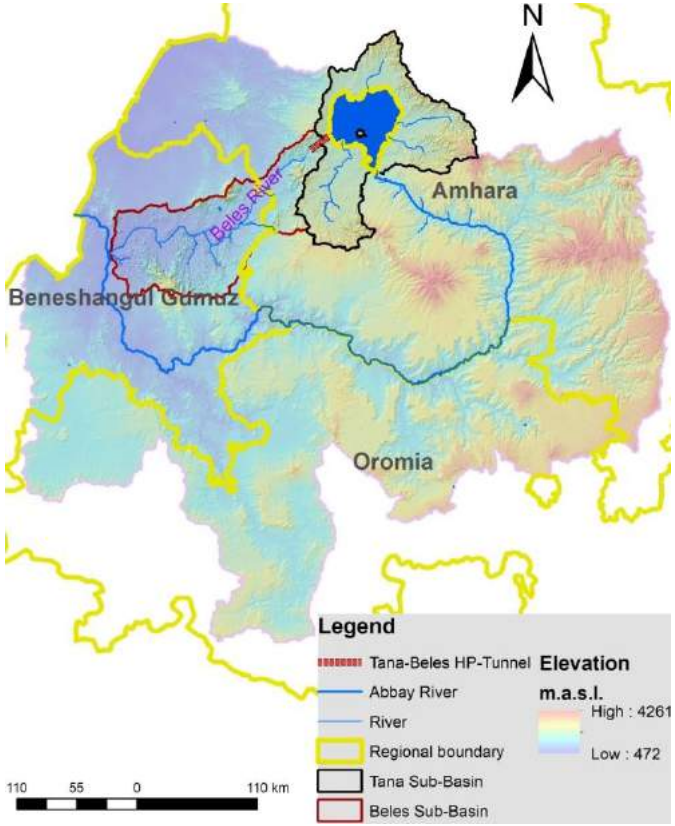

Figure 1.2 *The Tana and Beles sub-basins within the hydrological catchment area of the Abbay (Blue Nile) Basin, showing the Beles River, the course of the Blue Nile and the Tana-Beles inter-basin water transfer tunnel*
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[2] Disclaimer: All maps displayed in this thesis are intended for illustrative purposes alone and "do not imply the expression of any opinion whatsoever [...] concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries" (in line with UN disclaimer, accessed on 15th June 2021 via https://unece.org/map-disclaimer-0).
Following a referendum in 2019, the former Sidama zone within the Southern Nations, Nationalities and People's Region (SNNPR) became an additional regional state in Ethiopia that is not captured in this map.

Figure 1.3 zooms in on the Tana and Beles sub-basins, highlighting the central infrastructural feature that stitches them together: an artificial water diversion from Lake Tana, through a twenty-kilometre pressure tunnel into the Beles River via a minor tributary river. This infrastructure materialised in 2010 under the label 'Beles Multipurpose Project' (Beles MPP, see Chapter Five). It comprises an underground power station, at 300 metres below surface, with the capacity to feed 460 MW of electricity into the domestic pylon grid. The water transfer also increases the industrial irrigation potential to more than 140,000 additional hectares of land in the Upper Beles Basin (Tarekegn, 2012; Tesfaw, 2016). Meanwhile, Egypt, as the furthest downstream Nile riparian, has a history of adamant objection to any infrastructure which would obstruct or divert the flow of water upstream, especially from the Blue Nile's source, Lake Tana. But also within Ethiopia, there are divergent views and assessments of the benefits and adverse effects of the Tana-Beles hydro-infrastructure.

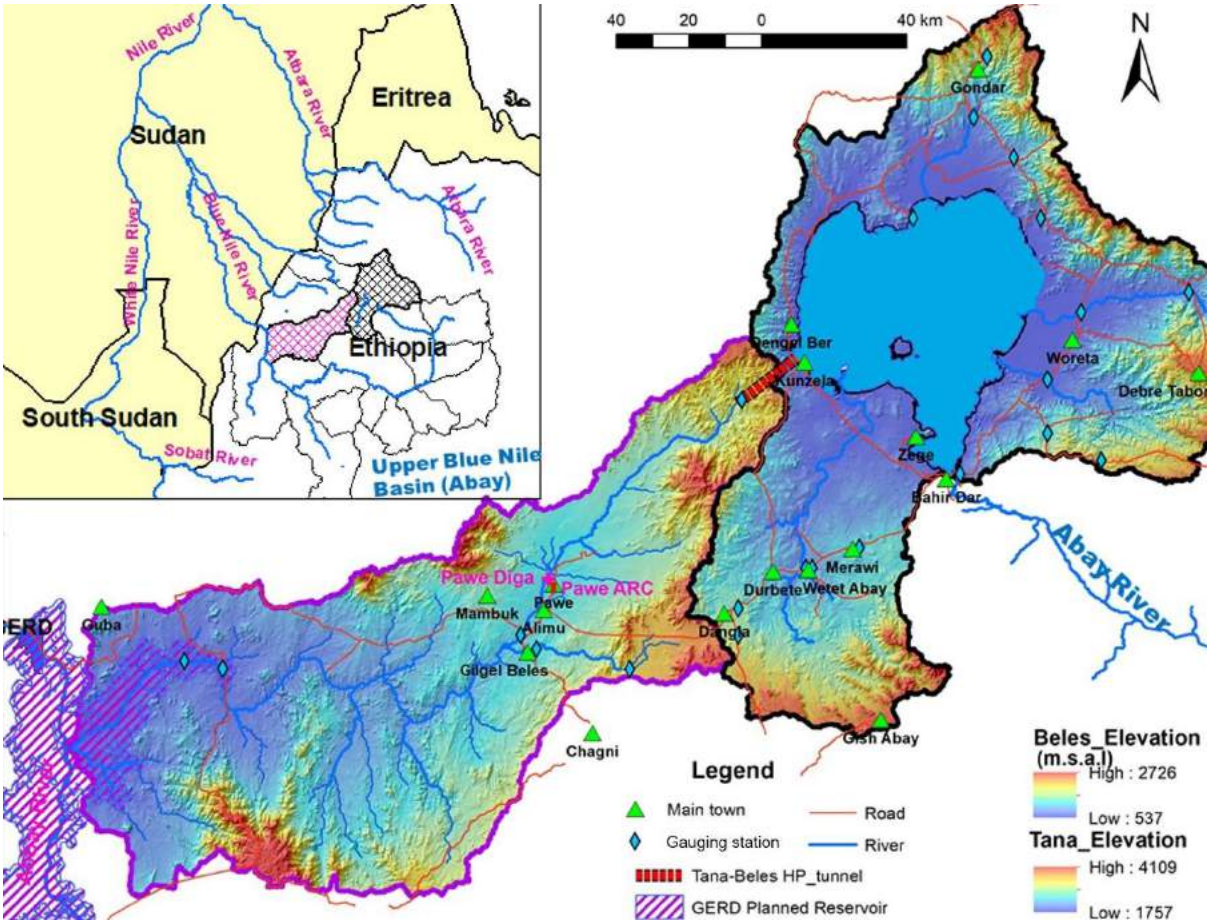

Figure 1.3 *Location of the Tana-Beles pressure tunnel and main towns of the Tana and Beles sub-basins ©Getnet Taye Bawoke*

Multiple in purposes, the impacts of the Beles MPP are equally multifarious. Lake Tana's natural outflow into the Blue Nile (Abbay) River is located near Bahir Dar, the capital city of the Amhara regional state. A shallow lake to start with, there is evidence that the additional outlet of water from Tana to Beles at times reduces lake levels considerably, especially in years of lower than average rainfall (Moges *et al.*, 2010; Tarekegn, 2012; Tesfaw, 2016). Lower lake levels, in turn, impact navigation, fisheries, and the operation of the Tana-Beles hydropower plant itself. In recent years, the Lake's ecosystem has also been disrupted by the spread of an invasive plant species: water hyacinths covering large areas of Lake Tana. At the same time, the operation of the underground power station does not only impact local communities living downstream along the river because of flood waves arising unpredictably when a new turbine is set in motion (as I discuss in Chapter Five). The expansion of large-scale irrigation projects in the Beles sub-basin also leads to the incremental dislocation and marginalisation of local population groups in the area, whilst in-migration from the highlands to central towns, such as Gilgel Beles, Almu, Pawe, and Jawi, has been accompanied by new competition for space – in a literal and figurative sense – often played out along ethnic lines.

'Tana-Beles' is equally bestowed with a controversial connotation because of the three implicitly related projects which I analyse in this thesis:

- The **Tana-Beles Project (TBP), 1985-1991**: launched by the socialist Derg government with Italian support in the wake of the 1980s Ethiopian famine. It comprised the resettlement of more than 80,000 highland farmers and famine victims to the Metekel zone in the area of the Beles Valley surrounding Pawe and Almu Town. The TBP was at the same time the first – albeit failed – attempt to implement the Tana-Beles hydro-infrastructure which I described above (see Chapter Four). The TBP was largely destroyed and abruptly abandoned upon the overthrow of the Derg in 1991.
- The **Tana-Beles Integrated Sugar Development Project**, which is a major state-run irrigation project in the Jawi District, north of the town of Pawe, owned by the Ethiopian Sugar Corporation (ESC). It was launched under EPRDF rule in 2012. However, embroiled in construction delays, operational dysfunctionalities, and allegations of mismanagement, the Tana-Beles Sugar Factories had failed to yield any profit by the end of my field work in 2019 (see Chapter Five).

- The **Tana and Beles Integrated Water Resources Development Project (TBIWRDP), 2008-2016**, was an initiative supported by the World Bank to enhance the institutional framework of decentralised water management, using Tana and Beles as pilot sub-basins. It also entailed technical watershed management activities in the Tana sub-basins, whereas the Beles sub-basin was supposed to be transformed into a 'growth corridor' through the promotion of investments in further extensive irrigation projects. This latter component, however, failed to materialise, partially owing to the conflicting interests in the land and water resources in this area (see Chapter Six).

While these three projects were implemented separately from each other, their common denominator is the envisioned and materialised Tana-Beles hydro-infrastructure which technologically stitches the two sub-basins together. The different ways in which these projects were planned and implemented reflect shifting political possibilities and strategies of hydro-developmentalism over time. Meanwhile, this thesis is the first account of 'Tana-Beles' from a long-term historical and socio-political perspective, which does not reduce the analysis to the material hydro-infrastructure itself, but which considers 'Tana-Beles' as a fluid, elastic designation, encompassing a whole complex of projects.

During my research, I discovered a variety of physical and figurative 'ruins' associated with the history of Tana-Beles, which the 'renaissance' discourses promulgated by the EPRDF government have served to occlude. Thus, to understand the political significance of Tana-Beles, it is necessary to start from the origins of its first imaginations in the early 20th century. My thesis analyses the different manifestations of Tana-Beles across time: as a *colonial idea*, adopted by Haile Selassie's imperial government; as a *ruined project* upon the overthrow of Mengistu Hailemariam's communist regime; as a *material infrastructure* in Meles Zenawi's 'new Ethiopia'; and as a part of an evolving decentralised *institutional architecture* for contemporary water governance. Although the outcomes of the imperial, communist and federalist Ethiopian governments' efforts in relation to Tana-Beles were different, these three mutually hostile regimes committed themselves to the same basic hydro-infrastructural idea. My thesis argues that both the visions of, and the implemented projects relating to, Tana-Beles, emerged not only from technical, economic, or humanitarian considerations alone. They also complemented the successive Ethiopian governments' strategies to consolidate power at the centre and to dominate water, land, and people in a vertical fashion. However,

based on the case of 'Tana-Beles', my thesis further argues that these strategies were inherently fragile and vulnerable to political contestation, leading to their disintegration.

… for the study of hydro-developmentalism

As a contribution to the literature which reflects on the relationship between "water and the (infra-)structure of political rule" (Bichsel, 2016; Obertreis *et al.*, 2016) the notion of *hydro-developmentalism* constitutes a conceptual avenue to 'think politically' (Verhoeven, 2013) about hydro-infrastructure in a general sense, but especially with regard to my case study in Ethiopia. I derive the term from an article by Rusca *et al.* (2018) whose work traces "shifting hydro-developmental visions" in Mozambique from colonial times until today. While the authors do not systematically conceptualise hydro-developmentalism as such, I found the term useful to capture the state-driven planning and implementation of grand water management schemes as a broader phenomenon. Aside from Rusca *et al.* (2018), Molle *et al.*'s (2009) descriptions of the international 19th- and 20th-century "hydraulic missions" inspired me. However, I consider hydro-developmentalism as both an *ideology* and a concrete *practice* which is not confinable to a specific era, and which, in addition to that, does not follow a singular, one-directional, or irreversible pattern.

Furthermore, my conceptualisation of hydro-developmentalism is inspired by an assemblage thinking approach (Acuto & Curtis, 2014). I consider hydro-developmentalist projects as settings, where "a range of global and local, public and private […] agents and normativities interact" (Abrahamsen & Williams, 2009: 3). My analysis of Tana-Beles reveals that the involvement of transnational bureaucracies, foreign companies, and international development agencies was essential for the envisioning, devising, and implementation of the respective projects. In this vein, I argue that the seemingly apolitical foreign agencies and project partners supported and, to some extent, reinforced the hierarchical relationship which the imperial, communist, and federalist Ethiopian state sought to uphold between itself, its subjects, and resources. Together, the foreign and Ethiopian project partners converged around tactics to strategically de-politicise their hydro-developmentalist visions of Tana-Beles in selected areas. These tactics included, among others, the invocation of urgency, or 'state[s] of exception' (Fantini & Puddu, 2016), in light of actual or projected emergencies, such as famine, energy scarcity, or poverty; the 'production' (Lefebvre, 1991) and 'naturalisation' of waterscapes (Swyngedouw, 2010) as spaces of intervention in their own right; and the purposeful 'shifting' of water governance 'arenas' through the restructuring of

bureaucratic organisations (Flinders & Buller, 2006). While it cannot be denied that the successive Ethiopian governments have showcased their visions and implementation of major (hydro-)infrastructural development projects as political representations of 'statehood', they have equally engaged in de-politicising their impacts in terms of the above-quoted definition of politics: 'who gets what, when and how' (Lasswell, 1936). Such de-politicisation, which I discuss in my empirical chapters, occurs at various scales. It is supported by the parallel process of 'scientisation' (see Chapter Two) and comprises, among others, (i) the trans-boundary level, e.g. with regard to negotiations between Ethiopia, Egypt, and Sudan about the use of the Nile Waters, (ii) the domestic level, e.g. with regard to the production of new territorial and administrative orders, justified by discourses of 'urgency', and (iii) with regard to the dichotomous interpretations of the relationship between societies, nature and technology (see also Swyngedouw, 2015; Smit, 2019). The EPDRF administration's *developmental state* philosophy (see Chapter Five), but also the previous governments' ideologies of national development, formulated in plans and policies, thus present themselves, paradoxically, as both: as political statements intended to solidify the ideational and physical presence of the 'state', and as constructs intended to solidify the powerful position of political and corporate elites – a privileged position which, however, can only be justified by its selective and deliberate *de*-politicisation.

At the same time, the technology-based reshaping of rivers and waterscapes by means of hydro- infrastructural engineering – as well as the idea of it – symbolises the central state's aim to determine both water and power flows through a spatial ordering mechanism (cf. Molle *et al.,* 2009). In relation to Tana-Beles, this top-down production of space continues to prevail in the 21st century, despite an evolving institutional landscape for 'integrated' water management. Nevertheless, ruins, overthrown regimes, and the decomposition of both dreams and infrastructures are as much attributes of 'Tana-Beles' as the material hydro-infrastructure. New inequities emerged from the various projects, as I demonstrate in this thesis, despite promissory government discourses about famine relief or poverty reduction. These spatial, infrastructural, social, and political inequities, I argue, were exacerbated by the successive Ethiopian governments' resort to hydro-developmentalism whilst aiming to consolidate the power of central elites rather than sharing it with other stakeholders. Thus emerges a vicious cycle between hydro-developmentalist centralisation and its contestation on various levels: externally, in terms of hydro-political conflict with neighbouring governments; and domestically, through pressures from political opposition groups; through

internal fault lines between central and decentralised bureaucracies; but also through the agency and changing morphology of non-human forces, such as eco- and climatic systems beyond technological control (Smit, 2019).

As a whole, this thesis communicates, on the one hand, with recent approaches to elaborate 'political sociologies' of the interrelationships between water, infrastructure, development, and political rule (e.g. Mollinga, 2008; Molle *et al.*, 2009; Swyngedouw, 2015; Bichsel, 2016; Obertreis *et al.*, 2016). On the other hand, it contributes to the area studies literature concerned with Ethiopian history, politics, and statehood. It does so by explicitly analysing three mutually hostile governments' long-term hydro-developmentalist aspirations, before these aspirations actually materialised. Whilst pointing to the continuity of the 'Tana-Beles' vision across an entire century, my thesis relativises deterministic interpretations of Ethiopian political culture and (nation-)state formation (Abbink, 2006; Markakis, 2011). Instead, I deliver evidence of how the state's symbolic and physical power infrastructure is subject to both construction and abandonment under the auspices of mostly foreign project partners, and how it is vulnerable to different forms of ruination from internal and external forces.

Subsequently, this introductory chapter is structured as follows: In the next section, I situate my thesis within the current academic literature on the 21st century resurgence of large hydro-infrastructure projects, particularly with regard to Ethiopia and the context of Eastern Nile Basin hydro-politics. In Section 1.3, I further elaborate on the conceptual and empirical contributions of this thesis. Section 1.4 presents my research design and methodology. In place of a conclusion, Section 1.5 outlines the overall thesis structure.

1.2 Empirical contributions to the literature on Ethiopia's 21st-century 'hydro-rush'

The 21st-century wave of large dam construction and the expansion of other hydro-infrastructural technologies, especially in many parts of Africa, Asia, and Latin America (Zarpfl *et al.*, 2014; WEC, 2015), has generated renewed academic interest in the social sciences (e.g. Kaika, 2006; Folch, 2013, 2015; Garandeau *et al.*, 2014; Pearse-Smith, 2014; Van der Straeten, 2014; Brown e*t al.*, 2015; Dye, 2019). In the following sections, I provide a brief overview of scholarly interpretations of this process in post-millennium Ethiopia. At the end of each of the following three sub-sections, I propose how my thesis offers alternatives to these approaches. First, I argue that much of the current scholarship adopts a presentist

perspective by concentrating on the EPRDF regime's *developmental state* ideology in the 21st century without tracing the earlier origins of the state's extensive infrastructure projects. Second, the majority of researchers from the social sciences are especially preoccupied by large, iconic dam projects, thus drawing attention away from other schemes with more than one purpose in Ethiopia's river-basins: Tana-Beles is an example of such a scarcely analysed, multi-purpose scheme. In a similar vein, with regard to trans-boundary disputes concerning the Nile Waters, the GERD constitutes the most prominent case study. By studying 'Tana-Beles', I contribute a less obvious, but a historically and politically controversial case to the abundant literature on Eastern Nile Basin hydro-politics.

The presentist framing, context, and scope of Ethiopia's hydro-infrastructural expansion

Verhoeven (2013) illustrates the dual framing employed by the governments of the Eastern Nile Basin countries, Egypt, Ethiopia, and Sudan, to justify what Hathaway and Pottinger (2009) elsewhere label the current "great hydro-rush": The first, pessimistic narrative forecasts scenarios of growing populations facing dwindling resources, unpredictable climate change, and intensifying development pressures. The second, euphemistic narrative promises relief through the technology-based capture of 'under-utilised' and 'abundant' water resources as a key macro-economic solution. In addition to the continuous demand for water, food, and electricity, recurrent extreme events in the Eastern Nile Basin, such as floods, droughts, and famines, underscore the proclaimed need for water management infrastructures, and the governments' aspirations to predict, contain, control, and govern these by means of re-engineering the domestic waterscapes. Furthermore, from an undifferentiated, continental economic perspective, both scientific publications and research produced by major agencies of the international development industry discern the 'suitability' of hydro-infrastructural projects in Africa, generally. For example, in light of intensive industrialisation and corresponding needs for high-voltage electricity, scientific calculations, such as Zarpfl *et al.*'s (2014) estimation that merely 8% of Africa's technically feasible hydropower potential is currently exploited, accentuate the optimism towards a technological fix. Simultaneously, the Food and Agricultural Organisation (FAO) of the United Nations advocates irrigation, as opposed to rain-fed cultivation, as a means to enhance food security.

FAO also highlights "considerable potential for the future expansion of irrigation" in Africa as such.[3]

In opposition to hydro-infrastructural 'solutions', social and environmental activists raised global awareness campaigns in the 1980s and '90s to warn about significant negative impacts. These had already manifested during the global 'big dam decades' between the 1950s and '80s (World Commission on Dams (WCD), 2000; Scudder, 2005). As a result of the anti-dam movements, Timberlake (1988: 68), among others, observed that the construction of what critics referred to as "white elephants" had seemed to go "out of style". However, he also sagely remarked (*ibid.*: 69): "Dams are beloved of politicians, national plan-makers, financiers, and aid donors alike. […] [W]hite elephants can have a momentum of their own." Indeed, dams and other large-scale hydro-infrastructural technologies have gained new momentum on numerous 21st-century development agendas. This phenomenon is accompanied by the universalisation of new policy frameworks, such as the concept of Integrated Water Resources Management (IWRM). IWRM calls for more sustainable, equitable, ecologically friendly, and democratic approaches to the governance and exploitation of water. At the same time, the myriad shortcomings of this and similar frameworks are subject to scholarly critique (e.g. Allan, 2006; Molle, 2009; Mehta *et al.*, 2017), among others, for their parallels with the previous century's high modernist visions to reshape entire river-basins (e.g. Molle *et al.*, 2007; Warner *et al.*, 2008; Wester, 20008).

Meanwhile, Ethiopia, according to the World Energy Council (WEC, 2015), generates more than 90% of its commercial electricity from hydropower and has "significant undeveloped potential" in this sector. The latest Growth and Transformation Plan (GTP II, 2016: 96) of the former EPRDF government, which was in power from 1991 to 2018/2019, foresaw not only massive spending on roads and railways, but, significantly, on the expansion of overall electricity transmission, nationally, and through regional export corridors. The EPRDF aspired to achieve a ten-fold capacity increase from a total energy output of just over 4,000 MW in 2015 to 40,000 MW by 2035 (*ibid.*). Similar ambitions can be quoted with regard to Ethiopia's economic irrigation potential. In this vein, Matthews *et al.* (2013) postulate, the EPRDF government invested in "constructing a new water future" in the 21st century. FAO's

[3] See, for example, FAO (1997) Irrigation potential in Africa: A basin approach. *Land and Water Bulletin No. 4*, accessed 19th February 2018 via http://www.fao.org/3/w4347E/w4347e00.htm

Aquastat database[4] summarises the hydro-infrastructural projects which already have materialised in Ethiopia, including information about their capacities in terms of electricity generation, water storage, irrigation, flood control, and other purposes. Figure 1.1 depicts only a selected number of hydropower projects which materialised throughout the past two decades, but it clearly demonstrates the rapid pace and the increasingly ambitious scope with which the EPRDF government, against the background of its *developmental state* ideology, pushed the hydro-infrastructural agenda.

However, this listing of projects achieved under the EPRDF fails to show that the feasibility and potential design of many of these schemes had already been thoroughly explored and imagined throughout the previous century by both foreign and Ethiopian planners, on behalf of their respective governments. Despite the numerous 20th-century studies, reports, detailed proposals, and plans, many of which are stored at the archives of the contemporary Ethiopian Ministry of Water, Irrigation, and Energy (MoWIE), the EPRDF's recycling of a number of these, as I demonstrate with regard to Tana-Beles in Chapter Three of this thesis, is frequently omitted in presentist scholarship. Furthermore, I show that the vindication of hydro-infrastructural projects in terms of their *urgency*, as well as *potential*, has also been invoked by Ethiopia's imperial and communist governments alike.

Figure 1.4 *Selection of commissioned and planned sources of hydropower in Ethiopia, 2004-2020*

Name	River-basin	Installed capacity	Year of commissioning
Gilgel Gibe I	Omo	184 MW	2004
Tekeze	Tekeze	300 MW	2009
Tana-Beles	Blue Nile	460 MW	2010
Gilgel Gibe II	Omo	420 MW	2010
Gilgel Gibe III	Omo	1.870 MW	2016
Gilgel Gibe IV and V	Omo	2.200 MW (Gibe IV)	Planned
Grand Ethiopian Renaissance Dam (GERD)	Blue Nile	6.000 MW	Expected in 2017, still incomplete in 2020

Source: FAO Aquastat (2019) Dams of Africa

Several further dams for both hydropower and irrigation projects are at various of the planning and design process, including: Genale Dawa III and IV in the Genale Basin;

[4] AQUASTAT – FAO's Global Information System about Water and Agriculture, accessed 3rd November 2019 via http://www.fao.org/aquastat/en/databases/dams

Megech, Ribb, Mendaya, and Karadobi in the Blue Nile Basin; and Halelie / Werabessa and Gojeb in the Omo Basin.

Tana-Beles as a contrast to Ethiopia's large dams in the limelight

As mentioned in the introductory paragraphs, large, iconic hydropower dams – notably, the Gilgel Gibe dams and GERD in the Ethiopian context – have been covered extensively, both in the media and in academic research. In this section, I argue that the lens which interprets superlative material constructs, such as the GERD, in terms of nationalistic identity-building overshadows two significant aspects: the political meanings of similarly incisive but less prominent schemes, such as Tana-Beles, and the Ethiopian state's dependence on foreign project partners to realise its development objectives. Furthermore, I show that the case of the 'Tana-Beles' idea, especially in terms of its shifting manifestations during different attempts to implement the hydro-infrastructure, has been scarcely researched from a socio-scientific perspective.

Having lived and worked in Ethiopia for several years between 2013 and 2020, my PhD thesis was originally inspired by the ubiquitous propaganda for, and high visibility of, GERD. The Government Communications Office familiarised the public with the dam through a massive campaign, featuring it on large billboards, television, radio, and in the newspapers. GERD has since even prompted the composition of specifically dedicated hymns and poems. A massive hydro-infrastructural construction site in the territorial margins of the country has thus come to central attention. I have conversed with ordinary people in Addis Ababa who take considerable pride in the GERD. A body of research explores the correlations between dam construction and its instrumentalisation for state-building but also for unifying *nation*-building efforts in Ethiopia and elsewhere (e.g. Orlowska, 2013; Tischler, 2013; Menga, 2017; Menga & Swyngedouw, 2018; Mohamud & Verhoeven, 2016) The GERD makes a strong empirical case for this (Menga, 2016). However, not least the violent eruptions of internal conflict and ethnic clashes between Amhara, Oromo, Tigrayans, and other groups in recent years, testify to the complexity and divisiveness of the 'national identity' construct in Ethiopia. Large cleavages persist between urban and rural life, while the historical scars of imperialism still nourish profound grievances expressed by political movements in the lowlands. Almost three decades of the EPRDF's minority rule only seemed to have come to an end with the change of leadership in 2018. But at the time of writing this Chapter, Ethiopia is in turmoil and at the risk of fragmentation.

The GERD and the Gilgel Gibe dams have equally been interpreted as *material symbols* of the EPRDF's authoritarian developmentalism (Veilleux, 2013; Verhoeven, 2013; Woldegebrael, 2018). In this thesis, I argue that the Tana-Beles hydro-infrastructure, and the projects which relate to it, occupy a significant place in the history of successive Ethiopian government's top-down strategies of development and power consolidation. In contrast to the large dams, however, the various Tana-Beles projects have neither been particularly visible to public scrutiny, nor did the EPRDF government make much ado about the hydro-infrastructure's manifestation in 2010, let alone employ this significant achievement as a tool for nationalist identity-building discourses. Since the commissioning of the Tana-Beles water diversion and power plant, several studies have been published concerning its hydrological, environmental, and some social impacts, among others, by Tarekegn (2012), Stein *et al.* (2014), Tesfaw (2016), Annys e*t al.* (2019). However, as a broader theme, 'Tana-Beles' has so far remained relatively inconspicuous within the relevant social science literature discussing Ethiopia's hydro-infrastructural development. There are only few publications about 'Tana-Beles', each of which relates to a specific intervention. Fantini *et al.* (2018) analyse paradoxes of state formation with regard to the Tana-Beles sugar development project in the Beles Valley – a large-scale irrigation scheme, launched in 2013, which receives water from the diversion technology. Aside from this, most sociological literature denotes 'Tana-Beles' with the Tana-Beles Project (TBP) which was launched in 1985 and implemented with Italian support. Dieci and Viezzoli (1992), two former Italian aid workers who were directly involved in the TBP, report about the socio-economic significance of the project's rural development components. Abutte (2000) and Gebre (2002) provide data on how farmers, who were resettled both forcibly and voluntarily to the Beles Valley in the framework of the TBP, coped with adverse conditions in their host environment and with the TBP's disintegration. González-Ruibal (2006) employs the ruins of the TBP as objects of analysis in his archaeological history of the 'failures of modernity'. The Italian author Gobbato (2019) has recently published a novel, *Tana Beles: Intrigo alla diga italiana* [Intrigue at the Italian dam], based on the controversies around Italy's involvement in the 1980s TBP. From a sociological perspective, 'Tana-Beles' has thus so far mostly been connoted with the story of the TBP's resettlement component, rather than as a hydro-developmentalist idea, the implementation of which was only realised in the 21st century. Drawing from the respective sources above, and complementing them with my own empirical research, my thesis provides the first coherent analysis of the overall 'Tana-Beles' story from

its conception in the early 20th century to its different manifestations until the end of my fieldwork in 2019.

My thesis, furthermore, explores an aspect which the literature focusing on dams as nation-building constructs does not grapple with: I demonstrate that the successive Ethiopian governments' hydro-developmentalism could not have materialised without the assistance of foreign project partners. Thus, on the one hand, the respective regimes sought to consolidate a state whose power was to be concentrated in the hands of the political elite at the centre, and whose bureaucratic and technological arms reached out into the peripheries. On the other hand, each of these governments fully depended on the import of expertise (and material) from abroad to achieve this. Not only do I demonstrate the colonial roots of the first Tana-Beles proposals, I also show how transnational private companies and external bureaucracies – I focus on the American Bureau of Reclamation (USBR) – partnered with Haile Selassie's imperial government to produce national blueprints for the development of Ethiopia's river-basins (Chapter Three). I examine the significance of Italy's support to the TBP, and that of the Italian construction company, Salini Costruttori/Impregilo,[5] to mutually hostile Ethiopian regimes by physically implementing parts of their hydro-developmentalist visions (Chapters Four and Five). Finally, I scrutinise the World Bank's collaboration with the Ethiopian Ministry of Water, Irrigation, and Electricity (MoWIE) in reconceptualising 'Tana-Beles' through the creation of new technocratic water governance bureaucracies (Chapter Six). In each of the respective chapters, I make the case that these international partners are fundamental constituents of the assembled politics of hydro-developmentalism. Only vertically delegated government agencies entered into formal relations with the foreign bureaucracies and corporations. Although these external project partners seemed to have purely technical and apolitical objectives with regard to the different Tana-Beles projects I study in this thesis, they supported the political implications of hydro-developmentalism purposefully or inadvertently.

Hydro-political conflict patterns in the domestic context

The inconspicuousness of the Tana-Beles hydro-infrastructure is a noteworthy contrast to the GERD. Yet, the two schemes share an important commonality: their controversial roles in the

[5] As per its own website, the corporation, an Italian industrial group, specialised in construction and civil engineering with world-wide operations, and involved in Ethiopia since the 1960s, renamed itself "Webuild" in May 2020. In this thesis, however, I continue to refer to it by its original name "Salini" (accessed 1st June 2020 via https://www.webuildgroup.com/en/media/press-releases/salini-impregilo-becomes-webuild-bigger-stronger-and-ready-to-serve-the-nation).

hydro-politics of the Eastern Nile Basin. This context is relevant because, to date, GERD and Tana-Beles are the most significant schemes which exploit Blue Nile waters in Ethiopia by means of a direct diversion from Lake Tana, and by the massive damming of the Blue Nile River itself, respectively. At the same time, while Ethiopia's trans-boundary relations with its downstream Nile riparians with regard to Tana-Beles are not a main focus of this thesis, I show that hydro-political conflict patterns equally play out at the domestic level.

In the Eastern Nile Basin, Egypt, Sudan, and Ethiopia are sutured by the Blue Nile River. The water flowing from the source of Lake Tana in the Ethiopian highlands to the Mediterranean Sea has been referred to as the pre-historical "lifeblood" of civilisations and cultures in each of these countries (Mekonnen, 2010). However, the Eastern Nile water resources are not only bestowed with existential and emotional significance. They are also central elements in respective national imaginations of modernisation and development, as I discuss in Chapter Three. Water's indifference to political boundaries creates interdependencies between different territorial jurisdictions. In the same vein, directions of flow, hydrology, and topography imply path-dependent positions – upstream and downstream – and various hydrological governance scales – from large river-basins to small watersheds – that are not congruent with national and sub-national political administrations (Swyngedouw, 2010; Houdret *et al.,* 2014). Consecutive Egyptian governments have expressed objection to the various Tana-Beles projects, the respective details of which I discuss in Chapters Four to Six. The hydro-political history of the Eastern Nile Basin, addressed specifically in Chapter Three, provides insights into the reasons for the significant time lag between first hydro-developmentalist plans for Ethiopia's Blue Nile Basin and their incipient materialisation almost a century later.

When the late Ethiopian Prime Minister, Meles Zenawi, announced the laying of GERD's foundation stone in April 2011 to initiate the construction of the GERD, the news were unheralded and caused mixed reactions. They ranged from wide-spread popular insistence on Ethiopia's sovereignty over its share of the Nile waters to ardent threats of violence by its downstream riparian neighbours. The international reception of the announcement was equally divided. GERD raised concern as a "mega dam with potentially mega consequences" (Yousif, 2012), but it also received applause for its promise of being a "dam for development" (Hussein, 2014). However, the official Egyptian reaction was open hostility and opposition to the dam, while Sudan's positions on the GERD have been more shifting (Hussein, 2014). Academically, the study of *critical hydro-politics* is a school of thought

which links IR theory with increasingly inter-disciplinary perspectives to analyse the dynamics of trans-boundary water interactions – ranging from conflict to cooperation – in international river-basins (e.g. Sneddon & Fox, 2006; Zeitoun & Warner, 2006; Warner & Zeitoun, 2008; Cascão & Zeitoun, 2010; Miromachi, 2015; Menga, 2016, 2017). GERD has claimed a prominent place in numerous recent publications from this school. However, my work emphasises that Ethiopia's downstream Nile riparians equally considered the Tana-Beles hydro-infrastructure as highly problematic and actively opposed it.

In addition to this, I show that hydro-political conflicts do not only exist on an inter-state level, but also internally between Ethiopia's federal, sub-national, and sectoral administrations (Chapter Six). The respective Tana and Beles watersheds straddle two regional states, Amhara and Benishangul-Gumuz, whose respective upstream-downstream location places them in a similar relationship as that between Ethiopia, Sudan and Egypt. The hydrologically delineated Tana and Beles sub-basins of the overall Blue Nile (Abbay) Basin are situated in overlapping and conflicting administrative territories: that of the federal state, two regional governments, three nested basin-level organisations, and, additionally, the subsidiary local administrations (zones, *woreda*, *kebele*) in federalist Ethiopia. Rather than a unified monolith, the Ethiopian state is a mosaic with internal contradictions and hydro-political confrontations.

1.3 Conceptual contributions

The major conceptual contribution of this thesis is the notion of hydro-developmentalism, which I introduced above, and on which I elaborate in Chapter Two. One of my theoretical arguments is that the *ideology* of hydro-developmentalism as well as its political underpinnings cannot be confined to a specific era – certainly not within the timeframe studied in this thesis. It should also be considered in its own right, both before its potential materialisation and after its potential ruination. At the same time, hydro-developmentalist *practice*, that is, the physical implementation of large-scale water management infrastructure is not a straightforward, linear process. Almost an entire century passed before the idea of the Tana-Beles scheme became reality. Along the way, the idea was subject to shifting political and technological possibilities. The first Tana-Beles Project 'on the ground' (the TBP) was equally a central target during the Ethiopian civil war which overthrew the communist regime. In its aftermath, minor dams, infrastructure, machinery, and equipment were

destroyed or removed from the TBP project site; even the durability of completed infrastructural constructs is limited. Nevertheless, despite the ruptures caused by Ethiopia's political transformations from empire (until 1974) to a communist plan economy (1974-1991) to a federal democracy by constitution (1995 onwards), the hydro-developmentalist visions and aspirations of consecutive hydrologists, water engineers, and state bureaucrats have remained constant.

Each of the successive Ethiopian governments claimed intellectual ownership of both the abstract idea and of the corresponding infrastructure stitching Tana and Beles together, ideationally and physically. In fact, however, as I show in Chapter Three, the Tana-Beles hydro-infrastructure was originally devised by British colonial despatches whose service was primarily committed to the core interests of imperial power. In the early 20th century, imperial Britain's interest was *Nile Control*. There was thus more at stake with regard to the intention to construct Tana-Beles than the economic gains from its mere productive output: the possibility of domination over Egypt through the ability to technologically regulate the Nile waters. Beyond this colonial context, my work aligns with the suggestion formulated by Obertreis *et al.* (2016: 169) that "political regimes shape water management systems in their image". Thus, I argue that the Tana-Beles projects, as well as Ethiopia's historical commitment to hydro-developmentalism were significant components of the successive governments' attempts to consolidate central state power. Hydro-infrastructural technologies which reshape, regulate, direct, and divert water simultaneously carve a symbolic representation of power into the physical geography; they can redefine the spatiality of the state, and constitute a form of territorial control, reaching from the centre to the periphery (Kaika, 2006). Practical hydro-developmentalism does not only make it seem possible to 'dominate' natural forces, but also to accomplish an effective monopoly over resource extraction, availability, and distribution. However, as the title of Swyngedouw's (2015) monograph on *Contested Hydro-Modernities in Twentieth-Century Spain* captures in two words: hydro-developmentalist power is *Liquid Power* – a power which is fluctuant, and which constantly needs to reaffirm itself in light of its opposition. In this thesis I show how the hydro-developmentalist vision of supreme sovereignty over 'nature', and over the people(s) collected within the constructed idea of a 'nation', can be ruined by the very same forces which those in power seek to control. A hydro-infrastructural construct is not a durable end product.

In the following sections, I briefly outline three theoretical frameworks, the combination of which has served as an inspiration for my elaboration of the characteristics of hydro-developmentalism. The first reflection relates to the "politics of perception", which is a term I derive from Nye (1994). In my thesis, particularly in Chapters Four and Five, I contend that the constructed notion of 'development', built on the foundations of science, large technologies, and infrastructural artefacts, occludes the development disparities which the same produce. The second reflection further builds on this, in dialogue with Howe *et al.*'s (2016) "paradox of infrastructure". The authors, too, consider 'infrastructures' as underlying 'power structures', and introduce the need to pay attention to the existence of 'ruins' and 'retrofit' to understand their conflicting impacts. As a third theme, I reflect on the "production of space" (Lefebvre, 1991) in relation to the fluidity of 'Tana-Beles' as a designation for different intervention arenas. I end this section with a short description of the political geography of the artificially constructed Tana-Beles watershed.

Politics of perception

At the outset of my PhD research, an Italian newspaper's metaphor for GERD as "Africa's new locomotive [*La nuova locomotiva d'Africa*]" (Veronese, 2015) attracted my attention. Just as the concept of *development*, which Myrdal (1974: 729) defined almost fifty years ago as the "movement *upward* [emphasis added] of the entire social system," one rarely imagines a locomotive going *backward.* A locomotive is an engine purposed to powerfully push *forward* in a linear direction, without being side-tracked. Theories of modernisation, such as Rostow's (1960) stages of growth, share this notion of one-directional linearity and purport a kind of *finality* upon the achievement of the upper-most step of the development ladder. The image of the locomotive completely reforms the concepts of spatial order, distance, and the temporality of 'locomotion,' the movement of subjects and objects from one place to another. By contrast, the image does not immediately draw attention to the 'side-effects' of its very existence. Infrastructures do not only connect. They can equally bypass local environments in an exclusive exchange between the state's peripheries and a core, which retains the monopoly over distribution and consumption. Indeed, such infrastructures reinforce marginalisation and discrimination by means of inclusion and exclusion. Meanwhile, the 'locomotive' metaphor is a simplification which conveniently ignores technological development disparities.

The discourses employed in relation to GERD and the widespread admiration for the massive undertaking that it represents resonate well with Nye's (1994) idea of the "technological

sublime". Experiencing "awe and wonder" when confronted with an engineering feat can "weld society together" and become "a self-justifying part of national destiny," claims Nye (1994: xiii, 282). It is achieved by the "social construction of powerful experiences of industrial society", which he paraphrases as the "politics of perception" (*ibid:* xvi). Nye's "politics of perception" have succeeded where great masses claim emotional ownership and endorsement of technologies whose governance is, in reality, in the hands of small elite groups – whether democratically elected or not.

Based on my personal observations, however, such nearly blind faith in linear modernisation is strongest among those whose lives are already most shaped by the convenience of modern infrastructure, that is, city-dwellers. As I emphasised repeatedly above, none of the successive Ethiopian regimes instrumentalised Tana-Beles to propagandise it as a part of "national destiny" (Nye, 1994: 282). However, my thesis identifies different forms of the "politics of perception", for example with regard to the Derg's portrayal of the TBP as a massive undertaking to provide famine relief; the EPRDF's employment of 'poverty' as an alibi for the intensification of its hydro-developmentalism after the completion of the Beles MPP; and with regard to the project design of the World Bank-supported 'Tana and Beles Integrated Water Resources Development Project' (TBIWRDP). In the latter, plans for the extension of large-scale irrigation schemes in the Beles Valley within the framework of a planned Tana-Beles 'growth corridor' were cached behind the smokescreen of IWRM. Many of my interlocutors who lived in the direct vicinity of the Tana-Beles hydro-infrastructure or who had been involved in the TBP did not experience 'development' in Myrdal's sense.

The paradox of infrastructure

In relation to the above, any type of material infrastructure, whether connective (roads, rail), transformative (electricity, irrigation), or organisational (laws, policies, and legal frameworks), originates in "ideations and institutions of political power" (Boyer, 2014: 309). The latter influence how infra-structural mega-projects are planned, designed, and how they materialise. However, these ideations and their ensuing institutions are not generated overnight. Rather, they are products of long gestation periods, whilst also being subject to disruptions through fickle alliances and changing context dimensions. This thesis contributes, among others, to the literature grappling with the "great hydro-rush" (Hathaway & Pottinger, 2009) with evidence which rebuts the fantasy of infrastructural continuity. For this purpose, I draw from useful reflections, collected in an article by a group of scholars (Howe *et al.,*

2016) who insist that the conceptualisation of infrastructure demands a theory of paradox: The existence of 'ruins', these scholars argue, manifests infrastructural degeneration, decay, neglect, abandonment, and breakdown, as opposed to the more intuitive generative connotation of infrastructure. While functioning infrastructure does not necessarily indicate whether the state itself is intact, the ruins of key state infrastructures hint at the fragilities of power. Furthermore, Howe *et al.* (2016) emphasise the paradox of 'risk'. It is not only a factor which infrastructure is supposed to mitigate, but also one it creates anew. "Infrastructure can […] have direct negative impacts on populations, serving as a material channel for structural violence, war and environmental catastrophes" (Rodgers & O'Neill, 2012, quoted by Howe *et al.*, 2016: 550). The Latin prefix *infra-* translates into English as "below", thus referring to an underlying structure which serves an ulterior purpose. Sometimes the structure is visible "to assert its political and poetic effects", sometimes it is rather invisible. It appears "strictly utilitarian, [whilst] always also embodying larger structures of power", Howe *et al.* (2016: 551) find, in similarity with Nye's (1994) notion of the "politics of perception".

The production of space

Even in the context of federalist Ethiopia's legislations which provide for democratisation, decentralisation, and poverty reduction, the central state's vertical monopolisation of water and power has remained a continuity carried on from imperial and socialist Ethiopia, through to the establishment of the Federal Democratic Republic. The outcome is a 'winner-takes-it-all' system, which is both vulnerable and prone to a hostile takeover. The principles of Integrated Water Resources Management (IWRM), which are widely validated in 21st-century Ethiopia, call, among others, for the harmonisation of the relationships between diverse water stakeholders. Instead, as I demonstrate with regard to the TBIWRDP in Chapter Six, the introduction of IWRM has augmented con- and diffusion between different bureaucracies and in their respective relations to non-state water users. Here again, the central state's highest ranking government administration emerges as the ultimate gatekeeper.

Hydro-developmentalism incorporates the "making of 'waterscapes' through the respacing of basins" (Engel & Nugent, 2010). Hydrologists would argue that Tana and Beles are two separate, naturally given watersheds, or sub-basins, within the larger Blue Nile (Abbay) Basin. The hydro-developmentalist vision of colonial British engineers transformed the idea of the two sub-basins into one technologically constructed unit, stitched together by the water

transfer from Tana to Beles. However, on the one hand, the abstract idea of 'Tana-Beles' is a constant component in the vocabulary of those who planned and implemented the TBP, Beles MPP, and TBIWRDP, even if 'Tana-Beles' was only used an unofficial project designation. On the other hand, 'Tana-Beles' is fluid. As mentioned further above, my successive empirical chapters show that it translates into different (re-)productions of intervention spaces. The elasticity of 'Tana-Beles' as a project designation reflects both changing political contexts and a fluctuating spatiality of the "abstract visions of hydro-developmentalism" (Rusca *et al.,* 2018: 882) in Tana-Beles. The politics of reshaped rivers is a politics of space. The story of 'Tana-Beles' is in many ways idiosyncratic. At the same time, it is an instructive case to explore the successive Ethiopian governments' attempts to reorder the 'natural sphere', and thus to create structures of control over natural resources and humans by means of territorial *encadrement* (Clapham, 2002; Planel, 2008). My empirical chapters, in particular Chapters Two and Six, discuss the de-politicising effects of the 'production' of 'Tana-Beles' as a set of project intervention sites, but also its 're-production' and separation into two seemingly 'natural' waterscapes and governance arenas.

The political geography of Tana-Beles

In the following, I briefly contextualise the Tana and Beles watersheds within Ethiopia's overall topography and hydrology to help the reader understand and visualise the study area both in its own right and as a deeply intertwined part of a larger natural and political environment. Contrasting topographic and climatic zones exist within Ethiopia: "high mountains, high plateaus, deep gorges, incised river valleys and low-lying plains", covering a cumulative area larger than one million square kilometres (World Bank, 2006: 6). West of the Great Rift Valley, which is a large dividing canyon cutting through Ethiopia from north-east to south-west, extend the Highland Mountains. The highest peak reaches 4,600 metres above sea level (masl), before sloping down to the Sudanese plains. The joint elevation of the Tana and Beles catchments thus ranges from the northern highlands to the lowlands in the south-western area (see also Figure 1.3) with unevenly distributed rainfall and very dissimilar climatic conditions varying from cool and dry to hot and humid, respectively (Tarekegn, 2012).

Geography as a discipline bridges the human and physical sciences and it plays a "determining role in the application of state power and water control" (England & Haines, 2018: 1). Recognising the diversity of Ethiopia's, let alone the Nile Basin's human and

physical geography demands stepping beyond considerations of the juridically sovereign state as a clearly delimited and monolithic entity; that is, beyond what Agnew (1994; 2010) labels the "territorial trap". Literature that engages with Ethiopia's state formation and modernisation throughout the 18th and 19th centuries describes unequal power relations between the agriculture-based, 'Abyssinian' political elite from the northern highlands and the topographically 'distant' lowland areas which were only gradually incorporated into the Ethiopian empire (McCann, 1995; Markakis, 2011). The Italian Scaetta (1935) portrays geography as "Ethiopia's Ally." What the author refers to are the deep gorges carved into Ethiopia's central highland plateau and its major rivers and tributaries – a natural defence against invasion, in spite, or rather, because of which fascist Italy's Mussolini considered it a "stark necessity […] to extend political control over Ethiopia" (*ibid:* 62). Furthermore, authors such as Kuls (1962), described the edge of the Western Ethiopian Gojjam escarpment as a topographic dividing line between seemingly different worlds: a boundary between highland and lowland not only in terms of natural, but also cultural environment, with more sedentary farmers in the north, as opposed to more nomadic pastoralist populations in the lowlands. Dominant historiographies of Ethiopia tend to reinforce this perceived dichotomy between northern highland civilisations at the c*ore* of the empire and the lowland *peripheries* whose imperial penetration seemed to occur in line with the shape of the watershed: eastwards, southwards, and westwards (cf. Clapham, 2002; Markakis, 2011; Nyssen *et al.*, 2018). To this day, significant endowments in terms of irrigable land, pasture, and water in the lower catchments of Ethiopia's west-south-western areas are decisive elements in struggles between ethnic and political groups and have been object of speculation, exploration and transformation by myriad planners of large-scale irrigation schemes since imperial times. I further describe some physical properties and differences between the Tana and Beles watersheds in Chapter Four, while Chapters Five and Six make conceptual references to their geographical and hydro-political fault lines. The particular hydrology, topography, and political geography of 'Tana-Beles', as a constructed unified 'space', were decisive inspirations for the visions of top-down hydro-developmentalist projects from the beginning of the last century. The shape of the watershed, imagined as Tana-sutured-with-Beles, equally reflects the geographical power constellations within imperial Ethiopia, and – arguably – to the present day.

1.4 Research Design

In the following, I discuss the logic and design of my research. After a brief reflection on its underlying assumptions, I define the scope of my case study and the analytical methodology. I then elaborate on my fieldwork arrangements and challenges in Ethiopia, before presenting my methods of data collection. I close the section with some ethical considerations.

Following Creswell's (2013: 97) classification of qualitative case studies, this thesis treats the politics of hydro-developmentalism in Tana-Beles as both an "object of study", and as a "product of the inquiry". My methodology combines Yin's (2002) and Stake's (1995) considerations about case study research with the analytical tool of *process tracing*, proposed by George and Bennett (2005). In the course of this thesis, I propose a chain of arguments in relation to the general concept of hydro-developmentalism and to the particular case of 'Tana-Beles'. Correspondent with Yin's (2002) preference for a deductive research design, I derived my overarching argument, namely the postulation of a link between hydro-infrastructural development and water governance agendas and the aim to reinforce authoritarian, vertical structures of power, from the existing literature (e.g. Wittfogel, 1957; Obertreis *et al.*, 2016). My thesis explores how this link manifests itself with regard to the long-term political history of the hydro-infrastructural idea of 'Tana-Beles', and the various projects which were implemented under this label.

While Yin (2002) does not explicitly expose his basic worldviews and assumptions, my work adopts a 'critically realist' ontology. This emphasises the significance of 'materiality' – here I consider the archived proposals and plans for Tana-Beles, as well as the physical infrastructures, and institutional bureaucracies as material – whilst considering the boundaries between objects, instruments, nature, language, and human observations as permeable, imagined constructs (Barad, 2007). Critical realism assumes the possibility of objective truths, but emphasises that this 'truth' can only be imperfectly known (Guba & Lincoln, 1994). An example is the acknowledgement that hydrological watersheds exist, along with the relativist perspective of their delimitation as an exercise of social construction. According to Nabers (2007: 17), "[i]t is without doubt that real practices and processes exist and that they exist independently of whether we recognise them or how we represent them" (see also Fairclough, 2003). However, "[w]hen people communicate with each other, they negotiate about meanings. Through their communication, they produce and reproduce reality" (Fairclough, 2006: 5).

My epistemological approach to the case study thus aligns mainly with Stake's (1995: 99) constructivist position that "knowledge is constructed rather than discovered". As opposed to Yin's more positivist idea of a rigid, predefined research design, the process of my data collection and analysis was inductive and interpretivist (Cochran, 2002: 526; Bryman, 2008). Consequently, new theoretical proposals emerged from the constant "working back and forth" between my data and comprehensive themes and patterns (Creswell, 2007: 45). Thus, I developed complementary arguments to the above point that hydro-developmentalist aspirations and projects are political undertakings which support the consolidation of central state power. Based on my empirical findings, I contend that hydro-developmentalism is inherently fragile and vulnerable to competing forces outwith and within the state; that the ideology is not confinable to a specific era; and that hydro-developmentalism is a non-linear, fluid phenomenon. 'Tana-Beles' is a case in point which demonstrates the ruination of both ideational and material constructs of hydro-developmentalism. However, 'ruins' do not necessarily constitute permanent end products. My case study also led me to rethink the nature of the successive governments' power with regard to their dependence on foreign project partners to co-produce and implement their hydro-developmentalist agendas, and to reinforce the hierarchical relationship between the state and its subjects. I thus argued that hydro-developmentalism has profound political underpinnings, which are occluded, for example, by the economic significance of hydro-infrastructure.

Process-tracing as an analytical tool

Further above, I already mentioned a number of justifications which make 'Tana-Beles' an intriguing case. Like the GERD, the Tana-Beles scheme is hydro-politically relevant in the Eastern Nile Basin, but it has been scarcely researched in light of its political significance, both regionally and domestically. In this thesis, due to the limitations of funding, time, and accessibility, my primary focus is on the domestic realm, but I address the hydro-political context in Chapter Three in some detail as a fundamental background. Tana-Beles is a large, multi-purpose infrastructure with two major economic functions: the generation of hydro-electricity, and the facilitation of large-scale irrigation. However, the fact that Tana-Beles also is a highly political intervention is underscored by the remark of Annys *et al.* (2019) that the inter-basin water transfer between Tana and Beles is *atypical*. The abundant annual rainfall in the Beles Basin means that its land does not depend on irrigation to be cultivable (*ibid.*). To understand the political significance of 'Tana-Beles', thus, I found it necessary to explore the historical origins of the scheme. Therefore, the time-frame of my case study,

within which I consider 'Tana-Beles' in its various manifestations and contexts, begins in the early 20th century, and ends with the conclusion of my fieldwork in 2019. While the idea and materiality of the Tana-Beles hydro-infrastructure are the starting points for my definition of 'Tana-Beles' as a case, I consider the 1980s Tana-Beles Project (TBP), Tana-Beles Sugar Factory, and the recent Tana and Beles Integrated Water Resources Development Project (TBIWRDP) as important components of the story in relation to and within the definition of this case. Throughout my research, I discovered that the hydro-developmentalist idea of Tana-Beles had been envisioned the successive governments of Haile Selassie, Mengistu Hailemariam, and Meles Zenawi, but attempts to realise it had repeatedly failed. In this vein, I did not only look for answers to the question why the infrastructure could not be implemented for almost one hundred years. More so, I scrutinised what tactics the respective governments and foreign project partners jointly employed to strategically *de-politicise* the undertaking in terms of its highly controversial political, social, and environmental implications. As one aspect of this, I looked for discrepancies between public discourses and the impacts of practical hydro-developmentalism.

As an analytical tool for my case study, I built on George and Bennett's (2005) approach of *process tracing.* According to Collier (2011: 824):

> […] process tracing focuses on the unfolding of events or situations over time. Yet, grasping this unfolding is impossible if one cannot adequately describe an event or situation at one point in time. Hence, the descriptive component of process tracing begins not with observing change or sequence, but rather with taking good snapshots at a series of specific moments.

While I have argued that hydro-developmentalism *itself* is not a linear process, I nevertheless decided to trace the shifting political dimensions of and justifications for Tana-Beles "over time", as this allowed me to structure my empirical chapters according to the respective contexts of imperial, communist, and federalist Ethiopia. "Intensive description" and the consultation of "a wider literature to understand the theoretical background" are crucial building blocks of process tracing (Collier, 2011: 824). In this sense, the snapshots I present are the colonial and high-modernist imaginations of modernity in imperial Ethiopia; the implementation of the TBP in the context of the grave mid-1980s Ethiopian famine, as well as the impacts of the project's abrupt abandonment after the 1991-transition; the realisation of the Tana-Beles hydro-infrastructure at the peak of Meles Zenawi's reign in the 21st-century 'new Ethiopia'; and the recent World Bank-supported advance towards institutionalised

hydro-developmentalism in Tana-Beles, along with Ethiopia's paradoxical policies of decentralisation and IWRM. My thesis is an in-depth "within-case" study, at the same time as it analyses a myriad of "facets", contexts and perceptions surrounding it (Collier, 2011: 829).

Fieldwork in 'closed political spaces'

In the context of my doctoral research, I lived in Ethiopia for several prolonged phases of fieldwork between 2017 and 2019. This began with a three month 'scoping mission' at the end of 2017, during which I decided to shift my case study from GERD to Tana-Beles. Obtaining research clearance in Ethiopia is not easy. The general context of officialdom demanded not only timely planning and continuous reflexivity about my own role and performance as a researcher, but also about the implicit "perils of fieldwork as a form of evidence" in the context of 'closed political spaces' (Cramer *et al.*, 2016: 10; Fantini, 2017). My fieldwork coincided with a tumultuous period in Ethiopia. Following protracted anti-government unrest which had begun to escalate in October 2015, the country was under several states of emergency throughout the following years. The protests culminated in the resignation of the former EPRDF Prime Minister, Hailemariam Dessalegn, and in the ascension to power of the current leader Abiy Ahmed. 2018, which was the year I officially launched my fieldwork, was a year of transition and renewal in Ethiopia. It was a hopeful year. It cannot be denied that I had a good portion of luck, concerning the timing of my fieldwork. Previously known as one of the countries with tight restrictions on public opinion, surveillance of journalists and researchers, internet shutdowns, and cases of imprisonment or deportation of individuals publishing anti-government statements (cf. Tronvoll 2010; Cramer *et al.* 2016), Ethiopia's new administration fostered a discourse of openness, reconciliation and the release of the long-repressed freedom of speech. The time between 2018 and 2019 was a unique window of opportunity to conduct the fieldwork I did. Meanwhile, today, in 2021, tensions between ethnic groups and between antagonistic elites have erupted again. Along with the military confrontations between the national defence forces and the Tigray regional state, starting from November 2020, the current government has returned to strategies of repressing opposition, imprisoning politicians and journalists, expelling foreign correspondents and researches from the country, and temporarily shutting down the internet again.

According to current visa regulations, it is necessary for foreign researchers to affiliate with an inviting organisation based in Ethiopia which in turn submits a formal application letter to

the Main Department of Immigration and Nationality Affairs in Addis Ababa.[6] In my case, sorting out this issue took several months. Eventually, thanks to a recommendation from a professional contact, I was able to establish an affiliation with the Eastern Nile Technical Regional Office (ENTRO), a branch of the Nile Basin Initiative (NBI). After several failed attempts to establish a research affiliation with academic institutions, the contact, whom I have known for some years through my previous employment in Addis Ababa with the German Development Cooperation, proved a door opener. As Emmel *et al.* (2007) put it: "trust is built upon the credible accounts of others who have an experience of those to be trusted." The NBI is an inter-governmental partnership between the eleven riparians of the Nile, established with World Bank support in 1999. It breaks with earlier technical cooperation platforms that existed between the countries from the 1960s onwards, and pursues the objective "to achieve sustainable socio-economic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources."[7] ENTRO is one of three regional centres of the NBI, headquartered in Addis Ababa. My cooperation agreement with ENTRO involved my participation in activities relating to its 'young professionals programme'. In this context, I delivered two presentations about my research for a group of interns from Egypt, Sudan, South Sudan and Ethiopia, as well as ENTRO staff, co-hosted an internal workshop on Water Diplomacy, and participated in conferences, and training activities. At ENTRO, I was not only generously offered an individual office space. I also received significant support with regard to accessing high level informants, and arranging logistical support through the Abbay Basin Authority in Bahir Dar for my field trips.

Methods of data collection

My analysis is informed by four sources of empirical data: archives, interviews, site observations, and a review of relevant grey literature, the latter including technical project documents and official Websites, as well as Ethiopia's contemporary policy frameworks on decentralisation and water governance, among others. To study the original imaginations, blueprint designs, feasibility studies, and project reports relating to Tana-Beles, I consulted the archives at the library of the Ministry of Water, Irrigation, and Electricity (MoWIE). I

[6] Cf. Embassy of the Federal Democratic Republic of Ethiopia in London, Consular Services, accessed 6th June 2017 via http://www.ethioembassy.org.uk/consular_services/visa.htm

[7] Cf. Website of the Nile Basin Initiative (NBI), 'Shared Vision Objective', accessed 12th March 2018 via https://nilebasin.org/

also discovered relevant historical notes and correspondence, for example, from a colonial British consul, who had been stationed in an area near Lake Tana in the 1920s, as well as technical reports about the 1980s famine in the library of the French Centre for Ethiopian Studies (CFEE) in Addis Ababa.

I arranged three separate field trips outside of Addis Ababa. First, I travelled to Bahir Dar in September 2018 to interview, among others, representatives of the Abbay Basin Authority, the Tana Sub-Basin Organisation (TaSBO), the respective bureaux of Water and Agriculture of the Amhara regional state, and other relevant stakeholders about the TBIWRDP (implemented 2008-2016). In March 2019, together with a research assistant, Getnet Taye Bawoke, a geologist employed by Bahir Dar University, I travelled to Gilgel Beles, Almu Town, Pawe, Jawi and surrounding areas in the Beles Valley to explore the former project sites and the remaining infrastructures and ruins of the TBP (1985-1991). Here, we conducted semi-structured interviews, mainly in Amharic, with several first- and second-generation resettlers, local residents, employees of the more recently established Tana-Beles sugar factory, and local officials. We also collected ethnographic and visual data, noted observations in a fieldwork diary and explored the biophysical properties of the Beles River. The following week, we travelled to an area near Kunzila on the south-western shore of Lake Tana, after we had obtained authorisation to visit the Tana-Beles hydro-infrastructure (also referred to as Beles MPP, constructed between 2005 and 2010). The area is heavily guarded and not accessible without explicit permission. Our affiliations with ENTRO, the Abbay Basin Authority, and Bahir Dar University were key advantages in moving past the gate-keepers. On this part of our fieldwork, where we did not have the opportunity to roam without our designated guide from the Ethiopian Electric Power Corporation (EEPCo), we again collected a large amount of visual data, as well as ethnographic observations, but also information surfacing through informal conversations.

Semi-structured interviews and unstructured conversations formed one of the foundations of my data collection. Apart from the informants mentioned above, I spoke with various public officials and both Ethiopian and international experts, who were mainly based in Addis Ababa. I conducted two interviews via Skype. I provide details about their positions in the appendix. In Figure 1.5, I list the main categories of informants. My sampling approach was strategic with regard to the backgrounds, profiles, or positions of my respective interlocutors,

but the actual interviews I was able to conduct were, in a number of cases, the results of serendipity.

Figure 1.5 *Interviews conducted between 2017 and 2019*

Category	Number of interviews/ conversations
Current or former Ethiopian public officials or civil servants at MoWIE, basin-organisations, regional bureaux	16
EEPCo staff members	3
Ethiopian and international technical experts, engineers, and water resource specialists who were involved in the Tana-Beles projects	14
Ethiopian experts, independent or employed by NGOs	5
Ethiopian experts at academic institutions	4
Foreign experts (NGOs, diplomatic positions, academic)	5
Local populations in the Beles Valley, including former 1980s resettlers, Gumuz people, employees of the Tana-Beles sugar factory, managers of small farms established under the TBP in the Beles Valley	19
Conversations with local residents near Kunzila, at a small *suq* (shop) before the entrance to the Beles MPP project site	2
Other	5

The value of, and some caveats regarding the use of visual material

The use of images, but also of other forms of visual material has gained increasing traction in social science research, including in studies dealing with issues concerning water governance (Fantini, 2017a). In three of my empirical chapters relating to the earlier visions and physically implemented Tana-Beles projects, I complement the written analysis of my findings with images (i) of archival material (Chapter Three); (ii) of sites, people, material, infrastructure, and ruins encountered during fieldwork (Chapters Four and Five); and (iii) of partial satellite views of the Tana-Beles hydro-infrastructure (Chapter Five). In addition to this, the above maps (Figures 1.1 – 1.3) provide the reader with an abstract notion of where to

locate the Tana-Beles hydro-infrastructure in the political geography of the Eastern Nile Basin, within Ethiopia's administrative boundaries, and within the unique topography of each of the respective sub-basins.

A growing body of articles within the broader field of development studies features participatory visual research methods for the purpose of giving a voice to and empowering local communities (Fantini, 2017a; 2019). Photos, maps, aerial images, and even videos, are powerful tools of storytelling beyond the written word, and can add empirical weight to research which seeks to inspire knowledge from the perspective of those, or that, to be researched, and to possibly influence policy making. In the case of this thesis, the visual material I present is primarily intended as documentation and validation of my textual analysis through the inclusion of the 'objective' imagery. This should serve demonstrative and comparative purposes. However, both the selection and the interpretation of such imagery is always a matter of individual subjectivity. I thus treat the visual material in my thesis as supportive evidence. It should be understood as exemplary, yet not exhaustive. I selected these images from a large pool of data because I considered them to convey an easily 'readable' message in relation to my analytical narrative, without too extensive additional explanations. The images help the reader form a more concrete conception of the research subjects. In Chapter Three, for example, the selected images do not only show how the Tana-Beles vision was materially captured in archived historical documents. They also give an idea about how foreign and Ethiopian project partners related to each other in the 1950s-60s, as conveyed by the body language of three persons depicted in Figure 3.3. Maps and satellite views, in turn, provide information which is measurable and which marries socio-scientific methods with those of the natural and quantitative sciences. In Chapter Four, I present images of the Tana-Beles Project at the peak of its implementation in the 1980s and its remnants in 2019 to provide a comparative perspective between construction and ruination. In Chapter Five, the photos attest, on the one hand, to the materiality of the Tana-Beles hydro-infrastructure; on the other, to the lost opportunities of the Sugar Development Factory. I thus seek to draw the reader closer to my experience of and in the field, as well as the elements which attracted my attention during the collection of data. However, it should be noted that the employment of visual material equally entails the risk of the social construction of one particular narrative. Photographs, maps, and other types of visual data can only capture a certain frame – one which is consciously or sub-consciously determined by the photographer or researcher. While such material might foreground certain aspects, it might equally factor

out other objects and living beings whose presence or absence could change the signification of the image entirely. An example of the misleading potential of visual data is the following. When driving between the water inlet, the power station and the tunnel outlet of the Tana-Beles hydro-infrastructure, some parts of the road were tarmacked; others were not. A sole image of either one section of this road – tarmacked or gravelled – could lead to the false assumption that the entire road was either this or that. The purposeful in- and exclusion of visual information acquires even greater sensitivity when it comes to the depiction of human conditions and discrepancies. Photographs are by default bound to frames which only present fractions of whole ensembles. The example shows that images require contextualisation, which can be given in written or oral form. Capturing complex research settings through imagery remains useful, especially if longitudinal, comparative data of the same motives were to become available in the course of time, in order to demonstrate continuity and change. Future research concerned with visions and materialities of hydro-developmentalism could in this way add value and strongly benefit from existing and future visual material in order to document its long-term circular manifestations and ruinations.

Further ethical considerations

The overall process of conducting research for this PhD thesis demanded a significant level of "adaptive capacity" (Giezen *et al.*, 2015), both from me as a person and from my research design. I moved in and out of spheres or interfaces of seemingly separate but deeply inter-connected 'worlds' which cannot be reduced to simple binaries, such as academics and practitioners/policy-makers, capital-city-based officials and local farmers, urban and rural, highlands and lowlands, upstream and downstream. My own positionality in the field and the expectations tied to my persona were equally issues which I had to manage carefully. During my field visits to the Beles Valley and Kunzila, I was able to discuss this with my research assistant who excellently helped explain the purpose of my visit, especially to those informants pinning hopes on the revival of the old Tana-Beles Project in the Beles Valley. However, the same amount of reflexivity was required during my interviews with high level informants in Bahir Dar and Addis Ababa. Given the political sensitivity of the subject matter, my interest in the long-term trajectory of 'Tana-Beles', rather than a specific intervention as a standalone object of analysis, had a mitigating effect. Yet, my research touched upon controversial themes and issues. Because of the unpredictability of the current

political situation in Ethiopia, I discussed and agreed with all my interlocutors about their anonymity.

A brief final remark about the disciplinary divide between the sciences seems appropriate. This was a recurrent issue in my encounters with water management professionals, hydrologists, geologists, engineers, and other experts in these 'hard' sciences during my time in the field. Our interactions allowed us to grapple with the sometimes contradictory basic assumptions and epistemologies of the different disciplines. While my inductive and interpretive form of inquiry sometimes proved difficult to reconcile with the inherently positivist scientific approaches of my counterparts – and vice versa – the profound exchanges and discussions, especially with my temporary 'colleagues' at ENTRO, were an invaluable opportunity to broaden my own intellectual horizon and to better appreciate the importance and value of inter-disciplinary dialogue.

1.5 Thesis structure

This thesis breaks into seven chapters. Chapter Two expands on the theoretical frameworks which informed my conceptualisation of hydro-developmentalism. Chapters Three to Six present empirical findings from my fieldwork, while Chapter Seven synthesises the objectives, arguments, and main themes of the thesis as a conclusion. Here, I present a brief outline of the main chapters.

As a framework, hydro-developmentalism denotes both the *ideology* and the *practice* of imagining, designing, and implementing large-scale, multi-functional water management schemes as projects of state infrastructure. In Chapter Two, I foreground the plurality of functions and purposes, both explicit and implicit, of hydro-developmentalist ideas and infrastructures to show that these can manifest in a variety of forms which I discuss in the course of the thesis: for example, archives, technologies, ruins, or institutions. At the same time, hydro-developmentalism enables ruling governments to invoke engineering solutions to problems of a national scale, whilst reshaping local rivers and hydrological river-basins into political spaces. I engage with social constructivist interpretations of rivers and the 20th century concept of river-basin management as components of purposeful *designs*. I then explore the evolution of so-called "hydraulic missions" and "hydraulic bureaucracies", which are concepts emerging from sociological perspectives on water management (Mollinga, 2008;

Molle *et al.*, 2009). Based on this background, I further expand my notion of hydro-developmentalism by drawing attention to its assembled nature. While hydro-developmentalism supports both the mentality and the practice of top-down governance, I argue with reference to my case study that it is equally dependent on the foreign expertise to implement it, and that both figurative and material ruins reflect its vulnerability to contestation.

Chapter Three explores the evolution of hydro-developmentalism in imperial Ethiopia, covering the timeframe from the early 20th century to 1974, in order to show that the first hydro-infrastructural plans for the Blue Nile Basin, and for Tana-Beles, derived from the imaginations of foreign civil servants. I discuss British colonial visions of *Nile Control*, as well as the collaboration between the US Bureau of Reclamation and the Imperial Ethiopian Government, which significantly shaped the latter's hydro-developmentalist modernisation agenda. As a second objective, the chapter provides reasons for why the Tana-Beles hydro-infrastructure did not materialise during Haile Selassie's reign, referring to frictions between science and politics, the contentious history of Eastern Nile Basin hydro-politics, the Cold War, as well as the internal weaknesses of the imperial bureaucracy. With regard to the latter, I particularly highlight the inadequate response to the 1970s famine in Ethiopia.

A decade later, the mid-1980s Ethiopian famine provides the entry point to Chapter Four. The purpose of the chapter is to shed light on the rise and the ruination of the first physical intervention relating to the imperial plans: the Tana-Beles Project (TBP). I show how the characteristics of hydro-developmentalism emerge in the Ethiopian-Italian cooperation project. The TBP was divided into two parts, the first of which was dedicated to the resettlement of famine victims and large-scale agro-industrial development schemes in the Beles Valley. In the wake of the Ethiopian civil war, the TBP intervention site turned into a strategic battle field. The Derg regime was overthrown and the project abandoned before its second part, which had aimed at the construction of the Tana-Beles hydro-infrastructure, could even be launched. Therefore, the chapter concentrates the analysis on Part I of the TBP, which occurred in the Beles Valley. I highlight political controversies of the Italian support, both from the Ministry of Foreign Affairs and Salini Costruttori/Impregilo, to the authoritarian Derg regime and the complicity of both governments in portraying the TBP as a humanitarian intervention, rather than part of a hydro-developmentalist agenda. To underscore the notion of a "politics of perception", I present conflicting views of Italians and

Ethiopians involved in the TBP, as well as impressions of ruination gathered during fieldwork.

In Chapter Five, the imperial vision of Tana-Beles turns into reality. The context is the EPRDF's authoritarian developmental state and Salini Impregilo's service to it with regard to the materialisation of the Beles MPP and with regard to a continued "politics of perception". The chapter revolves around the ambiguities and contradictions inherent in the EPRDF's and Salini's practice of their hydro-developmentalist ideology, with an emphasis on the discrepancy between discourse and delivery. While the political discourse in post-millennial Ethiopia popularised the concept of 'renaissance', the government occluded the ruins of the failed TBP, which the previous liberation movements under the EPRDF itself contributed to destroy. Salini and its sub-contractors, in turn, contributed to the de-politicisation of the politically sensitive Tana-Beles hydro-infrastructure, which the company built at a record pace between 2005 and 2010. The chapter provides detailed observations and reflections on spatial inequities, as well as the infrastructure's symbolic meanings, and practical ramifications for local communities in its vicinity and further downstream. Meanwhile, the Tana-Beles water diversion avails water for large-scale irrigation in the Beles Valley. Before concluding, the chapter reflects on the status of the Tana-Beles Sugar Factory as a new hydro-developmentalist ruin.

Chapter Six moves the focus from the Tana-Beles hydro-infrastructure itself to the institutional realm. The chapter builds its analysis of the World Bank-supported 'Tana and Beles Integrated Water Resources Development Project' (TBIWRDP) on a chain of arguments. First, I argue that both Ethiopia's ethnic federalism and the adoption of IWRM served as veils for a continued centralisation of power, especially with regard to the elite's hydro-developmentalist agenda. For this purpose, I examine the political context of the EPRDF's decentralisation reforms as space-making processes to construct, on the one hand, ethnicity-based regional states, on the other, waterscapes to be governed by river-basin organisations (RBOs). Second, I argue that the TBIWRDP exemplifies the failure to integrate and harmonise the interests of competing bureaucracies and sectoral agencies under the umbrella of the multi-dimensional project. Third, I claim that the design of the TBWIRDP served to de-politicise the inherently hydro-developmentalist project component to establish a Tana-Beles growth corridor, based on extended large-scale irrigation infrastructure in the Beles Basin. This happened by means of the World Bank's and the MoWIE's co-productions of space – the undoing of 'Tana-Beles' into two separate sub-basins – and by means of

bureaucratic over-organisation, or "arena-shifting" (Flinders & Buller, 2006) through the creation of the separate Tana Sub-Basin Organisation (TaSBO) and Beles Sub-Basin Organisation (BeSBO). The EPRDF government's major interest in the TBIWRDP was the growth corridor component. However, the World Bank dropped this component halfway through the implementation of the project. By presenting divergent perspectives on the closure of the TBIWRDP and the government's refusal to commit to a second phase of the multi-dimensional intervention, I highlight its stakeholders' perceptions of potential and missed opportunities. Thus, the chapter again demonstrates the fickle political possibilities for hydro-developmentalism to materialise in Ethiopia.

Chapter Two

The ideology, practice, and ruins of grand water management schemes: Conceptualising hydro-developmentalism

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> We alone have the power of controlling the most violent of nature's offspring, the sea and the winds [...]. Likewise the entire command of the commodities produced on land is vested in mankind [...] the rivers and the lakes are ours [...] we give fertility to the soil by irrigating it; we configure the rivers and strengthen or divert their courses [...] by means of our hands, we try to create, as it were, a second world within the world of Nature.
>
> Cicero, *De Natura Deorum* XIX, 60: 152 (45 BC)[1]

2.1 Introduction: Hydro-developmentalism

In this chapter, I develop hydro-developmentalism as a general framework which captures both the *ideology* and the *practice* of imagining, designing, and implementing large-scale, multi-functional water management schemes as projects of state infrastructure. On the one hand, these projects materialise as extensive technologies for hydropower generation, irrigation, or water storage, regulation and diversion, and have direct transformative impacts on social and biophysical environments. On the other hand, the ideology of hydro-developmentalism translates into institutional and bureaucratic infrastructure that serves the governance of watersheds, rather than political constituencies. Hydro-developmentalism arises from an assemblage of "global and local, public and private […] agents and normativities" (Abrahamsen & Williams, 2009: 3). From the 20th century until the present day, political decision-makers have tended to mobilise hydro-developmentalist discourses in order to justify infrastructural interventions within contexts of actual or projected emergencies, such as floods, droughts, and famine, as well as scenarios of water, food, and energy scarcity. Specialised groups with an expert status in fields relating to hydrology, civil engineering, and geology are involved in the production of blueprints for such interventions, dressing them in apparently apolitical vesture. Large infrastructure projects require large construction enterprises and their sub-contractors in order to turn water into a major infrastructural economic and developmental asset.

[1] Translation by Rackham, H. (1951), London: William Heinemann Ltd, pp. 269-271

In this chapter, I argue that hydro-developmentalism enables ruling governments to invoke engineering solutions to problems of a national scale whilst reshaping local rivers and hydrological river-basins into political spaces. Neither the overall dissertation, nor this chapter are to be understood as categorically dismissive of hydro-infrastructure. My intention is rather to unpack hydro-developmentalism as a "distinctive practice, system, […] philosophy, [or] a political ideology,"[2] and to explore – in the course of this thesis – how it may contribute to and corroborate attempts at consolidating vertical structures of central state power. From this perspective, hydro-developmentalism obtains a political significance, which also makes it subject to contention. In the case of Tana-Beles, the respective projects' controversy takes shape not so much within the networks of knowledge-based experts, which Haas (1992) refers to as *epistemic communities*, but rather between rival political forces, both trans-boundary and domestic, and between competing sectoral bureaucracies.

While local opposition to hydraulic infrastructure does not constitute an explicit theme within this thesis, different perceptions of infrastructural and ideational 'ruins' do. I address the myriad types of ruins further below and in the empirical chapters of this thesis, in order to demonstrate the fickle nature of hydro-developmentalist politics. Examples include: archives filled with duplicates of almost identical feasibility studies and development plans commissioned by different consecutive governments; emergency relief programmes that have turned into abandoned project sites; local populations marginalised from and pushed aside by the state's infrastructure; dysfunctionalities resulting from the lack of maintenance of basic infrastructure and machinery; incoordination instead of synergy between different subsidiary bureaucracies and sectoral agencies; and abrupt project closures, while major infrastructural interventions continue to remain under the auspices of central government sovereignty. Based on these examples, which derive from my case study of Tana-Beles, and which are further elaborated in the ensuing empirical chapters, I show throughout the thesis that hydro-developmentalism is neither a one-dimensional, nor an irreversible process. This finding, in turn, illustrates the high stakes involved in the hydro-developmentalist capture of water resources and infrastructure for governments seeking to consolidate central power, as well as their vulnerability. Contrary to Rostowian modernisation theories, which purport the notion of an upper-most, final development stage, I introduce hydro-developmentalism as a circular and fluid, rather than a linear concept. It is characterised not only by "high modernist" (Scott 1998: 4) attempts at "re-ordering […] social and natural spaces by means of technological

[2] This is how the Oxford English Dictionary defines the semantics of the suffix *–ism.*

and infrastructural interventions", but also by its profound interlocking with local, domestic and transnational dynamics which challenge incumbent power structures. Both features – the official resort to hydro-developmentalism and the political contestations between different stakeholders at multiple levels – resurface consistently across different government eras in the Ethiopian case study.

In this chapter, I revisit various sociological theories about large-scale water-management projects in order to elaborate the notion of hydro-developmentalism in dialogue with literature from the inter-disciplinary fields of political geography and political ecology. Not only large dams, but various types of hydraulic infrastructure must be considered as hydro-developmentalist enterprises, which are planned by expert groups and realised on behalf of governments within river-basins as implementation units. Chapter Two is structured as follows: Firstly, in Section 2.2, I consider the practice of river-basin development and management from a historical and political perspective. I address the politics behind the definition of 'rivers' and the delimitation of 'river-basins', considering Mitchell's (2002) concept of techno-politics and Da Cunha's (2019) more recent work on *The Invention of Rivers*. By treating rivers and their catchments as simplified abstractions, experts make nature calculable, designable and engineerable, while technical artefacts enable governments to manifest political objectives. In a second step, Section 2.3 engages with literature on the evolution of so-called national *hydraulic missions* and hydraulic bureaucracies – *hydrocracies* (Molle *et al.,* 2009). In Section 2.4, I further elaborate on the notion of hydro-developmentalism by emphasising two dimensions which add to the literature discussed in the previous section: the role of transnational expertise in the construction of hydro-developmentalist dreams and artefacts, and the presence of 'ruins' indicating their decomposition. Finally, I conclude, the top-down governance mentality of hydro-developmentalism derives from its foundational philosophy, rooted both in ancient ideas of human domination over nature, and in colonial ventures of exploitation and control. The following two sections explore the ontology of rivers and the evolution of river-basin management as a concept.

2.2 From rivers to the politics of river-basin management

For millennia, different civilisations have sought to transform nature through "the orderly marshalling of water resources [...] to promote human welfare" (UN, 1958/1970; Scudder, 1994: 102; Molle 2006: 2).[3] Freshwater is the most timeless and existential resource to mankind. In its natural appearance throughout rivers and lakes, *water* is so much taken for granted that there has been little theoretical scrutiny of its inseparability from and constant dialogue with *land* (Tvedt, 2010). How water and land interact, however, is of great social significance, in particular for those populations living in the immediate vicinity of a river, wetland or lake. In this vein, mobile and nomadic populations adopt a flexible synergy with seasonal cycles of floods and receding water, while firmly settled ones tend to live alongside waters regulated by different types of constructed infrastructure and institutions which treat water and land as separate entities. The creation of new technological artefacts, which transform previously unregulated flows of water, equally demand adaptive capacity from populations, both mobile and settled, near the infrastructure. Further, the hydrological delimitation of river-basins as spatial units of analysis, employed systematically since the late 19th century (Molle, 2006), and the present day's particularly ubiquitous approach towards *integrated water resources management* (IWRM) are manifestations of how scientific expert-communities and political decision-makers continuously attempt to deal with the interconnectedness of physical and human geography – with great variance in terms of intent and outcome.

The "ontological violence" called 'river'

A novel branch of post-colonial ecology research has recently begun to turn the imagination of 'rivers' upside down. If we look at political maps – but also physical or topographic ones, or satellite images, for that sake – rivers are usually represented as simple lines, perhaps meandering, but yet as rather clear, straightforward lines. Such images are static representations of dynamic realities, for example, the cyclical rise and fall of water levels. Blue appears to be the most intuitive colour code for water, although the most nutrient-rich rivers tend to be brown. Such superficial depiction with its strict separation between land and water is, of course, only a momentary and symbolic one. The simplification is useful for general orientation, but in present-day cartography, for example, it counts as established fact

[3] Molle (2006) points, among others, to large-scale irrigation schemes in ancient Mesopotamia, ancient Chinese knowledge of hydrological cycles and Roman as well as Arab hydraulic infrastructures, starting from almost 3.000 years B.C.

that rivers *per se* are neither reliable nor legally tangible boundary markers. Following Da Cunha (2019), rivers – aside from being natural phenomena – are culturally (re-)constructed for human purposes. His work is groundbreaking in that it questions the dichotomy between land and water and unveils the 'river' as "a remarkable feat of *design* [emphasis added] made possible through the drawn line" (*ibid*: x). To justify this claim, Da Cunha (2019: xi) points to the hydrological cycle as a whole which describes "when 'watery stuff' is precipitating, seeping, soaking, evaporating, and transpiring in ways that defy delineation." Within this cycle, rivers are merely "products of a particular moment in time" (*ibid.*); they are mobile and in constant flux. Instead of the binary assumption of a division into 'wet' and 'dry' in which the designation of 'rivers' is the result of human intention, the author proposes an unconventional ontology: rivers as "open fields of wetness that rise and fall", co-acting with factors such as precipitation and climate (*ibid*: ix). From this viewpoint, floods are no longer violent transgressions of an imagined line. Much rather, the reduction of the "wetness ecology" to the linear idea of a contained, bounded 'river' amounts to "ontological violence", in Da Cunha's terms. The important questions Da Cunha raises, also in collaboration with Anuradha Mathur,[4] revolve around the significance of perspective: "How do we perceive things, draw things, look at things? How does *design* [emphasis added] begin?" – even the social *design* of what we consider nature?

The imagination of rivers as delimitable commodities is at least as old as ancient philosophy, or as Da Cunha puts it, as the "Alexandrine" geographical worldview, formed during the early conquering missions of the 4th century BC. This historical view of domination over land and water resources which is "vested in mankind", as Cicero states in the introductory quote to this Chapter – the view that mankind can "create a second world within the world of Nature" by "configur[ing] the rivers" and irrigating the lands, is just as relevant in the present day.[5] At the same time, Da Cunha's perspective which emphasises the profound ecological interdependencies between water and land, and their autonomous agency regardless of, and relating to, human existence has gained increasing traction in other recent research (e.g. Linton, 2010; Swyngedouw, 2015; Smit, 2019). The empirical data collected for this thesis does not specifically trace the genealogy, nor does it argue for or against conventional versus alternative conceptions of 'rivers', for which Da Cunha nevertheless makes a compelling

[4] See for example: GIDEST video (August 2017) "Anuradha Mathur and Dilip Da Cunha – Wetness Everywhere", accessed via Vimeo (https://vimeo.com/228719234) on 18th March 2018.
[5] According to the Latin original: *Terrenorum item commodorum omnis est in homine dominatus.* Cicero, *De Natura Deorum* XIX, 60: 152 (45 BC)

case. However, the intellectual approach which critically scrutinises existing patterns of articulation, conquest and governance of nature and, by extension, people is foundational for the understanding of hydro-developmentalism. From a social constructivist perspective, humanly devised perceptions and designs – whether they are ingrained or imposed – tend to form the basis of what we treat as reality, our ontology. Nature and water are certainly objective realities in themselves. However, their re-construction and transformation into depersonalised, calculable assets for the development of structures which change the land-/waterscape in such a way that facilitates its regulation in the interest of a central ruling power is a deeply political act. Hydro-developmentalism therefore represents more than merely the organisational aspects of creating hydraulic infrastructure. It is a political concept and philosophy, inextricably linked by its relation to nature. In the context of the Nile Basin countries, Ertsen (2016) and Smit (2019), among others, explicitly analyse this intertwined agency of not only humans, but also of technological artefacts and natural forces, which withstand and transform man-made development interventions in unexpected ways. In this thesis, however, I rather focus on the purposeful (re-)construction of waterscapes to let them serve as scientifically justifiable territorial orders.

River-basins: The political re-construction of natural spatial units

The core of hydro-developmentalist philosophy and practice originates from early scientific and 'commonsensical'[6] observations of the hydrological cycle, topography, geology, and climate. By way of example, the Nile or the Beles, rather than simply being 'rivers', and similarly Tana as a 'lake', are arteries within complex systems – drainage basins – which are not confined to single elements or politico-administrative boundaries. A drainage- or river-basin can be loosely defined as the hydrological area of land which accumulates precipitation and channels the water through a system of streams and rivers into the same outlet, such as the sea, a river, an inland lake, or wetland (Pegram *et al.*, 2013: 17). Its contours are determined by the watershed line, that is, the highest point of topographic elevation from which water flows downward into the catchment area. In this vein, a river is *neither* a straightforward geometrical line, *nor* is it a singular line. Rivers must be understood as a plural form of interweaving pathways, through which they carry variable volumes of water. A main river is only the aorta, or confluence, of an arbitrary amount of tributary rivers and

[6] A senior government official at the Ministry of Water, Irrigation and Energy (MoWIE) employed this term upon the question how river-basins and sub-basins are identified and delimited. (Interview XVII, 05/2018).

streams, feeding into it from one or more sources within the same watershed[7] or catchment area.

River-basins hence denote a physical geography found within a dynamic *space*; a space that is political and contestable, as Lefebvre (1991) would argue. Building on the latter's theory, Swyngedouw (1999: 445) labels this "part natural and part social" space a hybrid *waterscape*, produced throughout the modern history of water science and politics. A substantial body of literature from various disciplines critically investigates the interactions between water, hydraulic infrastructure and political rule (Mollinga, 2008). Relevant academic publications include perspectives from political geography (Delaney & Leitner, 1997; Cox, 1998; Flint & Taylor, 2007) and political ecology (Swyngedouw, 1999, 2010, 2015). They seek to define "different spaces and scales and to understand […] the interplay between transient natural resources and the political constructs – states, institutions, borders – that have to manage them" (Menga, 2016: 707). The choice of words in the preceding quote suggests an understanding of *politics* as a phenomenon in juxtaposition to the idea of *nature*, the latter being perceived as a contrasting, apolitical sphere that must be 'managed'. Environmental historians, such as Cronon (1995), problematise the cultural construction of a division between 'nature' and society. Regarding the imagined separation between 'politics' and 'nature', Dobson's (2008: 289) writes:

> Following the standard logic of definition, when we ask ourselves 'what is politics?' we are also asking ourselves 'what is not politics?' The sphere of nature has been consistently deployed as the context for an answer to that question. It is the sphere occupied by non-human animals and objects, and these animals and objects are reckoned to possess characteristics, behaviours and qualities that theorists regard as inappropriate for (or, more technically, 'not predicable of') political beings.

However – the train of thought resembling the above critique of polar binaries – Dobson (2008: 296) usefully hints at Latour's (2005) proposition that "politics has always been defined by its relation to nature." The classical allocative definition of politics (Lasswell's (1936) *'Who gets what, where, and when?'*) must therefore be treated together with questions of nature and non-human 'actants' as one single issue, rather than two separate affairs. Ertsen (2016: 203) correspondingly analyses hydraulic infrastructure politics in light of "how the abstract concept of 'development' is shaped through the [distribution of] agency [between] humans and non-humans alike." This is based on Latour's notion that "engagements between

[7] American English tends to refer to smaller sub-catchments as watersheds, whereas British English defines watersheds more narrowly as dividing lines between two basins, or – synonymously – catchments.

these agents shape society, [and that] [d]omination is built with non-human entities/agents/things/objects" (Ertsen, 2016: 204). Together, these actants constitute a relational network which links technology through infrastructure with power. In the case of Tana-Beles, the water interacts with the technology of the inter-basin transfer in ways which result in both the aspired 'domination' of nature and people, and unintentional side-effects: on the one hand, the Beles River has become a forceful stream – and a new boundary – intended by the operators of the hydro-infrastructure in order to pursue the political and economic targets of increased power generation and irrigation. On the other hand, as a result of its acquired 'strength' deriving from the additional water channelled from Lake Tana, the Beles River transforms the biophysical environment in ways which lead not only to the erosion of its own banks (Annys *et al.,* 2019), but also to the River's claiming of new space, and lives (see Chapter Five), beyond the original intention for it.

So far, I have established that ideas of harnessing nature's resources and subjugating them to human design, commodification and economic growth, as well as the faith in technological and engineering ingenuity, and in scientific solutions to help accommodate the extravagancies of human development aspirations, are ancient. The notion that the natural world is apolitical, implicitly separating politics as a deeply discursive practice from nature's materiality, has been similarly persistent. By contrast, in the elaboration of hydro-developmentalism as a concept, the approach of *assemblage thinking* (Acuto & Curtis, 2014), which partly derives from Latour's (2005) *actor-network theory* (ANT), inspired me to acknowledge the political agency of non-human manifestations, such as river-basins or water, and consider them as both ideational and material spaces of politics (Lefebvre, 1991). In this vein, I consider the social world as a multiplicity, or hybrid, of mutually interacting biological, material, natural, technological, social components, within which human agents merely form components, not 'limits', of agency (Acuto & Curtis, 2014).

In contrast to this, paradoxically, the "naturalising metaphor" of the river-basin, suggesting that the watershed boundaries encompass 'neutral', scientifically identifiable, and at the same time 'passive' planning units, is seductive. It fosters a denial of the political process and potential bias involved in their delineation, as well as the representation of stakeholders and institutional arrangements (Bakker, 1999; Linton, 2010). Anthropogenic changes to waterscapes, ecosystems, and biospheres transform hydrological into *hydro-social cycles* (Wester, 2008; Banister, 2014; Boelens *et al.,* 2019). This is characterised not only by human attempts at anticipating and coping with shock events, such as floods, droughts, and famine,

but also by the quest for and, epistemological pre-eminence of, technological solutions and interventions in these waterscapes by way of hydraulic infrastructure. Such infrastructure has certain more or less problematic impacts from a social and environmental standpoint, which my thesis does not seek to address beyond referring to a range of readings on this subject (e.g. WCD, 2000; McCully 2001; Nilsson *et al.* 2005; Scudder, 2005; Stone 2011; Ziv *et al.* 2012; WEC 2015). Another perspective to problematise hydraulic infrastructure is the way it reconfigures space according to geographical location. For example, any intervention that occurs upstream, i.e. closer to the river's source, will most inevitably have a hydrological as well as a hydro-social impact on mid-stream and downstream water availability and usage. Geography is thus a significant factor in the creation of a top-down hierarchical order in terms of potential – not necessarily factual – *power asymmetry*, to use Zeitoun and Warner's terminology (2006), between upstream and downstream water users and in the construction of core and periphery.[8] I address the re-making of core-periphery relations in the analysis of the Tana-Beles Multipurpose Project in Chapter Five.

Limitations of the 'iconic dam' theory: The 'river-basin' and the 'state'

'Tana-Beles', as mentioned in Chapter One, is not a singular large hydro-infrastructure, but rather a set of various ideas and projects, implemented across time, for multiple purposes, in a number of sites, and on behalf of different governments. In Chapter One, I already raised the point that the manifestations of hydro-developmentalism are multifaceted. In this vein, I continue to argue that – for a holistic perspective on the politics of the projects with the label Tana-Beles – there is a need to consider not only individual intervention *sites*, i.e. the location of a specific infrastructure, but the construction of river-basins as politically salient intervention *spaces*.

Against the background of the significant global upsurge in the construction of large-scale hydraulic infrastructure throughout the past two decades – I refer to this in Chapter One – mega-dams, in particular, have reclaimed a substantial position in contemporary academic research agendas, not least within the social and political sciences. Not only are these dam

[8] Zeitoun & Warner (2006) revisit the issue of power asymmetry in trans-boundary river-basins and analyse distributional water politics through the framework of *hydro-hegemony.* The framework considers not only geography, but also material, bargaining, and ideational power which the authors consider explanatory factors, among others, for why Egypt as a downstream country has long played a hegemonic role in the Nile Basin. This thesis, focuses instead primarily on the domestic Ethiopian context, where upstream-downstream conflicts are equally tangible. A critique of the *hydro-hegemony* framework exceeds the objectives of this chapter. Suffice it to say that its propositions are arguable and sometimes too static (as well as state-centred) compared to the actual dynamism and myriad layers of hydro-politics.

constructs often conceptualised as concrete manifestations of the high modernist development paradigm – a subject I address further below – but also as projects of nationalist state- and identity-building (e.g. Scott, 1999; Collins, 2000; Hoag & Öhmann, 2008; Tischler, 2013; Verhoeven, 2013, 2015; van der Straeten, 2014; Menga, 2016; Mohamud & Verhoeven, 2016; Dye, 2019). My thesis only partially concurs with this idea. The present section contrasts the above literature with a broader analytical perspective at the level of the river-basin. In order to capture the mission and practice of hydro-developmentalism, it is crucial to emphasise the fact that a dam project, even that of a superlative size, is rarely a singular, freestanding or disconnected undertaking. Rather, dams, irrigation infrastructure, inter-basin water transfers and other engineering interventions are components of larger schemes, often under the aegis of a comprehensive 'master plan' for the development of entire catchment areas. I present some archival material of such historical blueprint designs for the Blue Nile Basin in Chapter Three. The point is: considering a mega-dam project in isolation of its wider planning and design context within the domestic realm amounts to picking out only the most conspicuous variable of a much more complex phenomenon. Hydro-developmentalism as a practice involves heterogeneous materialisations. The straightforward categorisations of large dams as iconic symbols of ideological and, sometimes, 'illiberal' state-building projects only captures one aspect of these. The exclusive focus on a singular iconic dam project furthermore ignores rich assemblages of additional studies and interventions which not only national institutions but also international private companies plan and undertake in the same river-basin, albeit possibly at a smaller scale. I therefore also refer to literature which discusses the evolution of the river-basin management approach to argue that hydro-developmentalism concerns more than the mere construction of 'white elephants' to produce the effect of Nye's (1994) unifying "technological sublime."

Molle (2003, 2009) comprehensively elaborates on how the idea of the river-basin became an almost universal operational concept for the study, planning, and development of water resources. He describes different national contexts as well as organisational implications within bureaucracies of the state. The identification of "the river-basin [as] the 'natural' and most appropriate unit for water resources development and management" gained traction more than 150 years ago and continues to determine water-society relationships to the present day (Molle & Wester, 2009: 1). Allan (2006) identifies five waves of 'river-basin' approaches, starting with "pre-modern", community-based systems. However, the foundations for hydro-developmentalism were laid during the second wave: the

modernisation and engineering boom of the late 19th- and early 20th centuries. The 1970s-80s marked a turning point, culminating in the disrepute of large hydraulic engineering projects throughout the Western hemisphere due to assertive and attestable social and environmental concerns. Meanwhile, re-conceptualisations of water, taking the environment into consideration without dismissing the proclaimed socio-economic imperative of water resource management and development, had reached a global scale by the 1990s. *Integrated water resources management* (IWRM) emerged as the dominant discourse of the 2000s. Experts, technocrats and government officials alike adopted it as a 'novel' paradigm, although the deviation from previous ideas of development based on the production of all-encompassing basin-management and blueprint master-plans is arguably limited to changes in the institutional and discursive realms, as Chapter Six of this thesis demonstrates.

According to Abbink (2012: 125), a number of twenty-first century developing countries "have taken over an unreconstructed modernism in their infrastructural and technocratic approach to […] development." The scholarly work which proposes a theoretical correlation between mega-dams and nation-building equally tends to focus on the context of developing countries. Verhoeven (2013: 7-8), for example, discusses Ethiopia's expanding hydro-infrastructure since the 2000s in light of the 'new Ethiopia' discourse and the "vision for dam-led national development" of the revolutionary EPRDF(-TPLF) government. However, as I have already mentioned in Chapter One, Verhoeven's framing of the ruling party's perceived 'state-building-through-dam-building' mission risks a reductionist analysis of the much broader and diverse objectives of the government's Growth and Transformation Plans (GTPs). The analytical view may be distorted by an over-emphasis on the emblematic character of large dams. Furthermore, Menga's (2016: 710) proposition that the construction of mega-dams "overlap[s] with the formation of national identity", especially in view of trans-boundary water politics, deserves more specification and differentiation. The question of national identity is particularly complex and contentious in Ethiopia and cannot be treated in a monolithic fashion, as I address in Chapter Three. Therefore, the framework of hydro-developmentalism aims to facilitate a broader perspective not only regarding the significance of infrastructural interventions but also of their institutional and spatial governance. Hydro-developmentalist discourse and practice, as I discuss it in this thesis, predominantly targets the riverine landscape, and – if at all – to a lesser extent, the idea of the 'nation-state', as the subsequent empirical Chapters Four to Six substantiate. The empirical chapters also corroborate the finding that hydro-developmentalist aspirations have survived and persisted

throughout *different*, even diametrically opposed forms of government and statehood in Ethiopia, partly through the creation of organisational bodies which have, in constantly renewed form, outlasted the life span of changing regimes. This in turn compels us to rethink the extent to, and the way in which, large dam construction can constitute a symbol for state-building and serve national identity consolidation.

In this thesis, I treat dams as only one type of many building blocks within the larger scheme of river-basin development plans, because, as in the case of Tana-Beles, these plans can also include irrigation infrastructure, artificial water transfers between two basins, as well small-scale, local water management and agricultural strategies. How does the river-basin become a space of politics? Molle (2006: 5) emphasises that the hydrographic limits of river-basins upon their adoption as spaces of intervention "signalled a natural and harmonious order that was *contrasted* [emphasis added] with [...] traditional political and administrative divisions", and thus with the nation-state as an object of development. River-basin management plans are concerned with the development of *watersheds*, rather than *political constituencies.* The transmutation of the river-basin into a domain of water governance is thus a "scale-making project" (Tsing, 2000), resulting in a "historically produced […] particular, but inherently dynamic, geographical configuration" and politico-territorial reconfiguration (Swyngedouw, 1999: 445, 458). River-basins can be scaled up and down to larger or smaller sub-basin units almost arbitrarily, based, of course, on the watershed line, but also on *political choice*. There is no prominent case in which a river-basin tallies with a political administrative unit or a nation-state. Yet, according to Rusca *et al.* (2019: 869), and analogous with Scott (1999), Kaika, (2006), Wester *et al.* (2009) and Linton (2010), the presence of hydraulic infrastructure within the natural eco-system of the river-basin plays a role in "defining the state's spatiality and [in] demonstrating control over the territory on which large water infrastructures are constructed." The authors go on to declare that the "state can be interpreted as a conceptual abstraction that is actualised through large infrastructure", or, in other words, mega-infrastructure projects serve as a "technique for the consolidation of different state imaginaries" (Rusca *et al.*, 2019: 869). Notionally, these authors propose a reconsideration of Wittfogel's (1957) 'hydraulic despotism' thesis, although they are aware of rightful critiques of his Orientalist perspective (e.g. Banister, 2014). In the 1950s, Wittfogel suggested a causal conjunction between large-scale water management systems, albeit mainly focused on irrigation, and totalitarian regime types, wielding centralised, 'despotic' power. The 'state-building' lens does, however, firstly, *not* specify what happens

when hydraulic infrastructure is damaged or ruined – certainly this does not imply that the 'state' or an idea of it ceases to exist. Secondly, it dismisses the genuinely pragmatic existence of complementary water infrastructure, whether large-, medium- or small-scale. After all, as many of my interlocutors in interviews with engineers and government officials have pointed out: "world populations *are* growing; we *need* water, food and electricity" (Interview LXXI, 04/2019). Therefore, I argue, cause and effect must be put into perspective. While I by no means claim that the theoretical reflections discussed above are categorically wrong, a broader, less deterministic, more pluralistic analysis of hydro-developmentalist advances into the sphere of the river-basin is necessary in order to explore the explicit and implicit motivations guiding them, and their significance for the consolidation of the 'state', its institutions and bureaucracy.

2.3 Modern water and the hydraulic mission

The following sections further contextualise hydro-developmentalism within the modernisation paradigm and discuss the role of *epistemic communities* (Haas, 1992) in the professionalisation, organisation, and eventual institutionalisation of the hydro-developmentalist philosophy. For this purpose, I build on literature which theorises the historical evolution of hydraulic missions and their bureaucratic organisation, as well as the political characteristics of hydro-infrastructure. I conclude Section 2.3 with a brief overview of Ethiopia's evolving hydraulic bureaucracy.

Already the ancient Roman Cicero perceived the relationship between 'humans' and 'nature' as one of ultimate domination. Cicero's generalising use of the pronoun "we" in the introductory quote deserves more critical reflection. Not humankind as such, but specialised groups, natural scientists, hydrologists, and engineers, vanguards of positivist science, established canonical knowledge about the hydrological cycle and prompted technological progress across different disciplines and scales. When river-basins emerged as spatial implementation units, experts – or, to use Haas' (1992) terminology, *epistemic communities* – began to systematically map, plan, and design the development of water resources (Swyngedouw, 1999). The epistemological approach of these communities can be compared, from a social constructivist perspective, with Maslow's (1966) law of the instrument. To paraphrase: 'If your only tool is a hammer, all your problems look like nails.' The problems perceived by these expert groups were floods, droughts, growing urban populations, scarcity

of food, water, and electricity. Meanwhile, not only imperial powers but also post-colonial governments attempted to expand both authority and output-based legitimacy by following the hubristic urge to colonise 'unutilised' lands and to re-design 'nature'. Capital-intensive construction projects do not only entail expectations of economic growth and foreign export earnings, they also provide opportunities for rent-seeking and corruption (Locatelli *et al*., 2017). The 'solution' to the socio-environmental challenges perceived by the scientific communities thus converged with the interests of political and corporate elites around the idea to create a technologically controlled "second world within the world of Nature" (see introductory quote). Subjective political agendas fused with seemingly objective scientific demands. Mitchell (2002: 42-43) refers to this process as *techno-politics.*

> Techno-politics is always a technical body, an alloy that must emerge from a process of manufacture whose ingredients are both human and non-human, both intentional and not, and in which the intentional or human is always somewhat overrun by the unintended. But it is a particular form of manufacturing, a certain way of organising the amalgam of the human and non-human, things and ideas, so that the human, the intellectual, the realm of intentions and ideas seems to come first and to control and organise the non-human.

Researchers studying the political dimensions of hydro-infrastructure have to grapple with its ambiguity. On the one hand, the technology-based world of the present day to some extent depends on and benefits[9] from hydro-infrastructural schemes. On the other hand, these schemes lend themselves to the satisfaction of vested interests, for example on behalf of state bureaucracies and private companies. From a historical perspective, the discovery of hydropower as a source of electricity constituted a momentous turning point regarding the conceptualisation of water and the imaginations of how to reshape, control, and exploit it technologically (Showers, 2009). Imperial enterprises and colonialism went hand in hand with an eagerness to put into effect the "new-found powers of professional engineering [and] to transform the world [...] to control nature [and new territories] full play" (Gilmartin, 2003, quoted in Molle, 2006: 7). With the transition from speculative scientism to the capability of

[9] This is not to ignore the substantial negative social and environmental impacts of large hydraulic infrastructure that have been widely recorded (see references in Section 2.2). However, it must be recognised that hydraulic infrastructure – hydropower, for example – has genuine pragmatic value. About 98% of Norway's power is generated through hydro-electric dams while the country has a strong democratic record. Researchers of *hydro-developmentalism* should therefore pay careful attention to contextual factors and take into consideration the possibility of actual social demand for hydraulic infrastructure, lest they propose to live in a world lit by candles and open fires. At the same time, there are compelling empirical cases highlighting the transformation of technologies into "peculiar forms of politics", such as Pritchard's (2011) study of the "remaking of the Rhone River", or the volume edited by Hecht (2011) on techno-politics of the Cold War.

physically implementing large-scale water infrastructure, the process and practice of modernisation gained an attribute of inevitability (Swayamprakash, 2014).

State-driven high modernism

In the preceding sections, I provided preliminary insights into the idea of hydro-developmentalism as a concept, proposed a rethinking of perceived binary opposites by emphasising the blurred boundaries between human design, politics and nature, and brought to attention the issue of scale. The present section 2.3 is concerned with organisational aspects of a *zeitgeist* which Molle *et al.* (2009) term the *hydraulic mission*, deeply embedded in the paradigm of modernisation. I commence by addressing the latter.

Central to the theory of modernisation is the power of the high-modernist state. Before the advent of structural adjustment and the neoliberal roll back of the state in many countries, the *state*, as much a physical reality in its organisational and bureaucratic structures as a constructed idea, was explicitly considered the paramount instigator and regulator of industrial and economic development. According to Scott (1998: 4), the state conducts top-down activities of social engineering through technology-driven development, planned by a "self-declared all-knowing elite" (Scott, 1998: 4). In this vein, powerful state bureaucracies – those dedicated to the structural development of water resources, coined *hydrocracies* (Molle *et al.*, 2009) – evolved throughout the twentieth century. The pursuit of hydraulic missions resulted in expert-controlled large-scale interventions in riverine landscapes, which its instigators promoted both as a response to neo-Malthusian visions of scarcity and as a propeller of agricultural and industrial growth of the nation-state. Linton (2010: 21) juxtaposes, on the one hand, the de-politicising operationalisation of "modern water" as a calculable dataset, and an "objective, homogenous [and] a-historical entity" which is subject to modern techniques of management, with, on the other hand, high-modernist discourses of state-building and the artificial construction of national identity.

Internationally, inspired by the Marshall Plan, the "invention of development" in the late 1940s triggered a stream of development assistance accorded bilaterally or within the system of the Bretton Woods institutions, largely in the form of financial aid, loan schemes or infrastructure investments in roads and large dams (Rist, 2008: 69). Albeit strongly anti-communist, Western liberal economic theories equally proposed blueprint manifesto-like development schemes requiring strong state intervention. Rostow's five *Stages of Growth* (1960) proposed economic exchange, urbanisation and industrial "take-off" as essential steps

towards the end-goal of high consumerism. Modernisation was thus understood as a linear process from "backward, traditional" to "modern" consumer societies, usually backed by primary commodity exports prior to the aspired diversification and "take off". While there is no canonised modernisation theory, Knobl (2003) summarises how "non-Marxist, macro-sociological" hypotheses culminated in *The Passing of Traditional Society* (Lerner, 1958), Lipset's *Political Man* (1959), or *The Achieving Society* (McClelland, 1961). Some common assumptions include the notion of modernisation as global and irreversible, the sharp qualitative distinction between tradition and modernity, the consideration of traditional values and structures as barriers to economic and political development, as well as the superiority accorded to secular and scientific values (cf. Knobl, 2003).

Consequently, technological progress, large-scale infrastructure and mega-engineering projects were preferred objects of development expenditure and international financing. In particular, large dams, but also massive irrigation schemes, figured as "shining icons of prosperity and modernity" (McCully, 2001: xvi), creating a clear distinction and division between "backward" and "modern". Starting in the 1920s, but especially between the end of the Second World War and the 1980s, international engineers engaged in substantial structural development in both the Western hemisphere and the colonised world to which they exported their craft (Molle, 2006). From a Western-centric perspective, this resulted not only in an experience of "technological sublime" – a general fascination by engineering feats which, according to Nye (1994: 282), could represent "self-justifying part[s] of national destiny." What emerged was also a super-ordinate "worldview" and "work ethos" of powerful elites that "included scientists and engineers who achieved sophisticated ability to manipulate the natural riverine environment, an expertise they willingly put to service of even more powerful authorities" (Worster, 1982, quoted in Molle *et al.* 2009: 329).

Critics have fiercely condemned the technocratic approach of the "high modernist" development paradigm as "utopian social engineering" (Scott, 1998) and a "destructive myth" of paternal but responsive agency (Escobar, 1995, cited in Edelman & Haugerud, 2005: 1). Various examples illustrate how the de-politicisation of the development process (Ferguson, 1990; 1999) excludes affected constituencies from participation therein and creates the above-mentioned inequalities in the distribution of benefits. While local populations often suffer negative side-effects of 'development' concerning land use, food security and bio-diversity, the land and water exploitation for exports of hydroelectricity or industrial irrigation benefits mainly those elites to whom the river, the land and the super-

imposed engineering projects are in the far, and often unimaginable, periphery. Capitalist and communist states alike embraced the ideology of techno-politics and large-scale infrastructural development. This is exemplified, most strikingly, by competing American and Soviet interest in Egypt's High Aswan Dam Project – a proxy pawn in 1960s cold war politics (Collins, 2000).

Sociological definitions and evolution of the hydraulic mission

How does the modernist spirit of a hydraulic mission translate into executive bureaucracies and a hydro-developmentalist assemblage of implementing actors? The following sections explore this question theoretically. Wester (2008: 10) summarises the credo of the hydraulic mission as: "the strong conviction that every drop of water flowing to the ocean is a waste and that the state should develop hydraulic infrastructure to capture as much water as possible for human uses." This definition aligns well with Scott's (1998: 89) description of the essential characteristics and aspirations of high modernism, namely a "supreme self-confidence about continued linear progress, the development of scientific and technical knowledge, the expansion of production, the rational design of social order, the growing satisfaction of human needs, and, not least, an increasing control over nature." Molle, Mollinga and Wester, co-founders of the journal *Water Alternatives* which contains diverse research on hydraulic missions across the globe, situate the beginning of the phenomenon in the "irrigation craze" of the early 20th century, which was inspired by large-scale hydraulic works attempted and refined both in colonial (India is a frequently cited example) and western (Australia, Italy, USA, Spain, among others) settings.

Whereas, in the late 19th century, most irrigation development schemes had been funded by private enterprises which had often experienced financial misfortune based on trial and error, *states* increasingly engaged in large-scale water development in the 20th century, mitigating the economic risk by an "enthusiasm for 'scientific irrigation'" and the perceived intellectual superiority and professional-moral "calibre" of the hydraulic engineer – described as "the industrious, temperate, thrifty, intelligent, skilful, cleanly and good living [member of society]" (Hamilton-McKenzie, 2009, quoted in Molle *et al.,* 2009). The authors go on to discuss the birth and organisation of state hydraulic bureaucracies in countries as diverse as Australia, Brazil, China, India, Pakistan, the United States, Spain, Turkey, Vietnam, and several others. Individual examples will not be reiterated here. However, the overarching justification of the hydraulic mission tends to be rather common in all cases: aside from the

provision of flood control, agricultural mass production, and electricity, hydraulic missions are built on the ideology of the technology-based control of nature, the Rostowian paradigm of step-wise modernisation, and, in some cases, the construction of national prestige projects, symbolising and legitimising state power. Turton and Funke (2008) quote a South African official (Le Roux, 1962) who stresses the national importance, but indirectly also the universal urgency of the hydraulic mission:

> In the history of all young civilised countries the time arrives when big and imaginative water development projects must be launched to promote the growth of areas of development, the formation of industries and the generation of electric power, and to create means of coping with the future population increase, so as to maintain the rate of progress for the country as a whole.

In the context of decolonisation and across newly independent states, large hydraulic schemes were strongly promoted by development banks and international donors and lenders. Their interest was likely to be founded on the idea of large capital flows, minimal overhead costs and continuing influence in the decolonised world, rather than benign support to state-building ventures. Further, as emphasised above, the techno-political spirit of the hydraulic mission also featured prominently in communist settings, cementing at the same time government ideology and authority. In Nasser's Egypt, Nehru's India, and Nkrumah's Ghana, among others, superlative dam dreams became reality and spurred – without doubt – national discourses of pride and achievement.

Based on the Copenhagen School of security studies (Buzan & Waever, 2003), Conker and Hussein (2019: 4-5) claim that water resource development projects in the context of the hydraulic mission are often "put beyond the political debate […]" within a 'sanctioned' discourse. By securitising the hydraulic mission, experts and government officials may present inaction as an "existential threat", whereas interventions in the riverine waterscapes are promoted as imperative, sometimes emergency-based measures, the perceived necessity of which "justifying actions outside the normal bounds of political procedure." Allouche (2005) furthermore describes how *water nationalism* at the domestic level, i.e. the 'capturing of every drop of water before it reaches the ocean', often prompts unilateralism in the pursuit of national hydraulic missions, at the expense of cooperative measures at the river-basin level. This can be the case both on a trans-boundary scale, and regarding the upstream-downstream continuum of different watersheds and regional administrative units within a single state's boundaries, as I show in Chapter Six. This is why I have argued above that the

'nationalism' theory should only be considered as one explanatory factor among others. Moreover, hydro-developmentalism, as I define it, is not an exclusive project of ideological state-building or national identity formation, which, by the way, is a process different from the protectionist *water nationalism* concept. The group of national and international actors and experts mingling within hydraulic bureaucracies is too diverse and interwoven with both the public and the private-corporate realm for that to be true. Who and what is behind the creation of hydrocracies?

The creation and composition of national hydrocracies

Scholars often refer to the Tennessee Valley Authority (TVA), established in 1933, as the foundational model for expert-led river-basin organisations (RBOs) pursuing multipurpose projects in riverine waterscapes – not political constituencies – around the world. Launched in the Depression years under the Roosevelt administration, the TVA evolved into a model that came to be both marketed and adopted widely beyond its origins. According to Ekbladh (2002), the TVA model served as a symbol for US overseas development diplomacy during the cold war era, or as the "grand-daddy" (Scott, 1998) of river-basin development projects. However, before referring to the significant role of international organisations, foreign government agencies, private companies, consultancy firms and development banks in devising plans and significantly contributing to the materialisation of hydraulic engineering projects, it is useful to reflect on the institutional and professional incentives behind the creation of national water bureaucracies. Again, I follow Molle *et al.*'s (2009) historiology of hydrocracies within this section.

As water resources are most usually under public ownership, the pursuit and enactment of most hydraulic missions is performed by professional expert groups staffing bureaucratic organisations of the state. They have unique sets of skills, interests, and objectives. Professionally, the expertise required to complete hydraulic engineering projects prescinds the specialist from the general public. On the one hand, experts are expected to have profound knowledge bestowing them with capacity and authority to guide decision-making about subject matters which seem to surpass the understanding of the average layperson. The expert is almost incontestable. On the other hand, water bureaucrats can achieve material "professional gratification" by linking their names with iconic construction projects. Molle *et al.* (2009: 336) write: "Many dam projects are presented as obvious, inevitable, urgently needed and enjoying an ideal location allowing water control and hydropower generation

[…]; [they] can become an 'engineer's dream' and a 'once in a lifetime project.'" Again, Mitchell's (2002: 90) *Rule of Experts* is instructive in the discussion of the Foucauldian relationship between specialist knowledge, technology, and power. The refinement of modern mapping and communication expertise, by way of example, gives rise to potential forms of domination through "the knowledge and command of space," and, inadvertently, command of people.

Hydrocrats are embedded in various forms of state agencies, such as 'ministries', 'commissions' or 'authorities' dedicated to water resources management, agriculture, construction, energy generation, environment and other relevant fields. Molle e*t al.* (2009) do not deliver a full description of any concrete institutional set-up of the hydrocracy. However, it can be derived from various examples and not least from the case of Ethiopia (see Chapters Three and Six) that hydraulic bureaucracies worldwide incorporate various inter-dependent, but rarely efficiently inter-linked agencies. They vary not only between different countries; they are also usually subject to restructuration and nominal changes across successive governments. Furthermore, although hydrocrats may be operating within subsidiary units of government, such as the regional state or river-basin level as their administrative unit, the central state usually retains the ultimate monopoly over water resources management and development. Especially in federal countries, as in present-day Ethiopia, Molle and Wester (2009: 15) identify, throughout a number of global case studies, repeated tensions "between the [regional] states overlapping with the basin[s] and the central federal government." Regional states "tend to have a large autonomy in managing their water resources" (*ibid.*), at least in terms of corresponding policy frameworks promoting subsidiarity and decentralised governance. However, large-scale water infrastructure projects tend to be decided, owned and managed by federal state agencies.

Ethiopia's evolving hydrocracy

In Ethiopia, the first river-basin organisation to emerge was the Awash Valley Authority (AVA), given that the "Awash […] is the only large river which starts and ends within the Empire." It was established in 1962 by the then imperial government under Haile Selassie "as an autonomous public authority to administer and develop the natural resources of the Valley (Anteneh & Yemanu, 1970: 19). In a report produced by the AVA itself, the 'Head of the Planning and Coordinating Department', Addis Anteneh, and the 'Chief Engineer', Hailu Yemanu, profess significant economic investment opportunities. They write: "Since the

valley has considerable potential in water resources, irrigable land, livestock development and other resources […], and because of its favourable geographical location, its proximity to the market centres […] [and] the net work of transport facilities it enjoys, *the needs for its immediate development are quite obvious*" (*ibid:* 19, emphasis added), the obviousness beyond doubt in the context of the hydraulic mission *zeitgeist*.

The first explicitly hydrocratic body in charge of national-level 'planning, management and development' was the Water Resources Department (WRD) created in the late 1950s-early 1960s with support from the US Bureau of Reclamation. This was followed by the Water Resources Commission (WRC), established in 1971 (Rahmato, 1999). Only three years later, in 1974, the Ethiopian government changed radically from an empire with Haile Selassie as the divinely appointed 'king of kings' to a Marxist-militarist revolutionary regime under Col. Mengistu Hailemariam. Yet, the systematic review, education, and training of professionals in the water resources sector continued in the same spirit as before. The number of water engineers enrolled in specific programmes at Ethiopian universities was amplified, graduating as new professional elites for which the public employment sector needed to create increasing absorption capacity. In the 1980s, the Ethiopian Valleys Development Studies Agency/Authority (EVDSA) was put into place alongside multiple public agencies dedicated to planning and transforming water into a developmental and economic asset. Rahmato (1999) lists the National Water Resources Commission (NWRC), the Water Resource Development Agency (WRDA), the Ethiopian Water Works Construction Agency (EWWCA), the Building and Transport Construction Design Authority (BaTCoDA), the Development Projects Studies Authority (DEPSA), the Water Supply and Sewerage Authority (WSSA), the Water Well Drilling Agency (WWDA), and the Irrigation Development Department (IDD) within the former Ministry of Agriculture as the key public agencies dealing with the water sector in Ethiopia before the 1990s. I refrain from delivering an exhaustive overview of the expanding institutional infrastructure at this stage. The reader will however notice the densification of the national bureaucracies in Ethiopia, amongst which individuals and agencies alike continue to compete for occupational opportunities and the afore-mentioned 'professional gratification.'

The EVDSA elaborated comprehensive Master Plans for the hydraulic development of the Abbay, Rift Valley, Baro-Akobo, and Awash river-basins as well as for the national scale, but the body was dissolved after the next revolutionary regime change and the assumption of power of the EPRDF under Meles Zenawi in the early 1990s. Following "lots of confusion in

the transitional years of 1992-93", according to an insider, about how to reorganise the national Water Resources Commission (Interview XXXVIII, 12/2018), a new Ethiopian Water Resources Law was first issued in 1994, the same year in which the Ministry of Water Resources (MoWR) came into being. Considerably later than in many other developing countries, the establishment of river-basin organisations (RBOs) was gazetted in Ethiopia by federal decree in 2008, absolving the AVA from its island position in the hydrocratic assemblage. I discuss the creation of the Abbay Basin Authority (ABA) and the Tana- and Beles Sub-Basin Offices (TaSBO, BeSBO), as well as the implications of, and tensions within, the shifting institutional infrastructure composing the particular Ethiopian hydrocracy in more detail in Chapter Six. The next section returns to the conceptualisation of hydro-developmentalism, which guides my analysis of the history of 'Tana-Beles' within this thesis.

2.4 Expanding hydro-developmentalism as a concept

In the Introduction to this chapter, I defined hydro-developmentalism as the philosophy and practice mobilised by states to justify and realise the implementation of large-scale interventions into ecological systems, deploying engineering solutions to transform river-basins into spaces for state-controlled technologies. These do not only serve the purposes of hydropower generation, industrial irrigation, and water regulation, but they also have political underpinnings. The essence of hydro-developmentalist practice can be synthesised in three main characteristics, which have been continuous across the past century: official proclamations of urgency, justifying large-scale interventions in light of actual or projected emergencies; a continuous de-politicisation of large infrastructure projects and their impacts, and; the involvement of foreign bureaucracies, development agencies and private companies for the realisation of such projects. However, at the same time, I make the case throughout this thesis that both the hydro-developmentalist ideology and its practical implementation are vulnerable to contestation. This vulnerability comprises, on the one hand, external factors, such as regional hydro-politics, and international activism; on the other, hydro-developmentalism is also threatened by domestic groups of opposition. In this thesis, the groups challenging the central state's hydro-developmentalism are not only rebel liberation movements (Chapter Four) and local populations (Chapter Five), but also competing bureaucracies within the state architecture itself (Chapter Six). Thus, the territorialising forms

of governance (see Chapter One) which hydro-infrastructure can symbolise and reinforce are at the same time the endogenous weakness of hydro-developmentalist theory and practice.

While I have already addressed the first and the second characteristic of hydro-developmentalism within Sections 2.2 and 2.3, I briefly elaborate on the third one in the following sub-section. I then reflect on the fragility of hydro-developmentalism with reference to various types of ruins which I discovered during my fieldwork on Tana-Beles. In a final step, I consider hydro-developmentalism in terms of what it adds to the existing literature on hydraulic missions and the political sociologies of water management as a concept between ruins and renaissance.

Reframing hydraulic missions in light of their trans-national dimension

When seeking to understand the politics and materialisations of hydraulic infrastructure development – whether the infrastructure is material or institutional – it would be utterly misleading to focus exclusively on domestic actors and public decision-makers within the realm of the state. Molle *et al.* (2009) refer to the almost indispensable role of the private sector, most notably construction and consultancy firms, landed elites – which, however, are not very relevant in Ethiopia where all land is held in public ownership – and development banks. One should add bilateral financial partners and the increase of so-called 'south-south' partnerships between developing countries to the list. Much of the literature discussing the Ethiopian upsurge of 'dam-led development', especially with reference to the Grand Ethiopian Renaissance Dam (GERD) as an icon of national progress and modernisation, emphasises this mega-project's independence from external funding (e.g. Verhoeven, 2013; Gebreluel, 2014; Tesfa, 2016). However, this framing of the relatively unique dam does not usefully reflect the "synergetic relationships" (Molle *et al.,* 2009: 336) between the public hydrocracy and the trans-national and corporate realms, joining forces to implement the hydraulic mission. Molle *et al.* (2009: 336-337) cite further academic scholarship which points to a "collusion between business, politics and bureaucrats in the water sector [as] a commonality shared by virtually all countries" as well as the frequent entanglements of these groups in "systems of vested interests that encourage bribery, bid-rigging, exchange of favours, or simply overestimation of benefits and neglect of costs in order to secure a steady flow of projects." This is not to make the unfounded generalising claim that the pursuit of the above self-interests qualifies as universally common practice. However, a hydrocracy is unlikely to operate outside such "iron rectangles" which frame the various potentially

"vested" interests and the "supply orientation" (*ibid:* 337) – that is, the eagerness to physically construct new infrastructure or to rehabilitate existing water control systems – by staff members belonging to both public and private organisations.

It is important to note that the driving force behind Ethiopia's hydraulic mission is not a singular, monolithic actor; it is not simply 'the state' – a contentious idea in itself – or its hydrocracy performing in a unitary fashion. As I explore the respective manifestations of Tana-Beles in the empirical chapters of this thesis, I touch upon the complex assemblages of actors, including foreign and corporate ones, which have influenced and renegotiated the terms of reference for the materialisation of (i) river-basin master plans and modernist dreams, which I discuss in Chapter Three; (ii) significant hydraulic construction projects (Chapters Four and Five); and (iii) a remodelled institutional infrastructure, which paradoxically preserves core elements of the high-modernist hydraulic mission (Chapter Six).

Reflections on the ruins of hydro-developmentalist dreams

Tana-Beles is a case in point to illustrate the paradox between linear development ideals and the haphazard course of their materialisation and ruination. Why is it so important to be aware of ruins? In the course of my fieldwork and data collection through interviews, archival and document research, site visits and observations, the theme of abandonment, decay and ruination re-emerged at several occasions and in different forms. In the vicinity of Pawe and Almu Town, former key intervention sites of the first Tana-Beles Project (TBP), which had blossomed in the 1980s, I discovered during my visit about 30 years later that the landscape was littered with remnants of decomposing tractors, ruins of Italian workers' accommodations, rusty containers, defunct agricultural machines, and equipment spread in various places, an abandoned pipe factory, and dams which did not operate according to their design and purpose. In conversations with local residents, I also encountered broken dreams and nostalgic memories of more hopeful years in the past. Directing the gaze back to the present, I could not miss the large-scale irrigation scheme of the Tana-Beles sugar factory (see Fantini *et al.*, 2018) – a ruin before it had become an estate. And I was appalled to listen to accounts of lives lost and lives ruined in the downstream Beles Valley, swept away by flood waves caused by the spilling of water from the turbines of the underground power station several hundred kilometres upstream near Kunzila (see also Annys *et al.,* 2019). Back in Addis Ababa, at the library of the Ministry of Water, Irrigation and Energy (MoWIE), dozens of rows of bookshelves are heavy-laden with the master-plans, feasibility studies,

bathymetric and hydrological surveys, designs and dreams, destined to turn into shelf history. In Bahir Dar, the seat of the Abbay Basin Authority (ABA), I also visited the Amhara regional state bureaus dedicated to 'water' and 'agriculture', respectively, and was surprised to find one in a shiny condition; the other in dire need of renovation.

Ruins, according to Stoler (2008), "are often enchanted, desolate spaces, large-scale monumental structures abandoned and grown over. [They] provide a quintessential image of what has vanished from the past and has long decayed." However, citing Benjamin (1999), Stoler (2008: 194) also proposes a conceptualisation of ruins as "petrified life", considering them "traces that mark the *fragility* of power and the *force* of destruction" [emphases added]. Indeed, while I concur with the significance of ruins as "alternative senses of history", my research finds that ruins need not necessarily be a product of the past. They can also be generated and degenerate in the present tense. Further, I would not connote the process of ruination and ruins as such with petrification, or the state of being 'petrified'. Ruins are part of a dynamic process called existence and not an end state. Nevertheless, they have an admonishing function; they manifest the hubris with which humanity strives for development and modernity, the over-confidence in human ingenuity and the politics of ignorance which may blind the eye from the hierarchical relations of power, state capture and other political dynamics. Yet, as I mention in Chapter One with reference to Howe *et al.* (2015), ruins are also ever-present to remind us that there is no such thing as linear, one-directional development, apolitical space, or infinite power. Throughout my empirical chapters, the reader will encounter ruins of hydro-developmentalist dreams that occur in various forms, not only as physically decrepitude constructs, but also in a metaphorical sense, which is much less conspicuous but even more so of great importance. From the reshaping of riverine waterscapes to the renaissance of high-modernist missions, and the disintegration of 'integrated water resources management' (IWRM), ruins should neither be ignored, nor bemoaned as irreversible failures. Their identification is a crucial step towards remedying some, not all, of the pressing grievances listed further above in this section.

Hydro-developmentalism between ruins and renaissance

Physical and figurative ruins stand in stark contrast to the one-directional philosophy of modernisation, as it is postulated by Rostow (1960). What Scott (1998: 4) describes as the "re-ordering of social and natural spaces by means of technological and infrastructural interventions", or high modernism, is neither linear, nor finite, nor an irreversible process. It

is highly political and deeply embedded in sometimes contrasting contexts of the local, national, and transnational domains. The fact that the notion of *Renaissance* has had significant traction in Ethiopia's political discourse of the 21st century – especially in light of its superlative hydraulic development plans – is not coincidental, as I discuss in Chapter Five. Africa's largest hydraulic infrastructure project, the Grand Ethiopian Renaissance Dam (GERD), whose construction the late Prime Minister Meles Zenawi inaugurated in April 2011, is the most prominent, but not the sole manifestation of an idea recycled from the 20th century and redressed in the discourse of the ruling government. However, as this Chapter has shown, hydro-developmentalism represents not only a rather durable paradigm for expert-led investigations and state-driven interventions in riverine landscapes. Its implementation and materiality is also subject to disruptions caused by oblivion or wilful neglect, shifting bio-physical conditions and fickle political interests, incremental decay, and outright destruction.

Natural science and technological expertise constitute the foundations upon which hydro-developmentalist aspirations rest – and the largest parts of this knowledge and its scientific principles are empirically confirmable. However, it is frequently *political choice* which selectively filters scientific knowledge and determines the governance of nature and people under the guise of objective decision-making. I corroborate this claim in the course of the following chapters. At the same time, to add a basic reflection, no human expertise is capable of fully dominating nature, contrary to what the introductory quote from Cicero's *De Natura Deorum*, "the nature of gods", suggests. Radically speaking, and to return to the above-mentioned subject of non-linearity, even the most sophisticated engineering effort cannot force water into a permanent linear geometry. Parallel to this, just as water with its transformative power and appearance in multiple states of aggregation is in constant flux, hydro-developmentalism is fluid. While its mission and internal organisation are reconceptualised regularly, its essence remains constant.

What does hydro-developmentalism add to the concept of the hydraulic mission? I propose three extensions. To begin with, there is a distinction to be made between the 'sense of mission', the developmental *philosophy* behind large-scale interventions, and the *flesh and blood* of the driving political decision-makers and private consultants, who in turn delegate project implementation to specialised groups, the constituents of which have their own particular motives and interests. Dominant public discourses about the purpose of the hydraulic mission – most notably the imperative of exploiting natural resources for economic

growth, modernisation, and to provide water, food, and electricity for growing populations – are relatively durable across different eras, although dressed in varying rhetoric, according to contextual factors. At the same time, however, there are of course changes in the assemblage of human actors staffed and commissioned to implement these missions. As highlighted in the introduction, hydro-developmentalism with the suffix *–ism* denotes a concept of almost axiomatic value, whereas the term 'development' inherently suggests transformation and dynamism. Because 'development' as a term, however, fails to shed light on the shadows of ruination, the suffix *–ism* also serves as an emphasis on the aspect of *purposes, plans* and *objectives* as opposed to their shortcomings in terms of realisation and material constancy. I therefore consider the ruins of past hydro-developmentalist projects to be instructive elements which point towards the *politics* of hydro-developmentalism itself and towards its above-mentioned circularity and fluidity.

Hydro-developmentalism, secondly, captures not only the spirit of national decision-makers, thematically related state bureaucracies in general, and hydrocracies in particular. It also incorporates dimensions beyond the 'state' and its domestic objectives. Although hydro-developmentalism, as I conceptualise it in this chapter, is mainly preoccupied with projects commissioned and owned by the state,[10] the assemblage perspective, on which it builds, allows for a more nuanced analysis of the interests belonging to those actors who are not explicitly engaged in, or ideologically committed, to projects of state- or nation-building, but who are equally dedicated to hydro-developmentalist aspirations. In this thesis, I argue that these seemingly apolitical constituents of the hydro-developmentalist assemblage play an essential role in both the de-politicisation and the strengthening of vertical political structures of domination and control. Therefore, their agency is also political. Few of the massive hydraulic infrastructure projects in Ethiopia would have materialised if the state had not been closely involved with powerful private and semi-autonomous companies. The Italian construction company Salini Impregilo, for example, is a silent giant in the industry with a profound history in connection to Ethiopia, regardless of the prevailing regime in Addis Ababa, or its political ideology. What Wester (2008) designates as "institutional re-productivity," with reference to obdurate hydrocracies in his Mexican case study and their resistance to change, can thus also be applied to scrutinise the longevity of a company like

[10] The Tana-Beles Integrated Water Resources Development Project (TBIWRDP), which I discuss in Chapter Six, does not explicitly belong to the category of state-owned projects in the same way as the plans and infrastructure projects I address in Chapters Three to Five. However, some of its components directly target the water governance architecture of the state.

Salini and its continuous involvement in superlative and equally sensitive hydraulic projects outside of Italy.

Thirdly, most academic literature situates the hydraulic mission within a specific *zeitgeist* of the 20th century, climaxing in the era of state-driven high-modernist development paradigms, and ending in the 1970s-1980s. By the 1990s, global attention to the broad spectre of negative ramifications of large hydraulic infrastructure – environmental, social, and biophysical – shifted the dynamics away from the original objectives of the hydraulic mission. Against this background, the notion of hydro-developmentalism, by contrast, is intended to be less temporally confining than the hydraulic mission. Along with Dye (2019), among others, I have argued that certain aspects of the 19th-20th century hydraulic mission have been translated or revived well into the 21st century. However, not all of its elements are timeless. Hydro-developmentalism in practice appears in a variety of forms. In this thesis, I discuss the manifestations of hydro-developmentalism in the contexts of imperialism, communism, ethnic federalism, and of global development paradigms related to water management. However, the knowledge that its inherent philosophy is significantly influenced by the spirit of colonial-imperial conquering expeditions is fundamental for understanding how hydro-developmentalism reflects processes of political power consolidation and hierarchical domination over land, water, and people.

2.5 Conclusion

This chapter has engaged conceptually with the ideology and practice which underpin the imagination and realisation of grand water management schemes as projects of the state. For this purpose, I introduced the notion of hydro-developmentalism as a contribution to the literature which theorises the politics of large-scale hydraulic infrastructure projects. Ruins, I have argued, are important indicators of the contentiousness of such schemes. They also put to question their obduracy, suitability, and sustainability, whilst hinting at the complex nature of hydro-developmentalism at the interface of scientific rationale and political interest.

In this chapter, the reader has been encouraged to revisit perceived dichotomies, such as that between ‘nature’ and ‘politics’ and to consider the hydrographic delimitation of river-basins from both a positivist and a critically relativist perspective. The chapter has furthermore drawn attention to how hydrological river-basins are transformed into politically

reconstructed implementation spaces. Complementing the literature on the evolution of global hydraulic missions and hydrocracies from the late 19th century onwards, I propose the need to consider transnational, corporate, and public-private dimensions as constituent parts of hydro-developmentalist assemblages and politics. Furthermore, I emphasise the importance of considering hydro-developmentalism as a fickle, fluid, and circular phenomenon, rather than one materialising in a linear fashion. Nevertheless, hydro-developmentalism retains a constant attribute: it endorses the technical ability and legitimacy of the state to institute structures – material and organisational – of vertical regulation. In the following chapters, I explore the different conceptualisations, designs, justifications, implementation, and some local impacts of hydro-developmentalist interventions with the label 'Tana-Beles' in the context of Ethiopia as an empire, a communist state, a federal democracy, and within the web of multilateral organisations.

Chapter Three

Broken dreams for Imperial Ethiopia's Blue Nile Basin:

Between visions of Nile control and hydro-developmentalist modernisation

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> [I]t is Ethiopia's sacred duty to develop the great watershed which she possesses in the interests of her own rapidly expanding population and economy. To fulfil this task, we have arranged for the problem to be studied in all its aspects by experts in the field.
>
> Emperor Haile Selassie (1958), quoted by Arsano (2007: 101, 154)

3.1 Introduction

In this chapter, I explore the evolution of hydro-developmentalism in imperial Ethiopia. I demonstrate the colonial roots of the first hydro-infrastructural plans for the Blue Nile Basin in general, and of the idea to divert water from Lake Tana to the Beles Valley, Tana-Beles, in particular. Furthermore, covering the time-frame from the early 20th century until 1974, the chapter outlines how the Imperial Ethiopian Government under Haile Selassie underpinned its modernisation agenda with hydro-developmentalist approaches introduced by external actors. In this regard, I focus especially on the formal collaboration with the United States in the 1950s and '60s, which played a significant role in the establishment of Ethiopia's own hydraulic bureaucracy, or hydrocracy. While researching the historical archives in the library of the present-day Ministry of Water, Irrigation and Energy (MoWIE) in Addis Ababa, it was striking to note the large quantity of feasibility studies, project designs, and master plans, elaborated by different international expert groups throughout the course of the 20th century. The hydraulic mission[1] was booming. As an American expert described the large scientific interest: "The Blue Nile Canyon of Ethiopia, similar in many respects to the Grand Canyon of the Colorado River […], is considered a 'geologist's paradise'" (USBR, 1964: 17). This view was shared by a large number of experts – Anglo-Egyptian, British, French, German, Italian, Japanese, Russian, Scandinavian, among others – who explored and unanimously rated the Blue Nile Basin as an opportune space for large hydraulic engineering projects. However, until the start of the 21st century, only a small number of the numerous technical proposals

[1] See Chapter Two for a discussion of the 20th-century hydraulic mission.

had resulted in material water infrastructure. The American Bureau of Reclamation (USBR), for example, had dedicated substantial financial and technical support to the mapping and planning of water resource development in the Blue Nile Basin. Yet, most of the proposed schemes were not even initiated by the time of the Emperor's overthrow in 1974.[2] In this regard, the long shelf history of most of these engineering projects is more puzzling than the post-millennium upsurge of large hydraulic construction schemes in Ethiopia. Much of the contemporary hydro-infrastructure commissioned within the past two decades features only minimal adjustments to the original designs which were elaborated in the previous century. The many archived projects, which have not yet reached the implementation stage, despite the financial, technical, and human resources invested in their design, resemble a form of ideational ruins. Political context is necessary in order to explain the longevity of the hydro-developmentalist dreams and propositions, as opposed to their recent and so far only partial fruition in Ethiopia's Blue Nile Basin.

Much of the information collected in this Chapter derives from archival research. I complemented this with selected expert interviews, and academic literature on the history and politics of imperial Ethiopia. The objectives of this chapter in relation to the case study on Tana-Beles are two-fold. On the one hand, I identify the original source of hydro-developmentalist plans for the Blue Nile Basin and for Tana-Beles, namely, colonial deliberations about options to achieve economic and political predominance. Based on this, I argue that even successive hydro-developmentalist intentions for this watershed have consistently been accompanied by the motive of political power consolidation through hydro-infrastructure. On the other hand, while documenting the gradual absorption of the hydro-developmentalist philosophy by the Imperial Ethiopian Government, the chapter illustrates reasons why most of the hydro-infrastructure proposed by numerous international experts failed to materialise at the time. Thematically, the chapter is divided into two main sections. These are concerned with interactions with *external* actors, who transported the ideology of hydro-developmentalism to Ethiopia, and *internal* politics, respectively. Section 3.2 situates Tana-Beles within the history of regional hydro-politics and geo-politics. I first explore Britain's colonial quest for territorial control, economic exploitation, and political leverage, coupled with the 19th–20th century spirit of the hydraulic mission. Further, I highlight

[2] In 1973, Emperor Haile Selassie inaugurated the 84 MW Finchaa Dam in the Blue Nile Basin. This had been financed by the World Bank, and was, at the time, the largest hydro-electric plant in the country. Other proposals, similar to the development schemes in the Awash Basin, had advocated for the introduction of large-scale mono-culture irrigation, e.g. for commercial sugar production, in the Blue Nile Basin (Awulachew *et al.*, 2009: 83). However, such projects only began to materialise under EPRDF rule (see Chapter Five).

frictions between competing engineers, and frictions between scientific and political rationale, which prevented the implementation of the first Tana-Beles proposals in the early 20th century. I, then, discuss the hydro-developmentalist cooperation plans between the United States and the Imperial Ethiopian Government in the 1950s and '60s, while showing that Haile Selassie's regime, by this time, had internalised a discourse which portrayed the construction of hydro-infrastructure as an inevitable, "sacred duty" for national development. The first Ethiopian water engineers were trained by American counterparts. However, not least in light of fickle geo-political interests, the surveying and capacity-building initiative led by the US Bureau of Reclamation (USBR) came almost entirely to naught in terms of both physical and durable institutional infrastructure. In the following sub-section, I again address the existence of competing hydro-developmentalist proposals, as well as some specific characteristics of the hydraulic engineering industry which additionally explain the long shelf history of projects such as Tana-Beles. In Section 3.3, the chapter turns to the internal deficiencies of the Imperial Ethiopian Government's bureaucratic institutions, including its hydrocracy. I highlight not only the central administration's failure to fully implement its modernisation agenda. Crucially, I address the politics of the early 1970s famine in the northern highland regions. I argue that the famine – despite hydro-developmentalist promises to "develop the [Ethiopian] watershed in the interests […] of her own population" (Haile Selassie, 1958) – coupled with the government's ignorance to the grievances of subaltern, rural populations, significantly contributed to the disintegration of the Ethiopian Empire.[3] In the concluding Section 3.4, I briefly recapitulate the main findings of this chapter, while reflecting on the core characteristics of hydro-developmentalism in imperial Ethiopia.

3.2 Imperial adventures and taboo dreams: Hydro-politics in the Eastern Nile Basin

The way in which contemporary Ethiopian bureaucracies have articulated and implemented hydro-developmentalist dreams in the Blue Nile Basin, and the dream of Tana-Beles, in particular, cannot be fully understood without a review of the first high-modernist plans that emerged from British colonial designs. These were deeply embedded in the idea of 'Nile Control' and Britain's complex power struggles with Egypt, which had achieved formal independence in 1922, but remained under British occupation until 1956.

[3] Famine is an important theme in the story of Tana-Beles. In the early 1980s, a repeated drought event led to the next severe famine in Ethiopia's northern regions. This situation proved an entry point for the Derg's launch of the first Tana-Beles Project, which I discuss in Chapter Four.

As the source of the volumetrically largest water discharge to the Main Nile, Ethiopia's Blue Nile Basin, with Tana and Beles as two of sixteen sub-basins, has an important strategic significance for regional hydro-politics. Academic publications and popular narratives have until recently portrayed Egypt as a 'hydro-hegemon' in the Nile Basin (Zeitoun & Warner, 2006: 460).[4] Indeed, the civilisational and political evolution from ancient to modern Egypt is inextricably linked to the water carried by the Nile. "Egypt is the Nile, and the Nile is Egypt" writes Herodotus (quoted in Gemmill, 1928: 295). Winding northwards through the Egyptian desert, the fertile Nile Valley and Delta are original centres of sedentary farmers, whose agricultural livelihoods depend on seasonal floods – the river crossing its imagined boundary. Until the present day, Egypt's emotional identification with the Nile as its life source has not subsided: "The Nile constitutes the heart of Egypt" (Lasserre, 2007: 107), and "domination over the Nile can be understood as a power both enormous and frightful."[5] Following the overthrow of the Egyptian monarchy in the early 1950s, and modernisation initiatives by the new government, the construction of the Aswan High Dam (1960-1970) – "Nasser's pyramid" – became a concrete symbol of Arab nationalism through which the revolutionary government claimed control of and exclusive rights to the Nile Waters (Cascão, 2009: 257; Colson, 1971; Erlich, 2002).

However, more than 85 per cent of the Nile's water volume reaching Egypt[6] stem from sources in the Ethiopian highlands: the Blue Nile River, flowing from Lake Tana, contributes to 59 per cent of the Main Nile; the Atbara and Sobat rivers contribute 13 and 14 per cent, respectively (Swain, 1997: 675; Hefny & Amer, 2005: 42; Stanley & Clemente, 2016: 9). The Beles River, in turn, is the last major tributary to the Blue Nile within Ethiopia. Ancient Ethiopian literature and folklore display an equally deep-rooted reverence and attachment to the Blue Nile, referred to as *Abbay* in the traditional religious language Ge'ez. Older sources sometimes refer to it as *Giyon* – the biblical river gushing from the Garden of Eden (Genesis 2: 13; Erlich, 2002: 44). Yet, paradoxically, up until the early 21st century, Ethiopia used less than 1 per cent of the Nile Waters for its national development. By contrast, according to Erlich (2002: 7), at the beginning of the 21st century, Egypt depended on more than 80 per

[4] Cf. also Cascão & Zeitoun (2010: 33, 191) for graphic depictions of what the authors describe as Egypt's hegemonic position vis-à-vis Ethiopia and Sudan.

[5] Egyptian Ambassador to Ethiopia during a Roundtable Discussion in which I participated, hosted by the Friedrich-Ebert Stiftung (FES), Hilton Hotel, Addis Ababa, August 2015.

[6] The remaining approximately 15 per cent of the Main Nile originate from a source upstream of Lake Victoria. Much of this water, flowing through the so-called White Nile, is lost to evaporation in the Sudd swamps of contemporary South Sudan. The confluence of the Blue and White Nile is in Khartoum. From there, the two rivers join to form the Main Nile.

cent of the Nile's annual discharge for domestic irrigation, electrification and water supply, and this percentage continues to increase.

Historians explain the asymmetry between extensive downstream and minimal upstream utilisation of the Nile Waters – including the tributary sources and streams in the entire catchment area – as a legacy of British imperialism. Tvedt (2011) illustrates how the geographical and hydrological features of the Nile determined Britain's strategy of domination from the Mediterranean Sea to Lake Victoria. On the one hand, because Egyptian cotton constituted a vital stimulant of the British textile industry, reliable downstream water supply was a primary concern for the British Empire. Concomitantly, this extractive land and water use transformed grassroots Egyptian irrigation systems to large-scale industrial infrastructure. On the other hand, Britain perceived Egypt's absolute dependence on the Nile as a silver bullet against anti-imperial unrest. Upstream control over the river did not only serve British economic interests; it also implied coercive power over Egypt. Following the Berlin Conference, the British East African Protectorate was established in 1895, and Anglo-Egyptian rule over Sudan from 1899 practically implied full British administrative command over the White Nile and its riparians. Ethiopia, by contrast, ruled by Emperor Menelik II, constituted independent territory and held, theoretically, sovereign ownership over the Blue Nile, its sources and tributaries. Thus, Britain sought to safeguard the unhindered flow of water from the Ethiopian highlands by formal treaty obligation. Some authors make detailed (Swain, 1997; Erlich, 2002; Arsano, 2007), elusive (Salman, 2016) or categorically dismissive (Gebreluel, 2014)[7] mention of this agreement, but it is conspicuously omitted from many recent academic and popular narratives of the modern Nile Basin history.

Article III of the 1902 treaty[8] reads as follows:

> His Majesty the Emperor Menelek II, King of Kings of Ethiopia, engages himself towards the Government of His Britannic Majesty not to construct, or allow to be constructed, any work across the Blue Nile, Lake Tsana [sic], or the Sobat which would arrest the flow of their waters into the Nile except in agreement with His Britannic Majesty's Government and the Government of the Soudan.

[7] Gebreluel (2014:26) emphasises that Ethiopia never ratified the Amharic version of the treaty given its incongruent translation.

[8] "Treaties between the United Kingdom and Ethiopia and between the United Kingdom, Italy and Ethiopia relative to the Frontiers between the Soudan, Ethiopia and Eritrea" (15th May 1902), accessed 16th February 2017 via UK Foreign Commonwealth Office Treaty Collection: http://treaties.fco.gov.uk/docs/pdf/1902/TS0016.pdf

From an international law perspective, the contemporary validity of the treaty is disputable but cannot be subject of comprehensive scrutiny here.[9] Suffice it to say that imperial Britain had put in place a legal framework, which was further endorsed in a 1906 colonial border agreement[10] between Britain, France and Italy, with the objective to protect the unobstructed flow of water from the upstream Nile catchments towards areas under British influence.

The British quest for Nile Control

Colonial powers and their scientific communities had a vigorous interest in the Nile Basin. However, the following brief anecdote demonstrates the existence of internal conflict within the hydraulic mission of the early 20th century, its susceptibility to deliberate misinterpretation and manipulation for the sake of personal or political gain. It equally shows that the scientific inquiries conducted by different colonial despatches were by no means apolitical. Sir William Willcocks, initiator of the first Aswan Dam, which had been completed within the then Anglo-Egyptian Protectorate in 1902, championed the idea of a geographically all-encompassing approach to river-basin development (Collins, 1994). Given the Nile Basin's variable exposure to sweeping floods and extreme droughts, in 1920 the Anglo-Egyptian government appointed the so-called Nile Projects Commission, composed of hydrological experts from Britain, India, and the United States, in order to gather hydro- and meteorological data pertinent to (British-controlled) Egypt's foreseeable water needs (Treverton, 2014: 113). However, Sir Murdoch MacDonald, the Scottish author of the ensuing report entitled *Nile Control* (1921) faced falsification charges concerning river discharge and gauge readings, the plaintiff being his rival Sir William Willcocks (Collins, 1994: 109). MacDonald was eventually acquitted, Willcocks found guilty of criminal libel (*ibid.*). There is no conclusive evidence on the nature of the inter-personal antagonism between these two engineers, or whose position was objectively more justifiable. This story serves as an exemplary reminder of the difficulty to establish objective and permanent facts

[9] The Vienna Convention on the Law of Treaties (1969) leaves room for interpretation regarding the preponderance of either Article 31 ("A treaty shall be interpreted in good faith [and] in accordance with [...] its object and purpose" – e.g. the succession of colonial borders after independence, or the prohibition of hydraulic infrastructure on the Blue Nile and its tributaries) or Article 62 ("Fundamental Change in Circumstances" – i.e. the legal 'clean slate' for independent states emerging from colonial rule). Ethiopia holds an ambiguous position: on the one hand, Ethiopia's claim to sovereignty over the eastern Ogaden region is based on a colonial agreement considered binding upon independent Somalia; on the other, the 1902 treaty was nullified at the latest by the 1970s when Ethiopia began construction of the Fincha'a Dam on a Blue Nile tributary (cf. Waterbury, 1987: 95-96).

[10] A transcript of the tripartite treaty 'Respecting Abyssinia, signed at London, December 1906' is available via https://gspi.unipr.it/sites/st26/files/allegatiparagrafo/17-02-2015/agreement_on_ethiopia_1906.pdf (accessed 5th February 2019).

in a setting of fluid and dynamic environmental conditions, competing professional motives and divergent political interests.

In the early 20th century, several colonial expeditions ventured into Ethiopia, despite the prohibitive treaties of 1902 and 1906. These expeditions equipped colonial bureaucracies not only with relevant information to make decisions about the economic development of the cotton industry, but also with knowledge about the potential of regulating the Nile Waters at their upstream source, and thus also the potential of wielding unparalleled influence over the downstream riparians. This is the first time the Tana-Beles water diversion is mentioned. With formal authorisation from Ethiopia's Emperor Menelik II, Engineer Dupuis and Under-Secretary Garstin, who were employed, respectively, by the Egyptian Irrigation Service and the Department of Public Works, undertook a mission to the Upper Nile Basin (Dupuis & Garstin, 1904: xi):

> [to] collect all possible information concerning Lake Tsana [sic] in Abyssinia with a view to deciding whether it could be effectively utilised as a reservoir for the Nile, should such a proposal ever come within the range of practical politics.

The resulting report by Dupuis and Garstin (1904) contained the earliest documented proposals to use Lake Tana as a storage reservoir, to regulate its outflow, and to build a water-transfer tunnel under the western Tana watershed (Grabham & Black, 1925: xi; USBR, 1964: 8). An Egyptian, Sudanese and Abyssinian Commission conducted further studies of Lake Tana and its catchment in 1915; however, "political turmoil interfered with the work" (Grabham & Black, 1925: xii), and the European powers' resources were consumed by the raging of the First World War. During the inter-war years, however, negotiations between "His Britannic Majesty's Government" and "her [sic, un-capitalised] Majesty the Empress of Abyssinia"[11] resulted in the authorisation of a renewed mission to Lake Tana from 1920 to 1921, directed by two public servants of the Anglo-Egyptian Government, and accompanied by two Abyssinian monitors, one interpreter and two surveyors appointed by the Government of Sudan, which was under Anglo-Egyptian rule. Engineers G.W. Grabham, government geologist in Sudan, and R.P. Black from Egypt's Public Works Ministry published the final report in 1925, confirming the superior suitability of Lake Tana as a reservoir and the Anglo-Egyptian "desire" to regulate the lake waters at the outlet.

[11] The title refers to Empress Zewditu, daughter of Menelik II, who reigned from 1916 to 1930 alongside Ras Tafari Mekonnen (Haile Selassie) who was Crown Prince/Regent and later King/Regent during this period.

Towards the end of the dry season, as the above-mentioned report suggests, the Main Nile's volume was insufficient for Egypt's water-intensive cotton and sugar cultivation, whereas supplies could be augmented, such was the reasoning, by reservoirs on the Upper Nile. The principal idea was to convert Lake Tana from a natural to an artificial reservoir – located in an area much less prone to evaporation loss than similar structures further downstream – in order to release its surplus water when supplies were low in Egypt and Sudan (Grabham & Black, 1925: xi). The plans were formulated exclusively in the interest of downstream water consumption, without consideration for water needs within the Ethiopian boundaries. P.M. Tottenham, Under-Secretary of State within the Egyptian Ministry of Public Works is quoted by Grabham and Black (1925: xiv) as stating the following:

> Since the waters of the lake [Tana] can be of no use to the [Ethiopian] inhabitants for irrigation of its shores, while they would be of considerable value to Egypt and the Sudan, it is hoped that the Abyssinian Government will grant the desired facilities for their regulation at an early date.

The Anglo-Egyptian bureaucrats blatantly dismissed customary uses of Lake Tana and the needs of local populations around its shores, whilst portraying the downstream demands for large-scale, extractive hydro-infrastructure as both legitimate and rational. However, despite the fact that the expeditions never expressed a false intention to serve Ethiopian needs and interests, the emissaries were careful to observe diplomatic protocol. This involved obtaining the *laissez-passer* authorisation into the field from both central and local Ethiopian authorities. Grabham (1925: 1) narrates: "His Highness remarked that we had been asked to come to the capital, [because] no one had been able to explain exactly what interested the British Government in connection with Lake Tana." Furthermore, according to Grabham (*ibid.*): "It was clear that any scheme which involved raising the level of the lake and consequently flooding its shores would not be looked on with favour." Consequently, the members of the mission, along with several Abyssinia-based British diplomats, were received in Addis Ababa by Crown Prince and Regent Ras Tafari – later referred to as Emperor Haile Selassie – in May 1920.

As a result of the visit, Grabham followed the Abyssinian Government's request to produce a report about the issue of water supply in Addis Ababa, before the mission set out on its journey across the Blue Nile to the Tana watershed. In the course of the expedition, not only the onset of the rainy season posed challenges: local chiefs and rulers on both sides of the Blue Nile expressed strong scepticism of the foreign presence. Some refused to recognise the

permits that had been issued by the central government. In one case, "particular objection was raised to the pieces of red and white cloth used on the ranging rods. These were regarded as flags, and presumably [they] were thought to indicate that strangers were taking possession of the country" (Grabham & Black, 1925: 3). Indeed, the perception of these local chiefs corresponds well with Bassett's (1994: 316) observation that "mapmakers participated in the conquest and colonisation of Africa." They "promote[d], assist[ed] and legitimate[d] the extension of [hierarchical] power" (*ibid.*), thus producing new spaces for imperial self-assertion. Even though the ranging rods used by Grabham's expedition did not symbolise territorial claims, Bassett shows that scientific and cartographic techniques "furthered imperialism [by] providing detailed information on the location of villages, roads, and natural resources" and "celebrated the appropriation of African space" (*ibid:* 317).

As for the local inhabitants near Lake Tana, Grabham (1925: 8) further reported that these too "were clearly very concerned about the intentions of the Mission, and a large crowd which followed [him] made it impossible to undertake any details of survey work." Notwithstanding the myriad obstacles posed by adverse weather, scattered local resistance, as well as practical and methodological limitations, Grabham and Black delivered an extensive scientific report which argued in favour of hydraulic interventions in the Upper Nile Basin. However, imperial British interest in the regulation of Lake Tana was conditioned upon "the range of practical politics" (Dupuis, 1904), that is, the question of full British authority over the flow of the waters – *Nile Control*. Without the corresponding mandate in independent Abyssinia to bring the outlet of Lake Tana under full British command, the scientific expeditions to the Blue Nile Basin remained speculative and theoretical.

The first Tana-Beles proposals: Friction between science and politics

One of the first recorded physical explorations along the Blue Nile River in the 20th century was conducted between 1926 and 1933 by an English consul, Major Cheesman. Appointed to north-west Ethiopia in 1925 and based in Dangila, not far from the hydrological border between the Tana and Beles sub-basins (Guariso & Whittington, 1987: 107), the consul was astonished that "such a famous river [the Blue Nile], and one on which Egypt had depended for its prosperity throughout the ages, could have been so long neglected" (Cheesman, 1936: 1). The Englishman was equally determined that "the broken line marking the southern limit of [his] district had to be changed to a firm black one" (*ibid:* 3). Given the deep gorges and almost impassable terrain through which the Blue Nile flows – according to Cheesman, its

valley was "the only part of Africa that had resisted the invasion of the motor-car" (*ibid:* 2) – the river's exact course was unknown, at least to imperial Europe, until the 1930s. The consul hyperbolically refers to the Blue Nile Valley as the "last and only frontier" left to be reached by modernisation. Based on a Euro-centric and colonial worldview, he thus portrays the area as an ultimate periphery. Cheesman's deliberations and his urge to draw the borders of "his" district are reminiscent, on the one hand, of the spirit of the adventurer, taking ownership of that which, from his external perspective, is 'unexplored'. On the other hand, Cheesman's approach reflects the contemporary era of colonial conquest and the scientifically corroborated process of both the pushing of frontiers, and of *spatialisation* – the production of space to be incorporated into the dominant political system (Lefebvre, 1974). Colonialism and the science linked to colonial ventures thereby implied the construction of hegemonic regimes in abstractly delineated sites and regions, and the division of the world into modern centres and backward peripheries. The 'peripheries', however, constitute spaces central to indigenous lifestyles and values, which 'non-indigenous' planners often disregard (Abbink, 2012).[12] In his memoirs, Cheesman mentions the earlier proposal for a connective infrastructure between Lake Tana and the Beles River, and counters this with scepticism. The most decisive reason for Cheesman's dismissal of this idea, rather than the, in his opinion, missing economic benefits, was the concentration of Britain's effective sphere of influence further downstream of the Blue Nile. He writes from the perspective of a diplomat and public servant, not as a hydrologist (Cheesman, 1936: 219):

> [T]he suggestion has been made that it would be possible to tap the lake [Tana] by a tunnel through the hills and drain it [...] into the Basin of the Balas [sic] River and join the Blue Nile [...]. It was never made very clear, by the author of the scheme, what benefit, if any, would be derived from such an expensive undertaking.

The development of hydro-infrastructure in territories outside colonial command was thus not a logical investment from the British perspective; from 1939 to 1945, it was no longer a feasible one either. In the following decades – against the backdrop of World War II and its aftermath – several experts argued, more or less independently of each other, for dam construction in upstream Ethiopia, rather than in Egypt, to minimise evaporation losses from the reservoir. A New York private engineering cooperation, G.J. White, proposed to build a self-funded dam at Lake Tana with the aim to profit from water sales. Surveys, costing USD

[12] I further discuss the dichotomous centre-periphery perspective and a re-conceptualisation thereof in Chapters Five and Six with reference to the EPRDF government's later implementation of the Beles Multipurpose Project and growth corridor concept.

10-15 million, were undertaken in the Lake Tana area and at the proposed dam-site between 1930 and 1934. The projects failed to materialise not only due to Italy's second invasion into Ethiopia (1935), but also given objections by the British Labour government (Tilahun, 1979: 99; Collins, 1994). In the context of the Second World War, however, an Anglo-Sudanese special unit, the Gideon Force, supported Ethiopia's regular army in the fight against Italian occupation, and Major Cheesman's knowledge of the Beles sub-basin proved of vital significance for anti-fascist war tactics in Ethiopia (Shinn & Ofcansky, 2013: 293). Post-war plans by the British hydrologist Harold E. Hurst, in the late 1940s, targeted water storage and dam construction in the Blue Nile Basin, but suffered the same fate as earlier proposals by different scientific and corporate groups interested in this catchment area: they remained ideational. Parallel to the comprehensive and ambitious *Century Storage Scheme*,[13] a classified British study suggested a 58 MW hydropower plant at the Tis Issat Falls near Lake Tana and – again – a water diversion tunnel from Tana to the Beles River "where it was estimated that the hydropower station could generate as much as 240 MW (a considerable amount at this time)" (Hårsmar *et al.,* 2016: 192).

Yet, at the same time, the political barriers to the implementation of these proposals for the Blue Nile Basin had been cemented by two bilateral treaties, building on the 1902 and 1906 agreements, which aimed to prohibit any hydraulic obstruction of the upstream Blue Nile, lest with permission from downstream riparians. The first treaty was concluded between Egypt and Great Britain in 1929; the second, in 1959 between Egypt and post-independence Sudan. Both documents were treated by the signatory parties as legal enshrinements of Egypt's and Sudan's 'acquired right' to the 'Full Utilisation of the Nile Waters' (Tvedt, 2011). Ethiopia and other upstream riparians of the White Nile were consistently excluded from – and opposed to – these agreements. Within these treaties, the allocation of water rights reflects their colonial vestige: Egypt claims three-quarters of the Nile's annual discharge volume – according to the treaty, 55.5 billion cubic metres (bcm); only 18.5 bcm are allocated to Sudan; none to Ethiopia. Tvedt (2011) explains that, within the first Nile Waters agreement of 1929, the concessionary approach of the British Empire towards Egypt, which had been nominally independent since 1922, is – among others – related to the negotiations about controlling the Suez Canal Zone, Europe's gateway to the Indian Ocean. The legal partitioning of the Nile Waters was a crucial diplomatic tool for power leverage. Sudan has

[13] The Century Storage Scheme was elaborated by British experts over the first half of the 20th century and consisted of proposed dams along the entire length of the Nile. Lake Tana "was considered a masterpiece" in this plan as a significant potential source of hydropower (Hårsmar *et al.,* 2016: 192).

historically disapproved of the inequitable distribution of the water share, however, without abolishing the treaties (Arsano, 2007). From a scientific perspective, however, Whittington *et al.* (2014: 15) point out that the "average annual flow of the Nile has been above the 84 bcm assumed in the 1959 Agreement, and this long-term mean has not been adjusted as the provisions [of the treaty] require." Sudan, the authors add, which has hitherto only exploited a small percentage of its allocated 18.5 bcm, may significantly impact Egypt's water availability if the ongoing construction of Sudanese hydro-infrastructure (Verhoeven, 2015) enables the full exploitation of the share by 2025.

These discrepancies between the treaty's water allocation and actual, as well as prospective, water use reveal significant friction between science and politics. The Nile Basin is, in fact, characterised by extreme variability in terms of rainfall and hydrology – both across years, across seasons, and across space (Melesse *et al.*, 2014). Nevertheless, the legal reference for the allocation of the Nile Waters, based on the colonial treaties, has derived from the use of fixed volumetric quantities. Although there is scarce academic criticism of this regulation, it is scientifically problematic. Politically, the imperial Ethiopian authorities openly challenged the validity of Egypt's 'acquired rights' to the largest volume of the Nile's discharge. At several instances, Ethiopian governments invoked instead the 'natural right' – based on geographic location and territorial sovereignty – to upstream water resource development (Waterbury, 1987: 96; Priscolli & Wolf, 2009). However, while the development of hydraulic infrastructure in the Upper Nile Basin seemed to make sense scientifically, corresponding proposals were, throughout the 20th century, repeatedly trumped by the combination of Nile Basin hydro-politics and Cold War geo-politics.

Hydro-developmentalist cooperation plans between the United States and Imperial Ethiopia

In 1958, Emperor Haile Selassie issued a statement, appearing in the *Ethiopian Observer* (Vol. II, No. 2, 1958: 93), which communicated strong objection to downstream unilateralism in the Nile question. The Emperor did not only invoke the "paramount" urgency of modernisation and industrialisation – "a problem of first order" – to be addressed through the construction of hydraulic infrastructure. He also expressed a sense of national endowment with inviolable and sacrosanct rights to the Nile Waters, and duties towards the contemporary and future population of Ethiopia. Hydro-developmentalist rhetoric, as well as its inherent ideology, had gained ground in Ethiopian politics. Arsano (2007: 101, 154) quotes Haile Selassie's statement:

> We have already explained that the plans are under construction to utilise our rivers as an essential step in the development of agriculture and industry […]. It is of paramount importance to Ethiopia, a problem of first order that the waters of the Nile be made to serve the life and the needs of our beloved people now living and those who will follow us in centuries to come. […] Ethiopia may be prepared to share this tremendous God given wealth of hers with friendly nations neighbouring upon her. [However,] it is Ethiopia's sacred duty to develop the great watershed which she possesses in the interests of her own rapidly expanding population and economy. To fulfil this task, we have arranged for the problem to be studied in all its aspects by experts in the field.

In this context, the US Department of State, Bureau of Reclamation (USBR) supported the Ethiopian Ministry of Public Works and Communication in the implementation of an extensive new survey of the Blue Nile Basin, conducted between 1958 and 1963. Further, the collaboration aimed at the establishment of national water management bureaucracies, which did not exist in Ethiopia at the time. The resulting report, published in 1964, is a crucial reference, both with regard to previous proposals for the exploitation of the land and water resources of the Blue Nile Basin, and as a baseline for later designs and master plans. Based on the report alone, the United States comes across as a benign supporter of hydro-developmentalist modernisation in Ethiopia. Unlike the earlier imperial British proposals, there seems to be no explicit self-interest in the American cooperation plans. The authors of the USBR report rather present the partnership as based on purely benevolent, technocratic and apolitical foundations. However, at a time when post-war America began to seek global pre-eminence, its engagement must be viewed in the context of the beginning Cold War power struggles. Tilahun (1979: 29) claims that the United States conducted the costly and time-intensive surveys merely as a scheme "to add to Egyptian nervousness" after President Nasser had antagonised the US with pro-Soviet inclinations. The author further suggests that the United States had no intention to truly implement these plans (*ibid.*).

The US foreign policy towards Ethiopia was equally a reflection of President Truman's 'Point Four' programme. This scheme involved the delivery of technical assistance to 'developing countries' through a massive bureaucratic apparatus which generated employment for new professional groups of experts, dedicated towards applying their skills in the so-called 'Third World'. The US and the Imperial Ethiopian Government jointly financed the 'Blue Nile, or Abbay, Basin Study Programme.' Each side carried the personnel costs of their respective staff involved, and the partners co-directed a fund for material and overhead costs until its management was gradually transferred into Ethiopian ownership. The three major objectives of the partnership involving the US Bureau of Reclamation, the freshly

created US Agency for International Development (USAID) and the Ethiopian Ministry of Public Works and Communication, are listed as follows (USBR, 1964: i):

> (1) To conduct an investigation of the land and water resources of the Blue Nile River Basin;
>
> (2) To assist in the establishment of an appropriate administrative and engineering organisation within the Imperial Ethiopian Government that would, in time, be capable of continuing this investigation and, at a later date, undertake similar investigations within other geographic areas of the country; and
>
> (3) To train Ethiopian personnel as appropriate in the administration of this organization, departmental and field, consistent with the availability of engineering-educated Ethiopian personnel for training.

The objectives were met to the following extent: (i) the report itself which provided detailed descriptions of the land and water resources in the Blue Nile Basin (USBR, 1964); (ii) the establishment of the first formal Ethiopian institution dedicated to a hydro-developmentalist mission, the Water Resources Department (WRD) within the Ministry of Public Works and Communications; and (iii) the growing number of Ethiopian experts, joining a new pool of human resources, trained to address national development within a paradigm of hydro-developmentalism. Strategically, the WRD was expected to generate a knowledge base, including aerial maps, hydro-meteorological data and a water resources inventory. Such data was supposed to complement negotiations concerning the development of upstream hydraulic infrastructure with downstream neighbours. However, as I demonstrate in Section 3.3, the Ethiopian hydrocracy and other bureaucratic institutions were far from well consolidated by the time the five-year USBR-led project came to a conclusion in 1963. Significant challenges also arose in terms of resources, operational capacity and efficiency (Interview XV, 02/2018). Meanwhile, the hydro-political discussions between Egypt and Sudan, about the 'Full Utilisation of the Nile Waters' resulted in the 1959 bilateral agreement, from which Ethiopia's rights and interests in the Blue Nile Basin were blatantly excluded (Arsano, 2007: 128).

Nevertheless, the Ethio-American cooperation project contributed significantly to the formation of the Ethiopian hydrocracy. The American experience of the Tennessee Valley Authority (TVA) served as a model for the creation of hydro-developmentalist structures and institutions in Ethiopia, and initial focus was placed on the Blue Nile Basin. All Ministries of the Imperial Ethiopian Government were supposed to have access to the services provided by the Basic Surveys and Mapping Division under the WRD. Thereby, the WRD obtained the purpose of a central institution whose implementation areas would be incrementally up-

scaled to other river-basins in Ethiopia (USBR, 1964: 17). Figure 3.3 (at the end of this section) illustrates the implementation of the knowledge transfer between US experts and the young Ethiopian professionals: the American senior specialist, confident and professional, casually enjoys his cigar, while he bends over some maps or plans with a knowing smile, framed by two junior Ethiopian engineers, attentively but sternly listening to the instructor's ideas and observing his movements. The three men, depicted from a worm's-eye view, look concentrated, self-confident, and determined. The age difference between the American expert and his Ethiopian trainees produces a somewhat paternalising effect. It is an inherently top-down affair. Presenting the American foreign aid to Ethiopia as a success story was clearly of great importance to the authors of the USBR report – it was also a representation of geo-political alliances and influence.

Engineering proposals for the Blue Nile Basin had "a certain inevitability about them," not only in light of rapid population growth and development aspirations, but also being "economically attractive" in themselves (Guariso and Whittington, 1987: 105). In this vein, the USBR report proposes, among several other hydraulic schemes, four high dams along the Blue Nile,[14] a hydroelectric power plant in connection with the Tana-Beles water diversion, and large-scale irrigation projects in the Upper and Middle Beles Valleys (USBR, 1964; Waterbury, 1987; Collins, 1994). Most of these project ideas were largely extensions of pre-existing proposals deriving from colonial expeditions, which the report lists in conscientious detail. The reasons why these numerous plans, which the 1964 USBR report reiterates and expands on, were not implemented are multi-faceted. It is clear that the realisation of the project ideas would have been a politically risky venture, given Egyptian opposition to any such attempts. Operational policies of funders, such as the World Bank,[15] generally preclude assistance to upstream water resource development in case of downstream objection (Foulds, 2006: 84).

However, it is difficult to argue that the USBR Blue Nile study programme was – by default – a mere paper mill, as Tilahun (1979) would suggest. The original copies of the report at the MoWIE Library in Addis Ababa feature several volumes with meticulously elaborated annexes containing 200-500 pages each with plenty of maps, statistics, engineering designs

[14] The four proposed dams were Mabil, Karadobi, Mendaya and a border dam, which represents today's Grand Ethiopian Renaissance Dam (GERD) whose construction began in 2011 (Eguavoen & Tesfai, 2012: 42).
[15] See also: World Bank Operational Manual (2001) BP 7.50 - Projects on International Waterways, accessed 30th January 2017 via https://policies.worldbank.org/sites/ppf3/PPFDocuments/090224b08235b41f.pdf. This World Bank Policy has in essence been valid since the early years of its foundation in the 1940s.

and projections. A massive bureaucratic apparatus and substantial human and financial resources were mobilised on both ends of the US-Ethiopian partnership. Thus, it is puzzling that the plans came to naught for such a considerable time after the project concluded in 1964. It is indeed important to understand the American involvement in Ethiopia's Blue Nile Basin against the background of Cold War geo-politics. Although the American foreign policy towards Egypt cannot be addressed comprehensively here, major events, such as the 1956 Suez Crisis, and the abrupt withdrawal of US support to the construction of Egypt's Aswan High Dam (1960-70) because of the latter's alignments with communist governments, significantly influenced the United States' strategy towards Ethiopia. The possibility to control and regulate the Nile Waters through hydro-developmentalist interventions implied deterrent power over the fate of Egypt. Yet, the archived studies represent a form of ruins, because the projects' paperwork had begun to collect dust long before the planned infrastructure's cornerstone was laid. Not only the proposed hydraulic infrastructure but also the institutional development of Ethiopia's hydrocracy was profoundly delayed. While the Imperial Ethiopian Government had envisioned the creation of a competent national body in charge of water resource development, it took several decades before a fully-fledged executive Ministry of Water Resources was established in 1995 (Arsano, 2007: 126). Until then, the "bumpy political climate and rather weak economic development" (*ibid.*), as well as the emergence of project-specific rather than national-level approaches, implied a discontinuous trajectory regarding the evolution of Ethiopian water sector institutions.

Competing proposals and industry-related reasons for long shelf histories

Meanwhile, the United States was not the only proponent of projects to exploit the resources of the Blue Nile Basin. Pursuant to the spirit of the hydraulic mission, discussed in Chapter Two, various foreign companies participated in the export of infrastructural engineering expertise. They therewith competed against other interested parties, both private and public, for the acquisition of hydro-developmentalist assignments. In the 1950s, the German electrical engineering company Siemens-Schuckertwerke Aktiengesellschaft – forerunner of the present-day Siemens AG – submitted a report to the Imperial Ethiopian Government entitled 'The Explitation [sic][16] of Lake Tana for Irrigation and Hydro-Electric Power.' Here too emerges the idea to divert water from Lake Tana through a pressure tunnel. A preliminary commentary of the report refers to the "investigations [which] are being made by American

[16] The spelling error on the very cover page of the report intended for the Imperial Ethiopian Government indicates the urgency under which the document was compiled and submitted.

engineers […] into possible schemes in the area of Lake Tana." The note continues: "For this reason it seems expedient and also useful […] to bring the results of independent studies carried out by Siemens to the notice of the interested parties" (Siemens, 1956: 1).

The German company clearly desired to stand out from other proposals. Therefore, the idea proffered by Siemens differed significantly from the various above-mentioned Tana-Beles proposals – not in terms of essence, but in terms of design. Siemens proposed to locate the project site on the north-western, rather than south-western shore of Lake Tana, into an area which the USBR report had left blank (see Figure 3.4). However, the suggestion equally geared towards large-scale infrastructure, constituting "a very extensive multi-purpose scheme, which may be of decisive importance in the further development of Ethiopia" (Siemens, 1956: 2). It is conspicuous that the authors of the German proposal relied exclusively on data obtained from older reports. For example, its calculations of Lake Tana's water level, discharge, and volume were based on numbers more than three decades old, from the 1925 Grabham and Black report. This puts the purported 'independence' of the German study into question. Further, the authors acknowledged the existence of older plans to regulate the outflow from Lake Tana and divert its water into the Beles sub-basin (Siemens, 1956: 3-4):

> [S]everal experts have already proposed that a diversion be provided by tunnelling the [Tana] watershed on the western shore and the water conveyed to a network of streams with a higher head than that of the Blue Nile. Thus in the early years in particular there was talk of conveying the discharge from Lake Tana into the Balas [sic][…].

Siemens, however, foresaw the construction of a diversion tunnel spilling not into the Beles River but into the Rahad and Atbara watersheds further north. Although the Siemens report proffered a number of arguments to claim the comparative advantage of its proposal, its location in a region which was even more secluded and inaccessible than the Beles Valley likely made it unfeasible from the very start. It furthermore indicates that the company's planners mainly based their knowledge about the area on maps and findings from other expeditions, rather than their own explorations in the field. The hydro-developmentalist *zeitgeist* of the mid-20th century propelled a large number of experts, companies, and governments to articulate infrastructural dreams, proposals, and projects, both for economic and for political reasons. Some of these projects were more realistic than others; however, the mere participation in the scramble for tenders appeared to have implied an important status symbol.

A remark within the Siemens report provides an interesting clue about the general nature of procedures and construction delays in the hydraulic engineering sector. These serve as additional explanations for the long shelf histories of many hydro-developmentalist plans. The authors of the report write, almost as an advance apology with regard to their own proposal (Siemens, 1956: 7):

> As is the case in many new plants, and particularly with those in underdeveloped countries, a partial construction will at first be considered which corresponds to the small demands, and which will perhaps not be completed to the final stage of construction for decades.

The moderate intermediary objective on page seven seems contradictory to the "very extensive multi-purpose scheme […] of decisive importance for […] Ethiopia" that Siemens had advertised on page two of the report. Rather than the few years, for which project budgets tend to be allocated, the engineers assume the implementation of a comprehensive hydraulic scheme to take decades. Indeed, the suggestion that the timeframe for the ultimate completion of large-scale hydro-developmentalist plans often far exceeds initial estimates – even after the beginning of construction – reflects a general reality.

In fact, the reasons for the failure to materialise, for the delay, or for the ruination of hydro-infrastructural projects are multi-faceted and, among others, conditioned by the self-interests of different constituents within hydro-developmentalist assemblages. Ansar *et al.* (2014) emphasise that hydraulic engineering enterprises depend on high initial capital investments; however, planners often underestimate real costs, benefits, and timeframes of their projects, leading to frequent schedule overruns. The authors refer to such "planning fallac[ies]" as "psychological delusion" – nurtured by a hubristic and competitive trait of the hydraulic mission. "Political deception", by contrast, denotes the deliberate "strategic misrepresentation by project promoters" vis-à-vis their public clients. This involves biased forecasts and *ex ante* assessments to influence political decision-making to a given stakeholder's advantage in order to win a tender (Ansar *et al.*, 2014: 44). An additional consideration shared by planners, investors, and public owners of hydro-infrastructure is the size-profit correlation, based on the expectation that the larger the scheme, the greater the return on investment, even though this has not proven to be axiomatically true (Pearse-Smith, 2014). From a general perspective, Garandeau *et al.* (2014: 3) found that large-scale hydraulic development schemes "become projects well before they are built and operated." The mere imagination of such schemes consumes significant human and capital resources, even before the decision to

construct is validated. At the same time, Pearse-Smith (2014: 128) notes: “once they are conceived, large dam- [and other hydraulic] projects never really disappear. Instead, they sit on developers’ shelves ready to re-emerge when the development climate is amenable”. This observation corresponds with Timberlake’s (1988: 69) notion that “white elephants can have a momentum of their own”, quoted in the Introduction to this thesis. Regardless, the ‘amenability’ of the ‘development climate’ – political, social, environmental context – is a crucial factor for the realisation of large hydro-developmentalist plans.

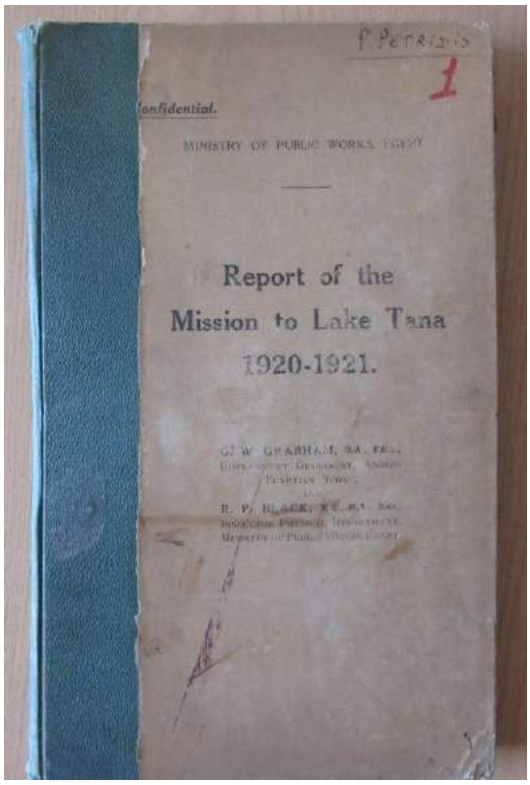

Figure 3.1 *Cover of report produced by Grabham and Black (1925) on behalf of the Egyptian Ministry of Public Works (© KF)*

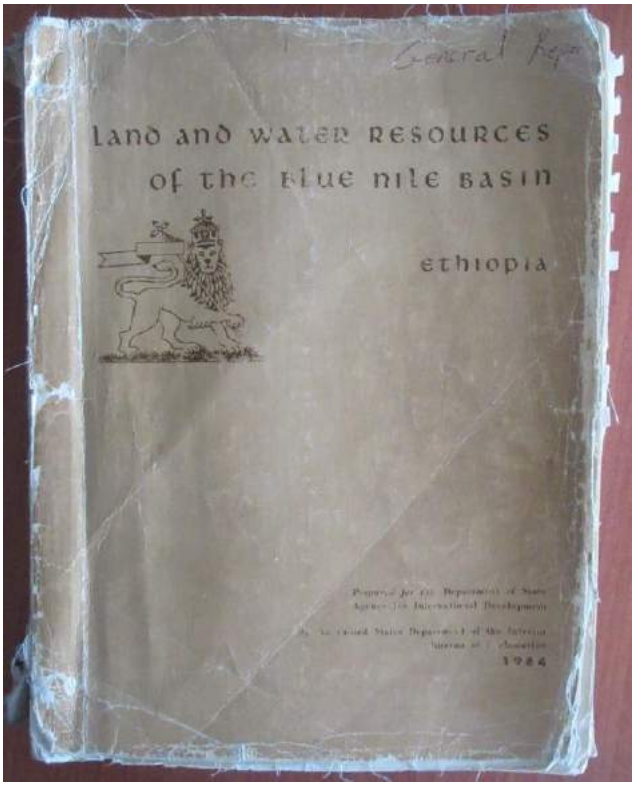

Figure 3.2 *Cover of reconnaissance report prepared by the US Department of the Interior, Bureau of Reclamation (USBR) in 1964 (©KF)*

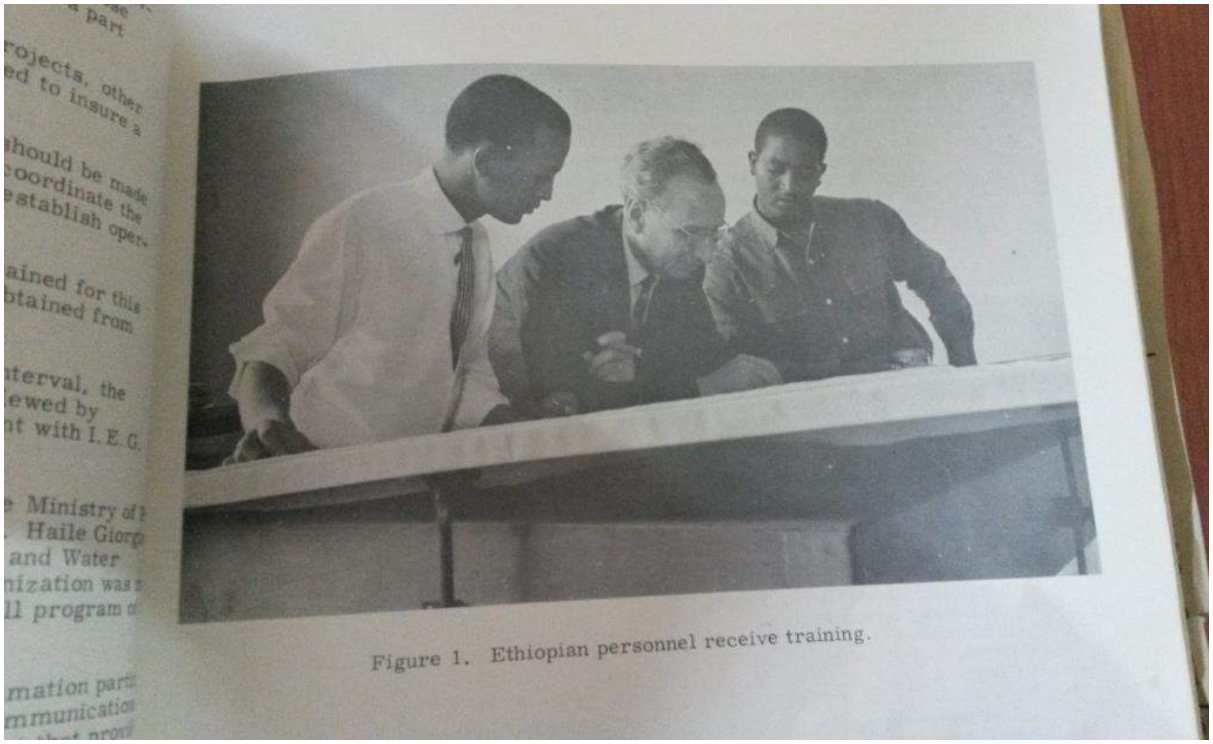

Figure 3.3 *Depiction of 'personnel training' through American senior expert despatched from the US Bureau of Reclamation (USBR, 1964: 5 ©KF)*

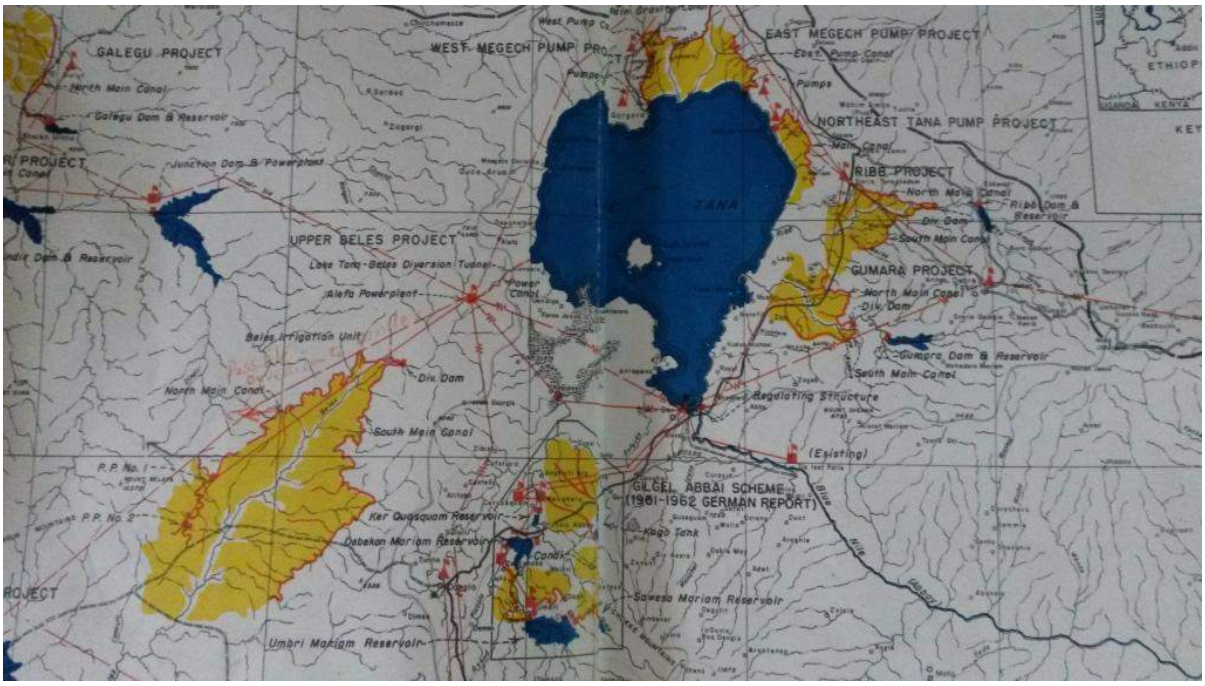

Figure 3.4 *Hydropower and irrigation schemes proposed by the USBR for the Blue Nile Basin, April 1964. Reservoirs (blue), irrigated project land (yellow), power plants (red flags), transmission lines, canals and tunnels (red) – (USBR, 1964: appendix ©KF)*

3.3 Troubled waters: Internal deficiencies of the Imperial Ethiopian Government

The following sections elaborate on the above-mentioned "development climate" (Pearse-Smith, 2014: 128) with a focus on deficiencies within the Imperial Ethiopian Government's administration. These deficits did not only contribute to Haile Selassie's overthrow in 1974. They are also significant factors explaining the failure of the 20th-century hydro-developmentalist dreams to come true. Although the Emperor adopted a rhetoric which promised to serve the development "needs of our beloved people" (Haile Selassie, quoted in Section 3.2), the upper echelons of his administrative bureaucracy were to a large part staffed with loyal supporters of the central regime's power consolidation. Foreign imperial notions of hydro-developmentalist control over water, land and people, resonated well within the hierarchical structure of the Ethiopian state. At the same time, the ignorance to the real drought emergency and the resulting famine in the early 1970s, demonstrates the government's fatal self-centredness.

Emperor Haile Selassie was not only one of the longest standing and most defining heads of state in modern Ethiopia, but also one perceived with great ambivalence, both revered as divinely appointed *Neguse Nigist* ("King of Kings") and abhorred as an absolutist autocrat within a system of feudalism and "nefarious imperialism" (Silberman, 1960: 142; Abraham, 2001). Across a time-span of several decades, the Emperor played a significant role in the export of the image of Ethiopia as a progressive nation in the international arena – among others, within the League of Nations in the 1930s, the United Nations after World War II, and the Organisation of African Unity, strategically headquartered in Addis Ababa from 1963. Domestically, Ethiopia's first written constitution was introduced in 1931, reserving power for the nobility, but making provisions for democratic rule at an unspecified future time (Nahum, 1997). During the years of Italian occupation, from 1936 to 1941, the Emperor and his entourage went into exile in England, entertaining close ties with the British government whose support was decisive in the defeat of Italian colonising troops and their withdrawal from Ethiopia. The 1950s and '60s are of particular importance for the context of this thesis, as Ethiopia's modernisation trajectory – continued from the process begun by Emperor Menelik II – reached a new momentum through the formation of modern professional elites, educated at academic institutions both in Ethiopia and abroad. A revised constitution in 1955 symbolically extended political participation to the people by election of the lower house of parliament. However, Ethiopia as a whole remained an autocratically ruled state within the framework of its ancient monarchical structure and with no room for party politics. Selective

initiatives to reform the feudal system of taxation and land ownership were hampered by resistance of the entrenched aristocracy, which in turn cemented the lack of freedom of the peasantry.

Crewett *et al.* (2008: 6) summarise previous scholarship on the imperial Ethiopian land tenure system: "land was concentrated in the hands of absentee landlords, tenure was highly insecure, and arbitrary evictions posed serious threats to tenant farmers." However, the authors (*ibid.*: 7) equally point out that imperial Ethiopia featured a complex combination of different land tenure systems "usually associated with a spatial distribution between the North [highland Abyssinia] and the [gradually conquered] South (Jemberre, 2000; Pausewang, 1983) or, put differently, the central core and the periphery (Donham, 1986) of the Ethiopian empire." Despite the introduction of 12 and later 14 administrative provinces between the 1940s and 1960s, including Eritrea as one of them, Haile Selassie's regime remained highly centralised and discriminatory against the country's various ethnic groups within the machinery of the empire. This was dominated by highland Amhara and Tigrayans. Marcus (1983) further elaborates on the "selective modernisation" pursued by Haile Selassie at the interface, not only of urban and rural dwellers, but also of conservative, traditionalist groups, such as the imperial court, parliament, and the Ethiopian Orthodox Church, as opposed to the progressive, newly educated intelligentsia. The creation of what is today Addis Ababa University, and several other educational institutions, with support from various foreign partners, as well as the formation of several new central state bureaucracies were paradoxically not only beacons of progress and development. The non-traditional academic institutions, which were particularly receptive to left-wing sentiments from abroad, also came to contribute most significantly to the downfall of Haile Selassie's regime in the revolution launched by the armed forces in February 1974.

Imperial Ethiopia's Achilles heel: Traditionalist versus modernising elites

Clapham (1969: 119) describes the personalised leadership style of the Emperor as having generated an "absorptive polity […] unadapted to any goal-oriented development programme." Indeed, other scholars confirm the inertia caused by the imperial bureaucratic institutions which were at the same time intended to advance modernisation and preserve the centralisation of authority. Abraham (2001: 166) quotes scholar Dr. Alemayehu Gebre-Medhin:

> [Haile Selassie] used the bureaucracy to promote and implement policies that he personally approved. [This] in turn undermined professionalism and spawned corruption. He appointed his cronies to manage and operate the public institutions; and they acted in their self-interest, leaving the affairs of the public unattended. The inefficiency of the Ethiopian bureaucracy became intolerable, often resulting in considerable expense and inconvenience to the common people seeking public services. Bribery, corruption and graft became the lubricants of the bureaucracy.

By contrast, foreign educated young Ethiopians were "a separate class with plenty of their own problems", writes Silberman (1960: 150). He continues (*ibid.*):

> Many object to personal rule as capricious and chafe at the patronage that goes with an old aristocracy. The ministers in turn find the young men half-baked and devoid of political sense. They cleave to the formulas learned in textbooks. […] some novels have been written about the intellectual who returns from schooling abroad and cannot find a suitable job. The insecurity of service saps vitality. Good men are wasted in minor positions; fear of demotion wastes good men in senior ones.

The recruitment of foreign experts "wherever a country has become famous for a certain aspect of modern life" – e.g. the Swedish in the realm of the Air Force, Norwegians for the Navy, Italian engineers for the ports, Americans on the highways and British in the police - was a strategic calculation by Haile Selassie to nurture foreign relations, at the same time as addressing domestic development demands. However, Silberman (1960: 151) importantly highlights the complicity of many such foreign experts in exacerbating the inefficiency of Ethiopian bureaucracies for reasons of convenience, personal advantage and professional survival:

> […] the foreign experts find the old men [within the bureaucratic institutions] who do not pretend to meddle in the technical aspects of the ministries easier to get on with than the intelligentsia and more aware of the political possibilities. Once a foreigner has won their confidence he enjoys it wholly and is kept on even after his usefulness is past.

Ethiopia's emerging hydrocracy, such as the above-mentioned Water Resources Department within the Public Works ministry, was not an exception to the dilemma between the desire to implement professional expertise and the political intricacies of a self-interested bureaucracy, revolving around the orbit of the ubiquitous imperial majesty. The imperial regime was "keen to determine the water resource potential of [Ethiopia's] river basins and to invite foreign capital to invest in agro-industrial enterprises in these areas" (Rahmato, 1999: 7). Modern water resource development schemes were mainly concentrated in the Awash Valley, and

incrementally expanded to the Wabe Shebelle and Rift Valley basins. Rahmato (1999: 5) writes further:

> Essentially, the government's interest at the time centred almost entirely on large-scale and high technology water projects: hydro-power dams, irrigation schemes, and water supply projects for Addis Ababa and a few major towns. Since then, all large-scale schemes in the country have been constructed at the initiative of the government, and managed by state or para-statal enterprises.

As discussed in Chapter Two, the 'technological promise' of large-scale water projects was particularly appealing to both authoritarian governments and international development agencies in the 1950s to 1970s. It legitimised interventionist governance, the creation of strong central planning authorities and the propagation of physical engineering solutions to development challenges. However, partly caused by the internal deficiencies within the Ethiopian state bureaucracies, and partly by the influence of external forces, aggravating the grievances of the poor population, which were most vocally uttered by movements of university students in Addis Ababa, the imperial regime began to falter already in the 1960s. Despite a coup attempt by the Imperial Bodyguard – an early warning sign – Haile Selassie's government failed to release its centralised grip of power, while the process of modernisation was slow-moving and traditional political stakeholders' interest in reforming the aristocratic governance structures half-hearted at best. Abraham (2001: 180) further explains:

> Although Haile Selassie led the early [professional, and often foreign educated] elite of the turn of the century and tried to broaden the elitist core [in the 1950s] as a countervailing force against the conservative aristocrats, his relation [with the elite] was punctuated by many ups and downs. One of the problems was that, while the majority of the post-war elite […] worked for the government, they had also begun to question it.

The cost of failing administrations: From drought to the politics of famine

Exogenous sparks for Haile Selassie's downfall were not only provided by the domestic repercussions of the global financial and oil crisis in the early 1970s. Three thousand years of monarchical leadership in Ethiopia came to an end in the wake of intense and widespread drought. Given the absence of functioning structures – both in terms of political will and in terms of implementation capacity – for the early mitigation of the drought, the resulting 1973 famine in Ethiopia was disastrous. Water and food security are pivotal elements of hydro-developmentalist discourses, to which also Haile Selassie subscribed. Yet, even when early signs of drought became increasingly obvious in the early 1970s, the monarchy's initial reaction was inaction. The politics of famine are an important element in the story of Tana-

Beles, as I show in Chapter Four. In this section, I therefore discuss how the transition from drought to detrimental famine reflected a political failure which the Ethiopian Empire did not survive. Too big were the grievances and the resulting opposition from various sections of the Ethiopian civilian and military population.[17]

Drought can be defined from a hydrological perspective, as well as from a social and economic one. Most succinctly, drought signifies "a period of time when an area or region experiences below-normal precipitation", causing water deficits within components of the hydrological cycle, such as soil moisture, streams, rivers, lakes and groundwater.[18] Droughts are cyclically recurrent phenomena in the Sahel and Horn of Africa region, as historical records, dating back as far as the 16th century, show (Pankhurst, 1966). However, much critical scholarship on the politics of both the 1970s and the 1980s famines in Ethiopia emerged already in their immediate aftermath. There is broad unanimity in the postulation that the scale and the severity of these famines were not caused by natural conditions alone (e.g. Gilkes, 1975; Miller & Holt, 1975; Koehn, 1979; Clay and Holcomb, 1986). Between 50,000 and 200,000 victims were claimed by the famine, which peaked in the northern Tigray and Wollo provinces in August 1973 (Sen, 1981: 447). Paradoxically, only two years later, Cohen and Weintraub (1975: 1) referred to expert assessments, which portrayed "Ethiopia as a potential breadbasket of the Horn of Africa and the Middle East." Liebenthal (1976: 3) observed that "the greatest agricultural potential [is] found in the central plateau and Blue Nile gorge area […], the plateau areas of Arussi and Bale and the relatively underpopulated Western region" (quoted by Koehn, 1979: 51-52). Not only did the Imperial Ethiopian Government conceal the conditions in the drought-affected regions from both domestic and international publicity until the emergency was acute. Famine, according to Miller and Holt (1975), was only the "tip of the iceberg" indicating much more profound political discrimination and subaltern grievances in imperial Ethiopia.

The peasantry and pastoralist population, poor, relatively asset-less and under the yoke of exorbitant rent obligations to the landed imperial elites did not feature as target groups within the elaborate development master-plans of the Empire. Already three years before the outbreak of the 1973 Wollo famine, Dunning (1970: 285) in his "case study on non-development" observed that Imperial Ethiopia's third Five-Year Development Plan

[17] I do not claim that the famine was the only reason for the demise of the Ethiopian Empire, but a significant factor, adding to revolutionary pressures against the monarchy.
[18] National Geographic provides lay-person definitions and further material via its website: https://www.nationalgeographic.org/encyclopedia/drought/ (accessed 3rd February 2019).

(1968/69–1972/73) "worked on the assumption that progress in the agricultural sector can be obtained only by the rapid development of large-scale commercial farms producing crops for *export* [emphasis added]." Infrastructural development in Ethiopia was implemented according to commercial interests of capital-rich enterprises without consideration for secondary linkages providing small-scale farmers with access to local markets. Koehn (1975: 52) points out that "Haile Selassie's legal order turned fertile lands into the production of nonessential foodstuffs (e.g. sugar) or inedible agricultural commodities destined for export abroad (e.g. cotton)." Ironically, food production in Imperial Ethiopia was "about normal" during the 1970s – that is, "people died […] not because of an extreme shortage of food, i.e. famine, but because of an extreme shortage of money, i.e. poverty", according to Miller and Holt (1975: 170). The National Drought Relief Committee, set up by the Imperial Ethiopian Government in April 1973, and the international agencies which had already been consulted the month before could only provide inadequate relief – too little, too late – for logistical and political reasons.

Many scholars agree that the Imperial Ethiopian Government more or less knowingly failed to attenuate the severity of the 1973 famine by refraining from earlier economic and social reform and by attempting to disguise the emergency before seeking to manage it. On top of that, Clay and Holcomb (1986: 192) also shed light on the problematic role of external aid agencies:

> While their assistance, they claim, feeds the hungry, they fail to address the issue of whether their assistance will eradicate or exacerbate the conditions that led to the present famine. If the West is willing to feed starving Ethiopians without asking how they came to be in that condition or evaluate whether Western assistance programs alleviate those conditions, then they will face a monumental task in the future.

This gloomy prediction about "a monumental task in the future" proved prophetic. In Chapter Four, I show that the communist Derg regime under Mengistu Hailemariam, who replaced Haile Selassie in the seat of power, was able to launch the first actual Tana-Beles Project in the context of the next famine, which was one of the most detrimental in Ethiopian history. In fact, the circumstances of the emergency facilitated the Derg's initiation of activities in Tana-Beles. The core message of the above statement by Clay and Holcomb is important: the hierarchical and self-absorbed power structure of the imperial state "exacerbate[d] the conditions that led to […] famine" in Ethiopia. In the next chapter, I explore how the 1980s famine, in turn, *corroborated* the Derg's intention to implement the hydro-developmentalist

plans of the preceding government and couple them with its own strategies for central power consolidation.

3.4 Conclusion

This chapter has illustrated the introduction and evolution of hydro-developmentalist plans for the Blue Nile Basin, and particularly for Tana-Beles, from the early 20th century until the overthrow of the Ethiopian monarchy in 1974. Rich archival material gives evidence of the wide-spread scientific appeal of the Blue Nile Basin for water resource development and hydraulic engineering projects. The idea to tap water from Lake Tana for hydropower and irrigation schemes in the Beles Valley resurfaced repeatedly in proposals by different experts, at different times. However, only very few of the hydro-developmentalist schemes for the Blue Nile Basin turned into reality during the rule of Emperor Haile Selassie.

The aim of this chapter was, on the one hand, to highlight the political underpinnings motivating the first deliberations about hydro-infrastructure in Ethiopia. On the other hand, the chapter discussed several factors – hydro-political, geo-political, industry-related, and internal Ethiopian politics – to explain why most hydro-developmentalist proposals, including Tana-Beles, remained theoretical in imperial times. Counterfactually, from the perspective of the British Empire, the power to technologically reshape and regulate the Nile Waters in upstream Ethiopia would have implied tremendous influence over downstream Egypt and Sudan. The alignment of forces and interests between the Imperial Ethiopian Government and the United States equally reflects the latter's Cold War power calculations in view of an increasingly Soviet-friendly Egyptian government. In addition, the chapter analysed frictions between competing scientists and companies, as well as the frequent superiority of political expedience over scientific rationale with regard to the consideration of hydro-developmentalist interventions. Understanding the volatility of the most influential foreign governments' strategic interests in East Africa provides insight into both: the highly sensitive nature of the Tana-Beles idea, and the reasons for its long delay.

In concordance with Bassett (1994), this chapter has argued that the undertakings of hydrologists and other, seemingly apolitical experts and professional groups in the early 20th century – despite their vocational calling – also served the interests of colonial powers through the accumulation of data which allowed for the imagination and planning of new

spatial orders. With regard to the characteristics of hydro-developmentalism, which I discussed in Chapter Two, the earliest hydraulic missions into Ethiopia were conducted under a strongly de-politicised vestige, although they indeed served the political power struggles of influential foreign states. A similar observation can be made in the case of the technocratic apparatus mobilised by the United States Bureau of Reclamation to undertake extensive Blue Nile Basin surveys and support the establishment of Ethiopia's hydrocracy. The introduction of hydro-developmentalism into Ethiopia was thus driven by foreign power's interests and occurred in a top-down manner. At the same time, Haile Selassie's appropriation of the philosophy, which was based on the imperial mindset of domination and control, also led to the Emperor's restatement of the urgency of large-scale hydraulic development in Ethiopia. However, aside from the external context, the fragility of Ethiopia's internal development climate additionally explains why many hydro-developmentalist ideas, such as Tana-Beles, did not come to fruition at the time. In this regard, I particularly emphasised the tensions between traditionalist and modernising elites, the failures of imported imaginations of modernity, the inertia of the imperial bureaucracies, and the disadvantaged position of the peasantry, causing protest movements, even within the academic milieu. Both the incapacity and the reluctance of the imperial Ethiopian hydrocracy to embrace and manage change with regard to external and internal politics, as well as the social and environmental spheres – while at the same time providing a stable institutional framework within which change could happen – turned into its most detrimental vulnerability. The government's late and inadequate response to the severe 1973 famine in the northern Ethiopian highlands came at a high cost. The famine also showed that Haile Selassie's promises of 1958 to launch the hydro-developmentalist reshaping of the Blue Nile Basin for the benefit of his "beloved people" had remained rhetorical.

Chapter Four

The famine gambit:

The rise and ruination of the Tana-Beles Project (TBP) under the banner of Socialist Ethiopia

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> With hundreds of thousands of human beings falling like flies from famine in one country, it cannot be expected to just watch its billions of cubic metres of water disappear every year so that the populations in the other riparian states are not affected by famine. Likewise, if a riparian state downstream, which enjoyed the continued flow of water from an upstream riparian, watches this disaster and does not consider it to be its own problem, then that downstream state has no moral right to demand anything from the upstream state.
>
> Prof. Negussie Ayele (1986), quoted by Erlich (2002: 174)

4.1 Introduction

In the early 1980s, another lengthy drought, stretching from the Sahel to the Horn of Africa, preceded one of the most severe humanitarian catastrophes in modern Ethiopian history: the detrimental famine of 1984-85. It was propelled into the international limelight by the prominent Band Aid[1] charity concerts, and "elicit[ed] an unprecedented public interest and response" (Clay & Holcomb, 1986: 1). Against this background, and within the framework of socialist Ethiopia's overall resettlement, villagisation, and agrarian reform policies, in 1985, the Marxist-militarist Derg government mobilised substantial resources in order to launch the so-called Tana-Beles Resettlement Project (TBRP). More than 80,000 famine-affected highland farmers were thus relocated to a large designated area in the Beles Valley: the Metekel Zone within the former Gojjam region of north-western Ethiopia. In early 1986, Italy's Ministry of Foreign Affairs signed a formal cooperation agreement with the Ethiopian government to support this intervention, financially and technically. According to the agreement, the Ethio-Italian project was divided into two distinct components, and presented as both: an urgent initiative in response to the emergency, and "one of the most important programmes of Ethiopian economic policy" (Viezzoli, 1992: 166).

[1] For an excellent critique of Bob Geldof's Band Aid initiative, refer to Müller, T. (2013) The Shadow of Band Aid Humanitarianism: Revisiting the Dynamics between Famine and Celebrity. *Third World Quarterly* 34:3, 470-484.

Only the first of the two main project components, Part I, entailed activities relating to famine relief. These were concentrated in the resettlement area within the Beles Valley, and involved the development of mechanised agro-industrial schemes, smaller initiatives to promote food self-sufficiency, as well as the provision of basic infrastructure, such as gravel roads, workers' accommodation, a hospital, water storage solutions, and two minor dams on the Beles River. By contrast, the second planned phase (Part II) envisaged the construction of major – and hydro-politically controversial – water works near the shores of Lake Tana. One aspect was the building of a weir to regulate the Lake's outflow into the Blue Nile in the vicinity of Bahir Dar.[2] More significantly, though, Part II of the project was supposed to result in the construction of its name-giving infrastructure: the Tana-Beles diversion tunnel, to avail water for industrial irrigation downstream of the Beles River, and a large underground hydropower plant (Studio Pietrangeli, 1990). Consistent with several earlier proposals, this infrastructure was to be located on the south-western shore of Lake Tana – an area not easily accessible at the time. In light of these intentions, the Ethio-Italian cooperation partners dropped the term 'resettlement' from the initial project designation, and adopted 'Tana-Beles Project' (TBP) as the official title in 1986 (Interview XLI, 01/2019). Based on a turnkey contract,[3] awarded to the Italian engineering corporation Salini Costruttori SpA,[4] the TBP thus did not only follow the publicly proclaimed objectives of famine relief and modernisation. What is much less debated: Part II targeted the implementation of significant elements of the imperial hydro-developmentalist plans for the Blue Nile Basin, which the previous government had failed to accomplish. However, the TBP's story ends abruptly. Like the Empire did in 1974, communist Ethiopia collapsed in 1991, after a protracted civil war, and before the hydro-developmentalist dreams came true.

The purpose of this chapter is to shed light on the rise and ruination/ruins of the TBP, which was the first actual attempt to build the proposed hydro-infrastructure between the Tana and

[2] This infrastructure, the Chara Chara Weir, was completed in 1998 under Meles Zenawi's EPRDF government.

[3] In turnkey contracts, the commissioning party ('owner') of a project provides only few specifications and basic requirements. The contractor ('service-provider) independently carries out the design, engineering, procurement and construction, as well as the commissioning of sub-contractors. Thereby, it is the main contractor's responsibility to deliver a completed facility to the owner, who then manages its operation (based on Business Dictionary, accessed 12th May 2019 via http://www.businessdictionary.com/definition/turnkey.html).

[4] By 2014, the private company Salini completed its acquisition of Impregilo, forming the merged industrial group which was then referred to as Salini Impregilo. In this thesis, I predominantly use the term "Salini" to refer to either Salini Costruttori or Salini Impregilo without explicitly distinguishing between the two. In May 2020, the corporation underwent another name change. It is now known as Webuild SpA. Salini's construction and civil engineering history in Ethiopia dates back more than six decades (see website, accessed 20th January 2021 via https://ethiopia.webuildgroup.com/en).

Beles basins. The chapter covers the timeframe from the Derg's assumption of power in the mid-1970s to the next regime change in 1991. The two components of the TBP - Part I, which did materialise in the 1980s, and Part II, which the cooperation partners had aimed and failed to build – seem to be geographically and thematically distant from each other. Yet, they are strongly related. Nevertheless, most writers about the TBP exclusively discuss it as the resettlement and agro-industrial development project that occurred in the Beles Valley (among others, Carr, 2017; Dieci & Viezzoli, 1992; Gebre, 2002; González-Ruibal, 2006; Veronese, 1988). The unfulfilled hydro-developmentalist objective of TBP Part II is thus subtracted from the narrative. The content of this chapter, too, focuses on evidence emerging from the implementation of TBP Part I in the 1980s. A non-existent infrastructure, after all, is an elusive unit of analysis. However, I demonstrate that the overall TBP – as it was intended by the Derg regime and designed by the Italian contractors – directly relates to both the hydro-developmentalist Tana-Beles plans of the past (Chapter Three) and the later Beles Multipurpose Project of the successive EPRDF government (Chapter Five). Furthermore, in contrast to the existing literature, I explicitly integrate the role of the Derg's external supporters into the analytical narrative about Tana-Beles as a hydro-developmentalist dream. For this chapter, I gathered empirical data which adds to the above-mentioned literature by contrasting the TBP's past with the present, and giving voice to various eyewitness accounts. Between 2018 and 2019 I conducted interviews with individuals who were involved in the implementation of the TBP, with present-day water management officials, and with relevant experts on the subject matter. In March 2019, I collected observations from the former TBP project sites, and engaged in conversations with local populations, with support from a research assistant.

In Chapter Two, I discussed a number of characteristics which tend to accompany hydro-developmentalist projects. These re-emerge here: the conditions of urgency which justify incisive interventions, as well as the ambiguous roles of experts and foreign stakeholders, upon whose involvement the TBP's implementation hinged. Furthermore, the previous Chapters have highlighted that hydro-infrastructure does not only reshape the fabric of water, land and social structures. It equally supports the execution of vertical domination. The TBP's Part I, which constitutes the subject of this chapter, was more than a technical relief programme. In many ways, it was a Trojan horse. It emerged from a number of motives, which the famine emergency served to de-politicise. These motives include: the Derg's use of resettlement and villagisation schemes in order to restructure and control particular

population groups – a form of surveillance, or "encadrement" (Clapham, 2002); the Derg's desire to re-engineer the waters of the Blue Nile Basin, in spite of Egyptian objections (Carr, 2017); and a combination of political and corporate interests, on the parts of the Italian Foreign Ministry and the rising company Salini Costruttori, to regain and retain, respectively, a foothold in Ethiopia. Meanwhile, the TBP's controversiality manifested itself already as the project site came under attack by insurgent groups in the late 1980s. By the early 1990s, what remained of the massive undertaking in the Beles Valley were largely ruins. The asset-less farmers, whose labour force had been collectivised at the resettlement site, returned from mechanised to plough agriculture. General socio-economic conditions deteriorated (Gebre, 2002), and the TBP's basic machinery and infrastructure were stolen, damaged, or left to decompose (Interview LIV, 03/2019). These ruins shape the story of the TBP to the present day. They equally point to paradoxes discussed in Chapter One: a "politics of perception" achieved by the technological sublime (Nye, 1994); discrepancies between the project implementers' discourses and their underlying motivations; contrasts between promises and ruined hopes; and the fragility – as opposed to obduracy – of both infrastructure and power. The story of Tana-Beles is anything but linear and one-dimensional.

Three aspects are central to this chapter: First, the context within which the TBP arose; second, the TBP's objectives and the challenges during its partial implementation in the 1980s; and third, perspectives on the project's ruination. The following section elaborates on the historical and political background of the TBP with an emphasis on the Derg's struggle and strategies to establish centralised power. Section 4.3 renders a detailed account of the materialisation of the TBP in the Beles Valley, and incorporates conflicting views of the controversial undertaking. Section 4.4 presents impressions gathered during fieldwork, delivering an insight into both Italian and Ethiopian perspectives on the TBP. I conclude by situating this chapter in the broader context of the dissertation, and particularly that of the following Chapter Five. At the end of the chapter, I present a selection of photos as visual evidence of the past TBP and the present ruins.

4.2 Context dimensions: The Derg's struggle for supremacy in a brittle state

In order to appraise the political significance of the TBP itself and the opposition contributing to the destruction of the project,[5] a brief excursion into the domestic turbulences during the first decade after the overthrow of the Emperor is instructive. From its assumption of power, the new military leadership under Mengistu Hailemariam concentrated on asserting its supremacy in an embattled playing field. This included the further extension of Ethiopia's hydraulic bureaucracy. In the following sections, I highlight the communist government's struggle to consolidate the Socialist Ethiopian state – and itself as its central power – against various competing factions. This is relevant to understand the factors leading to the TBP's ruination, and the much later resumption of the TBP's unaccomplished Part II by the EPRDF (Chapter Five). Furthermore, by discussing the Derg regime's controversial handling of the 1980s famine, and the overall agrarian policy reforms, which included large-scale resettlement, villagisation, and collectivised production schemes, I provide context for the accounts of farmers who were in involved in the TBP in the Beles Valley (Section 4.4).

Haile Selassie's deposition resulted in radical ruptures with the feudal institutions of the *ancien régime.* Yet, the Marxist-Leninist ideology, which manifested itself in Ethiopia's new political structure between 1974 and 1991, equally leaned on the precept of strong hierarchical control and domination (Clapham, 1988). Mengistu Hailemariam was committed to heading a "highly centralised Ethiopia against all regional demands" (Markakis, 1981: 7). This was an objective which, from the perspective of the Derg, had to be enforced. Throughout the early 1970s, various anti-imperial opposition groups had already crystallised and jointly undermined the coherence of the former Abyssinia. However, the respective interests and identities of these groups were, although sometimes overlapping, rather scattered: from the Addis Ababa-based radical Marxist Ethiopian Student Movement and Ethiopian Peoples Revolutionary Party (EPRP), to the ethno-national Eritrean, Tigrinya, Oromo, and Somali liberation movements, to Muslim communities struggling against religious marginalisation, to organised peasant groups staging uprisings, such as in the Bale and Gojjam provinces (Zewdie, 2002; Gudina, 2003). Their common ground collapsed together with the monarchy. After months of joint revolution, in September 1974, it was the military committee known as Derg, led by Col. Mengistu Hailemariam, which assumed

[5] I focus on the internal opposition to the TBP, although regional factors, such as the deteriorating relations between Socialist Ethiopia and Egypt, merit further detailed exploration. This could not be done within the time and logistical constraints of my field research.

power as the Provisional Military Administrative Council (PMAC) and incrementally "asserted its primacy" over all competing class forces (Markakis, 1981: 7). "The fact that power passed to the soldiers […] create[d] uncertainty among the conscious part of the population, anger and hopelessness among the beneficiaries of the old order", writes Gudina (2003: 78). *Ethiopia tikdem – Ethiopia first* – as was the revolutionary slogan, came to signify social transformation through the abolishment of aristocracy for some, "garrison socialism" and "totalitarian autocracy" for others (Tiruneh, 1993; Clapham, 1988; Harbeson, 1988). In hindsight, neither the imperial nor the Marxist leaders of the country succeeded at consolidating a unitary 'Ethiopia', but were instead repeatedly involved in various confrontations to fend off threats to the governments' sovereignty and the state's territorial integrity.

Col. Mengistu Hailemariam cemented his leadership gradually over a period of 13 years within which he established the Workers Party of Ethiopia (WPE) in 1984, and himself as the President of the one-party communist People's Democratic Republic of Ethiopia (PDRE) in 1987. In the meantime, however, various conflicts prevented the new regime from fully dedicating to the dire economic situation of the country. Ethno-nationalist mobilisation in the province of Tigray, represented by the Tigray People's Liberation Front (TPLF), greatly appealed to the impoverished northern peasantry who, in contrast to the aristocratic and landed Tigrinya elite, had not benefitted from previous imperial southward expansion. Tigray still remained among the most under-developed provinces in Ethiopia. Together with the Eritrean People's Liberation Front (EPLF) and the Oromo Liberation Front (OLF), these groups had a least common denominator in their struggle against what they perceived as perpetual oppression from a mainly Amhara ruling class and continued to pose a threat to the central state. Ongoing Eritrean secessionism and Somali irredentism required mass mobilisation for the armed defence of the state boundaries which were inherited from the former empire. Soviet and Cuban forces provided war material and strategic support to Mengistu's Ethiopia, helping to stem a Somali invasion into the Ogaden. The costly Ogaden War furthermore coincided with the peak of the Derg's violent internal power consolidation strategy. Abundant literature discusses the atrocities committed during the *Ḳay shibir – Red Terror* – years, 1976-78, which began with a propaganda war against so-called 'counter-revolutionaries' and culminated in the systematic imprisonment and extermination of both suspected and avowed opponents of the military regime (see for example Zewdie, 2002; Clapham, 1988, 2002; Wolde-Giorgis, 1989; De Waal, 1991). While the intricacies of

Ethiopia's domestic and regional conflicts throughout the 1970s and the internal divisions between but also within different groups, notably comprising the civilian left-wing and various ethnic identity-based movements, cannot be covered extensively here, it is important to emphasise the consistency with the imperial past: the struggle of the military Derg regime and the communist WPE under Mengistu to aggressively preserve rigidly centralised and highly authoritarian state monopoly in a country full of internal conflicts and fault lines. At the same time, through the *Red Terror* campaign, the Derg remarkably managed to rid Ethiopia of precisely those enthusiastic parts of the young and professionally educated generation, who had been eager to reform the corrupt and cumbersome imperial bureaucracy (see Chapter Three). Even those members of the split intelligentsia who had previously given tactical support to PMAC were targeted as potential threats to the regime. As a result, not only were substantial numbers of lives eliminated at the hand of the Derg; the amount of Ethiopian political refugees fleeing the military regime increased significantly (Pankhurst & Piguet, 2009). From an institutional perspective, Socialist Ethiopia's state bureaucracy thereby missed an opportunity to build on existing national expertise in many areas, adopting instead a path with steep organisational and technical learning curves (Interview XVIII, 08/2018).

Yet, the push for hydro-developmentalist projects of power assertion remained as a continuity with Imperial Ethiopia. Mengistu's government pursued a modernisation strategy which – also congruent with other socialist states (e.g. Swyngedouw, 2007, 2015; Menga & Swyngedouw, 2018) – treated water, land, and labour as production factors to be harnessed technologically and restructured into the hierarchical architecture of the state. In this regard, the imposition of technologies, infrastructure, and bureaucracies were of practical, as much as symbolic, significance. Mengistu enlisted water, and the contentious issue of the Nile Waters, in particular, as a crucial element to advance his political goal of central power consolidation. In terms of regional hydro-politics, the Derg regime adopted an increasingly hostile attitude towards Egypt. At various occasions, Mengistu's government officials confidently claimed Ethiopia's "sovereign rights" to the Nile Waters, and announced plans to construct hydraulic infrastructure in the Blue Nile Basin (Erlich, 2002: 165, 174; Carr, 2017: 29). This public discourse appealed to visions of a unified Ethiopia with downstream Egypt as a common enemy. By the 1980s, Ethiopia's administrative bureaucracy experienced considerable

densification, which also implied an increase in hydrocratic institutions[6] (Markakis, 1981; Rahmato, 1999; Interview LXXII, 05/2019). The Derg regime built on the existing Water Resource Commission (WRC)[7] as a key institution, adopted from imperial Ethiopia. It had several subsidiary branches, and equally postulated the need for a comprehensive approach to river-basin development, localised administration units, and the importance of understanding the nature and impacts of upstream-downstream conflicts, both within Ethiopia and across its international borders (Interview XIX, 08/2018). However, despite these considerations of relatively decentralised water management, the organisational structure remained top down. The respective Ministries dedicated to Mining and Energy, Water Resources, and Agriculture were clustered under the deputy Prime Minister's office within an overall Ministry of Natural Resources. The Derg's Settlement Authority, in turn, was a sub-organ of the Agriculture Ministry. Additionally, the Ethiopian Valleys Development Studies Authority (EVDSA) was formed in 1987 as a 'new' and separate government agency, deriving from the imperial Awash Valley Authority (AVA), to study Ethiopia's river-basins and propose projects, integrating power generation, irrigation and community development (Carr, 2017).

According to a senior legal expert on Ethiopian water policies and politics (Interview XXXVIII, 12/2018), "much training and education was offered for water professionals in Socialist Ethiopia." Hydro-developmentalism was a fundamental pillar within Mengistu's aspired architecture of power. Further, a senior former government official, based at what was then the Natural Resources Ministry, recollects how he experienced the "spirit of the time" among professionals, who were involved in questions of national development in the 1980s (Interview XVIII, 08/2018):

> We felt an urge to do something, but what?! We saw an Ethiopia, rich in land, water, rain, and rivers. What we needed were interventions to finally let these resources feed our national development needs.

Indeed, the TBP was one such intervention, which the government official had been looking for. The project involved significant numbers of Ethiopian engineers, technical experts, agricultural extension workers, and administrative staff, who both collaborated with and received further training from the implementing company, Salini, and its sub-contractors. In

[6] In Chapter Two, the sub-section on *Ethiopia's hydrocracy* lists many of these new institutions emerging in Socialist Ethiopia.

[7] The WRC was established in 1971. It succeeded the Water Resource Department (WRD) that had been launched in the context of Ethio-American cooperation in the late 1950s (Rahmato, 1999; see Chapter Two).

many cases, their perception of the project was grounded upon the motivation of being involved in a major and important humanitarian relief, development, and modernisation effort (Interview XXXIX, 12/2018). However, as events unfolded, not only the insurgent movements' violent opposition against the TBP, but also the ensuing sudden abandonment and ruination of the project, did lead – in hindsight – to more critical appraisals of its underlying purposes, as an Ethiopian academic expert claims (Interview LXXII, 05/2019). The government official quoted above, by contrast, did not express disapproval of the TBP as such. In his opinion, the resettlement programme of the Derg "has been used by Western and Ethiopian media as a negative example of forced action […]. Instead of involuntary relocation, […] the approach should have been more gradual, softer" (Interview XVIII, 08/2018). The contrasting perspectives serve to demonstrate the ambiguous significance of the TBP – separating humanitarian from hegemonic ambitions, the technical problem from the political problem, is not a straightforward task, as I also show in the subsequent sections.

Socialist policy reform and famine: Stress fields between peasantry and government

As discussed in Chapter Three, severe famine (1972-75) had preceded the overthrow of Haile Selassie. Large sections of the population were outraged by the Emperor's perceived ignorance of the situation's gravity (Wiseberg, 1976: 108). The fact that the catastrophe should repeat itself only about a decade later, and claim even more lives – between half a million (de Waal, 1991) and one million (Kebbede, 1992: 78) – seemed ironic. In 1984, during the Derg regime's lavish tenth anniversary celebrations in Addis Ababa, the socialist leadership, in similar fashion with its imperial predecessor, appeared to actively suppress news of the starving people in the Tigray and Wollo provinces in northern Ethiopia. And yet, the Relief and Rehabilitation Commission (RRC), Ethiopia's first official disaster management organisation which had been established by the imperial government just before its downfall, had already alerted to the drought situation, and even appealed for international assistance as early as 1981-83 (RRC, 1984:1; Kumar, 1987: 28). While the rains indeed had failed for a number of successive years in the northern region, a complete absence of food, or agricultural production potential, was not the problem. Clay and Holcomb (1986: iii) tellingly cite Sebastiano Timpanaro to describe their perception of the situation in Ethiopia: "For too long the ruling classes have attributed to 'Nature' […] the inequalities for which the organisation of society is responsible." Mengistu himself is quoted in an RRC famine report (1985: 48), acknowledging:

> With a country potentially capable of feeding others and a man-power resource capable of generating immense wealth, it is paradoxical that we should starve […]. As our development endeavour cannot succeed so long as we have not defeated hunger and rid ourselves of this plague, let us march forward in unity and firm resolve.

Famine served as a legitimate reason to engage more intensively with the "organisation of society" – a term used by Clay and Holcomb (1986) with a negative connotation – that is, the blueprint-based restructuration of society according to a top-down socialist cookie-cutter design.

As a hydro-developmentalist project, the TBP combined a number of different national large-scale developmental objectives which were threatened by opposing hydro-political forces within the Eastern Nile Basin. From a domestic perspective, the TBP resettlement site did not only pose challenges of its own, which I address further below. It was also situated in a critical area – the borderline between fighters of the Eritrean and Tigrayan liberation movements and the Derg's army. The TBP, albeit mostly portrayed as an emergency relief programme, also harmonised well with Mengistu's socialist policy reforms which had been initiated in various stages during the first decade from 1974-84. In this vein, the socialist government complemented the original hydro-developmentalist idea of Tana-Beles by a feature not very common in large-scale hydraulic engineering projects: resettlement *towards*, rather than notable displacement *from* an intervention site.[8] In fact, between 1985 and 1991, the resettlement and agro-industrial development components of the TBP took precedence over the hydraulic works between Lake Tana and the Beles River, which had been scheduled for the second implementation phase. Therefore, given the contextual relevance for the TBP, I subsequently discuss the key socialist reform measures adopted by the Derg before and in the wake of the 1980s famine.

From 1975 onwards, the government incrementally committed to three critical policy areas in line with Marxist-Leninist doctrine (i) land reform; (ii) a top-down reorganisation of the peasantry; and (iii) nationalisation of all major production factors. The intensity of the civil war and political strife had implied the government's prevailing focus on regime security at the expense of economic and food security. Several authors claim that the military regime's agrarian policy decisions between the 1970s and mid-1980s, and the partly deliberate denial

[8] That said, it needs to be noted that indigenous inhabitants of the Beles Valley, notably the Gumuz and Shinasha people, faced displacement and expulsion from their customary lands and were often reported to have a critical, sometimes hostile attitude towards the settlers from the northern highlands. I address this issue further below.

of the famine, significantly contributed to the intensity and magnitude of the humanitarian catastrophe (Clay & Holcomb, 1986; De Waal, 1991; Girma Kebbede, 1992). At first, the landless peasants in the northern and southern regions of Ethiopia had appeared to be winners of the revolution. The Derg's Land Reform Proclamation of 1975 responded to the popular demand, *"land to the tiller"*, by the practical abolition of landlord-tenant relations, and the transfer of all agricultural land into state ownership (Clay & Holcomb, 1986: 23). Peasants were promised rent-free usufruct rights to a maximum of ten hectares per household. However, nationalisation extended not only to the land but also to the produce. To monitor the implementation of the policy reform, Peasant Associations (PAs) were created with a jurisdiction over, on average, 800 hectares of land and the obligation for all peasants to join, usually 150-300 households per PA (Ståhl, 1990: 97). While the PAs had initially been perceived as "organs of popular power" by many of its members as well as a number of enthusiastic teachers and students on government-deployment to the country-side, according to Gudina (2003: 86), the associations were soon "reduced to a branch of local government, a simple instrument of central control." The intelligentsia came into conflict with the military regime; the peasants were "antagonised through price control and quota delivery of their products" (*ibid.*). Already towards the end of the 1970s food supplies fell short of demand in urban areas. Not only armed conflict and military appropriation of foodstuffs contributed to the shortages. Peasants became increasingly unwilling to sell their produce at state-imposed prices, which were particularly unfavourable compared to black market rates (Clay & Holcomb, 1986: 25). Therefore, in Markakis' (1981: 23) words, "the regime faced the problem of extracting the agricultural surplus from the peasantry through extra-economic means." Collective farming within producers' cooperatives became a key building block of Mengistu's economic reconstruction strategy from the late 1970s onwards, condoned by Soviet advisers.

Collectivisation, villagisation, and resettlement

With regard to the collectivisation campaigns, it is again striking to note the reinforcement of the state's bureaucratic apparatus which steered the incorporation of the rural population into service and production cooperatives in a vertical manner. Mengistu employed a "new breed of functionaries," pooled not from the professional elite of the country, but from loyal supporters who served as watchdogs over both agricultural production and the adherence to Derg's political ideology. Markakis (1981: 23) describes these functionaries as follows:

> Possessed of limited educational qualifications, the so-called Production and Political Cadres were put through short training courses at a military school, and then were attached to all enterprises, associations and mass organisations to spur production and political education.

However, the mandatory-'voluntary' conversion into PAs and cooperatives was laggard, and the process was carried out unevenly across the country, given local differences in the customary land tenure system and the conflicts raging in some parts of the country (Abate, 1983). Opposition to the policy reform came especially from northern peasants.[9]

Villagisation was a pivotal constituent of the global socialist development approach, implemented and re-adapted in several African countries.[10] While the Ethiopian peasantry had traditionally lived in "scattered homesteads in between fields and pastures" and cultivated fragmented plots, the resettlement of farmers into concentrated villages constituted a significant structural change (Ståhl, 1990: 98). Villagisation has been widely discussed in academic literature as both a tool to 'capture' certain population groups within infrastructures of hierarchical administrative control, and as a beneficial development measure providing local access to basic service infrastructure in the areas of health, education, market connectivity, and water supply (Lorgen, 2000). To stimulate the creation of Soviet-style 'villages', the Derg regime launched several large-scale resettlement programmes, broadly following the patterns and contours of Emperor Menelik's imperial expeditions which had conquered the western and south-western regions from the highland plateau downwards. Throughout the 1980s, six to eight hundred thousand people were moved, both forcibly and voluntarily, from their familiar environment into new areas, following the promise of becoming self-sufficient smallholders with government-provided support and infrastructure for collective production (Viezzoli, 1992: 161; Gebre, 2002). Resettlement sites were often described euphemistically by public authorities as 'virgin lands', abundant, fertile and uninhabited – a portrayal which, the settlers quickly noticed, rarely corresponded with reality on the ground. Often not formally recognised local host communities were pushed from their ancestral lands by the newcomers, sometimes leading to violent clashes. Substantial scholarship sheds a highly critical light on the Ethiopian resettlement schemes (e.g. Abutte, 2000; Pankhurst, 1992; Pankhurst & Piguet, 2009). Gebre (2002: 34) suggests that the Derg's

[9] For further references and a more detailed evaluation of both positive and negative aspects of collective and cooperative agriculture in Socialist Ethiopia, refer to Alula Abate (1983), Alemneh Dejene (1987), and Michael Ståhl (1990), among other scholars.

[10] Priya Lal's (2017) study of ujamaa villagisation in Tanzania delivers an insightful account about how an 'African socialism' was negotiated between leaders and rural populations.

resettlement initiatives in the northern and north-western regions of Ethiopia were particularly aimed at "suppress[ing] […] insurgent movements by depopulating their mass base [and] diluting their ethnic homogeneity". Keller (1993) and De Waal (1991) refer to the ambiguous function of the resettlement villages, both as production poles and as "buffer zones" against hostile regions.

The contemporary scholar analysing both primary and secondary sources which illuminate the historical context and local experiences of the years of Derg rule, and particularly its economic restructuration policies, should take into account different authors' affiliations against the background of the Cold War ideological divide. This is reflected in the spectrum of literature discussing resettlement and famine in the Ethiopian context and the related development measures, from sometimes harshly critical (e.g. Clay & Holcomb, 1986; de Waal, 1991) to apologetic or even supportive of the government initiatives (e.g. Viezzoli, 1992). 'Development' is a black-box for which, in reality, no blueprint exists that would not create some winners and some losers of any intervention. With regard to the villagers' experience of resettlement in the framework of the TBP: not only did some of the above-mentioned sources (Wolde-Selassie Abutte, 2000; Yntiso Gebre, 2002; Pankhurst, 1992), but also my own interviews with first- and second-generation resettled farmers confirm that there were indeed both winners and losers of Derg's socio-economic reform as it was implemented in the TBP. Some peasants made substantial losses, suffered disillusionment in an environment they experienced as hostile, and were eager to return home. But some peasants expressed a notion of having been better off after resettlement to the Beles Valley and the development promise that they perceived the TBP to entail. I present local eyewitness accounts of the TBP in Section 4.4.

4.3 From realisation to ruination: The ambiguous parameters of the TBP, 1985-1991

This section introduces the overall dimensions of the TBP, its implementation in the Beles Valley, led by the Italian company, Salini Costruttori, and the project's collapse in 1991, as a result of protracted political strife. Having identified the 1980s famine emergency as the political entry point into 'Tana-Beles', I subsequently discuss how both Ethiopian government officials and the Italian cooperation partners de-politicised the undertaking towards the public, despite numerous features which made it controversial, even dangerous. In the next sub-section, I examine the conditions of purported 'exception' (see Fantini &

Puddu, 2016), under which the Italian Ministry of Foreign Affairs committed to the TBP and commissioned Salini with its realisation. I then present different ways of portraying the project's intervention site, followed by a juxtaposition of conflicting views on the TBP itself. The section closes with the history of the 'Tana-Beles' space as a civil war battlefield and its ultimate abandonment.

The Derg's foreign project partner: Opening the doors for Salini

The failure of the imperial government to tackle the 1970s famine, fuelled the Derg regime's persistence with which it pronounced Ethiopia's moral imperative to mobilise its water resource development in the Blue Nile Basin (see introductory quote to this chapter). From the onset, the original Tana-Beles Resettlement Project was of a highly sensitive initiative. At the same time, "it was clear that the Ethiopian government lacked the resources, technical capacities and funds" to implement its objectives without external support (Interview XV, 02/2018). The various Derg's resettlement schemes were already well underway when in 1985 the Live Aid concerts in the UK and US, raised unprecedented international awareness of the Ethiopian famine. However, after the 1974 transition, bilateral cooperation partners had adopted ambivalent positions vis-à-vis Ethiopia. For example, based on a report by the Ethiopian Relief and Rehabilitation Commission (RRC, 1985), American aid was substantial during the 1980s famine. But, although the United States had taken a leading role in hydro-developmentalist capacity-building and the planning of projects in the Blue Nile Basin during the reign of Haile Selassie, its official ties with communist Ethiopia were significantly broken. The USSR and several other communist-friendly governments supported Mengistu's regime. However, with Michael Gorbachev's assumption of power in 1985, and the gradual decline of the Soviet Union, military and other forms of assistance to Ethiopia also declined (Yordanov, 2016).

With regard to the TBP, as I show further below, it was the timing, availability, and the 'foot in the door' of the ambitious Salini enterprise – always in close collaboration with the 'consulting engineers' of Studio Pietrangeli – which led to the agreement between the Italian Ministry of Foreign Affairs and the Derg government. The Italian Government pledged to assist its Ethiopian counterpart with approximately USD 150 million and commissioned Salini Impregilo with the assignment. I quote the objectives of the agreement from a report by Salini's sub-contractor Studio Pietrangeli (1990), available in hardcopy at the Ministry of Water, Irrigation and Energy (MoWIE) in Addis Ababa:

1. Design and construction of Part 1 of Tana-Beles project, developing the [resettlement] area of the Beles Valley near Pawe […] using the design/construct methodology.

2. Studies and Final Design for Part 2, which is presented in this executive summary.

3. The Construction of Part 2 of Tana-Beles project including
   *Lake Tana Regulating Works [Chara Chara weir]
   *Tana-Beles Tunnel
   *Roads and minor ancillary works.

This summary of deliverables clearly shows that Italy's financial and technical commitment by no means was limited to emergency relief. The third point mentioned above implied major alterations to the flow regime of the Nile Waters, wrapped into the narrative of humanitarian support. Part II of the TBP was a geo- and hydro-political sore point, strongly objected to by both Egypt and Sudan, based on the claim that the project would absorb too much water of the Blue Nile (Kendie, 1999: 158). At the same time, the hydro-developmentalist engineering components did not only constitute the highest risk and political stake of the overall TBP. They were also the tasks most intrinsic to Salini's corporate mission – spurred by a powerful patriarchal tradition – of accomplishing large, and especially hydraulic, construction works in Italy and in the world.

Salini was equipped with both the entire public fund dedicated to the TBP – a '*progetto chiavi in mano',* or 'turnkey' project – and thus with significant authority in its implementation. Several Italian sub-contractors were engaged under the auspices of Salini, including Studio Pietrangeli, Varnero, or Agriconsulting Spa. In addition, representatives of the Italian development cooperation (CICS) and the NGO CISP supported local development initiatives in the resettlement area (Viezzoli, 1992: 168).[11] Thus, the TBP's Part I in the Beles Valley involved not only hydraulic and civil engineering works (e.g. the construction of 200 aqueducts, 50 bridges, 250 km road networks, minor dams, and water reservoirs), but also components dedicated to agronomic research on experimental farms, the cultivation of various cereals, fruits, and vegetables on 23,000 hectares of land, livestock rearing, as well as the establishment of rice processing, pipe- and plastic- factories. Overall, the TBP was an enormous multi-sectoral enterprise. According to Giordana (2006), it constituted both a "pharaonic" and "megalomaniac" project. However, given the multiplicity of activities,

[11] Comitato Interministeriale per la Cooperazione allo Sviluppo / Inter-ministerial Committee on Development Cooperation (CICS) of Italy, and Comitato Internazionale per lo Sviluppo dei Populi / International Committee for the Development of Peoples (CISP).

actors, companies, organisations and interests involved in the TBP, it is difficult to reduce the overall undertaking to singular, all-encompassing attributes. At the same time, this was precisely the approach pursued by the decision-makers and implementers of the TBP.

In the following excerpts from a coffee-table book, published by Salini Impregilo (2016a) and entitled *110 Years of Future* – a historical review showcasing the company's success stories – it is striking to note the portrayal of the Italian commitment to the TBP as a moral cause. It was equally a matter of political influence and professional interest. In the 1960s, Salini/Studio Pietrangeli had constructed a major water supply dam in Addis Ababa (Legadadi) on behalf of Haile Selassie. This, the book states, was "a kind of diplomatic passport and a certificate of skill and efficiency" for the enterprise to win the contract for the implementation of the TBP (Salini Impregilo, 2016a: 42). The account continues on the same page:

> The door was open, and in the 1980s, it would be thrown open even wider thanks also to the direct impetus of the Italian government and Giulio Andreotti, then Foreign Minister. The largest project was on Lake Tana, with the hydroelectric plant on the Beles River […]. The project, designed by the Pietrangeli studio, was built almost entirely underground.

There are two things to be noted here: (i) the hydro-developmentalist project described in this paragraph (TBP Part II) did not materialise in the 1980s; (ii) the suggestion of the personal commitment of Giulio Andreotti[12] with regard to financing the TBP. Fantini and Puddu (2016) build on Agamben's notion of a "state of exception" to discuss unconventional allocations of aid, which circumvent standard bureaucratic norms and procedures, by using a "fast track" approach. In this particular case, the famine emergency represented such a "state of exception". However, Italy's commitment to the TBP was equally based on strategic considerations, and the mutual instrumentalisation of the relationship between Andreotti as a politician and Salini as a powerful corporation.

Next, the author of the book refers to the implementation of the TBP, as follows (*ibid.*):

> The Tana-Beles project is a complex one […]. It was a matter of building everything – roads, hospitals, villages – cultivating lands occupied by the refugees from the northern parts of the country, the first to be devastated by one of the worst droughts in Ethiopian history. This caused a great famine that affected eight million people and killed at least one million.

[12] According to his Wikipedia page, Andreotti was not only one of the most powerful Italian statesmen - Foreign Minister (1983-1989) and later Prime Minister (1989-1992). He was also embroiled in several corruption scandals and charged for collusion with the mafia. Although these charges were dropped later, his persona is controversial (accessed 26th January 2020 via https://it.wikipedia.org/wiki/Giulio_Andreotti).

> It was in this climate that the Italian government also decided to financially support the dam project whose initial value was 127 billion lire. For Simonpietro Salini this was the real leap forward, for a small family business ruled by corporate culture consisting of close-knit family ties, where no amount of bureaucracy can prevent a decision from being made. The challenge was a daunting one.

Again, although the text was published in 2016, it makes no distinction between the TBP Part I and Part II, which was *not* constructed during Mengistu's reign in Socialist Ethiopia. For the Salini enterprise, Tana-Beles represented a "real leap forward" towards becoming a global player in the international construction industry. The "decision" to intervene, appears to have been made, regardless of "bureaucracy". It is presented as a famine relief operation, not as a hydro-developmentalist large-scale infrastructure project. The euphemistic depiction of the famine victims as voluntary "migrants" and "refugees" – although, in many cases, the relocation was enforced by the Derg – is equally noteworthy in the following excerpt (*ibid.:* 43):

> The area of Tana Beles [the actual designation of the area was Metekel, not Tana Beles] was chosen by the authorities of Addis Ababa as an area of agricultural development destined to welcome 80,000 migrants from other parts of the country, where the drought and the relentless famine were decimating the population.

Throughout the text, Salini never adopts a critical position towards the Derg regime's well documented Red Terror campaign, its controversial role in exacerbating the famine, and the political domination executed through resettlement and villagisation, as I discussed above. Salini and the associated sub-contractors thus implicitly became crucial allies to Mengistu's government – especially with regard to the hydro-developmentalist vision of building the ambitious infrastructure which would divert water from Lake Tana to the Beles Valley and produce electricity underground.

Location and features of the resettlement site

The following sections discuss my fieldwork findings concerning the implementation of Part I of the TBP. I demonstrate its ambiguous meanings, as well as the conflicting views, ideas and hopes pinned to it. To begin with, it is useful to situate the activities that were undertaken with regard to the TBP's resettlement component within their politico-geographical environment.

Officially, the TBP was a 'greenfield' project. "Unoccupied [and] with agricultur[al] potential" (RRC, 1984), the Ethiopian Relief and Rehabilitation Commission had earmarked

approximately 200,000 hectares of land in the Beles Basin for both rain-fed and irrigated farmland already in 1981. Several informants who were directly involved either in the decision-making or in the construction of the project portrayed the intervention site as a "virgin land". An Italian sub-contractor to Salini (Interview XXXVII, 11/2018) remembers: "When the first Italians arrived in the Beles Valley, it was only bamboo forest." Another Italian interviewee recollects (Interview XXXIX, 12/2018):

> In the beginning there was literally nothing […] we created this modern infrastructure in the middle of nowhere, in the bush […] roads, bridges, houses, channels, dams, an airport, large farms, factories, storehouses, a hospital, an agricultural research centre […] – there was nothing and we created something big […] we prepared the area to host more than 100,000 new people.

By relocating approximately 82,000 people[13] to the lowlands of the Beles Basin, southwest of Lake Tana, the Tana-Beles resettlement project became one of the largest schemes of its kind in Ethiopia.

As per Ethiopia's present-day federal structure, the former intervention sites of TBP Part I straddle the boundary between the Benishangul-Gumuz and Amhara regional states. The area was referred to as the Metekel Zone within the Gojjam region. In the course of the resettlement programme, Salini supported the establishment of 48 villages, of which Almu Town (still referred to by locals as 'Mini Roma'), Pawe ('*Mender Sabat'*/'Resettlement village Seven'), and Jawi remain today as the main settlements. These towns extend in the aforementioned order in a northern direction along the banks of the Beles River with a respective distance of 25-30 kilometres. Especially Pawe has grown both in size and significance. It is currently a *Liyu Woreda* (Special District) and the administrative centre of the redrawn Metekel Zone, after administrative reconfigurations by the EPRDF government in the 2000s. The driving distance from Addis Ababa to Pawe amounts to approximately 550 km in a north-western direction. For my fieldwork, I travelled by car from Bahir Dar, capital of the Amhara regional state, towards Gilgel Beles. The local commercial activities, already existent here at an informal level during the 1980s, have increased significantly. Gilgel Beles is, however, a relatively recently established town, about 25 kilometres south of Pawe, 90 kilometres west of the main highway from Bahir Dar to Injibara, and with a newly tarmacked road towards Guba – that is, towards Salini's construction site of the GERD, which was

[13] There are inconsistencies in the reporting of the total figure of resettlers who were moved to the Metekel area. Gebre (2002: 32) claims it comprised 82,000 people, whereas Viezzoli (1992: 167) estimates the number at just above 70,000.

launched near the Sudanese border in 2011. Both Pawe and Gilgel Beles are strategic locations within the overall Blue Nile Basin, as can be seen by the evolving infrastructural linkages – both roads and hydraulic works – between dam sites on the Nile, the Beles River, and Lake Tana.

According to Nyssen *et al.* (2018), the "geographically peripheral" Beles sub-basin differs significantly from the cultural and agro-ecological features of the highland regions. As physical geographers by training, the authors (*ibid.:* 37) divide the sub-basin into five zones, based on topographic and hydrological features: (i) Uplands, or Upper Beles; (ii) Mandura escarpment; (iii) the Tana-Beles resettlement area, in the heart of the Beles Valley, centred around the town of Pawe; (iv) Lower Beles Valley (northern); and (v) Lower Beles Valley (southern).

Figure 4.1 *Location of the TBP administrative centre, Pawe, within Ethiopia and the 230 km road to Bahir Dar (Google, 5th May 2020)*

At a lowland altitude between 1,000-1,300 meters above sea-level, the climate of the original Tana-Beles Resettlement Project area is tropical, sub-humid, with abundant annual rainfall, and a long rainy season from early April to late September (Abutte, 2000: 417). With a slightly undulating topography from the hilltops towards the Beles River and its tributaries,

large parts of the middle Beles Valley were originally covered with various species of endemic trees, dense bamboo forests, and bush- and grasslands. These were cleared in the wake of the resettlement scheme to provide farmland (Annys *et al.*, 2019: 438; Interview LV, 03/2019). In the early 1980s, Ethiopian authorities (RRC, 1984) claimed not only that the Beles Valley was 'fertile' and 'vacant', but also that it offered a considerable amount of 'untapped' perennial water resources (Abutte, 2000) – thus representing a 'safe haven' with promising prospects for agricultural development (Gebre, 2002). These public portrayals occluded the fact that local tribes inhabited these lands, most notably the Gumuz and Shinasha people, who subsisted on a mobile livelihood of hunting, fishing, and shifting cultivation.

By contrast, the population of newcomers was composed, among others, of northern farmers – mostly, but not exclusively, famine victims – with Tigray, Wollo, Amhara and Oromo backgrounds, as well as economically motivated resettlers from the southwest. These heterogeneous ethnic groups from extremely different affinity groups, climate zones, and traditional livelihood systems "represented a microcosm of the mixture of cultures of the entire country", observes Abutte (2000: 417). The Gumuz people had originally inhabited upper parts of the Beles basin, the highlands, and the Gojjam escarpment, but were throughout the centuries "pushed towards the less accessible bush-savannah lowlands through the expansion of the Amhara and Agaw [people]" (Nyssen *et al.*, 2018: 8). With the arrival of large numbers of relocated people from the north and economic migrants from the south in the 1980s, the Gumuz became a minority in their own territory. They also had to yield to the more formalised infrastructure that began to arise in the centre of the Beles Basin. Many resettlers, in turn, experienced their new environment as "hostile" (Gebre, 2000) not only because of clashes with the Gumuz, but also given physical conditions quite alien to the highlanders: tropical heat, exposure to new diseases,[14] such as malaria and cattle sickness, and soils which could not grow the familiar types of crops, such as *teff* (*ibid*: 35). The contrast between the embellished portrayals of the TBP and the adverse conditions experienced by its supposed beneficiaries serves to emphasise that the project was not a humanitarian undertaking alone.

[14] Many of the settlers from the highlands struggled with the different climatic conditions in the Beles Valley and suffered from a variety of diseases they had not previously known. According to Clarke (1986: 4), Médecins sans Frontières claimed that more people were dying from the results of resettlement than from famine – a statement which cannot be verified here.

Conflicting portrayals of the TBP

Views and experiences of the TBP were conflicting and differential. While Ethiopian officials stated national food security, the peasants' self-sufficiency, and the modernisation of agricultural production as core objectives for its large resettlement schemes (Abutte, 2000: 417), several contemporary academics, as well as Western governments, considered the TBP with suspicion. Pankhurst (1990) and Jansson (1990) report that settlers recruited at the peak of the famine – between late 1984 and early 1985 – mostly participated by choice, whereas the majority of "those enlisted after mid-1985 […] were dislocated against their will" (Gebre, 2002: 34). Rahmato (2004: 27) further admonishes that:

> […] the settlement programme [was] launched in haste and without adequate preparation, [it was] not exactly voluntary, […] peasants [were] given false promises to entice them to register for settlement, and […] settlers [were] experiencing serious hardships due to lack of basic services such as health and clean water.

There is furthermore great divergence in the way different sources assess the TBP with regard to the Italian involvement in it. While both Italian and Ethiopian experts generally agreed on the technical value and importance of the project, these were overshadowed by its deep political implications. On the one hand, according to an article by Veronese (1988), written against the background of the intensifying Ethiopian civil war, the author argued that Mengistu's 'Tana-Beles Master Plan' used resettled farmers as mere instruments against opposition movements from the north. They had no assets to claim their own, they laboured under harsh conditions, and the state farms and cooperatives established in the Beles Valley were supposed to contribute towards the creation of a highly controlled, totalitarian socialist economy. Such was the critical view. The 48 resettlement villages were organised as perfect "Hippodamian layouts", in which the square and grid-based design symbolised modernity in an edgy contrast to the traditional round huts (González-Ruibal, 2006: 189). In this setting, not only did Ethiopian officials, keeping strict watch over the workers at the state farms, and implementing socialist punish-and-reward systems to enhance production (Gebre, 2002), obtain a position of domination. Many Italian expatriates, too, enjoyed the privilege of "great [...] power and responsibility" (Interview XIV, 01/2018). The TBP was characterised by a structure entirely top-down, leaving little room for farmers' own development aspirations. González-Ruibal (2006: 193) insinuates that the Italian involvement in the TBP could be interpreted as a "neo-colonial" undertaking.

On the other hand, however, many of the Italian technicians, engineers, and experts, who ventured out to the Beles Valley, did have humanitarian, aside from professional, motivations. In light of this, one of my informants, an Italian "veteran" of the TBP, expressed disillusionment about the project's controversial unfolding, which contrasted with his original idea of the intervention and his reasons to engage in it (Interview XIV, 01/2018):

> I arrived in Ethiopia as a young and enthusiastic agronomy researcher who loved his job and hoped someway to give a little help to a poor country and his [sic] population, but, little by little, I realised that there is a very poor humanitarian spirit in the international cooperation […].

The same interviewee, who was employed as an agronomist for Salini's sub-contractor Agriconsulting SpA, further commented on his experience of hierarchical domination and competition amongst the Italian expats in the Beles Valley: "Salini and its engineers were on top of everything […] sometimes there was a sense of rivalry […] and we from the smaller companies sometimes felt the Salini people were arrogant" (*ibid.*). The subject of internal divisions and frictions within the Italian commitment to the TBP resurfaces in a recently published novel, entitled *Tana Beles: Intrigo alla diga italiana*. The author, Ettore Gobbato (2019), uses the actual TBP as a setting for a fictitious story. In the book, two Italian diplomats travel to Ethiopia to investigate the kidnapping of two engineers from the site. In this vein, the protagonists discover that the Italian officials at the Foreign Affairs Ministry, who had commissioned the TBP, had not followed standard bureaucratic procedures. Instead, they had – extra-legally – directly assigned the major contractor, for the sake of rapid project implementation. Gobbato (2019: 321) emphasises in a concluding remark that the novel's course of action is purely invented – except for the kidnappings, which I address further below. However, Gobbato's narrative is thought-provoking and leaves room for more speculation about the political controversies and different stakeholders' ulterior motives in relation to the TBP.[15]

'Tana-Beles' as a civil war battlefield

The massive modernisation experiment in the Beles Valley was not immune to political resistance. Aside from the Sudanese and Egyptian opposition to the TBP with regard to the

[15] The book is dedicated to the late Paolo Dieci, the founder and President of the Italian NGO CISP. Like Gobbato himself, Dieci was involved in humanitarian work in Ethiopia throughout the 1980s, including the TBP. Based in the Horn of Africa for most of his life, Dieci tragically lost his life in the Ethiopian Airlines plane crash near Addis Ababa in March 2019. More details can be found on the CISP website, accessed 19th July 2019 via: https://www.paolodieci.it/site/.

planned hydro-infrastructure of its Part II (Kendie, 1999), Eritrean and Tigrayan insurgent movements operated in the Gojjam region. The TBP became a strategic target for sabotage missions in the ongoing Ethiopian civil war between the Derg regime and splintering nationalist groups. Already in late 1986, two Italian engineers, Dino Marteddu and Giorgio Marchiò, were taken hostage by the Ethiopian People's Revolutionary Party (EPRP) (Salini Impregilo, 2016a: 43). When the rebels released the two Italians in Khartoum a few months later, the message was unmistakable: "if the work on the Lake Tana-Beles project continues, there will be no more kidnappings [...] but deaths" (Ridley, 1988). Shortly after, a jeep driven by a Greek Salini employee hit a land mine, resulting in another casualty (Interview XIV, 01/2018). Salini (2016a: 43) reports that several further technicians, both Italian and Ethiopian, were kidnapped or killed.

Speculations circulated that the rebel fighters received support from downstream Nile riparians (Interview XII, 12/2017). It is certain that the Italian government, facing pressure on the domestic front, too, at this point became increasingly reluctant to implement Part II of the TBP (Veronese, 1988). According to an interviewee, the Italian Ministry of Foreign Affairs put all support to the TBP on hold after the fifth kidnapping (Interview XXXIX, 12/2018). Allegedly, the plan to realise the Tana-Beles hydro-infrastructure was entirely scratched during a secretive meeting in Rome in 1988 (Interview XII, 12/2017). Nevertheless, Salini resumed its interrupted activities in mid-1988, focusing exclusively on TBP Part I in the Beles sub-basin. This decision provoked strong criticism both in Italy and internationally. Veronese (1988), writing for the newspaper *La Repubblica*, highlighted the Italian dilemma [my own translation]: How to conclude the TBP – an absolute "imperative" – without risking the lives of Italian workers, and without making the Italian cooperation appear like 'a docile instrument of Mengistu's collectivist and authoritarian politics'? The rhetorical question can be read as a clear hint to Salini's indirect complicity in the Derg regime's attempts at consolidating a totalitarian form of power by means of constructing the facilitating infrastructure.

Meanwhile, the Ethio-Eritrean (civil) war reached a new level of intensity; Mengistu's life guards barely thwarted an attempted coup d'état which resulted in the execution of several high-ranking generals, the Soviet Union – itself in a state of demise – completely terminated its support to the Ethiopian government (Abraham, 2001). Between 1990 and 1991, northern insurgent movements passed Lake Tana and began to re-enter the TBP's implementation area. According to an Italian engineer, within a matter of days after the civil war front

approximated the project site, a military plane arrived in the expatriate camp and flew much of the Italian crew to Rome (Interview, XXXIX, 12/2018). After the Ethiopian Peoples' Revolutionary Democratic Front (EPRDF) – a coalition of liberation movements, dominated by the Tigrayan People's Liberation Front (TPLF) – had seized Addis Ababa in May 1991, the TBP fell abruptly and entirely apart. The same informant claims to know from hearsay that the rebel troops started to destroy or confiscate equipment and machinery which had been brought to the Beles Valley (*ibid.*). The massive intervention site, which both the international experts and officials of the former government had hastily abandoned, turned into a setting perceived as ruined and dystopian by several of the eyewitnesses whose stories I had the opportunity to hear (Interviews XLV; XLVII; XLVIII, 03/2019). With minimal properties to call their own, the farmers had no means to perpetuate the highly mechanised collective production strategy; many felt misplaced in the Beles Valley.

A few years later, the modernising objectives of the TBP seemed reversed: Those settlers, who remained in the Beles Valley, had returned to traditional plough agriculture (Gebre, 2002: 35). New bamboo forests had sprouted, tacitly covering old tractors, agricultural machinery, ruined factories, warehouses, office buildings and workers' housing, and irrigation dams which had never been used for their purpose (Giordana, 2006; González-Ruibal, 2006). The Derg's wider effort to subordinate the state's subjects into structures of control (Clapham, 2002: 14), as well as the modernist obsession with spatial transformation, aided by seemingly apolitical experts in the engineering of water, land and whole societies, had indeed failed (González-Ruibal, 2006: 190). The previous sections have provided some insight into how deeply controversial and contested the TBP was – both in terms of its overall hydro-developmentalist plans within the Blue Nile Basin, and in terms of the actually implemented components in the Beles Valley. Neither the Derg's nor Salini's prime motivation to implement the TBP derived purely from the famine emergency. But the latter served to de-politicise their underlying motive: the hydro-developmentalist aspiration to re-engineer the waters of the Blue Nile Basin, according to the imperial Tana-Beles idea to stitch Lake Tana to the Beles River, channel water through an underground power station, and to launch large-scale, industrial irrigation schemes in the Beles Basin (see Chapters Three and Five).

4.4 Ruins and dreams in the Beles Valley

When plans for large-scale (hydro-)developmentalist investments evolve, their proponents – government bureaucracies and technical experts – rarely place emphasis on the vulnerabilities of infrastructure. Erosion, decay, destruction, and ruination, be it through natural or human forces, are themes which public and corporate spokespersons often ignore deliberately. González-Ruibal (2006: 194, 197) evokes the image of the sunken *Titanic* in combination with his description of the ruins of the derelict TBP. It is a symbol of the "destructive side of modernity", writes the author, adding impressions from his journey to the former project site in the early 2000s (*ibid.*: 175):

> The forest is now slowly eating the buildings [...]. It is a ghostly place: large landscaped avenues, with street lamps and trees. Lots of metallic containers everywhere, European-style office buildings flanking the avenues [...] The airdrome full of weed and bushes. [...].

However, I discovered during my own visit to the Beles Valley, in March 2019, that the remains and ruins of the TBP are more diverse. Some are material, some intangible[16], some abandoned and some re-purposed. Treating the TBP (Part I) as an archaeological site reflects only a small fragment of the overall story. The various ideas of 'Tana-Beles', as much as the material project, were indeed objects of power struggles on multiple levels: political, technical, ideological, and existential. To complement González-Ruibal's (2006: 175) observations, which culminate in a rather pessimistic conclusion about the "destructive side of modernity", I dedicate this section to memories of the TBP, and reflections on its ruins, from a grassroots perspective. In this vein, I show that the TBP also inspired hopes, despite its destruction more than thirty years ago. They are still alive, although many of these hopes remain unfulfilled to date. The agro-industrial development components of the TBP, which were rolled out in the Beles Valley, do not explicitly relate to the dream of the Tana-Beles hydro-infrastructure which Mengistu's government and Salini would have implemented as a second step, had it not been for the strong opposition to both the communist regime and the hydro-developmentalist scheme. However, the events which occurred in the Metekel Zone do constitute crucial elements in the story of Tana-Beles.

[16] In the form of memories, practices, knowledge and other immaterial ways of preserving structures of the past within the local community; for further elaboration on "intangible" remains/ruins, refer to Olsen and Pétursdóttir's (eds.) (2014) *Ruin Memories: Materialities, Aesthetics and the Archaeology of the Recent Past.*

As mentioned in previous chapters, hydro-developmentalism is not a linear phenomenon. It is also not one-dimensional. Had it not been for the famine emergency, the TBP might have taken a different shape. Or, it might not have been launched under that particular name – 'Tana-Beles' – in socialist Ethiopia. Counterfactually, without the famine, neither the Italian Ministry of Foreign Affairs nor Salini might have had arguments convincing enough to commit funds and engineers to the risky undertaking. For the Derg's highest-ranking officials, the Italian government, and Salini, the TBP might have represented mainly a "foot in the door", the famine providing the decisive gambit which would get the ball rolling for hydro-politically critical developments in the Blue Nile Basin. However, how did those directly involved in and affected by the TBP experience its rise and ruination? Below, I give voice to memories and reflections about the TBP by a group of Italian engineers, who were engaged in the project's construction, as well as by several survivors of the TBP resettlement scheme, who experienced its destruction. Their experience underscores the complexity of hydro-developmentalist undertakings and assemblages between human and impersonal forces (Latour, 2005), which become matters not only pertaining to a government's or a company's self-assertion. Such undertakings also profoundly affect individual people's subsistence – be it professional or existential. I refrain from making judgements about the perspectives presented below, but rather intend to let them tell their own tale, demonstrating the significance of the TBP from the respective angles of the 'implementers' and the 'target groups'.

Italian memories of the TBP

On an evening in late January 2019, I had a dinner appointment at Juventus Club in Addis Ababa with four Italians in their mid-sixties, who were on a return visit to Ethiopia. One of them had established himself in neighbouring Kenya; the others were based in Italy. We were joined by an Ethiopian-Italian lady of the same age, resident in Addis Ababa. These five individuals struck me as rather different in terms of their personalities, backgrounds, and professional careers. They were, however, obviously and intimately welded together by their common experience in the 1980s: a vocational calling they had pursued from different walks of life and with different motivations: Tana-Beles. Since their employment in the TBP between 1985 and 1991, this group of self-proclaimed "veterans" has returned frequently to support philanthropic projects in Ethiopia on a private basis. We spent a long evening together, and, when the informants reminisced about the time their paths had crossed and briefly united in a "peripheral Abyssinian jungle", in the "middle of nowhere", their

retrospect was flavoured with a mixture of nostalgic pride, a good portion of laughter, heroism, seriousness, and cynicism. In the following, I reproduce fragments of the conversations of the evening, without distinguishing between the different individuals. This is not to suggest that all informants held the same views, but to give a representative summary of the story from their joint perspective:

> The first Italians arrived in the Beles Valley already in 1985. It was only bamboo forest. There was basically no infrastructure and no proper sanitary facilities in the first year […] the expatriates lived in containers, malaria was a problem.
>
> Some of us were supposed to build infrastructure, tapping water from the Beles River. Some of us supported the development of irrigation infrastructure for farms growing maize, sorghum, soya beans, oil seeds, saffron, and some vegetables. Rice was planted in dry areas as a rain-fed crop.
>
> The project was going well, the villages started to host thousands of people, but after two years, the first problems started.

To these five engineers and agronomists, who were all young professionals – some on their first mission abroad – the undertaking was an exotic adventure. Their perception of the intervention site coincided with the idea of a Greenfield project. The group commented only very briefly about the displacement of the Gumuz people. One of the engineers referred to them as *Shenkilla* – a derogatory term, which is not considered appropriate in contemporary use. He recalled: "The local 'forest people', the *Shenkilla*, were very sceptical towards our project. These people did not live in houses but in the forest. One Ethiopian worker was killed by a *Shenkilla*." The use of this vocabulary reflects not only the discrimination between urbanised 'Ethiopians' and 'wild' 'forest people', but also the fact that the foreign contractors mainly interacted with and adopted the language of 'dominant', or 'modernised' groups within the social fabric of their host country.

With reference to the civil war situation in Ethiopia and the threat to the project site from the insurgent movements, the interlocutors recalled:

> It was a strange situation: In Addis Ababa, there were a lot of soldiers from USSR, GDR, Cuba, and Bulgaria all along the streets, and above all, our Tana-Beles Project area was along the border line of the civil war. We could not get out of our project area after 8pm, and we did not have any telephone, TV, or radio communication with the rest of the world, not at our level […].
>
> With Tana-Beles, Mengistu also built himself a base for the war against Eritrea […] The airstrip in Pawe surely served military purposes, the road from Addis to Pawe facilitated the deportation of people to the Tana-Beles region.

Here, the interlocutors clearly show their comprehension of the political situation and the authoritarian tactics used by Mengistu's regime to control and relocate people. They also indirectly acknowledge the use of key infrastructure provided by Salini [the airstrip, built to transport equipment and supplies to the site] for Mengistu's warfare, and "military purposes" not related to the TBP. As opposed to the Salini publication quoted above (Salini Impregilo, 2016a), the informants bluntly refer to the practice of "deportation." However, despite the intimidating context, shaped by the civil war, kidnappings, and even killings, the informants did not position themselves in any way for or against the Derg regime. Instead, they were passionate about their professional mission: "Anyway, it was an exciting experience and we loved Ethiopia […]." They felt secluded in the Beles Valley, but they were also able to live a special kind of life, far away from the rest of the world. One of the agronomists, who had barely turned 30 years of age during his deployment to the TBP, remembered the level of authority he enjoyed in Ethiopia:

> On the small implementation level, the work at the TBP was wonderful. I was responsible for three pilot farms with about 200 workers and 50 hectares each. It was a great responsibility to manage these […]. This would never have been possible in Italy to the same extent.

The Italian project funds also covered the construction of relatively "luxurious" accommodation for the expat employees in the Beles Valley – in contrast to the humble housing units in the resettlement villages. Containers from Italy imported high quality foodstuffs, water, wine, and beer for the employees. Their offices and recreational facilities covered a generously spaced compound, including a "diligently used" swimming pool. The Italian expatriates, along with some Ethiopian Salini staff members and contractors, both male and female, engaged in social activities outside the working hours, formed friendships and some relationships. The TBP had a concrete and personal significance to these people. By contrast, it was an abstract means to an end for the high-ranking decision-makers of the central Derg government in Addis Ababa and the Ministry of Foreign Affairs in Italy. I present a small selection of private stock photographs of the TBP in the late 1980s at the end of this chapter, and contrast these with photos of the ruins, which I discovered during my own visit to the Beles Valley in March 2019.

Rising from the ruins: Between oblivion and hope

The most profound experience of the TBP was that lived by the resettled farmers and the local peoples displaced by the project. In March 2019, I travelled to the Beles Valley together

with a geologist from Bahir Dar University, Getnet Taye Bawoke, who supported me both with translations, and helped me understand the fascinating hydrological and geo-morphological features of the Beles Basin. We had the opportunity to speak with numerous former settlers, mostly from Amhara and Tigrayan origins. Rather than returning to their ancestral homesteads, as many others did (Abutte, 2000; Gebre, 2002; Rahmato, 2004), these individuals, or their parents, had restarted their lives within or near the former resettlement villages. Several of these interlocutors shared very personal and touching details of their own and their families' life stories. Rather than going into detail, I present below the overall canon that emerged from these narratives: the sense of having been left behind, and a hope that change might still come. As mentioned above, some tangible elements of ruination and the decay of scattered remnants of the former TBP in the Beles Valley are visualised at the end of this chapter.

Travelling from Bahir Dar to the 1980s TBP sites was an impressive experience. On the four-hour drive, we descended from the Ethiopian highland plateau via the Gojjam escarpment towards a completely different climatic and topographic zone in the valley of the Beles watershed where we – at the peak of the dry season – faced conditions of extreme heat. How hard it must have been for famine-stricken highland farmers to relocate into an environment so unfamiliar and a climate so energy-sapping, we could only imagine. The town Gilgel Beles was our base from where we visited various sites in the surrounding area. Meanwhile, by the time the heat had abated, we started our investigations in the local neighbourhood in Gilgel Beles. To our surprise, the first thing we noticed about the ruins of the TBP was the fact that they seemed to be buried in oblivion only a short distance from the centre of the former activities. Gilgel Beles itself is a peculiar place that has only developed into a small town with a population just below 90,000 inhabitants in the late 1990s. Many square-like buildings, like our accommodation – a very local interpretation of "The Sheraton Hotel" – were less than ten years old, did not quite seem to fit into the landscape, and were mostly built under consideration of cost- rather than climate-efficiency. Throughout the past decade, a substantial number of new, mainly Amhara, migrants have kept arriving in the area, lured by small and medium business opportunities, given the increased traffic through Gilgel Beles on a new road to Guba and the GERD construction site. When we asked a group of young men near a bridge crossing the Beles River about directions to the former TBP sites, they were, to start with, puzzled and, whilst very eager to help, not able to assist. A new generation of economically-driven settlers now resides in Gilgel Beles. Many of the newcomers seem to

have no idea about the history of the old TBP. It was only as we walked on a bit further and reached the gate of a small fruit farm that we encountered an elderly individual who was curious about the purpose of our visit to Gilgel Beles and, when informed about our inquiry, asked: "Are you looking for Mini Roma?"

"Mini Roma" – Almu Town, by its official name, and only a 25 km drive from Gilgel Beles – was indeed the centre of the little 'universe' created through the TBP in the Beles Valley. Here, as we discovered during the following days, the stories of the "pharaonic project" were anything but forgotten. We started at dawn on the following day, driving through Almu Town and Pawe, past large irrigated fields of sugar-cane belonging to the Tana-Beles Integrated Sugar Development Project, which the EPRDF government had launched in the early 2000s (see Chapter Five) in a northern direction towards Jawi *woreda*. Jawi is a district at the northern extremity of the former TBP intervention area, accessible by gravel road, as the asphalt ends shortly after Pawe, where the Benishangul-Gumuz regional state borders with the Amhara region. Thankfully, the conditions on the route were peaceful and quiet, as there are repeated reports of clashes between the local Gumuz and Amhara people, also shortly after our trip.[17] During one of our fist conversations, near Worq Meda in Jawi, with a village elder who had arrived in the area with the first settlers in 1985, we learned that the relations between Gumuz and other non-indigenous ethnic groups had in fact generally improved since the launch of the TBP. Although this is not yet common in the more rural areas and villages, in the proximity of the towns, Gumuz and Amhara people are beginning to inter-marry and to integrate, rather living parallel existences. This is a noteworthy positive development in spite of exacerbating ethnic mobilisation and conflict (Interviews XLV and XLVI, 03/2019).

Many of our interlocutors in and around Jawi, Pawe, Almu Town, and near the Ali Spring Dam vividly remembered the hardship they faced in the 1980s, adapting not only to new diseases, the different climate and environment, but also to the working conditions under the Derg's socialist model (Interview LII, 03/2019):

> Through the [TBP] we were all given housing and a small plot of land to cultivate for our own consumption […] but with working conditions in the cooperative the time was always short. […] we were not allowed to sell what we produced, but sometimes we traded food or

[17] Addis Standard (May 2019): 'Several Dozens killed in Jawi woreda, Amhara regional state', accessed 3rd May 2020 via: http://addisstandard.com/news-several-dozens-killed-in-jawi-woreda-amhara-regional-state-deputy-pm-demeke-describes-it-a-tragic-retaliation/;
The Reporter (May 2019): 'Violence in Benishangul-Amhara border towns', accessed 3rd May 2020 via: https://www.thereporterethiopia.com/article/violence-benishangul-amhara-boarder-towns

> handicrafts in local markets, even though the [government] authorities did not approve of this.

The majority of the produce from the Tana-Beles fields was processed and collected in a central storehouse, the government marketing centre, from which the food was redistributed into each *kebele* (neighbourhood), as well as supplied for sale in Ethiopia's urban centres. As of March 2019, this large grain storage complex, built by Salini, is owned by the Pawe Special District and Benishangul-Gumuz regional state, and jealously shielded from public inquiry by its current local manager.

Although the peasants received very little, even "insufficient" compensation for their hard labour in the cooperatives, many informants – in striking similarity with their Italian counterparts – had a very nostalgic reminiscence of the TBP as such (Interview LI, 03/2019):

> The Italians did a lot of things here – they built dams, roads, factories and farms […] the times were exciting. The Italians brought tractors and some machines which we had never seen before in our lives […] [the airplanes] brought a lot of interesting things […]. We felt like this was the beginning of something big, and we were a bit proud to be part of this project […].

Then, before the TBP could turn into "something big" and durable, before the hope of the farmers to yield results of their labour – change – was fulfilled, and their basic need – self-sufficiency – secured, they faced the "bitter" taste of abandonment (Interview LVII, 03/2019):

> Everything happened so quickly like in a strange dream (*ende yemegirmew hilmeh neber*) – we lost our homes [in the highlands] […], we struggled here in Tana-Beles, many of us got sick […] it was hard, but we hoped we were moving to better times […] we were willing to work hard, to change our lives. We were resettled in a haste […] but when troubles started here in Tana-Beles, when war came, the Italians ran away in a haste […], they just left.
>
> The 'woyane' [reference to TPLF, often used with a negative connotation] stole all our machinery and they destroyed some of our infrastructure […] nobody cared about us, or what would happen to us. Most of the functional machinery was taken away or broken […].
>
> What was the point in making all the effort to start [the TBP] to then just drop us? Why did they forget us?

The fact that I, as a foreigner, arrived in a big car, and asked a lot of questions about the seemingly distant past elicited hopes for revival. I was asked by some people if the Italians were coming back, and what I would do to raise awareness about the ruins in the Beles Valley. The frustration about the demise of TBP was big among all elderly informants, but – in my impression – even bigger among the younger generation born into the former

resettlement site. Unemployment and lack of social mobility are serious concerns. However, even though many young residents of Pawe, Almu Town, Jawi, and villages in the vicinity aspire to move to big cities, ideally Bahir Dar and Addis Ababa, we also encountered young people who were passionate about the history of the TBP. They longed for a resumption of the socio-economic development components, a revival of the ruined factories and farms, which had complemented Part I of the project. While my research assistant supported me tremendously in explaining our mission, and managing expectations about its very humble outcomes, we did promise to document some of the ruins our informants pointed us to. As mentioned above, the photographs at the end of this chapter go without lengthy explanation.

What happened in the Beles Valley in the 1980s was an intervention of massive scale and significance – meaning different things to different stakeholders. Here, I have adopted a bottom-up perspective. The TBP was a life-changing experience for the resettlers, entailing both negative and positive impacts. For the Gumuz and other local tribes, it was an unwelcome intrusion into their livelihoods, but equally one that was likely to have occurred sooner or later, as Ethiopian governments continued – and still continue – to push the frontiers of the national development trajectory. For the environment, the minor dams on the Beles River, constructed by Salini, caused less disruption than presently intensifying deforestation, soil erosion, and mono-cropping – side-effects that are all too common, in contemporary agro-industrial schemes of a large scale. The story of Tana-Beles, as it played out in the Beles Valley, raises important questions with regard to accountability, as well as the technical suitability and durability of the intervention. From the perspective of one of the eyewitnesses, the Italians more or less came, made an enormous investment and deserted everything in the twinkling of an eye. The TBP did indeed contain certain elements of economic policy, as Viezzoli (1992) portrays it, which could have helped its beneficiaries to seek self-sufficient paths out of poverty. However, on the one hand, the turnkey concept implied that the Ethiopian government was only minimally involved in the technical implementation of the project; on the other hand, much institutional memory held by involved Ethiopian officials, technicians and engineers – not archives – was erased with the transition of power in 1991. Neither the subsequent EPRDF government, nor Salini Impregilo have explicitly addressed the ruins of the TBP to this date. No amends were ever made for the destruction of material and individual existences in the Beles Valley, despite the fact that EPRDF members participated therein.

4.5 Conclusion

Throughout this thesis, I make the case that hydro-developmentalism does not manifest itself in a linear fashion. Indeed, the story of 'Tana-Beles' is a case in point. Both the imperial and the socialist Ethiopian regimes pursued the hydro-developmentalist dream of the controversial Tana-Beles infrastructure. One of the aims of connecting the Lake to the Beles Basin was to strengthen the central government's hegemony and leverage – vis-à-vis trans-boundary and domestic rivals – through an increased command over hydro-infrastructural technologies. Both regimes failed to achieve this aspiration. However, while Haile Selassie's government had not even been able to initiate corresponding activities on the ground, a number of factors collated to make the launch of the first Tana-Beles Project (TBP) possible in 1985. The present chapter has considered the TBP with regard to its political setting, its implementation, and ruination as the object of analysis.

The detrimental famine in the early 1980s, which had sparked global reactions, served as a powerful gambit, or "state of exception" (Fantini & Puddu, 2016), to justify the launch of the politically highly sensitive TBP. Public discourses of emergency, the de-politicised portrayals of intentions and objectives, and – crucially – the financial support from Italy, along with the technical one from Salini Costruttori, made its implementation possible. In this vein, I have shown that – driven by political and corporate interests, respectively – high-ranking diplomats at the Italian Ministry of Foreign Affairs and Salini's managers played a significant role in directly expanding the infrastructure and architecture of Mengistu's regime, despite the latter's authoritarian policies. In Section 4.2, I demonstrated that the post-revolutionary state in the 1970s was internally fragmented and fragile. I referred to the Red Terror campaign with which the Derg sought to eliminate opposition and consolidate its rule. In addition, I discussed the Derg's agrarian reform policies, which included resettlement and villagisation. These were not merely economic transformations. They were also introduced to 'enframe' (Clapham, 2002) the working population within engineered spaces of political control.

Against this background, the TBP was also a highly ambiguous intervention. Based on the Ethio-Italian cooperation agreement in 1986, the TBP was divided into two major components: Part I was dedicated to the resettlement and large-scale agro-industrial development scheme in the Beles Valley; Part II envisioned the hydro-developmentalist regulation and diversion of the Nile Waters. The TBP built upon the Tana-Beles Resettlement

Project, which the Derg had launched a year before. This project title underlines the fact that – from the very onset of the resettlement scheme – the Derg had also intended to construct the hydraulic infrastructure in the Blue Nile Basin. Between 1974 and 1991, the TBP was the only major – albeit inchoate – infrastructural intervention, which targeted the source of the Blue Nile (Carr, 2017). However, only the activities of TBP Part I, in the Metekel Zone within the Beles Valley, could be commenced before Mengistu's regime was overthrown.

For this reason, the chapter's further analysis concentrated on this aspect: Part I of the TBP, which is a crucial building block in the story of 'Tana-Beles'. By presenting the conditions under which the project came to be, I emphasised that the TBP was indeed not a purely humanitarian effort. This is exemplified by: the conflicting portrayals of the intervention – both euphemistic and highly critical; its hierarchical implementation; the hardships endured by both indigenous populations and the supposed beneficiaries of the scheme; as well as the strategic significance of the project site as a target for sabotage and insurgent operations during the Ethiopian civil war. Nevertheless, I showed that many of the foreign implementers involved in it perceived and experienced their work as a philanthropic endeavour. Furthermore, most academic literature discusses the TBP exclusively in light of the implemented Part I (e.g. Abutte, 2000; Gebre, 2002; González-Ruibal, 2006), without considering the plans for Part II as parts of the narrative. By contrast, this thesis integrates the political history of TBP Part I into its longue-durée analysis of 'Tana-Beles' as a hydro-developmentalist idea. In this vein, the abrupt discontinuation of the TBP also represents the victory of opposing forces against its hydro-developmentalist component.

The destruction and abandonment of the 1980s TBP has produced ruins both material and ideational. They reflect the fragility not only of the political system, from which the TBP emerged, but also of the struggle for hydro-developmentalist '(arte-)facts on the ground'. However, while González-Ruibal's (2006) rather pessimistic depiction of the TBP's physical debris in the Beles Valley impressively illustrates the "destructive side" of the totalitarian modernisation effort, it does not capture another sentiment which the ruins elicit: hope. In conversation with many local eyewitnesses and former participants of the Derg's enormous resettlement scheme near Pawe, Almu Town, and Jawi, I discovered that the ruins represented both broken dreams and, as of yet unfulfilled, but persistently hopeful dreams of revival, progress, and change. The story of Tana-Beles is thus a complex and multifarious one, down to the level of the individuals who experienced it.

Visual impressions from the TBP in the late 1980s

Figure 4.2
The Tana-Beles agronomists in the 1980s

Figures 4.3
"Agricultural machinery is put to use"

Figures 4.4
"Agricultural machinery is put to use"

Figure 4.5
"Dining in Mini Roma"

Figure 4.6
"TBP football team"

Figure 4.7
"Gumuz women return from Gilgel Beles market"

Photo credits: Gianluca Burchi and Anna Grazia Pirro

Visual Impressions from the former TBP project sites in March 2019

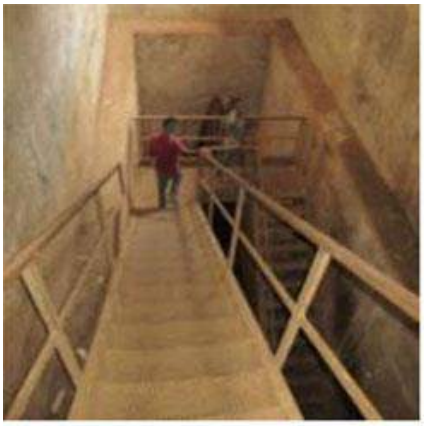

Figures 4.8 and 4.9
Eventful biographies: eyewitnesses tell about their experience of the TBP and resettling from the highlands to the Beles Valley


Figure 4.10
Two young students belonging to the Gumuz people with Getnet (Pawe Diga)

Figure 4.11
Another former highland resettler with colourful memories of the TBP (Pawe Hospital)


Figures 4.12 and 4.13
The agro-pastoral lifestyle prevails until today in most parts of the Beles Valley, near Worq Meda.


Figures 4.14 and 4.15
Pawe Diga – one of two dams constructed in the area by Salini and commissioned in 1990; its main purpose is water supply; the small-scale electricity generator is no longer operational.



Figures 4.16 and 4.17
A tunnel was built under the dam wall of Pawe Diga to facilitate river-crossing. Today the tunnel is dark (defunct generator) and several leakages have filled it with water. Brave people still use it nonetheless.

Figures 4.18 and 4.19
A small TBP boat on Ali Spring Dam, near Worq Meda, used to clear the dam from plants and sediments. It still serves as drinking water storage, but the water treatment plant is no longer operational.

Figures 4.20 and 4.21
Former accommodation units for Italian and Ethiopian TBP staff in "Mini Roma" camp, Almu Town

Figures 4.22 and 4.23
One of the former TBP dining halls is still in use by the Tana-Beles Girls' Boarding School that has moved into the compound; the Italian swimming pool has remained dry for almost three decades.

Figure 4.24
The airstrip between Pawe and Almu Town has only been used on rare occasions since 1991.

Figure 4.25
A repurposed Salini Costruttori container

Figures 4.26 – 4.27
"Tractor cemeteries" in "Mini Roma" (Almu Town) and on the EIAR campus (Pawe)

Figures 4.28 – 4.29
(see above)

Figures 4.30 – 4.31
Rusty remains of former beacons of modernity – decomposing TBP agricultural machinery and other equipment spread in the margins of the current EIAR campus, Pawe


Figures 4.32 – 4.34
Rusty remains of former beacons of modernity – decomposing TBP agricultural machinery and other equipment spread on the margins of the current EIAR campus, Pawe


Figure 4.35
At the locked gate of the TBP pipe factory; the Pawe district office still pays a lonesome guard to watch the compound.

Figure 4.36
One of the Agip mini-stations that once provided fuel in every kebele during the TBP.

Figure 4.37
Gilgel Beles: the old bridge over the Beles River built by Salini is "cold-shouldered" by the new road.


Figure 4.38
Entering Gilgel Beles from the west-side

Figure 4.39
Not much has changed for this Gumuz woman compared to the 1980s, except for the ground under her feet.

All photos in this section (Figures 4.8-4.39): © Kristin Fedeler, 2019

In photos with less than four recognisably depicted individuals, these were asked for permission to have their picture taken and consented to its display within this thesis.

Chapter Five

Harnessing the hydro-developmentalist vision:

Old Tana-Beles dreams come true in Meles Zenawi's 'new Ethiopia'

> If hydropower dams are to be built anywhere on earth, then Ethiopia is a prime candidate. Hydropower dams in Ethiopia address acute power shortages in the country and the sub-region, an acute shortage that all and sundry agree is a major bottleneck in the fight against poverty […].
>
> Meles Zenawi (2011)[1]

5.1 Introduction

In the immediate aftermath of the protracted civil war against Mengistu's communist regime, the Ethiopian People's Revolutionary Democratic Front (EPRDF), a coalition of four ethnicity-based political parties,[2] established the Transitional Government of Ethiopia in 1991. The Beles Valley had been a central battle ground during the insurgency, but it was peripheral to politics in Addis Ababa in the early 1990s. After years of armed struggle, the new leadership neither had the resources, nor the intention to resume the interrupted activities of the Tana-Beles Project (TBP) in the resettlement areas, according to a senior political analyst (Interview XV, 02/2018). Chapter Four discussed how the TBP, ostensibly portrayed as a humanitarian and agro-industrial development intervention, collapsed. The insurgent groups had reportedly damaged or removed equipment, machinery, and infrastructure. The resettled farmers experienced a sense of betrayal upon the sudden withdrawal of Italian aid and the abrupt disintegration of the TBP. Gebre (2002: 35, 44) mentions that more than 60% of the 1980s settlers chose to return to their original homesteads. For many, the developmental promise of 'Tana-Beles' had turned into a preposterous ruin of a broken dream.

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[1] Keynote speech by Prime Minister Meles Zenawi at "Hydropower for Sustainable Development" Conference, Addis Ababa, 31st March – 1st April 2011, hosted by UN Economic Commission for Africa (UNECA), African Union (AU) and Ethiopia's former Ministry of Water and Energy, organised by the Ethiopian Electric Power Corporation (EEPCO) and International Hydropower Association (IHA), and mainly sponsored by the Chinese state-owned Sinohydro (programme accessed on 12th December 2019 via: https://au.int/sites/default/files/newsevents/programmes/29693-pg-programme_0.pdf).

[2] See section 5.2 for further background.

After almost two decades of public silence about the TBP, however, the EPRDF-owned news channel, ETV *Zena*, announced what it portrayed as a ground-breaking and novel achievement: the inauguration of the so-called 'Beles Multipurpose Project' (Beles MPP). Although there was no extraordinary media fanfare about this project, Prime Minister Meles Zenawi qualified the day of its induction, 14th May 2010, as the beginning of a "new chapter" (*addis mieraf*) on Ethiopia's national development journey.[3] Interestingly, the word 'Tana' was omitted from the official project title. Nevertheless, the ETV *Zena* (2010) reporter, standing at the inlet of a tunnel which channels water from Lake Tana into the underground Beles MPP power station, refers to the infrastructure as this: Tana-Beles. 'Tana-Beles' thus obtains a new meaning in the present chapter of this thesis. While, in Chapter Three, Tana-Beles denoted an *imperial idea*, its signification shifted in Chapter Four to a *ruined project*. In this Chapter Five, I analyse how the EPRDF appropriated and reframed the hydro-developmentalist visions of the past to transform the original idea of Tana-Beles into *material infrastructure*. This was only possible with support from the same foreign contractors, whose services already had been rendered to the previous Ethiopian regimes. Together, the EPRDF and the foreign companies formed a hydro-developmentalist assemblage, through which new structures of power and spatial politics emerged. Hereafter, I refer to the infrastructure as Beles MPP or Tana-Beles interchangeably.

The realisation of the Beles MPP must be contextualised within the EPRDF's broader hydro-developmentalist commitment to large-scale dam projects since the early 2000s. The government proclaimed not only the potential, but also the necessity, of large dams – to meet national and regional demands for electricity, to expand agro-industrial production, and as sources of foreign capital through export revenues (Verhoeven, 2013). Between 2009 and 2010, Tana-Beles was one of three major hydro-electric power plants commissioned in Ethiopia, along with the Tekeze Dam on the eponymous river in the northern highlands (300 MW installed capacity), and Gilgel Gibe II on the southern Omo River (420 MW). Yet, it is a unique project for a number of reasons: From 2010 to 2016 – until Gilgel Gibe III (1,870 MW) was completed – Tana-Beles was the largest domestic energy source, with a cumulative generation capacity of 460 MW. The 20-kilometre pressure tunnel, between Lake Tana and the Beles River is supposed to transport enough runoff water to facilitate the irrigation of an

[3] Reporter Hannah Temari quotes Meles Zenawi in an ETV *Zena* news extract (14th May 2010), available on YouTube, entitled 'Ethiopian News: Tana-Beles Hydroelectric Power Plant Inaugurated', accessed on 12th October 2019 via: https://www.youtube.com/watch?v=al2RLD95Wg4&t=1s.

additional 140,000 hectares of agricultural land in the upper Beles Basin (Tarekegn, 2012; Tesfaw, 2016). The Beles MPP was the most significant large-scale infrastructure completed in the Blue Nile Basin[4] before the announcement of the GERD. It was built to fulfil – as the title states – more than one purpose. The hundred-year-old hydro-developmentalist dream of Tana-Beles became a reality within a record time of only five years. In 2005, Salini Impregilo, the Italian company, which already once had secured the contract to build this infrastructure in the 1980s, as Part II of the TBP, assumed full responsibility for the complex construction activities. Studio Pietrangeli, Salini's sub-contractor, lists the Beles MPP as an example of "outstanding engineering challenges", not only because of the "fast track approach", but also because of the complexity of the task, which involved boring the underground tunnel and building the power house at a depth of 300 metres below surface.[5] In 2010, without any notable delay, Salini handed over the finished infrastructure to its new client, the EPRDF's Ethiopian Electric Power Corporation (EEPCo). However, unlike the Gibe Dams or GERD (e.g. Abbink, 2012; Menga, 2016; Woldegebrael, 2018), Tana-Beles never claimed a prominent symbolic space in national identity-building discourses of the EPRDF government. Rather than being a large, imposing, and tangible construct, the design of its power station, buried underground, makes Tana-Beles inconspicuous, almost invisible. Despite the project's direct connection with the TBP, the ruins at the former resettlement sites in the Beles Valley, and thus the recent past, were "silenced" (Trouillot, 1995) in Meles Zenawi's dominant narratives about the Ethiopian developmental state.

This chapter revolves around the ambiguities and contradictions inherent in the EPRDF's and Salini's hydro-developmentalist approach to Tana-Beles, with an emphasis on the discrepancy between discourse and delivery. I argue that the infrastructure materialised on the basis of a "politics of perception" – however, in a form which deviates from Nye's (1994)

[4] The imperial government had launched a small hydropower scheme near the outlet of the Blue Nile from Lake Tana (Tis Abay I) in 1964. The EPRDF government commissioned the complementary Chara Chara weir in the late 1990s to control Lake Tana's levels and flow regime into the Blue Nile, as well as a second power station (Tis Abbay II, 2001) with a combined capacity of 84 MW. With the completion of the 460 MW Beles hydropower station, however, Tis Abbay I and II were to shift into standby mode, to eventually be "mothballed" (Ayalew Gebre *et al*., 2008; ETV *Zena,* 2010). Furthermore, there was a sequence of hydraulic interventions on the Fincha'a river, which is another tributary to the Blue Nile (minor dams commissioned in 1973, and modified in 1987 and 2012). However, the scale of the Fincha'a Amerti Neshe multipurpose project, which was inaugurated in 2011, is considerably smaller (97 MW generation capacity; 6,000 ha intended for sugar cane irrigation) than the Tana-Beles infrastructure (Mahlakeng, 2017).

[5] Based on Studio Pietrangeli's portrayal of the Beles Multi-Purpose Project on its website, accessed 20th June 2020 via https://www.pietrangeli.com/beles-mpp-hydropower-irrigation-ethiopia-africa.

use of the term. The latter derives this notion from the idea of a socially constructed experience of "technological sublime." Sublimity emerges from a common perception of "awe and wonder" in light of "powerful [constructs] of industrial society"; a common perception, which helps to "weld society together", and which "becomes a self-justifying part of national destiny", writes Nye (1994: xiii, 282). By contrast, as I show in this chapter, the "technological sublime" of Tana-Beles is only revealed and unleashed to certain groups of people. To others, the infrastructure is either shrouded in an illusion of absence, or it constitutes a new barrier, rather than a bridge, in the lived experience. I borrow from Howe *et al.'s* (2016) description of "paradoxical infrastructure" to shed light on the new social inequities generated by the Beles MPP, and the way the reshaped Beles River also reshapes constellations between core and periphery. The "politics of perception", I contend, is exemplified by the EPRDF's advertisement of its developmental state philosophy as a *Renaissance* – "a return to autonomously and uniquely Ethiopian development" (Interview IV, 10/2017). However, "there is no totality of the social" (Bousquet, 2014: 95). The idea of a unified Ethiopian nation-state does not correspond with reality. Furthermore, Ethiopia's hydro-developmentalism still hinges upon the technical expertise and implementation capacity imported from abroad. Assisted by Salini and its sub-contractors, the EPRDF managed to occlude not only the existence of the TBP's ruins of the past, but also the emergence of contemporary ruins in relation to the present Tana-Beles infrastructure. Despite the EPRDF's direct implication in the destruction of the 1980s TBP, restoration was not part of the elite's political agenda.

The chapter is organised as follows: In Section 5.2, I review the political parameters of the EPRDF's hydro-developmentalism. Section 5.3 discusses how the Beles MPP materialised, and the controversial role played by Salini and its sub-contractors, in terms of supporting the EPRDF's endeavours to de-politicise the project. In Section 5.4, I report from a field visit to the Tana-Beles infrastructure – the water diversion and underground hydropower plant – demonstrating symbolic and practical implications of its materiality. Section 5.5 moves further downstream along the Beles River to illustrate findings concerning the impacts of the Tana-Beles Integrated Sugar Development Project – a large-scale irrigation scheme using the water channelled from Lake Tana, and a ruin before it became a functioning estate. I conclude the chapter with a short, reflective summary.

5.2 Context dimensions: The political organisation of Meles Zenawi's 'new Ethiopia'

In the following sections, I discuss the political foundations from which the EPRDF's hydro-developmentalism emerged in the course of the early 2000s. Meles Zenawi's proclamation of a 'new' Ethiopia, as a 'revolutionary democracy' is at the core of this narrative. I highlight the internal contradictions between the reconstruction of Ethiopia as a federal democratic republic and the highly oppressive, authoritarian nature of the state apparatus. After the four ethnicity-based political groups,[6] which had seized power in Addis Ababa in 1991, joined to form the EPRDF government, it was the Tigray People's Liberation Front (TPLF) to dominate the coalition. Meles Zenawi, who had led the guerrilla[7] forces against the Derg as the TPLF chairman, sustained his authority beyond the civil war. He became President, then Prime Minister, of the second Ethiopian Republic. His legacy as the political figurehead of Ethiopia's national development trajectory in the 21st century well outlasted his death in 2012. The centrepiece of Meles Zenawi's political creatorship was the 1995 constitutionalisation of federalism, and the redrawing of Ethiopia's domestic jurisdictions into ethnically delineated regional states ('*kililoch*') – both an audacious and a calculated political move (James *et al.*, 2002). In a Forum of Federations (2010) interview, Meles commented:

> And so the new Ethiopia is based on the freely expressed will of its peoples to live together and work together. The new Ethiopia is an expression of the mosaic of cultures, languages, religions – it's a composite. And we are now creating, revitalizing the Ethiopian identity on a new basis, on a more diversified, on a more equitable basis for all of the component parts of the Ethiopian identity.

However, writes a UK-based Ethiopian academic for Al Jazeera (Allo, 2014):

> The relentless memorialisation of Zenawi's legacy conceals, misrecognises, misrepresents, de-historicises, and ultimately erases the fundamental relationships of domination and inequality instituted by the order minted by Zenawi.

[6] The EPRDF, founded during the civil war struggles against the Derg regime, was composed of the Amhara Democratic Party (ADP), Oromo Democratic Party (ODP), Southern Ethiopian People's Democratic Movement (SEPDM), and TPLF. Following reforms by Ethiopia's current Prime Minister Abiy Ahmed, the EPRDF was dismantled in 2019. The Ethiopian government is currently led by the so-called *Prosperity Party* under Abiy Ahmed.

[7] Viewpoints differ with regard to the appellation of the anti-Derg forces. They are referred to as liberation movements by some, terrorists, rebels, insurgents or revolutionaries, by others. There is less contention about the fact that guerrilla tactics contributed to the victory of the coalesced forces against the Derg's army. The TBP itself was subject to sabotage operations, several kidnappings of both Italian and Ethiopian technicians and a number of casualties.

Like the toppled Derg regime, the initially provisional government began its consolidation of power through a two-fold strategy: a "thorough house-cleaning", aimed at dismantling the old political establishment and its supporters, and the creation of "new institutions of control", staffed with loyal supporters of the EPRDF/TPLF power brokers (Gudina, 2003: 117). The TPLF, like Mengistu's Derg, based its original ideology on Marxist-Leninist foundations. However, Meles Zenawi's policies and reforms proved "extraordinarily creative and open-minded in [adapting] to changing conditions", building the necessary leverage to attract both Western and 'non-traditional' Asian and Arab development partners (Clapham, 2018: 1153). At the same time, as Verhoeven (2013: 7) notes, the EPRDF government "continue[d] to be rooted in a radically leftist analysis of how to ensure hegemony," retaining its central, coercive control over the state-led development process, the means of production, capital accumulation, and external alliances.

Developmental state versus democracy

The EPRDF's investments in connection to Tana-Beles – both in terms of the Beles MPP infrastructure, and with regard to the large sugar factory in the Beles Basin – cannot be considered as stand-alone projects. They are crucial components of the overall *developmental state* agenda and the contentious implementation of hydraulic infrastructure in Ethiopia's major river-basins.

Large infrastructure projects, the massive expansion of the domestic energy generation capacity, commercialised irrigation schemes, human capital formation, and a commitment to clean energy were core pillars of the EPRDF's investment agenda, which are pronounced in its 21st-century national development policies: Ethiopia's 'Plan for Accelerated and Sustainable Development to End Poverty' (PASDEP, 2005-2010), followed by its 'Growth and Transformation Plans' (GTP I, 2010-2015, and GTP II, 2015-2020). In a policy paper, Negash (2012: 25) furthermore emphasises the importance of hydro-developmentalist objectives. Both existing ones, and further "plans in preparation" (*ibid.*), give

> highest priority to water sector development as a catalyst to transform the country's economic development from 'agricultural development-led industrialisation' to 'industrial development-led agriculture. […] Huge investment is channelled into the water sector to bring about economic transformation.

A significant number of the hydraulic development projects announced by the EPRDF – just like Tana-Beles – derive from flagship projects envisioned, but not implemented, in the previous century. Nevertheless, the EPRDF has largely claimed ownership of these hydro-developmentalist ideas, and advertised them as products of their own policies (Interview XIX, 08/2018; Interview XXXIV, 11/2018). The delivery of growth through infrastructural development thus became a significant component in the EPRDF's quest for output legitimacy (Verhoeven, 2013). However, Meles Zenawi did not achieve democratic legitimacy. Until the present day, socialist elements prevail in the implementation of Ethiopia's *limatawi mengist* (developmental state) ideology: notably, the public ownership of land and water resources as key production factors, and the preservation of state monopoly in important sectors, such as electricity generation and supply, aviation, telecommunications, and the sugar industry. Yet, the government has also handed over many aspects of industrial development to private entrepreneurship, while combining substantial state-driven investments with large international loans, and big land deals with foreign companies to launch its massive development programme.

Parallel to the concept of ethnic federalism,[8] Meles Zenawi's derivation of the growth-oriented developmental state ideology from Asian models has been subject to much academic scrutiny. Scholars are internally divided between partial praise for Meles as a "remarkable leader and original thinker" (Clapham, 2018: 153; De Waal, 2012), and critical assessments of him as an authoritarian ruler, whose idea of "a 'strong state' was not solely a state with extensive powers and [a] very wide scope of action, but also a state whose actions are dictated by the dominant party" (Lefort, 2013: 461). On the one hand, the EPRDF's policies helped to transform Ethiopia's image from a country identified with poverty, famine, and 'underdevelopment' into one of the world's fastest growing economies, Africa's largest recipient of foreign direct investments, and a showcase example with regard to a number of the Millennium Development Goals (World Bank, 2019). On the other hand, the operationalisation of the developmental state paradigm promoted the centralisation of power among an elite minority. However, the paradigm's theoretical conceptualisation towards international audiences remained "deliberately opaque", "varied, vague and superficial", according to Brown and Fisher (2020: 191). Thus, Meles facilitated a trade-off, the authors (*ibid.*) argue, between the EPRDF's rhetoric of democratic liberalism, and the reality of iron-

[8] I further discuss the politics of ethnic federalism in Chapter Six.

fisted, state-controlled governance, tacitly tolerated by the major multi- and bi-lateral cooperation agencies. During 27 years of EPRDF rule, the apparent commitment to multiparty, "revolutionary [*abyotawi*] democracy", and the introduction of the right to national self-determination, which Eritrea invoked upon its effective secession in 1993, were overshadowed by the systematic repression of political dissent, and repeatedly contested elections (Gudina, 2003). The 2005 elections resulted in even more violent repression of rival factions and the transformation of Ethiopia into a "single-party state in all but name" (Clapham, 2018: 1154).[9] After the general elections in 2000, Pausewang and Tronvoll (2000: 177) considered

> the process of democratization in Ethiopia […] as little more than window dressing […]; a new pattern to preserve full political control at the national level while allowing symbolic democratic discourses to go on and providing an opening for opposition parties in certain urban centres and a few rural zones.

'Renaissance' instead of restoration

The packaging of the EPRDF's post-millennial development plans placed emphasis on a home-grown, emancipated format, articulating a deliberate distancing from the IMF-/World Bank promoted Washington Consensus. The term 'modernisation,' interestingly, did not feature prominently in the EPRDF's development vocabulary, nor is it employed in Meles Zenawi's (2006) fragmentary dissertation on 'African development' which was left incomplete upon his death in 2012. Instead of referring to modernisation, Meles called for an *African Renaissance.* The Renaissance concept, while meaning different things to different stakeholders, has had traction in various African development contexts, from its origins in 1940s Senegal, to Thabo Mbeki's post-apartheid speeches in South Africa, and as the central theme of the African Union's 50th anniversary celebrations in 2013. In Ethiopia, the Millennium Dam, previously also known as 'Project X' and now as the Grand Ethiopian Renaissance Dam (GERD) constitutes the most obvious embodiment of Meles Zenawi's Renaissance motto. The GERD was baptised *hedase gedeb* – Renaissance Dam – not least as an expression of the Ethiopian intention to position itself against downstream hydro-political hegemony (see Chapter Three). In this context, the dam's title represents Ethiopia's re-stated

[9] Two major opposition parties had registered substantial voter support in the "reasonably open and competitive elections" of 2005. Nevertheless, the EPRDF announced its victory and violently squashed demonstrators accusing the ruling party of election rigging. After this incident, and also after the 2010 and 2015 elections, the EPRDF practically occupied all seats in parliament (Clapham, 2018: 1154).

claim to the waters of the Blue Nile (Interview LXXI, 04/2019), rather than a reference to the revival of older hydro-infrastructural projects plans.

However, the explicit contours of the Ethiopian Renaissance theme remain blurry. While Meles Zenawi elaborated the Renaissance narrative throughout the course of several years, the term is explicitly branded for the first time within the Growth and Transformation Plans. GTP I (2011: ix) thus constitutes "the foundation for [Ethiopia's] renaissance journey," and GTP II (2016: 2) is promoted as "the important vehicle for Ethiopia's renaissance." However, instead of explaining the unique characteristics of the paradigm shift that such a Renaissance would imply, Meles rather defined the concept in terms of what is was not supposed to be: the "dead end" of structural adjustment which he rejected. At any rate, the expansion and amelioration of both physical and institutional infrastructure were centrepieces of the proposed Renaissance, as well as the integration of rural areas into a "domestic developmentalist coalition" (Zenawi, 2006). The EPRDF has employed the Ethiopian Renaissance slogan and the vision of a 'new' Ethiopia, among others, as propagandistic counter-weights to ethnic and political divisions within the country. It was intended a unifying discourse, not only recalling common victories against external threats, such as Italy's colonising ventures in the previous century, but also restoring a sense of national pride, reinforced by the material constructs of Ethiopia's contemporary development trajectory. This is what Clapham (2018) refers to as the EPRDF's "performance [or infrastructural-output based] legitimacy," and what Nye (1994) would refer to as a "politics of perception" evoked by the "technological sublime".

The image of ruins presents a stark contrast to this Renaissance construct. Ruins represent the opposite of victory; they point to the opposite of durability and sustainability, the opposite of novelty and the reverse direction of development. Ruins can point to abandonment, incompletion, destruction and neglect – the exact harm which befell the TBP, as I discuss in Chapter Four. Although the literal translation of 'renaissance' – rebirth – could imply an agenda of regeneration, renewal and revivification, the EPRDF government did not apply this theme to the collapsed TBP Part I in the Beles Valley. Restoration – particularly that of the TBP, which members of the EPRDF themselves had destroyed – did not find a place on the agenda of Renaissance. Instead, the mere mentioning of ruins, for that matter, has been anathema to officials of the EPRDF administration, as I noticed when I carefully raised the question in some high-level interviews at the present-day Ministry of Water, Irrigation, and

Electricity (MoWIE; Interviews XVII, 05/2018; XXXVI, 11/2018; LXXI, 04/2019). One of these interlocutors spoke freely about his perception of the flaws of the 1980s TBP. The interviewee raised, on the one hand, the technical importance of the project, but blamed, on the other, mainly the foreign nationals who implemented the TBP of misusing the Italian grants for their own benefit. However, when I requested to learn more about the gap in the Tana-Beles story, pointing to the damaged components of the Derg's mega-project as a result of its abandonment, none of the above informants proved willing to comment on the disintegration of the TBP with a more concrete reference to the years after 1991. Instead, the conversation quickly shifted towards the justifications, successful completion, and benefits of the Tana-Beles water diversion and hydropower infrastructure in 2010. Another high-level informant, who was previously employed by the government and still finds himself in a senior consulting position in close collaboration with the Ethiopian Ministries charged with water- and foreign affairs (Interview XVIII, 08/2018), remarked:

> One should think that infrastructure development produces a kind of continuity […] most places did not experience strong damage after the struggle against Derg. The TBP, however, was subject to lots of theft and destruction. […].

The informant genuinely regretted the ruination of the TBP as a "lost opportunity", but added that, for the EPRDF, "to continue building the same infrastructure with new money was not under discussion at the time." Upon digging a little deeper, I understood that my interlocutor did not refer to TBP Part I, but to the Tana-Beles infrastructure that was planned as TBP Part II. The same goes for a further senior Ethiopian water-sector professional, who explained the interruption between Part I and Part II of the TBP as follows (Interview XIX, 08/2018):

> The plans for Tana-Beles were never entirely off the table. All the studies that were conducted under the previous governments are well preserved. […] But the issue of the water transfer from Lake Tana, especially, is extremely sensitive. You also have to consider the hydro-politics in this region […]. In the late 1990s, there was an Ethiopian expert who delivered a presentation about the [proposed] Tana-Beles hydropower project at a conference in relation to the establishment of the Nile Basin Initiative (NBI) – the Egyptian representative ran out of the meeting! […]
>
> You also have to consider the institutional instability in Ethiopia […] Before the establishment of the Ministry of Water and Energy (MoWE) in 1995, the institutional framework for the water-sector kept changing and there was constant staff turnover.

All my interlocutors related to the EPRDF's water governance institutions avoided my question about the ruins left behind in the Beles Valley and the massive costs, not only in

terms of degrading infrastructure and machinery, but also in terms of human development, associated with the desertion of the 1980s TBP. "It is interesting to ask, why the Beles Valley was ignored by the EPRDF, but the issue is too political and sensitive," commented an external expert on Ethiopian politics and development (Interview II, 09/2017). At least two reasons can be given for why the Ethiopian Renaissance discourse did not give space to a restoration or rebuilding of the former TBP: Firstly, guerrilla fighters associated with the EPRDF itself had attacked the former interventions sites as part of the tactics to overthrow Mengistu's regime. Secondly, the aspects of TBP Part I which were concerned with socio-economic relief, and the activities already launched in the Beles Valley, did not only collapse as a result of the civil war. From the perspective of the Derg regime, as I argued in Chapter Four, the context of humanitarian emergency had also been a means to an end for the re-organisation of potentially oppositional population groups. It furthermore constituted a noble entry point for Salini and the Italian government to close the cooperation contract with the Derg. For the EPRDF government, by contrast, the damaged agro-industrial and socio-economic components of TBP Part I were not urgent enough to be restored in the framework of its own developmental and hydro-developmentalist strivings for power.

Rhetorical devices of a hydro-developmentalist politics of perception

Despite the EPRDF's indifference to the decomposition of the 1980s TBP in the Beles Valley, and to the fate of thousands of asset-less resettled farmers involved therein, Meles Zenawi (2011) nevertheless publicly employed language which addressed "misery and poverty" as the "deadliest killer diseases of all". This type of rhetorical justification for the large-scale top-down hydro-developmentalism, which began to *materialise* in the 21st century, strongly resembles the "state[s] of exception" (Fantini & Puddu, 2016) invoked by previous governments. Both the imperial and the communist Ethiopian regimes already resorted to moral legitimacy claims, which served to buttress the proposed urgency of interventions, while at the same time de-politicising them. According to such public-spirited discourses, the construction of large hydraulic infrastructure was indispensible precisely *for the sake of* Ethiopia's impoverished populace. Haile Selassie invoked a "sacred duty" to exploit Ethiopia's water resources "in the interests of her own rapidly expanding population and economy" (see Chapter Three). Speaking on behalf of the Derg's socialist government, Prof. Negussie Ayele called forth the image of "hundreds of thousands of human beings, falling like flies from famine", and the question of "moral right" regarding Ethiopia's

development of water resources in the Blue Nile Basin. Mengistu himself pointed to the "hunger […] plague" which was supposed to be eliminated by socialist-modernist mega-projects (Chapter Four). Yet, both the imperial and the socialist governments were violently overthrown with substantial support from those groups whose needs the high-modernist interventions into the land- and waterscapes in the periphery of Addis Ababa purported to address.Although sharing similar attributes with his predecessors, the substance of Meles Zenawi's "politics of perception" was more complex and his rhetoric more adaptable to different political settings (see also: Brown & Fisher, 2020). Yet, some of his public speeches had a polarising, even bellicose tone, as I demonstrate further below. At the same time, as far as the Tana-Beles hydro-infrastructure was concerned, it constituted not only a "new chapter" – a significant first major achievement on the EPRDF's agenda to re-engineer the waters of the Blue Nile Basin. It was also a highly controversial intervention, both in the domestic and the regional hydro-political context. For this reason, it either had to be shrouded in silence, or equipped with new connotations. As mentioned in the introduction to this chapter, Tana-Beles itself never constituted a major subject of public attention in its own right. In this vein, it is noteworthy that the EPRDF government's general communications with regard to its hydro-developmentalist aspirations in the Blue Nile Basin intensified *after* the completion of the Tana-Beles hydro-infrastructure, but *before* or around the inauguration of the GERD construction site.

Corresponding narratives thus solidified particularly between 2010 and 2012. The empirical material, which I cite subsequently, mainly dates back to, or emerged from, these years. The EPRDF's discourse aimed at strengthening two perceptions: the consideration of Ethiopian hydro-infrastructure as both a regional *opportunity* and a national *obligation* (*'gedeta'*). From conversations with several public officials (Interviews XVII, 05/2018; XXXVI, 11/2018; LXXI, 04/2019), I could gather that the EPRDF postulated a techno-political logic to launch its numerous hydraulic mega-projects within the short time span of the past two decades: On the one hand, several regions in Ethiopia, and in the Horn of Africa in general, face situations of *scarcity* in terms of water, food, and energy supplies. On the other hand, Ethiopia's water-rich river-basins contain great *potential*, which in turn could be transformed into *abundance* through technology-driven development. This public portrayal resonates with the way hydraulic missions were formulated in the 20th century (Molle *et al.*, 2009), and managed by what Scott (1998: 4) refers to as a "self-declared, all-knowing state elite" (see Chapters One

and Two). Especially towards international audiences, the EPRDF government asserted the primary objective of the increasing number of hydro-developmentalist projects to be the satisfaction of the growing energy demands of domestic industries and Ethiopia's regional neighbours (Cuesta-Fernandez, 2015). By contrast, in the context of the Blue Nile Basin, public officials spoke much less about plans concerning large irrigation schemes. Industrial irrigation would consume considerable volumes of water, while, in fact, the mere prospect of such infrastructure continues to be a serious bone of contention between Ethiopia's agro-industrial development vision and Egypt's proclaimed fear of ensuing water scarcity (Tesfa, 2013; Yihdego *et al.*, 2016). However, large-scale irrigation is precisely one of the purposes of the Beles MPP, as I discuss further below in this chapter with reference to the Tana-Beles Integrated Sugar Development Project.

Aside from the provision of exportable high-voltage electricity, Meles Zenawi repeatedly employed 'poverty' as an alibi for his hydro-developmentalist objectives. In his keynote address at the international 'Hydropower for Sustainable Development' conference, held at the UN Economic Commission for Africa (UNECA) in Addis Ababa in early 2011, Meles presumed a "global and overwhelming consensus" on three propositions: (i) "infrastructural constraints constitute the major bottleneck for sustained growth in Africa"; (ii) the shortage of electric power is a key component of this "infrastructure gap"; and (iii) "all and sundry agree [that the power shortage] is a major bottleneck in the fight against poverty." A day after this speech, the government's Communications Office publicly announced the construction of the GERD, for which Salini already had been engaged under conditions of absolute secrecy in 2010 (Interview LXXI, 04/2019). Meles Zenawi himself graded his address as "brutally frank", and his arguments as unassailable. "Environmental extremists and some politicians with old-fashioned ideas", he claimed, were "enemies" of the aforementioned "consensus", whose opposition would "condemn[…] millions of Africans to poverty." The speech continued (Meles Zenawi, 2011):

> In the words of President Museveni, these people [anti-hydropower 'extremists'] are concerned that butterflies will be disturbed by such projects and they will not allow the disturbance of butterflies, even if this means millions of people have to be subjected to the deadliest killer diseases of all, poverty, in order not to disturb the butterflies. […]
>
> Indeed, the best of hydropower dams, like virtually every human endeavour, are bound to have some negative social and environmental impact, however negligible. The rational question to ask is not whether such impact can be reduced to zero but whether it can be reduced to the maximum extent possible and whether adequate redress and compensation is available. But these extremists who are based and financed from Europe and North America are not amenable to rational arguments. Their holier-than-thou attitude is all the more ironic

> […] [because they] are trying to stop projects in poor countries, such as Ethiopia, that are infinitely more environmentally and socially responsible than the projects in their countries, past and present. […]
>
> I am not a believer in conspiracy theories, but if I were, I would conclude that these people want Africa to remain as it currently is with all its misery and poverty, so that they can come and visit nature in its pristine state in the winter ever so often. […] I believe the position taken by such groups is not only irrational, but also bordering on criminal.

At myriad occasions, Meles employed an oratorical technique, both towards Amharic and English-speaking audiences,[10] which painted a picture of two antagonistic fronts. He portrayed one side as 'extremist', the other as rationally and morally superior. Attracting attention to "butterflies" served as a stylistic device to ridicule critics' concern for the rights and livelihoods of poor people affected by large hydro-infrastructure. Further, Meles Zenawi employed the terms 'Ethiopia', even 'Africa', as monolithic, homogenous entities. Such a presentation obscures the existence of internal inequalities, conflicts, and sub-national dissent within these territorial units. In this vein, even domestic opposition to the hydro-developmentalist agenda was criminalised, or rather – in Meles' portrayal – not even registered as a possibility. Elsewhere,[11] Meles appointed 'the Ethiopian people' as the builders of the major national hydraulic constructs. However, the population of Ethiopia is deeply divided, especially with regard to the question of the relationship between ethnic identity and political power, and this power is also associated with the command over crucial infrastructures (Interview II, 09/2017).

Furthermore, Meles juxtaposed the constructed image of 'Ethiopian'/'African' unity with the idea of an 'irrational', short of 'criminal', and exogenous 'enemy'. This populist narrative intentionally misrepresents the fact that the design of Ethiopia's major hydro-developmentalist projects derives from colonial proposals of the 20th century, and that the most significant planning and hydraulic construction works in the 21st century are mainly implemented by foreign companies. In the case of the Beles MPP, the decisive contributions

[10] One can, for example, refer to the following additional primary sources: Undated interview on ETV (in Amharic), accessed 12th June 2020 via https://www.youtube.com/watch?v=POU6H-CbKcI&t=338s); Q&A session (2010) 'PM Meles Zenawi responding to critics of Gibe3 project' (in Amharic), accessed 20th March 2020 via https://www.youtube.com/watch?v=pAcfGFQIdPE&t=331s; Panel Discussion (2012) 'Accelerating Infrastructure Investments' at World Economic Forum, accessed 20th March 2020 via https://www.youtube.com/watch?v=_mkHjtpGPaY.

[11] For example, during his speech on the launch of GERD on 2nd April 2011, opening the construction site near Guba, Benishangul-Gumuz; accessed 4th July 2017 via https://www.meleszenawi.com/ethiopian-pm-meles-zenawi-speech-on-launching-gerd-text-and-videos/.

to its *materialisation* were made by, among others: Salini Impregilo, Studio Pietrangeli and SELI SpA (Italy), Andritz Hydro (Austria), and Euroconsult Mott MacDonald (UK).

5.3 The materialisation of Tana-Beles: Controversies and foreign contractors

In synergy with what was then the Ministry of Water Resources (MoWR), the state-owned Ethiopian Electric Power Corporation (EEPCo)[12] had re-engaged Salini Impregilo with an engineering, procurement, and construction (EPC) contract – effectively, a turnkey contract – to complete the Beles MPP, and all ancillary works, including access roads, and some minor bridges. The construction began in 2005. However, for Salini, the assignment was anything but a new project. As mentioned previously, Ethiopia's hydro-developmentalism hinges upon the contributions of external technological expertise and foreign companies' service provision. The private companies engaged in the construction of the Tana-Beles hydro-infrastructure had a purely technical mission. The fact that Salini embraced this second opportunity to complete the infrastructure, which it had already agreed and failed to build for the Derg regime, demonstrates the company's nonchalance about political circumstances. Yet, Salini's work does undeniably have political implications. Not only did Salini as the primary contractor for the Beles MPP implement the infrastructure in spite of its hydro-political sensitivity. The company also contributed to obscuring predictable negative impacts of Tana-Beles, and to reshaping the environment near the construction site, as well as in the downstream Beles Basin, in a way that embodied larger structures of both power and marginalisation. After a short description of some notable features of the Beles MPP, I discuss the controversial role of Salini in its materialisation.

Sensitive characteristics of Tana-Beles

Due to the existence of the Tana-Beles hydro-infrastructure, Lake Tana no longer feeds its entire discharge directly into the Blue Nile. Instead, Annys *et al.* (2019: 438) estimate that the Beles MPP taps approximately 70% of it. The water flows into a 12 km headrace tunnel, is

[12] Electricity generation and transmission in Ethiopia has been under state monopoly from imperial times until the present day. The Ethiopian Electric Light and Power Authority (EELPA), founded in 1956, was restructured forty years later to become EEPCo (service provider) with EEA (Electric Agency) as a regulator. Further sub-divided in 2013, the EEP (Ethiopian Electric Power) now functions as the owner, developer and operator of the high voltage national power grid; whereas the EEU (Electric Utility) manages minor power distribution below 66 kV.

conveyed through one or several of the four 115 MW turbines in the underground power house, and released through an 8 km tailrace tunnel into the Jehana River, which flows into the Beles River. Although volumetric water availability is always variable, depending on rainfall, season, and general hydrological conditions, it is clear that the Tana-Beles scheme implies a significant intervention into the flow regime of the Blue Nile. It affects the water volume of Lake Tana itself, and it can, to some extent, negatively impact the water quantity provided from the Beles River to the Blue Nile (Tarekegn, 2012). Water, which is not consumed for irrigation in the Upper, Middle or Lower Beles Basin, rejoins the Nile at its confluence with the Beles, about 850 river-km further downstream from the natural outlet of the Blue Nile near Bahir Dar (McCartney *et al.,* 2010: 5). However, the question to what extent intensified irrigation in the Beles Basin would reduce water flows into the Blue Nile is of great significance with regard to the ongoing regional dispute between Ethiopia, Egypt and Sudan about the GERD, and in particular concerning the filling of its large planned reservoir (Zhang *et al.*, 2016). The issues surrounding both Tana-Beles and GERD are deeply inter-connected and sensitive in a number of ways, not least: diplomatically, hydrologically, economically, socially, environmentally, and politically.

The inter-basin water transfer between Tana and Beles is "somehow atypical" (Annys *et al.*, 2019: 437). Above, I cited the logic advocated in the EPRDF's public discourses that hydro-developmentalist infrastructure is essential in order to address, among others, water scarcity. Normally, such technological diversions occur from water-rich to water-scarce areas. However, the Beles Basin does not fall into the latter category. It receives a considerable amount of annual rainfall (more than 1,000 mm). Rain-fed cultivation is a viable option – albeit not on a large scale. Thus, the Tana-Beles water transfer does not constitute any direct added benefit for local populations in the Beles Basin. However, the new availability of water makes it possible to transform up to 140,000 hectares of additional land into spaces claimed for irrigated mega-schemes. In this vein, the omission of 'Tana' in the official nomenclature of the project is not only noteworthy in light of its hydro-political brisance. Already during the implementation of the TBP Studio Pietrangeli (1990: 5) had earmarked the Beles Basin as a "new region [for] future development" of large-scale irrigation infrastructure. While the successive Ethiopian governments had portrayed the geographical lowland areas along the Beles River as "peripheral" and disintegrated (Markakis, 2011; Fantini *et al.,* 2018; Nyssen *et al.,* 2018), they had equally envisioned their integration into state structures through the

technological expansion of its extractive infrastructure. I further address the underlying politics of space of these plans for large irrigation schemes in the Beles Basin in Chapter Six.

Back to business: Salini's footprint on Tana-Beles

As mentioned above, the Italian construction giant, Salini Impregilo, played the most decisive role for the EPRDF's realisation of the hydro-developmentalist visions for Tana-Beles. Other engineering companies could equally have completed the hydro-infrastructure. But Salini's and Studio Pietrangeli's in-depth knowledge of the project, based on the thorough planning and design work, which these companies themselves had conducted already in the 1980s, was a crucial comparative advantage. EEPCo, the formal owner and operator of the Beles MPP, publicly funded the overall project cost of USD 500 million (Verhoeven, 2011: 19). As the super-ordinate EPC contractor, Salini hired several sub-contractors for the implementation of the infrastructure. These included Salini's close collaborator Studio Pietrangeli SpA, as well as the Italian company SELI SpA for the tunnel excavation, and the Austrian firm Andritz Hydro for the provision of electro-mechanical equipment. The latter, in turn, sub-contracted the Pakistani Nippa Tech Co. Ltd for installation works. When I visited the power plant, I also observed some machinery with a Siemens logo. In short, a diverse assemblage of international service providers thus intertwined to make the dream of Tana-Beles come true. My analysis, however, concentrates on Salini as the company with the direct contractual obligation to the Ethiopian government. In the course of the next sections, I demonstrate that, while Salini's primary mission was to provide the agreed deliverables to its client, it actively disregarded political, social, and environmental impacts of the Beles MPP.

Because of its critical nature with regard to Eastern Nile hydro-politics, once begun, Tana-Beles *had to* be completed rapidly. As an industry insider explained to me, there was "no time to hesitate" when the first tunnel boring machines started operating in June 2007 – "now or never" – and, in fact, the process was "rather smooth" (Interview X, 11/2017). Such high-speed execution of complex infrastructural projects tends to be the exception in the industry. Locatelli *et al.* (2017) conducted a broad-based study of the international construction sector, finding that corruption, project delays, bloated costs, and budget overdrafts are substantial general problems in similar projects around the world. The GERD is embroiled in these very types of scandals; not so, however, Tana-Beles.

In contrast to the 1980s, the Beles MPP was implemented in a relatively peaceful setting. The work between 2005 and 2010 proceeded more or less unhindered, without "sabotage acts from rebels and insurgents", without "the whole setting of the civil war, the kidnappings and the murders" that had affected the 1980s TBP (Interview LXVI, 03/2019). But there was never any guarantee for its peaceful conclusion. The prospect of Egyptian opposition was a constant Damocles sword above those orchestrating the implementation of the project. Hence the sense of urgency, and the common interest shared by both EEPCo and Salini to make the plant operational as fast as possible, an engineer told me (*ibid.*). According to an EEPCo official, there was also next to no organised opposition from local population groups living in scattered villages near the construction area (Interview LXIII, 03/2019). Rather, the locals near Kunzila were hoping for employment and small business opportunities, as well as basic infrastructure, such as roads, schools, and access to electricity. They had thus a generally welcoming attitude towards the intervention (Interview LXII, 03/2019). I address more of these expectations and their partial fulfilment further below.

Controversies concealed

A crucial component of the EPRDF's strategy to harness its hydro-developmentalism in Tana-Beles was the occlusion of the past ruins of the TBP, and the disqualification of arguments pointing to potential negative impacts of the Beles MPP. Salini, too, contributed to concealing controversies, past and present. For example, there is no transparency regarding the question what happened to the funds, which the Italian Ministry of Foreign Affairs originally had disbursed to Salini for the construction of the Tana-Beles hydro-infrastructure (TBP Part II) in the 1980s (Interview XII, 12/2017). At the archives of the current Ministry of Water, Irrigation, and Electricity (MoWIE) in Addis Ababa, I found records of countless pages of expert consultancy work and project layouts, submitted, at the time, to the Derg's Ministry of Construction, and later to EEPCo – but no detailed account of the project finances, neither before, nor after the government change. Thus, both Italian and Ethiopian public funds have been paid out to Salini and other international companies for the study, design and construction of Tana-Beles. However, there is no transparency regarding the exact break-down of the expenses, and how they were used.

Furthermore, according to Ethiopian law (Proclamation 9/1995, passed in 2002), *ex ante* social and environmental impact assessments are a strict requirement for any major

construction project. Indeed, as stated above, Meles Zenawi (2011) claimed that hydro-developmentalist projects in Ethiopia were "infinitely more environmentally and socially responsible" than those in Western countries. However, neither I, nor other researchers (Annys *et al.*, 2019), have been able to retrieve any comprehensive official analysis of the social and environmental impacts to be expected from the Beles MPP. Studio Pietrangeli had prepared a 'Synopsis' for the 'Executive Summary' of the technical details concerning the Tana-Beles construction works – a document comprising 163 pages and 46 drawings. Here, the authors of the report condense the content of several additional folders full of detailed study and planning material with the following plain statement (Studio Pietrangeli, 1990: 4):

> Studies indicates [sic] that no negative impact is foreseen, either around the Lake or along the Beles Valley. In addition, influence of Lake Tana regulation on Nile Flow […] indicates that all the downstream users of the Nile waters will benefit from this regulation.

It is interesting to note that this optimistic reassurance by the Italian company mainly targets the downstream Nile riparians, Sudan and Egypt. How exactly the additional regulation of Lake Tana through the water diversion to the Beles Basin may benefit the neighbouring countries – other than the opportunity to purchase Ethiopian electricity – is not demonstrated by the records I consulted. At the latest in 2015, an extended drought significantly reduced the water levels of Lake Tana, which is a shallow water body, to start with. Meanwhile, this led to a substantial reduction in the power generated by the Tana-Beles hydro-electric plant – a scenario which researchers from Addis Ababa University (AAU) and the International Water Management Institute (IWMI) already had predicted in an article published in the year Tana-Beles was commissioned (Alemayehu *et al.*, 2010). Further impacts of climate change on the hydrology of the Blue Nile and its sub-basins have been manifesting in recent years, such as the spread of the invasive water hyacinth, which covers increasingly large areas of Lake Tana. The weed is said to restrict water flow, and interfere with navigation, irrigation and power generation (Interview XXVI, 09/2018). Although these are root problems upstream of the Beles MPP, they also affect its mode of operation, and require infrastructural maintenance work, particularly at the tunnel inlet on Lake Tana's shore (Interview XXVII, 09/2018). Annys *et al.* (2019), as well as Tesfaw (2016), report on additional biophysical changes with partially negative impacts downstream of the Tana-Beles hydro-infrastructure. I discuss some of these, as well as socio-economic challenges in Section 5.4. The above paragraphs demonstrate that the Italian contractors did not only act according to their

corporate self-interest; their portrayal of the Beles MPP also served to whitewash both predictable and potential negative impacts of the infrastructure.

Constructing inequalities: The local-expat discrepancy

Although there is no transparency about the exact breakdown of the expenses which Salini disbursed for the USD 500 million construction of the Beles MPP, financed by EEPCo, both my archival research and the field visit to the project site revealed significant discrepancies in the treatment of foreigners, as opposed to local populations, for example, with regard to budget consumption for ancillary works. Both the EPRDF and Salini frequently emphasised the objective of poverty reduction and local development as collaterals of hydro-developmentalist projects. The reality on the ground, however, revealed the emergence of new inequalities, both spatial and social.

In Salini's publication *110 Years of Future*, the authors state (2016a: 43-44):

> Building infrastructure in the most socially and politically unstable areas is a high risk job. […] It is not just a question of setting up a construction site, but of building a small city often in the middle of nowhere. You need the engineer and the builder, the geologist and the anthropologist, the economist and the politician. Major infrastructure rings an industrial rationale to a sociocultural environment that is often archaic; it alters the balance, it transforms the economy of the village, it fosters urbanisation.

However, the manifestation of Salini's "small city […] in the middle of nowhere" – both in the case of the 1980s TBP, and with regard to the Beles MPP project camps near Kunzila – is one of infrastructural discrimination. This is even the case *within* the areas designated as accommodation for project employees. During the 1980s TBP, the Italian workers' residential areas were arranged with great attention to detail. In addition, exquisite foodstuffs and leisure activities, even a swimming pool, were made available to the foreign contractors. By contrast, the resettled farmers, most of whom were famine victims, who had been forced to leave behind everything they had owned, frequently only received makeshift or very 'economical' accommodation in the Beles Valley (Interview LIV, 03/2019). This pattern repeats itself at the construction site of the Beles MPP. Figures 5.1 and 5.2 display sections of a map by Studio Pietrangeli (1990) depicting the camp sites planned near the shores of Lake Tana and Kunzila for the contractors involved in the construction of the TBP Phase Two. This layout was adopted almost identically upon the implementation of the Beles MPP between 2005 and 2010 (Interview LXIII, 03/2019). The expatriate workers' permanent camp

and the buildings now used by EEPCo as offices are clearly separated from the locals' camp, situated in the vicinity of an explosives magazine. Figure 5.3 shows details of Salini's 'junior housing' which is by far more elaborate than the traditional *tukul* huts offered for local accommodation. A further paradoxical finding is the following: Salini established a road from the inlet of the 20 km tunnel on the shores of Lake Tana to its outlet further south. This road is only tarmacked along the slopes where heavy rains could make the terrain impassable for big vehicles; it is left as a gravelled *pista* in more level sections. Instead of providing a continuous asphalt road for the local villages and some new settlements of displaced households, only the minimum necessary investment was made to facilitate construction and site operation. The materialisation of such discriminatory infrastructure puts governmental and corporate discourses about poverty alleviation, or "urbanisation" (Salini Impregilo, 2016a: 44) in a dubious light. The above sections clearly demonstrate that not only the EPRDF, but also the foreign contractors involved in Ethiopia's hydro-developmentalism engaged in a 'politics of perception'.

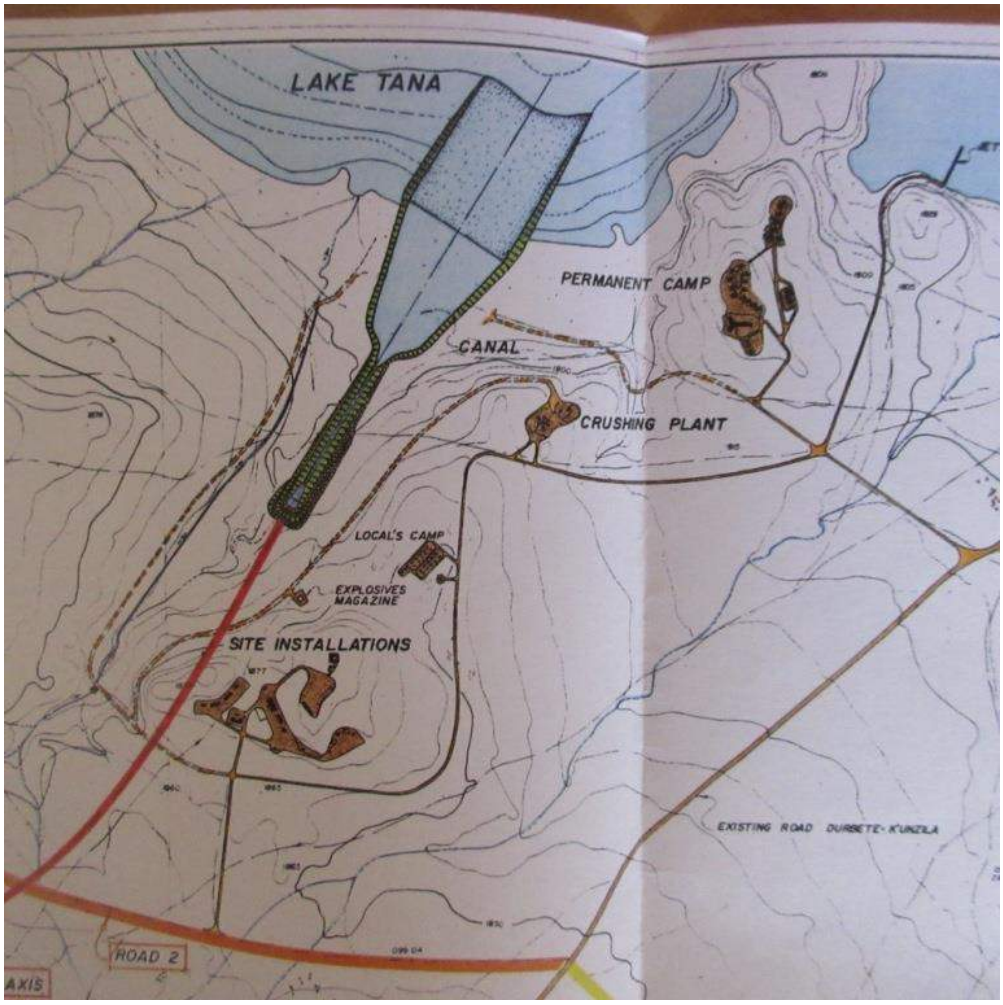
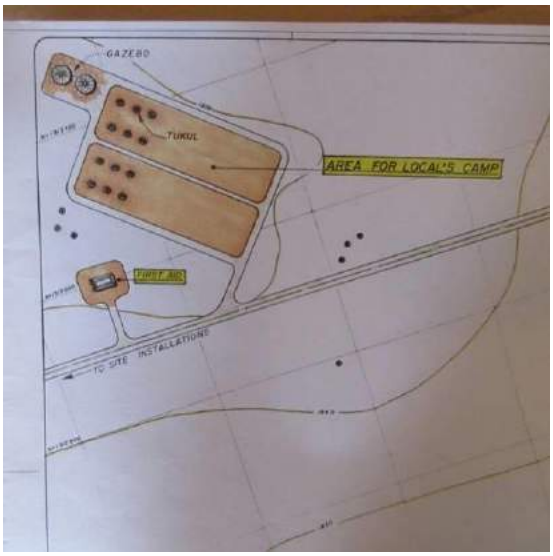
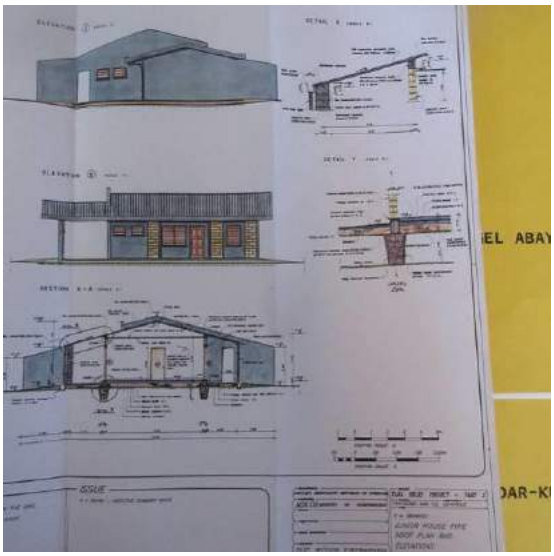


Figure 5.1 *Extract from map of project camps near Kunzila (Studio Pietrangeli, 1990: annex)*





Figures 5.2 and 5.3 *Tukul huts for the 'locals' versus houses for the engineers (ibid.)*

5.4 Experiencing the materiality of Tana-Beles: Report from a site visit

In Meles Zenawi's (2011) keynote address, cited in Section 5.2 above, the former Prime Minister depicted the large "infrastructure gap" as "a major bottleneck in the fight against poverty". He also conceded that negative social and environmental impacts of large technological interventions were not entirely avoidable, but that they could be alleviated through "adequate redress and compensation [if] available". With the materialisation of the Beles MPP, one of the large-scale infrastructural 'gaps' had been filled.

During my fieldwork for this thesis, I had the opportunity to experience the materiality of Tana-Beles, visiting it together with my research assistant, Getnet, and with our driver.[13] This infrastructure exemplifies a "closed political space" (Fantini, 2017) – one which is strongly guarded, and to which we had to renegotiate our access time and again. But we also benefitted from a novel sense of 'freedom of expression' prevailing in Ethiopia for a certain time span between 2018 and 2019. As we drove between the head and the tail of the 20 kilometre underground Tana-Beles infrastructure, we detected visible spatial as well as social inequities overground. These were created both by the hydro-infrastructure itself and by the way the foreign contractors implemented it in the surrounding area – I have already referred to some examples above. Further paradoxes of the infrastructure revealed themselves near the site, among others, the fact that the electricity generated by the Beles MPP is transmitted to remote consumers via high-voltage grids, while power was only provided to the local villages at a much later stage, and as a result of persistent complaints. The local power supply still did not reach all nearby villages at the time of our visit in 2019, and the provision was unreliable in the connected areas. Howe *et al.* (2016: 551) would refer to this situation as an "illustration of infrastructural poverty and privilege". In the same vein, we discovered different notions of core and periphery, depending on whether our interlocutors' narratives emerged from local lived experiences, or whether they aligned with a national developmentalist perspective. Individual perceptions of the infrastructure were equally divergent, as we gathered through our various conversations. We spoke, for example, with EEPCo employees within the underground offices of the Tana-Beles power station. Their enthusiastic narrative contrasted with that of local residents we had met in the downstream Beles Valley, whose lives were

[13] The Abbay Basin Authority (ABA) in Bahir Dar granted us the free use of an available project car with driver for our site visits. I compensated the driver with an agreed daily rate, and we returned the vehicle to ABA with a full tank.

severely affected by the transformed and unpredictable flow patterns of the river, based on the operation of the infrastructure's hydro-electric turbines.

In the following sections, I relate the impressions collected during our field visit to each of the three components of the hydro-infrastructure, starting backwards from the tunnel outlet, to the underground power station, and ending at the water inlet on the south-western shore of Lake Tana, near Kunzila.

Entering a 'closed political space'

It is Sunday, 24th March 2019, and we are at the entrance of EEPCo's project offices and main camp site of the Beles MPP. The guards sceptically scrutinise our support letters. A phone call is made, and – to our astonishment – the gates open; we are allowed onto the premises. After having spent almost a week in the lowland areas of the former TBP resettlement site in the Beles Valley (see Chapter Four), Getnet and I had returned to Bahir Dar. From there, we had tried for several days to obtain permission from EEPCo's local branch office to visit the Tana-Beles power plant in the Upper Beles Basin, Alefa and Achefer districts, Amhara regional state, near Kunzila, about 60 km away on the western shore of Lake Tana. We should have presented a letter from the EEPCo headquarters in Addis Ababa, we were told by a civil servant, and dismissed. Instead of leaving the building – several storeys high, and teeming with local EEPCo customers, paying bills, issuing complaints, and busy employees, carrying documents from door to door, placing stamps on papers and tending to bureaucratic matters – we continued our journey towards the upper floors of the building, working our way through numerous rooms to enquire about the main manager's whereabouts. When we finally received an audience, the prospects of a site visit were vague. To make a long story short, as we had not received a positive response by the Friday preceding my Monday-flight back to the capital, we had already given up hope that our persistent phone calls to Addis and visits to the EEPCo office in Bahir Dar had yielded fruit. Then came a surprise message from an EEPCo secretary on Saturday, followed by the rapid arrangement of letters, stamps, and signatures, mobilisation of car and driver, availed to us by the Abbay Basin Authority (ABA). We were on the road the following day. Sometimes, conducting field research is a matter of lucky chance, Getnet and I agreed. Had we not been able to experience this Sunday visit to the facilities of the Beles MPP, we would have missed an essential component of Tana-Beles: its ambiguousness; the diversity of its symbolic and

practical meanings when compared between the former TBP location and the area, in which the water diversion and power plant were situated.

Once inside the EEPCo compound, we were requested to make a courtesy visit to the main office manager (Interview LXIII, 03/2019). Soon after, he had arranged a young, but hierarchically rather senior, EEPCo engineer, who would accompany us in our car for our visit. To avoid mentioning of names, he shall be referred to as our "guide" from here on (Interview LXIV, 03/2019). The atmosphere was friendly and we were able to communicate in a rather informal way with our guide. Current political events, especially the recent years of anti-EPRDF protests, the unforeseen government change in 2018, and the reforms under the new Prime Minister Abiy Ahmed were topic number one, as in most casual chats in the Ethiopia of that present day. PM Abiy's political wind of change in 2018 and 2019 which carried the promise of free speech, the legitimisation of opposition to the ruling party and the possibility of outspoken critique against the previous government without repercussion was again a lucky chance for the sake of our research. Getnet and I had already experienced an openness among our informants in the Beles Valley, which had not seemed likely before the break with(in) the EPRDF in 2018. Our guide proved to be a reflective and critical thinker, as much as he was passionate about the infrastructure he was about to show us. It cannot be denied that some of his enthusiasm for the art and ingenuity of the hydraulic engineering feats rubbed off on us.

At the tunnel outlet: Deadly torrents from dry land

The first point of interest we were going to see was the tunnel outlet. On our drive through the undulating mountains and hills in a southward direction, the dryness of the land struck me. Granted, we were at the end of the long dry season, the so-called *belg* rains expected to begin within a few weeks' time. However, the presence of a secret, invisible, underground tunnel beneath us, carrying plenty of water from Lake Tana, while the parched river-beds to our left and right seemed to be screaming for wetness, was absurd to me. Why had the planners – including those making the first proposals in the 19th century – not designed a channel instead? I reckoned it could even have been used for the added benefit of transportation, local irrigation, and water supply to the surrounding settlements? From an engineering perspective, our guide explained, to produce hydropower the water needs a certain elevation difference and pressure which the tunnel provides – fair enough. An equally

crucial factor is the hydro-political sensitivity of the undertaking – an infrastructure that cannot easily be spotted in the landscape, cannot easily be attacked. The primary objective of the project was, after all, power production, not socio-economic development.

Indeed, when it comes to rural electrification, there are still large deficits in Ethiopia as a country, as well as in the settlements near the Beles MPP which we passed on our way. Most villages had remained in the dark for years after the Beles hydro-electric plant had begun feeding into the national grid. As a matter of fact, most villages in the wider area still do not have *any* functioning electricity supply provided by EEPCo (Interviews LXII and LXVII, 03/2019). Only few local communities have been connected to a local power grid since around 2018, we were told by our guide. This was a result of adamant complaints and conflict between villagers and EEPCo authorities. I realised during the drive that we found ourselves on premises claimed by the state for its hydro-developmentalist 'growth and transformation' plan. The local populations here were tolerated, but scarcely integrated in the implementation of this vision.

Before I could delve further into my own reflections, while Getnet and our guide were engaged in vivid conversation, we had reached the tunnel outlet. Out of the blue, a big square concrete block emerges from the hillside. A few metres further uphill I would not have suspected the sudden appearance of a water stream as voluminous and powerful as the one gushing out of the tunnel. Our guide explained that the four turbines of the Beles power plant were operated as per national demand and, based on the amount of water spilling from the tunnel today, it seemed like the station was only working at half capacity. Nevertheless, the torrents streaming into the reshaped river were powerful. While most local streams in the area had been seasonal and almost desiccated in the dry season, there was now a new perennial water boundary in the landscape, separating the quotidian lives of local communities on the left and right side of the new river banks. Annys *et al.* (2019) have identified the existence of some foot bridges further downstream in the Upper Beles Basin. However, as the authors note, these are sparsely distributed and far apart: "In the first five kilometres below the hydropower outlet, three bridges have been built, but after that it takes 32 km and again 55 km to reach the next bridge" (*ibid.*: 443).

A further finding, which our guide sadly confirmed, was the high death rate which the same authors had identified from the tunnel outlet to the Jawi bridge: "Over 250 people have

drowned in the river, mainly in the first two years after the IBWT became operational" (*ibid*.). Could these deaths have been prevented? Our guide explained that the discharge from the hydropower plant was variable and could change within a single day, based on how many of the four turbines went online. At the moment of switching on a new turbine, a powerful flood wave is sent down the river with an impact felt far downstream in the Beles Valley. Apologetically, our guide conceded:

> We have tried to sensitise local communities as much as possible to the way this plant operates, and the situation has improved in recent years, people are learning to live with it. But it is still difficult to communicate with them. Even though we issue warnings through the radio, we cannot be sure people listen to it.

Meanwhile, Salini Impregilo's (2016a: 44) publication makes an indirect reference to this problematic:

> And then there's the impact with forceful, often uncontaminated nature, terrible nature that can cause devastation and death, the enemy of man, often cruel, whose force can only be controlled through understanding and respect, explains the Area Controller Carlesimo. Water gives life and also brings death.

There is no specific context given to this excerpt within Salini's *110 Years of Future* publication, but it is written within the section referring to the Beles MPP. Interestingly, the author of this text refers to *nature* as a "terrible […] enemy of man" that can cause "devastation and death". In the case of Tana-Beles, however, it is the way the *technology* is operated, which has caused the loss of lives further downstream. Implicitly, both of the above statements ascribe responsibility for these deaths to the victims themselves. The supposed lack of "understanding and respect" by the local populations serves as a disclaimer for EEPCo's and Salini's "adequate redress and compensation", which Meles Zenawi (2011) had postulated for such hydro-infrastructure.

Power for Ethiopia: Inside the underground power station

The mid-day sun was burning, and it was obvious that our guide wanted to continue the tour towards the highlight: the power station itself. After a short drive, a relatively inconspicuous sign by Salini indicated the entrance to the underground facilities. Here, the guards, deployed by the Ethiopian federal defence force, were even more suspicious of us than the civilian ones at the main gate to the EEPCo compound earlier that day. It took some discussion and further phone calls for them to accept our passage. They withheld the original copy of our permission

letter from EEPCo before waving us through. Our driver was visibly excited. Never before had he entered an underground sub-world. He crossed himself several times, and – while we already had grown accustomed to his rather ruthless driving style, irrespective of traffic and other circumstances – we entered into the mountain at a careful, timid speed. The temperature dropped the further inside we reached; it was actually cold. The Italian engineers had constructed an intricate tunnel road system, with high quality asphalt, good lighting, emergency exits and proper traffic regulations which our driver had no intention to violate. In a matter of minutes which seemed like an eternity, we slowly adjusted to the sense of being underground, the slight pressure on our ears, the absence of daylight, windows, fresh air. At the end of the vehicle-access road was a spacious parking area where the project title spread across one of the walls in large letters. This was the first time we noticed an explicit designation of the infrastructure.

Our driver insisted that this lent itself for an extensive photo shooting of our group, and although he was still not entirely at ease inside this subterranean labyrinth, he was also fascinated by it. Perhaps in contrast to many of the local populations in the nearby villages, our driver, coming from, and placing explicit emphasis on, his urban origins, identified differently with this infrastructure. In fact, he seemed to be basking in the reflected glory of Ethiopia's important hydro-developmentalist advances. His photograph in front of the big inscription almost imparted a sense of ownership; his poses reflected both an identification with and ideational appropriation of the infrastructure. This sense of ownership is not shared by the rural smallholder farmers and agro-pastoralists in the nearby surroundings, as far as we could gather, although their physical distance to the infrastructure is much smaller (Interview LXII, 03/2019). Members of local populations groups are also unlikely to gain the privilege of access to the interior of this mysterious underground power house. Our driver's nearly reverential reaction to finding himself within the hydraulic infrastructure revealed an interesting paradoxical relationship between perceptions of centre and periphery: From the perspective of the Ethiopian state, the Beles MPP is located in a peripheral area (Nyssen *et al.*, 2018; Interview LXXI, 04/2019), but it serves the country's urban centres and centrally important industries. From the perspective of local, rural populations, the plant is located centrally, although in part invisibly, within the land they inhabit. But its services bypass these local villages by transmission into an indiscernible periphery. Ethiopian city-dwellers, like our driver, may experience a sense of pride in physical manifestations of state infrastructure,

a feeling which Nye (1994) ascribes to the "technological sublime". As urban populations have learned from the highest echelons of the state, technology represents poverty reduction, prosperity and modernity; whereas, to the rural populations, the pylons above their heads and the engines below their feet seem to underline their marginalisation within the practice of Ethiopia's developmental state.

It is not only cold, but also very noisy in the underground power station. The sound of massive engines increases as we enter through a heavy door into the main hall of the facility. Because it happens to be Sunday, the plant seems deserted – otherwise, we could have met some of the chief engineers and technicians, our guide comments. Today, only three IT experts – two males and a female Ethiopian in their late 20s – staff the command centre at one end of the spacious central hall to which we climb an aesthetically designed flight of stairs. Their task is to keep an eye on the monitors showing the many different sections and levels of the power house. "It is better we introduce ourselves, before they raise alarm", our guide had pointed out. For these young graduates working at the Beles MPP plant was an opportunity. The Ethiopian labour market is over-supplied with job-seeking degree-holders – "we are happy to get the chance to be here," one of them told us (Interview LXVI, 03/2019). That is despite the fact that their formal qualifications exceed the demands of the job, despite the long shifts, the constant exposure to the buzzing of the plant and the claustrophobic feeling of being in an oxygen-poor submarine, on top of earning a relatively low salary. However, we had already moved on with our tour of the plant before the employees could have uttered such reflections loudly.

Our guide's enthusiasm blossomed as he led us through every floor and seemingly every corner of the power house – he was in his own element. We climbed up and down narrow stairways and the constant drumming in our ears was accompanied by a feeling of vibration as we reached the turbines. At times, a subtle sense of alarm befell me in this strange setting, but I did not have much time to dwell on it. We were subject to a thorough demonstration and explanation of the plant's technicalities – mostly in Amharic, with a mix of English and Italian technical terms blended in; this was the most natural communication mode. Not only was our driver's knowledge of English limited, although he was keen listener. The EEPCo engineer, who let us into his professional domain, spoke from his heart; he enjoyed the attentive audience, and employing his mother tongue for the flood of information he wanted to share, made it a much more intimate affair. However, as we learned, not everything

worked smoothly in the plant, in particular with regard to maintenance and the exploitation of its full capacity, which also hinges on Lake Tana's variable water levels and the upstream regulation of inflow into the power house. Another issue related to safety standards in the plant: EEPCo's Health and Safety Department had posted visible signs with short puns across the power house, such as "safety is the key to [be] accident-free", or "don't be a hard head, wear a hard hat." None of us wore one as we toured the facility. In general, the monitoring of occupational health and safety regulations within the Beles MPP could be expanded, our guide conceded. Much greater than the deficits, though, was the *potential* of the infrastructure, he reassured us in the same vein. The cross-generational faith in hydro-developmentalist solutions could certainly not be shattered by 'minor' challenges. Personally, my sensation within the power house was rather that of being inside a big ship – the Titanic, for that matter: A ship on which high hopes were pinned, but also one which, tragically, did not carry sufficient life boats for all travellers, should there be accidents on the development journey. In some places, mutters and screws were randomly discarded, looking like lost parts of a disassembled whole. "Power for Ethiopia" was written across the floor of the central hall; however, the screws that should bind Ethiopia together as a unified country are equally loose, if not to say dismantled, on many different levels: ethnically, politically, economically, religiously, in terms of different livelihoods, and in terms of their differential integration into or exclusion from structures and services of the state. "Power for Ethiopia" is an ambitious vision, and – objectively – not a reprehensible one. But it is equally a highly ambiguous one – its realisation, and the many conflicting interests involved, pose enormous challenges. These are challenges, as well as conscious political choices, which no euphemising development jargon can fully gloss over.

It was a relief to return to the natural light of the bright afternoon sun when we had finished our extensive tour of the power station. The last stop on our way back was the water inlet, directly on the shores of Lake Tana. Again, the federal defence guards made a point of barring access to the site. This time, we no longer had a piece of paper in our hands that documented the legitimacy of our visit. Lengthy discussions and several phone calls were necessary until we were granted entrance to the facility, coinciding with the arrival of a fellow guard bringing lunch straight from the Lake. The inlet from which Lake Tana's water is tapped and diverted into the tunnel seems like a rather unspectacular construction. A delta-shaped bay is carved into the shoreline, channelling the water into the inconspicuous mouth

of the tunnel. Satellite images effectively visualise the 'magical' and significant dis- and re-appearance of the water between Lake Tana and the headwaters of the Jehana/Beles River. Most poignantly, the images illustrate the fact that the surrounding settlements continue to depend on rainfall to fill the seasonal rivers with water, while Lake Tana's discharge pushes its way below the feet of local villagers to fulfil another mission – 'for Ethiopia' – further downstream.

Figure 5.4
Satellite view of the water inlet, south-western shore of Lake Tana (Google, 20th July 2020)

Figure 5.5
The outlet of the 20 km tunnel and some settlements along the road constructed for the Beles MPP (Google, 20th July 2020)

5.5 From renaissance to ruins? Adverse effects of the sugar rush in Tana-Beles

The Tana-Beles hydro-infrastructure was from the outset a multi-purpose scheme. While, above, I discussed our experience of the hydropower plant and its surrounding area; this section turns to another connotation of Tana-Beles: the Integrated Sugar Development Project, located in Jawi District, within the reaches of the Amhara regional state. Since the launch of the EPRDF's first Growth and Transformation Plan (GTP I) in 2010, the state-owned Ethiopian Sugar Corporation (ESC) has made heavy investments into the expansion or construction of large-scale irrigated sugar estates in several regions. The Tana-Beles Integrated Sugar Development Project is one of these mega-projects, which have, as such, received growing academic attention in recent years (Kamski, 2016; Fantini *et al.*, 2018). During our visit to the former TBP project sites, we had crossed through the vast fields of irrigated sugar-cane in the Upper Beles Basin. Getnet and I used this opportunity to obtain

some local perspectives on the factory. In a nutshell, we found that what had seemed like a promising income-generating scheme has turned out to be a losing deal for all stakeholders involved. I briefly reflect on the deficits of the Tana-Beles sugar factory, which constitutes a 21st-century ruin in the Beles Valley.

The EPRDF government's "sweet vision" (Kamski, 2016) aimed at the large-scale production of sugar to collect revenues from both domestic and regional sales. The sugar estates were also supposed to create a significant number of new jobs and produce modest amounts of electricity. At the Tana-Beles sugar factory, the ESC estimated that up to 45 MW could be generated from the molasses of the sugar-cane, both to provide energy for its own production, and to feed into the national grid. A total of 75,000 hectares of land – portrayed by government spokespersons as 'fertile and vacant' – were to be cultivated with sugar-cane. In this vein, almost 4,500 households had to yield to the mono-culture (Annys *et al.*, 2019: 442). Not long before, the government had put in place new legal regulations which require the obtention of formal land certificates (Crewett & Korf, 2008). Thus, the local smallholder and subsistence farmers were not only displaced by the irrigation infrastructure. Their customary use of the land also acquired a status of illegality. By now, the area, which had previously been covered by forests, is characterised by wide open acres with only few trees visible in the far ends.

While some population groups were pushed away by the sugar factory, others are being pulled to the area, establishing themselves in nearby towns – among others, the former TBP resettlement village, Pawe – to find work with the ESC, or to earn a living through running small businesses. The new mix of people creates new competition for space, land and resources, and also intensifying clashes between ethnic groups – especially between Amhara and Gumuz.[14] With the gradual integration of the area to partial road networks and new urban influences, the social fabric is shifting, too (Fantini *et al.*, 2018). One former re-settler, whom we spoke near Worq Meda in Jawi (Interview, L 03/2019), told us – although we were not able to verify this – that the prevalence of HIV/AIDS has increased significantly in the more densely populated new towns.

[14] Ethnic clashes have increased in the area since mid-2019. This is one of the most recent reports about this issue: Gardner, T. (2021) All is Not Quiet on Ethiopia's Western Front. *Foreign Policy*, 6th January 2021, accessed 8th January 2021 via https://foreignpolicy.com/2021/01/06/ethiopia-benishangul-gumuz-violence-gerd-western-front/

One of the most tragic features of the two established Tana-Beles sugar factories (plans for a third one were dropped) is the fact that crops have been planted and harvested in the Beles Valley for almost half a decade, just to go directly to waste. When the project was launched in 2010, it was said to become operational by 2012. But construction delays, budget shortfalls, and corruption scandals were followed by a significant reduction of the command area; the remaining hectares of land have become useless. At the time of our fieldwork, in March 2019, the processing plant of the factory which was supposed to transform the raw canes into sugar did not yet function (Interview, LV 03/2019). Much of the water transported by the Tana-Beles hydro-infrastructure all the way from the source of the Blue Nile to the Beles Valley, thus showers enormous fields of sugar-cane that are destined to rot. In 2018, Prime Minister Abiy Ahmed's new administration cancelled all contracts with the (EPRDF-loyal) Ethiopian Metals and Engineering Corporation (METEC), which had been commissioned with the implementation of the projects (Manek, 2019). This resulted in the paralysis of the Tana-Beles sugar factory.

Meanwhile, other investors are speculating about spacious land acquisitions in the Beles Valley to profit from the industrial irrigation potential provided by the Tana-Beles water diversion (Interview XIX, 08/2018). In the Beles Valley, Getnet and I repeatedly heard how these development dynamics – driven by both state-owned and private enterprises – push vulnerable local populations, such as the Gumuz, further to the margins of the fertile land (Interviews XLVII; XLVIII; LIII, 03/2019; Markakis, 2011). Meanwhile, the employees of the Tana-Beles factory are predominantly in-migrants into the region. Fantini *et al.* (2018) demonstrate the difficult working conditions to which they are exposed – our interviews confirmed these findings (Interview L, 03/2019) – their labour organised in structures of control, similar to those imposed under the Derg regime.[15] But the authors also point to a further challenge of the technology-based expansion of the central state into the seemingly 'peripheral' Beles Basin (*ibid.:* 89):

> [T]he social stratification and the spatial mobility engendered by the making of the Beles Project seems to increase the complexity of the society and its network of relations, rendering a significant portion of the population even more invisible and less intelligible to the rather rigid EPRDF ideology and practices of *encadrement* […].

[15] The Nile Water Lab platform, launched in 2016 via UNESCO-IHE Delft, provides a visual tour of the Tana-Beles sugar-cane irrigation scheme, including stories of individuals employed or affected by it (accessed 12th March 2020 via https://nilewaterlab.org/beles-sugar-development/beles-timeline/).

Being rendered "invisible" to the structures of the central state also implies being excluded from its provision of basic services. "Infrastructure can […] have direct negative impacts on populations, serving as a material channel for structural violence […]", as Howe *et al.* (2016: 550) quote Rodgers and O'Neill (2012). The Tana-Beles sugar factory reflects such elements of structural violence through a 'politics of space'. It implies both the marginalisation and the incorporation of populations – through the hydro-infrastructure – from/into "larger structures of power" (Howe *et al.,* 2016: 551). At the same time, the dysfunction of the Tana-Beles sugar scheme – its failure to operate and generate profits – represents a new example of ruination in the Beles Valley. The self-inflicted nature of this new ruination, however, is reminiscent of the old failures of state bureaucracies, which I already discussed in Chapter Three with reference to Haile Selassie's imperial regime. From this perspective, Meles Zenawi's discourses about 'Renaissance' (a revival of what?) can be interpreted in ambivalent ways.

5.6 Conclusion

In 2010, the mere hyphen which had connected the Tana and the Beles basins ideationally for almost a century morphed into a physical, albeit partially invisible, man-made link. In this chapter, I have discussed the new connotations of 'Tana-Beles' as a material infrastructure. Its materialisation, I argued, was rendered possible on the basis of a "politics of perception" (Nye, 1994), both on behalf of the EPRDF government, and of the foreign contractors – chiefly, Salini Impregilo – involved in the implementation of this hydro-developmentalist dream. Throughout the chapter, I highlighted the uniqueness of Tana-Beles as a multi-functional, and in many ways unconventional infrastructure. In Meles Zenawi's words, Tana-Beles represented an *addis mieraf* – a new chapter – on Ethiopia's hydro-developmentalist trajectory, but not one which was announced with much noise. Indeed, Tana-Beles was the first major hydro-infrastructural intervention in the Blue Nile, paving the way for the GERD In the short time span between the completion of the Beles MPP and the launch of the GERD's construction, the EPRDF intensified its hydro-developmentalist public discourses. Before this could happen, however, the new EPRDF/TPLF-dominated leadership consolidated its central power from the 1990s onwards by establishing not only the Federal Democratic Republic of Ethiopia, but also a highly authoritarian developmental state.

Although this ‘new Ethiopia’ was built upon ruins, including those of the TBP, the EPRDF’s Renaissance discourses were not complemented by a process of restoration for the damages of the civil war. The government’s “politics of perception” is particularly well reflected in the case of Tana-Beles, the EPRDF government’s “silencing” (cf. Trouillot, 1995) of the TBP, and its indifference to the fate of the vulnerable populations involved in or affected by the ruined project. Paradoxically, however, the 21st-century hydro-developmentalist strategies, revealed publicly by Meles Zenawi from the year of 2010 onwards, were de-politicised through discourses pronouncing precisely ‘poverty’ as a renewed “state of exception (Fantini & Puddu, 2016). The claims to moral legitimacy made by the EPRDF were strikingly similar to the ones expressed by the imperial and the Derg regimes, respectively. However, Meles Zenawi’s language did not only paint a picture of victimisation through poverty. He also expressed sharp antagonism between ‘enemies’ and supporters of Ethiopia’s hydro-developmentalism. At the same time, Meles intentionally obscured the facts that contemporary Ethiopia, rather than being a unified monolith, is deeply divided, and that the EPRDF’s mega-construction projects could neither materialise without external involvement nor mend these divisions.

The fact that the word ‘Tana’ was omitted from the official project title of the Beles MPP, serves to demonstrate how politically sensitive the intervention was, both regionally and domestically. Despite the project’s “high risk” nature, I demonstrated Salini Impregilo’s nonchalance about offering its construction expertise for a second time, in order to complete what it had committed to build for the Derg regime. Salini, too, contributed to whitewashing the project, not only by downplaying its social and environmental impacts, but also by reinforcing social and spatial inequities in the way the physical project infrastructure was established. The materiality of Tana-Beles as such, has produced differential outcomes, both in a symbolic and in a practical sense. Our site visit to the infrastructure, which usually qualifies as a ‘closed political space’ (Fantini, 2017), allowed me, my research assistant and our driver to experience the ways in which Tana-Beles, as a material construct, elicits both reverence and disillusionment, connection and disconnection. The infrastructure provides the national electricity grid with power, but it also brings death to local downstream communities. The water from Lake Tana is channelled under the surface of a land which is dry, except in the rainy season. The surrounding infrastructure is made to serve the operation of the Beles MPP, but it does not significantly improve the basic livelihoods in villages and

scattered settlements near the project area. The subterranean turbines of the Beles MPP symbolise the central state's power, both forcible and invisible.

However, further downstream, in the Beles Basin, where the water availed by the hydro-infrastructure irrigates massive fields of sugar-cane, fragilities of this power reveal themselves. Not only does the Tana-Beles sugar factory re-order space and social fabrics in the Beles Basin. Behind the smokescreen of national 'growth and transformation', 'renaissance', envisioned profits from new export markets, and the purported reduction of poverty through hydro-developmentalist mega-projects, the rotting sugar-canes of Tana-Beles point to the internal deficiencies of the EPRDF's rhetorical constructs. Howe *et al.* (2016: 558) cite Star's (1999: 380) reflection about infrastructure: It is often "invisible" – whether over- or underground, its political function is not always immediately discernible. It is an "invisible […] part of the background for other kinds of work" (*ibid.*) – that is, the accumulation of power through controlling space, resources, and labour. Yet, it is tangible for those affected by it. Such infrastructure, built upon the interests of small political elites, however, is utterly vulnerable to opposition, as the recent story of the TBP already has revealed.

Visual impressions from the Beles MPP (March 2019)

All photos © Kristin Fedeler, 2019

Figures 5.6 and 5.7 *At the tunnel outlet; the power of the gush is torrential.*

Figures 5.8 and 5.9
Drive from the project camp to the outlet of the 20 km tunnel. Slopes are tarmacked; the rest of the roads are gravelled, like this bridge across a parched river-bed (below).

Figure 5.10
Pylons connecting the Beles power station to the national grid.

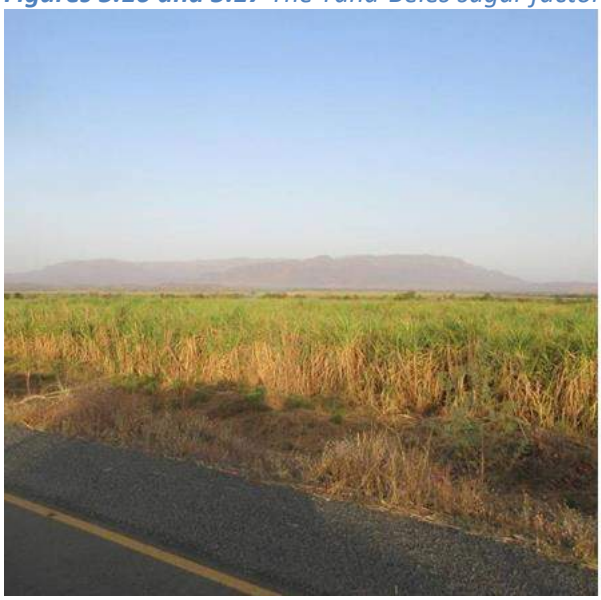
Figure 5.11 *A Salini sign indicating the entrance of the underground power station. This village has been provided with electric power since 2018.*

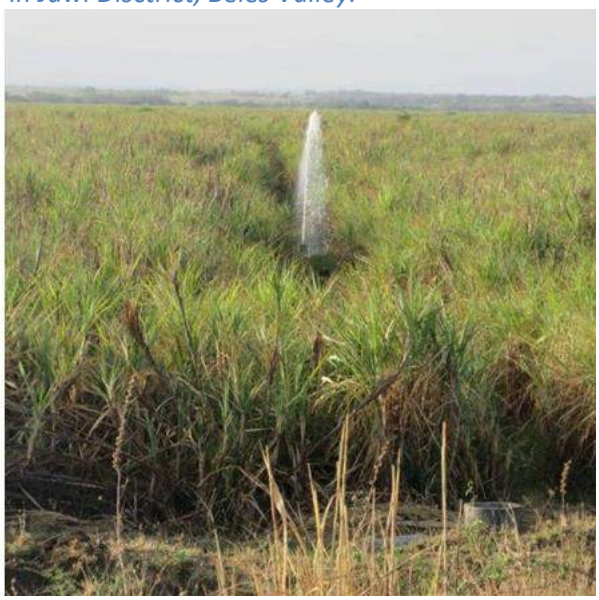
Figure 5.12
A sophisticated underground road system leads to the command centre and the actual power station.

Figure 5.13
One of the few visual designations of the site is on the underground parking space.

Figures 5.14 and 5.15 *The command centre which is staffed around the clock, seven days a week.*

Figures 5.16 and 5.17 *The Tana-Beles sugar factory in Jawi Disctrict, Beles Valley.*





Figures 5.18 and 5.19 *Former forests have yielded to fields of sugar cane.*

Chapter Six

Divide and rule:

'Tana' and 'Beles' on the blurry foundations of Integrated Water Resources Management (IWRM)

> Well-planned interventions in the Tana and Beles sub-basins will bring substantial benefits. Inaction, on the other hand, will likely result in significant environmental, social, and economic costs.
>
> World Bank (2008b: 2)

6.1 Introduction

In the preceding chapters, I traced the changing manifestations of 'Tana-Beles' as an *imperial idea*, a *ruined project*, and a *material construct*. In this chapter, I shift the focus from the vision and materiality of the hydro-infrastructure itself to the evolution of the *institutional architecture* which emerged under the EPRDF regime to restructure the governance of waterscapes, such as the Tana and Beles Basins. In this vein, I scrutinise the objectives and implications of the so-called *Tana and Beles Integrated Water Resources Development Project* (TBIWRDP). This was a multi-dimensional initiative, implemented from 2008 to 2016 under the auspices of the Ministry of Water, Irrigation, and Electricity (MoWIE), and assisted technically and financially by the World Bank. I argue that the EPRDF government instrumentalised the concept of Integrated Water Resources Management (IWRM) to de-politicise the government elite's hydro-developmentalist aspirations. "In reality", as Flinders and Buller (2006: 296) describe de-politicisation, "the politics remains but the arena or process through which decisions are taken is altered". In the context of this chapter, the 'arena-shifting' involved the production of new decentralised spaces of governance, and "institutional de-politicisation" (*ibid.*: 298) through which emerged specialised, seemingly 'independent' technical agencies, which remained under the control of federal ministries.

Before the TBIWRDP was conceived, two parallel paradigm shifts significantly shaped the context of global and Ethiopian water governance: First, by the late 1980s, the "big dam era", writes Timberlake (1988: 68), had "gone out of style". Tenacious social and environmental

activism throughout the 1980s and '90s had discredited large hydraulic infrastructure to such an extent that funding bodies nearly scrapped it from their international aid and development agendas. However, as the notion of IWRM began to universalise, a new wave of hydro-developmentalist interventions across the world claimed legitimacy under its umbrella. Second, the EPRDF government significantly restructured the composition of the Ethiopian state, as well as its myriad water-related bureaucracies. This dual "remapping" (James *et al.*, 2002) of the Ethiopian polity resulted in the construction of clashing arenas of decentralised governance. On the one hand, from 1995 onwards, the most incisive change was the introduction of *ethnic federalism*. This meant the constitutional devolution of governance mandates from the *central* government to autonomous *regional* governments. On the other hand, however, the EPRDF also gradually restructured the institutional arena for the management and development of Ethiopia's water resources. In 2007, the government gazetted a new reform: the establishment of river-basin councils and authorities. I hereafter refer to them as river-basin organisations (RBOs). Paradoxically, this proclamation (FDRE, 2007) was in line with the principle of IWRM, embraced by national policy, but at odds with Ethiopia's decentralised regional administrations. Most Ethiopian river-basins straddle several regional states. While the 1995 constitution had instituted regional administrations to govern political constituencies and natural resources *within* their boundaries, RBOs were introduced to govern watersheds *across* them.

In 2008, the Ethiopian Council of Ministers announced the inauguration of the Abbay (Blue Nile) Basin Authority (ABA), whose creation had been supported by the World Bank (FDRE, 2008; Interview XIII, 01/2018). Based on this, the TBIWRDP purported to facilitate "effective sub-basin resources management and development" through specialised, seemingly 'independent' institutions (World Bank, 2008a, 2017). Thus, the first component of the project piloted the formation of Sub-Basin Organisations within the ABA. One was dedicated to the Tana watershed (TaSBO), the other to the Beles catchment (BeSBO), and they were supposed to function as "enabling institutions" for IWRM (World Bank, 2017). However, in the course of this chapter, I show how the promissory vision and the vague definition of IWRM distracted from the continued centralisation of hydro-developmentalist water governance. There is a fundamental similarity between the EPRDF's decentralisation politics to establish ethnicity-based regional states and the IWRM-inspired creation of RBOs. Both of these processes implied the production of spaces (Lefebvre, 1991), by which the EPRDF sought to strengthen its central influence through a Machiavellian system of *divide and rule.*

Parallel to this, by means of what Huxley (1932) referred to as "over-organisation", the federal government implicitly consolidated its sovereignty in spite of the competing interests of decentralised administrations. The nesting of the sub-basin organisations, TaSBO and BeSBO, into the overarching RBO, the Abbay Basin Authority, is one example of such purposeful densification, complication, or "over-organisation" of the bureaucracy. At the same time, the government's vertical hydro-developmentalism further unfolded behind the smokescreen of IWRM.

Through its support to the TBIWRDP, the World Bank played a significant role in promoting and legitimising this de-politicisation by means of transforming the institutional arena, whilst invoking the notion of IWRM. As the introductory quote shows, World Bank technocrats portrayed "inaction" in Tana and Beles as 'costly' on both social and environmental terms (World Bank, 2008b: 2). In fact, however, I show in this chapter that the World Bank's initial rationale for the set-up of the TBIWRDP derived from a hydro-developmentalist, rather than socio-environmental, vision; namely, the EPRDF's plan to establish a Tana-Beles *growth corridor* by expanding large-scale irrigation infrastructure in the Beles Basin. Because of the hydro-political sensitivity of such infrastructure, the hydro-infrastructural notion of 'Tana-*hyphen*-Beles' had to be undone. Thus, project coordinators at the federal MoWIE and the World Bank co-produced 'Tana' and 'Beles' as two separate spaces, portrayed as organically given watersheds, within which to implement IWRM. Against this background, I show that the introduction of IWRM not only created power ambiguities between Ethiopia's existing regional and new basin-level administrations. It also paradoxically facilitated the *separation*, rather than integration, between the EPRDF's large-scale hydro-developmentalist agenda in the Beles sub-basin, and the TBIWRDP's unrelated project activities, such as the stimulation of the community-based management of so-called 'micro-watersheds', exclusively within the Tana sub-basin.

Finally, however, I demonstrate parallels between the history of the 1980s Ethio-Italian Tana-Beles Project (TBP) and the TBIWRDP which underline the fickle political nature of hydro-developmentalism, its endogenous limitations, and the resulting forms of ruination, both figurative and material. As a whole, the chapter thus demonstrates, on the one hand, how the EPRDF government constructed clashing decentralised governance arenas to cache its continued commitment to top-down hydro-developmentalism. On the other hand, I show the internal contestations and fragilities of this construct.

The empirical data in this chapter is based on a review of relevant grey literature, as well as official and expert interviews which I conducted in Addis Ababa and Bahir Dar between 2018 and 2019. The chapter is structured in three main parts. In Section 6.2 I examine how the EPRDF government's decentralisation reforms produced new, contested spaces of governance and 'waterscapes', based on ethnic and hydrological contours, respectively. Section 6.3 discusses the ambiguities of Ethiopia's water governance frameworks, and how the introduction of IWRM both de-politicised and strengthened the influence of the central government. Section 6.4 provides a detailed analysis of the TBIWRDP, how it contributed to un- and redoing the idea of Tana-Beles, and how the EPRDF's hydro-developmentalist plans exceeded the political limitations of the World Bank's support. Furthermore, as I have done in previous chapters, I present divergent perspectives on the TBIWRDP, focusing on the impacts of its termination on the basin-level and regional government agencies, which were involved in it. These perspectives illustrate the central government's opportunistic attitude towards the TBIWRDP and the loss of its relevance to federal authorities, upon the cancellation of the hydro-developmentalist growth corridor component. The concluding section summarises my findings.

6.2 Context dimensions: The EPRDF's space-making decentralisation reforms

From Chapters Three to Five of this thesis, the hierarchical nature of the Ethiopian state, personified at the centre by its successive rulers, was a recurrent theme. Although administrative divisions into several *provinces*, and later *zones* and *regions*,[1] already existed prior to 1991, it was the 1995 constitutionalisation of *ethnic federalism* which for the first time in modern Ethiopia implied a legal deconcentration of power from the centre to self-governing regional administrations, with further, smaller divisions on a subsidiary level. These regional governments have their own legislative, executive and judicial branches and possess autonomy in all governance matters that are "not given expressly to the federal government" (Tamrat, 2008). "The decentralised system [is] expected to facilitate [the] management of natural resources […], [and] to ensure stakeholder participation in decision-making down to the village and local community levels" (*ibid.*). However, not only has the restructuring of the Ethiopian state received substantial criticism (e.g. Cohen, 1995; Aalen &

[1] In 1987, the People's Democratic Republic of Ethiopia was founded under the continued leadership of Mengistu Hailemariam, transforming the military into a civilian regime. Ethiopia had previously been divided into several *provinces*. These were replaced by 25 administrative and five autonomous *regions* between 1987 and 1991 (Zewdie, 2002).

Tronvoll, 2009; Aalen, 2011). The pitfalls of this *de iure* decentralisation, which arguably did not effectuate more democratic governance in the EPRDF/TPLF-dominated Ethiopian polity, also reveal significant parallels with those challenges arising from the most recent establishment of river-basin organisations (RBOs) and the institutionalisation of IWRM. The production of these new governance spaces, based on seemingly 'natural' boundaries, has in fact resulted – to borrow from Mamdani (1996) – in a version of *decentralised despotism*. In this context, Pollitt's (2007: 2) general musings about *decentralisation* can also be fittingly applied to the reconfigurations of Ethiopia's river-basins and water management institutions, which the EPRDF dressed in the language of IWRM:

> When a concept [such as decentralisation or IWRM] is so universally popular, any self-respecting academic becomes suspicious. Are all these different governments really talking about the same thing? Are they practicing what they are preaching? Are there hidden agendas? Costs as well as benefits?

This chapter does not aim to categorically dismiss federalism, decentralisation, river-basin management or IWRM as governance approaches in Ethiopia. Instead, it seeks to emphasise that, paradoxically, these intrinsic facilitators of democratic power- and influence-sharing also have served as a veil behind which the TPLF-dominated EPRDF coalition strengthened its domestic hegemony between the 1990s and 2018. Decentralised "satellite" institutions (Aalen, 2002) contributed to solidifying the central government's control of the periphery, whilst the devolution frameworks and democratisation discourses showcased the government's conformity with Western donor requirements.

Divide and rule: Meles Zenawi's ethnic federalism

Whether one considers 'decentralisation' or 'integration', both concepts share a significant attribute: a shift in focus "*away* from the centre" (Macmahon, 1961, emphasis added). A logical implication would be the partitioning, re-distribution, or fragmentation – depending on the beholder – of powers and responsibilities. Such divisions appear particularly alluring when they claim to follow natural patterns, and indeed, the very 'natural' fabric of the Ethiopian demography and topography has been invoked by the EPRDF to explain both, the creation of regional political administrations and that of river-basin organisations, respectively. Though applied in a number of other countries – most prominently, Yugoslavia, before its *balkanisation* – the design of *ethnic federalism* in Ethiopia is commonly described as a "legacy of Meles Zenawi" (Plaut, 2012). Ethiopia's regional states which emerged from

this legacy are derived from the, relatively speaking, largest ethno-linguistic groups identified to inhabit the respective areas. Constitutionally, ethnic federalism concedes an ultimate right to self-determination of Ethiopia's various so-called 'nations, nationalities and people'. However, Ethiopia is composed of more than 80 nationality groups, "none of which have clear-cut territorial and linguistic boundaries" (Turton, 2005: 96), and several internal 'border and identity disputes' persist.[2] Although the regional boundaries are neither objectively natural nor representative of the reality of ethnic diversity, they have contributed to a hardened political identification with ethnicity, as well as an increase of competing ethno-nationalist narratives and political mobilisation along ethnic lines (Cohen, 1995; Abbink 2011). Figure 6.1 summarises the administrative organisation of the federal state since the entry into force of the 1995 Constitution.

In a critical review of the EPRDF's first twenty years in power, Abbink (2012: 596) evaluates the ethno-federalist decentralisation "experiment" as follows:

> The federal state, despite according nominal decentralized power to regional and local authorities, is stronger than any previous Ethiopian state and has developed structures of central control and top-down rule that preclude local initiative and autonomy. […] Ethnic divisions are on the increase, although repressed. Ethiopia's recent political record thus shows mixed results, with positive elements but also an increasingly authoritarian governance model recalling the features of the country's traditional hierarchical and autocratic political culture.

There is thus an internal contradiction between Ethiopia's constitutional federalism and the political practice which has continued to concentrate power at the centre. At the same time, a former public official claims, "the power of the federal government is derived from the regional governments" (Interview XIII, 01/2018). In particular, the TPLF faction of the EPRDF drew benefits from the federalist system. Ethiopia's ethnic diversity is reflected within each regional state. Only the Tigray region is "socially far more homogenous than most areas of the country" (Turton, 2005: 92). Furthermore, the fact that regional boundaries were drawn on the basis of an ethno-nationalist ideology also reinforced the existence of parties representing ethnicity before common political issues. Therewith, however, their likelihood of being able to assume central power over the entire Ethiopian polity was significantly reduced. In this constructed mosaic of regional containers of 'nations, nationalities, and people', as well as ethnicity-based movements, the EPRDF coalition was

[2] Refer to this International Crisis Group (2020) briefing for examples: 'Bridging the Divide in Ethiopia's North', accessed 23rd June 2020 via https://www.crisisgroup.org/africa/horn-africa/ethiopia/b156-bridging-divide-ethiopias-north

the only viable party to govern Ethiopia as a whole. Indeed, the EPRDF party became seemingly "inseparable from the state" (Turton, 2005: 97; Ayele & Fessha, 2012). The party/state appointed regional officials, while constantly seeking to bridle political opposition. Thus, the small but powerful political elite surrounding Meles Zenawi capitalised on the paradox between Ethiopia's federalist constitution and the centralised, authoritarian power of the EPRDF.

Ethnic tensions, which have been built up and repressed (Abbink, 2012) over a period of several decades, have erupted more frequently, and more violently, in clashes between Amhara, Gumuz, Oromo, Tigrayans, and other groups. From 2015-16, however, the strife against the ruling government itself intensified, leading to the resignation of Prime Minister Hailemariam Dessalegn, and the 2018 political transition. Meles Zenawi's system of ethnic federalism has been subject to much intellectual scrutiny and critique from academics and organisational practitioners alike.[3] The "remapping [of] Ethiopia" (James *et al.*, 2002) was a fundamental part of the EPRDF's contested strategy to control space and people. In the next section, I show how the government applied this politics of space to the river-basin level.

Figure 6.1 Administrative divisions of the Ethiopian state after 1995

Federal Democratic Republic of Ethiopia (FDRE) *= juridical state*	
10 Regional States (*kililoch*)* + 2 city chartered cities (Addis Ababa and Dire Dawa) *The former Sidama zone became an autonomous regional state after a referendum in November 2019.	= sub-national divisions of the federal government ➔ The extent to which these 12 major sub-divisions within federal Ethiopia reflect ethnic territoriality is harshly debated, especially with regard to the question of minorities (cf. Cohen, 1995; Clapham, 2002; Turton, 2005; Abbink, 2006; Aalen, 2011; and others)

[3] For example, the International Crisis Group (ICG) thematised the issue in 2009 in a critical article on Ethiopia's 'Ethnic federalism and its discontents' (accessed 18th May 2019 via https://www.crisisgroup.org/africa/horn-africa/ethiopia/ethiopia-ethnic-federalism-and-its-discontents). In 2019, Mahmoud Mamdani qualified Ethiopia's *ethnic federalism* as a component of a "flawed constitution" (New York Times article, accessed 18th May 2019 via https://www.nytimes.com/2019/01/03/opinion/ethiopia-abiy-ahmed-reforms-ethnic-conflict-ethnic-federalism.html), whereas the Ethiopian academic Goitom Gebreluel responds to Mamdani by defending the constitutional provisions but criticising the EPRDF's autocratism, e.g. through the central appointment of regional officials (Al Jazeera, accessed 18th May 2019 via https://www.aljazeera.com/indepth/opinion/ethiopia-stick-ethnic-federalism-190401092837981.html).

Divisions of Local Government *Based on Art. 39(3) of Ethiopia's 1995 Constitution:* *"every Nation, Nationality and People in Ethiopia has the right to a full measure of self-government"*	
Zonal administrations	= administrative extensions of the regional governments = intermediary between regional government and *woreda* ➔ Most zones derive from the existence of regional ethnic (minority) groups ("***nationality zones***") ➔ Amhara regional state has 11 zones + 2 city administrations (Bahir Dar and Dessie) ➔ Benishangul-Gumuz regional state has 3 zones (Asosa, Kamashi and Metekel)
Woreda (districts)	= intermediate local government districts, which are grouped into the different zones = under the competence of zonal administrations
Liyu Woreda (special district)	= sub-division of the region with a special status, similar to a ***(nationality) zone*** ➔ However, as opposed to the nationality zones, which are defined by the presence of indigenous communities, the "**Pawe Special District**" was established for the distinct community of migrants who arrived under the resettlement and villagisation programme of the TBP[4]
Kebele (municipalities/wards)	= smallest administrative unit charged with implementing *woreda* plans and policies = approx. 500 households per *kebele* = accountable to *woreda* council and *kebele* electorate ➔ Derives from the system of Peasant Associations (PAs) formed under Derg

The production of hydro-developmentalist waterscapes

Turton (2005: 99) criticises the ethno-federalist system in Meles Zenawi's 'new Ethiopia' "because [its implementation] is not sufficiently federal", and because of the partisan premises, on which Ethiopia's regional state boundaries were drawn. River-basin management, like ethnic federalism, is a space-making process. Chapter Two has outlined, in a general sense, how the discursive and cartographic allocation of water management to the level of the river-basin, and the hydro-developmentalist activities conducted therein,

[4] According to Ayele and Fessha (2012: 105), the conflicts between resettlers and local ethnic groups, most notably Gumuz, "made it necessary to allow the former a degree of territorial autonomy in the region through the establishment of a *liyu woreda* in Pawe."

constitute a political re-construction or, in other words, "rescaling" (Houdret *et al.,* 2014: 2401) of the natural realm. Hydro-developmentalist governments thus portray their chosen delimitation of watersheds as organic and incontestable, while incisive infrastructural plans for, and physical interventions in, the concerned areas are stripped of their political connotation.

Water resource development in Ethiopia has become "synonymous with river-basin development," writes Dessalegn (1999). In several of my interviews and discussions with government officials and experts across the generational board I heard the same adamant adherence to this axiom: "river-basins are clearly identifiable, hydrological units, based on science" (Interview LXVIII, 03/2019). The scientific definition of the river-basin, watershed or catchment area is absolutely comprehensible. Yet, this chapter resumes the perspective of water management as a political, rather than an exclusively technical process (see Chapter Two). To start with, graphic delineations of river-basins are snapshots, depicting an average moment in a dynamic natural cycle. This explains the incongruent contours of the respective Tana and Beles sub-basins in different illustrations which can be compared, for example, between Tarekegn (2012), Stein *et al.* (2014), or Nyssen *et al.* (2018). More crucially, the identification and scale of a river-basin, as well as hydro-developmentalist intentions for it, are matters of *political choice* from which socially constructed "waterscapes" emerge (Swyngedouw, 1999). The process is not arbitrary, but simultaneously also not indisputable from a scientific perspective.

Houdret *et al.* (2014: 2393) discovered in Mongolia that "economically relevant rivers were granted the status of a discrete river basin even when, from a hydrological perspective, they actually belonged to larger catchments." The same is true for the Tana and Beles sub-basins. To begin with, they are economically relevant. The Abbay Basin Authority (ABA, 2016: 10) states that more than 50% of potential irrigation land within the overall Blue Nile Basin can be found in the Tana and Beles sub-basins, and until the GERD becomes operational, the Tana-Beles power plant remains the Abbay Basin's largest source of electricity.[5] Meanwhile, the Tana and Beles watersheds are also politically relevant. From a governance perspective, the overlap of Ethiopia's river-basins with the regional state boundaries is a complicating factor. The Abbay/Ethiopian Blue Nile Basin spans across almost 200,000 square kilometres,

[5] Even though the 460 MW of the Tana-Beles power plant is miniscule in comparison to the Gibe Dams in the Omo Valley, or the superlative generation capacity planned for the GERD.

and covers 60% of the Amhara region's surface area, 95% of Benishangul-Gumuz, and 40% of Oromiya, respectively (ABA, 2016: 4). 'Tana' and 'Beles' as such can be treated merely as two of sixteen sub-catchments of the Abbay/Blue Nile Basin. Referring to them as 'Tana-*hyphen*-Beles', however, implies a spatial representation which semantically sutures the two hydrological sub-watersheds into one, just as the existing hydro-infrastructure does, technologically, since its completion in 2010. Tana-Beles, in this enclosed sense, straddles the boundary between the Amhara and Benishangul-Gumuz regional state as one enlarged waterscape, artificially created for hydro-developmentalist purposes. The previous chapters of this thesis have demonstrated how controversial the history of 'Tana-*hyphen*-Beles' is, with regard to both domestic and regional politics.

'Tana-*hyphen*-Beles' is an interconnected frontier space. It does not only straddle a regional boundary, but also the topographic one between Ethiopia's northern highland plateau and the south-western lowlands. All three Ethiopian governments, which I refer to in this thesis, as well as their foreign collaborators, such as Salini Impregilo and the World Bank, have contributed to creating an 'under-developed' image of the Beles Basin, portraying it as 'peripheral', and 'unoccupied', but 'fertile', 'virgin' land with 'high development potential'. As I mentioned in the introductory chapter to this thesis, the Abyssinian imperial expansion followed the topographic contours of the landscape (Markakis, 2011). In this vein, the direction of the water transfer through the high pressure tunnel from the Tana to the Beles sub-basin is a strong symbolic representation of the flow of power in Ethiopia. However, the Beles Basin has been, and remains, a contested space: *strategically*, as manifested during the civil war which toppled the Mengistu regime; *existentially*, between different ethnic groups, both native and migrant, claiming a livelihood in the area; *economically*, between different water-consuming enterprises, such as export crops as opposed to those cultivated for domestic food consumption; and *environmentally* – the geo-morphological impacts of the water diversion, both upstream and downstream, as well as severe land degradation caused by deforestation, are only two examples of this. However, the discourses about Tana-Beles, and the interventions co-produced by the EPRDF, Salini, and the World Bank were characterised by strategies to occlude the inherently political dimensions, through which such contestations emerged in the first place. The deliberate de-politicisation poses a significant, yet unaddressed, challenge towards tackling these diverse challenges in an integrated manner, as an Ethiopian academic commented (Interview XV, 02/2018).

Correspondingly, as I further discuss in Section 6.4, the undoing of 'Tana-Beles', and its recreation through the establishment of two separate sub-basin organisations for Tana *and* Beles, under the overarching jurisdiction of the Abbay Basin Authority, constituted another de-politicising act to dissipate the preload of the past. It should be noted that TaSBO and BeSBO are so far the only sub-basin organisations within the Blue Nile Basin. The Tana and the Beles sub-basins are rather different from each other – the former densely populated; the latter historically covered by extensive forests and constituting a 'periphery' which was considered difficult to access throughout the 20th century (cf. Chapter Three; Cheesman, 1936). Their significant link to each other – and simultaneously, the unique feature compared to all the other fourteen sub-basins in the large Abbay catchment – is the hydro-developmentalist infrastructure between them. Despite this link, the TBIWRDP facilitated the bureaucratic disjunction of Tana and Beles. The TaSBO offices are accommodated within the large complex of buildings belonging to the Abbay Basin Authority in Bahir Dar, which implies direct access to the superior bureaucracy. BeSBO is located in the remote Benishangul-Gumuz regional capital, Asosa. I pick up on the problematic of this separation in Section 6.4. What should be retained from this section is that the designation 'Tana-Beles' is fluid and transformable. Although the national decentralisation policies shifted the focus *away* from the central sphere of influence, the EPRDF government managed to retain its sovereignty over decisions to construct, undo, and redo important waterscapes, according to its political and economic interests. The "naturalisation" (Latour, 1987) of the Tana and Beles catchments – that is, their portrayal as organically given intervention areas, identified through the science of hydrology – served to de-politicise the hegemonic practice of selecting and transforming the watersheds into waterscapes for hydro-developmentalist projects.

6.3 Constitutional ambiguities and the instrumentalisation of IWRM

In the following sections, I discuss how the EPRDF government consolidated its monopoly on major water governance issues in spite of the provisions for decentralisation. I argue that the instrumentalisation of the non-specified concept of IWRM to fill constitutional loopholes enabled the EPRDF to introduce RBOs as additional arenas for water governance under federal authority. To do so, I first highlight the political appeal of IWRM as such. Next, I discuss the constitutional power ambiguities, and the non-linear evolution of water management institutions under the EPRDF. This was characterised by years of institutional

instability and shifting mandates with regard to the governance of issues pertaining to hydro-developmentalist projects. Related to this, the existence of competing interests between different sectors, bureaucratic organisations, and upstream versus downstream water users seemed to justify IWRM as a policy response. The institutionalisation of RBOs was supposed to de-politicise (Flinders & Buller, 2006) the issue of water governance by means of their portrayal as technocratic and specialised intermediary organs between the regional states and the federal government. However, I argue, the outcome of this was not better integration, but rather the creation of power ambiguities, and thus the structural enhancement of centralisation.

The political appeal of IWRM

The political appeal of IWRM derives from two inherent attributes. It is simultaneously inclusive and indefinite. When it started spreading in the 1990s as a global catchphrase, IWRM represented an 'innovative' approach which purported to sustainably coordinate, standardise, and democratise all development efforts related to water (Warner *et al.,* 2008). Governments, donors, civil society, and grassroots organisations alike joined the chorus hailing IWRM for its core principles: social equity, economic efficiency, ecological consciousness. The acronym, deriving from the 1992 Dublin and Rio conferences[6] on 'water and sustainable development,' also entailed the promise to coalesce the interests of disparate stakeholders, despite their conflicting claims, needs, and demands. The glossary section of the Ethiopian Water Resource Management Policy defines IWRM in the broadest terms as a concept to "address the interdependence of the different uses and users of water resources" (FDRE, 1999: III). However, it does not specify how this should happen, or whom it should involve. In theory, IWRM, unlocked by its integrative philosophy, should extend both horizontally – across different ministries, economic sectors and environmental agencies – and vertically – from the highest to the most local branches of government and citizen representations, from large-scale hydro-infrastructure complexes to the individual household. In reality, the proposition of a win-win scenario for all water-dependent stakeholders in a given environment represents an ideal as much applaudable as utopian.

[6] For further details, refer to the homepage of the Global Water Partnership (GWP), or its summary of the Dublin-Rio Principles, available via https://www.gwp.org/contentassets/05190d0c938f47d1b254d6606ec6bb04/dublin-rio-principles.pdf (accessed 12th February 2020). The GWP was established in 1996 by the World Bank, UN Development Programme (UNDP) and the Swedish International Development Agency (SIDA) to coordinate and promote IWRM internationally.

A range of case studies on the implementation of IWRM bears witness to its instrumentalisation for political purposes, such as an edited volume by Mehta *et al.* (2017), focusing on eastern and southern Africa, Houdret *et al.* (2014) on post-Soviet Mongolia, and numerous conceptual and empirical studies conducted internationally (e.g. Molle, 2003; Allan, 2006; Mollinga *et al.*, 2006; Warner *et al.*, 2008; Pegram *et al.*, 2013). The overall IWRM jargon is furthermore complemented, or complicated, by additional, sometimes synonymous terms, coined by academics and experts alike, to describe the multi-sectorality and 'fluidity' of water. Examples are the *water-food-energy nexus* approach (e.g. Allouche *et al.*, 2015; Müller-Mahn & Gebreyes, 2019), or the call to tackle environmental uncertainty through *adaptive water resource management* (Mysiak *et al.*, 2010). Nevertheless, IWRM itself stands out as a magnet for massive donor-funded development projects, not least because it professes to improve synergies between federal, regional, basin-level and local stakeholders, and to set general standards for social and environmental protection.

Ethiopia's unstable water management institutions and shifting mandates

A historical continuity in Ethiopia is the public ownership of the country's land, water, and other natural resources, enshrined in Article 40(3) of the 1995 Constitution. Consequently, all water resources are vested in the federal state. At the same time, ethnic federalism implies the devolution of administrative functions to the level of the regional states (*kililoch*). In this vein, since the creation of the Federal Democratic Republic of Ethiopia, the decentralised governance architecture has been a source of both confusion and contradiction between legal theory and practice. This is especially the case with regard to water. It is a cross-cutting resource, which "cannot be clustered into a sector of its own" (Interview LXXII, 05/2019). On the one hand, the law clearly stipulates the subsidiary administration of water issues, providing for regional, zonal, and local involvement in decision-making, as well as community integration through so-called stakeholder meetings. On the other hand, the federal government retains the overall legislative authority concerning the utilisation and conservation of water and land. The Constitution renders the delegation of the state's central powers to the regional governments *possible*, though not mandatory. 'Regional waters', that is, those water bodies contained within regional boundaries, are nevertheless considered under the legal mandate of the respective *kilil.*

Any hydro-infrastructural intervention requires a licence for the withdrawal and release of water, pursuant to the official objective to minimise possible negative impacts on

downstream users (Interview XXVIII, 08/2018). So far, some regional governments have obtained the authority, through ministerial delegation, to administer such water use permits. The *kilil* therewith formally approves both the public and commercial exploitation of local waters, for purposes such as medium-scale hydropower generation, irrigation, mining, and wastewater discharge (Tamrat, 2008). The regional state's jurisdiction furthermore trickles down to the district (*woreda*) level to which permit-seekers are also able to submit smaller-scale water use requests (Interview XIX, 08/2018). Meanwhile, grassroots water user associations[7] interact with local *kebele* offices that are accountable to the district level. According to the national water management policies (FDRE 1999, 2000, 2007), this constellation places regional and local administrations in an autonomous position, facilitating a management approach most proximate to communities affected by it, while the federal Water Ministry is portrayed as a legislative body in the background of such activities.

However, the design of Ethiopia's water governance frameworks is more complex and ambiguous than the subsidiarity principle suggests: "There is no such river system in Ethiopia which does not cross any regional boundary" (Interview LXXII, 05/2019). All inter-regional and international trans-boundary resources continue to belong to the domain of the federal state, as is stated in the constitutional Article 51(11). Regional governments are conceded the right to govern hydro-infrastructural projects on the tributaries of major rivers and water resources within their boundaries. This includes, to some extent, large water bodies, such as Lake Tana in the Amhara regional state. But the management of water for the purpose of large-scale irrigation and hydropower on inter-regional rivers is – effectively – a matter of federal top-down, rather than bottom-up, governance. Yet, even on the federal level, coordination between different sectoral organisations has proved challenging, partly due to the past decades' severe lack of institutional stability (Interview LXXI, 04/2019). The EPRDF government dissolved the Derg's former Water Resource Commission (WRC) in the early 1990s. The ensuing Ministry of Natural Resources soon fragmented into individual institutions for water supply, agriculture, and environmental issues. With the establishment of the Ministry of Water and Energy (MoWE) in 1995, the foundations seemed to have been laid for a more durable central water and hydropower agency. In parallel, the state-owned Ethiopian Electric Power Corporation (EEPCo) was assigned with overall power generation,

[7] Water user associations (WUAs) are defined by the World Overview of Conservation Approaches and Technologies (WOCAT) as "self-governed organisations of farmers who pool their financial, technical and human resources for the use and maintenance of a defined watershed, including irrigation agriculture, livestock production and fisheries" (accessed on 14th August 2020 via https://wocatpedia.net/wiki/Water_user_associations).

transmission and distribution, whilst also becoming the governing body of Ethiopia's largest hydro-electric infrastructural projects.

In Chapters Two and Three, I showed that elements of IWRM – then, under the label of 'river-basin development' – already existed in 20th-century Ethiopia. The establishment of the construction-oriented Awash Valley Authority (AVA) in the early 1960s, and the launch of the Ethiopian Valleys Development Studies Authority (EVDSA) during communist rule in the 1980s, were pilot organisations in this sense. Both Haile Selassie's and Mengistu's administrations made considerable investments into the education and training of water professionals. Aside from the extensive USBR (1964) survey of the Blue Nile Basin, the EVDSA generated comprehensive Master Plans for the development of water resources in the Abbay, Rift, Awash, and Baro-Akobo Basins. However, "after 1991, the EVDSA was dissolved and most studies were thrown out" (Interview XXXVIII, 12/2018). There was also "initially lots of confusion, around 1992-93, about how to set up a new Water Resources Commission (WRC)" after the socialist bureaucracy had been disbanded. As the "floodgates opened" (*ibid.*), many former civil servants moved from the public to the private sector, resulting in high staff turnover and therewith also in significant loss of institutional memory.

In the late 1990s, the EPRDF built up a new hydrocracy, "more or less from scratch" (Interview XXXIII, 11/2018). However, according to an Ethiopian legal water-sector expert, the above-mentioned "constant restructuring of institutions negatively affected the structural consistency of water resource development [policies]", while the limited availability of experienced human resources resulted in a "haphazard" evolution of the institutional infrastructure (Interview LXXII, 05/2019). Simultaneously, already in the mid-1990s, some regional governments voiced objections to the idea of basin-level management bodies, insisting, instead, on the right of each *kilil* to autonomous mandates. In fact, today's regional water bureaux are not directly linked with the federal Ministry. They frequently operate on their own account, and are financed from regionally sourced budgets, rather than the federal government (Interview XXIII, 01/2018). Against this background, the fact that the EPRDF's Council of Ministers eventually did accomplish the establishment of RBOs, against partially centrifugal interests of the regional governments, also implied that the Ministry in charge of water issues reconfirmed its supreme influence. As the "Supervising Authority", the power to delegate major water governance mandates to "appropriate bod[ies]" is legally and practically reserved to the level of the federal ministry (Tamrat, 2008).

Inter-agency competition

Organisational restructuring, which carried on throughout EPRDF rule, also brought more complexity horizontally, that is, between sectoral agencies. This created unequal distributions of power at the ministerial level itself. A significant example of this is the transfer of medium and large-scale irrigation projects from the domain of the Ministry of Agriculture (MoA) to the renamed Ministry of Water, Irrigation, and Electricity (MoWIE), whereas irrigation projects of a size smaller than 200 hectares remain under the auspices of the MoA. Within the regional states, respective sector-specific bureaux reflect the ministerial structures at the federal level. Large-scale hydro-infrastructural interventions are placed under the authority of the MoWIE, in collaboration with the Finance and Economic Development Ministry (MoFED), and the regional Bureaux of Water, Irrigation, and Energy Development (BoWIED). Smaller- and medium-scale watershed management projects, by contrast, are mainly administered by the Ministry/regional Bureaux of Agriculture and Rural Development (M/BoARD). This effectuates not only a changed organisational order, but also an implicit reordering of hierarchy, through which the significance of the Ministry and the respective bureaux in charge of large-scale, hydro-developmentalist water management issues is augmented to the detriment of the Ministry/Bureau of Agriculture.

This differential weighting between the sectoral agencies also revealed itself during my field research. In Bahir Dar, I visited both the Amhara region's BoWIED and the BoARD to conduct interviews concerning the TBIWRDP. At the BoWIED, I was received by a senior official. It had cost me some effort to trace him down, and his office could only be reached by making it past his gate-keeping secretary. He was seated in a large leather chair in a rather modern and well-equipped workplace. By contrast, at the BoARD, I spoke to a former project coordinator of one of the micro-level socio-economic components of the TBIWRDP. His work had been dedicated to local watershed management initiatives within the Tana sub-basin. His office was dark and crammed. He sat behind a plain, but heavy-laden desk, on a wooden chair, in an adjacent building to the main offices. My informants certainly happened to be of a different rank within their respective internal bureaucracies. However, the contrast between their offices also symbolically reflects the government's strategic prioritisation of hydro-developmentalist governance sectors over community-level watershed management activities.

Upstream-downstream dilemmas

During my interviews with various institutional representatives in Bahir Dar, I furthermore discerned unresolved conflicts of interest between formal upstream and downstream water stakeholders – that is, between the Amhara and Benishangul-Gumuz regional governments, between the Tana and the Beles sub-basin organisations, and between different sectors relating to large-scale hydro-developmentalism, agriculture, environment, and connected issues, respectively. Those bureaucrats, who were in charge of areas, in which the existing water resources were deemed suitable for hydro-developmentalist interventions, tended to dismiss the potential tradeoffs between upstream infrastructure and downstream impacts, whether hydrological, environmental, or socio-economic. At the Amhara BoWIED in Bahir Dar, my informant argued: "We need to develop our rivers upstream of Lake Tana," and he continued matter-of-factly: "the Amhara regional state currently uses below 5% of its water resources" (Interview XXII, 09/2018). As long as there is perceived *potential* for large-scale hydro-developmentalist ventures, the urge for its exploitation remains. This mentality strongly resembles the spirit of the hydraulic mission discussed in Chapter Two, and is shared by many officials of both the federal and the regional governments in Ethiopia (Interview XIII, 01/2018).

Yet, science leaves no doubt that large-scale upstream hydro-infrastructure inevitably results in some undesirable downstream impact. It is thus a likely source of conflict, unless managed in a coordinated sense, as IWRM proposes. However, most of my informants conceded that there is at best only weak coordination between the Amhara and Benishangul-Gumuz regional governments concerning the problematic upstream-downstream path-dependency created through the water diversion between the Tana and Beles sub-basins. In fact, the three regional states situated in the Abbay Basin face hydro-political upstream-downstream tensions similar to those between the Eastern Nile governments of Ethiopia, Egypt, and Sudan. From this perspective, domestic river-basin organisations (RBOs), with purposes similar to that of the inter-governmental Nile Basin Initiative (NBI) on the large scale, could indeed play an intermediary role between the different scales of government in Ethiopia. As an official at the Water Ministry pointed out to me, the federal ministry itself lacked the capacity to establish integration between the disparate stakeholders, and considered the insertion of RBOs into the organisational architecture a suitable approach to leverage competing interests (Interview LXXI, 04/2019). By contrast, however, the case of 'Tana-Beles' suggests that the inconsistent adoption of IWRM has further confounded pre-existing

operational problems between the federal, regional, and local levels, economic and environmental sectors, as well as upstream versus downstream water users, by inserting the ABA, BeSBO, and TaSBO into an already complex and competing assemblage of stakeholders.

RBOs caught between ethnic federalism and IWRM

In 2008, the Ethiopian Council of Ministers decided: "The overall objective of the [Abbay Basin] Authority shall be to promote and monitor the implementation of [the] integrated water resources management process in an equitable and participatory manner" (FDRE, 2008: 1). The vaguely defined notion of IWRM thus served as the government's principal justification for the introduction of RBOs, and particularly the ABA, as "an autonomous public organ having its own legal personality" (*ibid.*). However, the institutional design of these bodies, illustrates that the federal government sought to control these in a highly vertical, but also controversially debated, manner.[8] In 2020, three RBOs were operational within Ethiopia's twelve major river-basins: the original Awash Valley Authority which was set up in imperial times, the Rift Valley Authority, and the Abbay Basin Authority. Discussions for the set-up of RBOs in the Omo and Tekeze Basins have been underway for several years. The two-tiered organisational structure proposed for the ABA (FDRE, 2008) is both a derivative of external models and idiosyncratically Ethiopian. Firstly, the so-called *Basin High Council* (BHC), is chaired by the deputy Prime Minister of Ethiopia, and composed of high-ranking politicians who should adequately represent both the federal and regional governments – that is, appointed ministers from related sectors, presidents of the regional states which the Basin straddles, and representatives of regional bureaux. Secondly, the *Basin Authority* functions as the implementing and administrative agency staffed with bureaucrats, water resource developers and technical experts, appointed by the MoWIE.

The Basin High Council, on the one hand, is an expressly political organ with regulatory and supervisory functions. It has the "mandate to resolve conflicts among the regional states"; however, it can neither mediate between sectoral ministries and regional bureaus, nor between Basin Authority and regional administrations, although tensions are equally likely to erupt between these stakeholders (Tamrat, 2008). Community representatives from the *zonal*

[8] An insider informant, who had been involved in the development of the institutional frameworks for IWRM and the establishment of RBOs in Ethiopia (Interview XXXVIII, 12/2018) stated that the process was characterised by much internal disagreement and negotiation. The ABA has since been subject to continued restructuring and has been renamed 'Abbay Basin Development Office' by Abiy Ahmed's administration (Prosperity Party), sidetracking the incomplete consolidation of the EPRDF's institutional design.

or *woreda* levels are not involved in the Basin High Councils, an informant pointed out (Interview XX, 09/2018). Concrete local concerns and grievances are not raised within the BHC, and thus do not directly feed in to its strategic planning and decision-making activities. The Basin Authority, on the other hand, carries a multitude of mandates and is accountable not only to the BHC, but also to the Ministry in charge of water issues (previously MoWE, now MoWIE). Tasks of the Basin Authorities include, according to Tamrat (2008): the initiation of policy measures to implement IWRM, preparation and submission of basin development plans, the establishment of hydrological models and information systems, and support to the BHC and Ministry with regard to dispute resolution. However, Basin Authorities themselves are sources of conflict as their realm of authority infringes upon the original, or at least, customary, mandates of regional governments, that is, the issuance of water use and construction permits, or the collection of water charges. For lack of clearly defined roles and institutional differentiation, regional states perceive these river-basin organisations as "highly intrusive" (Interview XXXVIII, 12/2018). In fact, the issue is a matter of competition between the decentralised regional states and the federal government. This is because the composition of the Ethiopian RBOs, which are supposed to inherit federal mandates, is effectively also determined by the federal government. Tamrat (2008) moreover points out that RBOs are financially dependent on federal budget allocations, as well as the Ethiopian government's external donor relations.

A former official at the Water Ministry proposed a pragmatic perspective concerning the significance of RBOs, based on comparative advantage and the potential for mutual complementarity with regional administrations. On the one hand, "the regional offices", the informant stated, "are themselves relatively new, and they are not necessarily staffed with water sector experts. Most of all, they do not have the capacity to address the challenge of shared resources across regional boundaries" (Interview XVIII, 08/2018). They are, in turn, much better placed to integrate local stakeholders through the bureaucratic linkages with the subsidiary *zonal*, *woreda*, and *kebele* offices. On the other hand, "there is a paranoia that the Basin Authorities want to get larger mandates and reduce the power of the regional states", another informant in a senior management position at the ABA claimed, "although the [RBOs] and the central government have much better resources to conduct hydrological monitoring, meteorological forecasting, and other services" (Interview XXIII, 09/2018). Nevertheless, my former interlocutor conceded, the current relations between regional and basin-level institutions is characterised by a mutual "flexing of muscles" and outright "turf

wars" (Interview XVIII, 08/2018). Meanwhile, related agencies perceive themselves as side-tracked. A representative of the Environmental Protection Agency (EPLAUA) in Bahir Dar expressed great concern with regard to lack of integration and the consequence of "problem solving vacuums". The informant lamented increasing pollution and environmental damage in his area of operation, stating: "Integration, or IWRM, means that all stakeholders have to be accountable. But where every actor is assumed to take responsibility, I see no accountability" (Interview XXIV, 09/2018).

From the perspective of the regional governments the introduction of RBOs thus constitutes a potential and highly political threat to the devolution of power through ethnic federalism. It furthermore relates to Aldous Huxley's (1932) idea of bureaucratic "over-organisation". The new RBOs are institutions decentralised to the river-basin scale, yet they are governed by central interests. This is reflected in the federal government's influence over staffing decisions, budgeting, and agenda-setting within the ABA, TaSBO, and BeSBO (Interview XXIII, 09/2018). Representatives of the Prime Minister's Office and MoWIE – thus the highest echelons of the national political hierarchy – do not only function as "supervising authorities" (FDRE, 2000, 2008). They also have the continued power to impose decisions about water management and hydro-developmentalist infrastructure in a top-down manner. While RBOs certainly embody the *potential* to facilitate better integration and harmonisation between different bureaucracies and sectors, both vertically and horizontally, my interlocutors in Addis Ababa and Bahir Dar expressed that the objective of 'integrated' WRM had so far not been achieved.

6.4 The Janus-faced 'Tana and Beles Integrated Water Resources Development Project' (TBIWRDP)

The fact that the introduction of RBOs, justified by the notion of IWRM, has created more disintegration than harmony is not least because of the concept's vague definition and therefore incongruent adoption. The *Tana and Beles Integrated Water Resources Development Project* (TBIWRDP) serves as a case in point. Beyond this, however, I show that the IWRM concept, embedded in the TBWIRDP, served as an apolitical vestige for the EPRDF's ideology of hydro-developmentalism relating to Tana-Beles. Following the first 'Tana-Beles' ideas, which had emerged, been attempted, and failed, in the early 20th century, and parallel to the materialisation of the hydro-infrastructure between 2005 and 2010, the

TBWIRDP can be considered an effort to *institutionalise* the hydro-developmentalist approach to Tana-Beles through the creation of TaSBO and BeSBO. Drawing from four sources of funding,[9] the overall budget of the TBIWRDP amounted to approximately US$ 70 million. More than half of this amount was earmarked for community-based 'watershed development' and 'flood management', thus IWRM-type activities in the Amhara region's Tana sub-basin. However, by contrast, the project also incorporated the promotion of inherently hydro-developmentalist objectives, concentrated in the Beles sub-basin.

Concretely, the EPRDF government planned the expansion of large-scale commercial irrigation schemes, which would use the water availed by the Tana-Beles hydro-infrastructure. According to the World Bank (2017: 1), these plans were based on the EPRDF's expectation of "highly profitable" public and private investments through the establishment of so-called *growth corridors*, which aligned well with the Bank's technocratic development philosophy. Tana-Beles was supposed to become the "the first of five proposed growth zones [in Ethiopia]" (*ibid.*). With regard to Ethiopia's domestic development policies, the idea of a 'growth corridor', or 'growth zone', was first mentioned in the EPRDF's 2005-2010 *Plan for Accelerated and Sustained Development to End Poverty* (PASDEP). This national strategy had received substantial support from the World Bank and other major international cooperation agencies. In 2007, the Ministry of Finance and Economic Development (MoFED, 2007: 27) defined the growth corridor as "a geographical region, such as a sub-basin, rather than a single rural or urban centre, which generates economic activities well beyond regional administrative boundaries". The space-making and de-politicising implications of this definition are striking. Growth corridors are thus arenas, identified on behalf of the central government by technical and economic experts, *irrespective* of regional states' jurisdictions.

However, as I emphasise throughout this thesis, the hydro-political, historical, and present associations of 'Tana-Beles' as an imagined hydro-infrastructural intervention space are highly charged. Therefore, the original notion of 'Tana-Beles' had to come undone; it had to lose its politically controversial connotations. The project designers of the TBIWRDP attempted to achieve this, firstly, through the invocation of IWRM; secondly, through the production of new arenas of governance by means of the disjuncture of 'Tana-Beles', and the

[9] US$ 45 million from the World Bank's International Development Association (IDA); US$ 5.38 million from the Government of Ethiopia; US$ 8 million from the Government of Finland; and US$ 11.47 million from Communities – the latter two of which were exclusively dedicated to watershed management activities (World Bank, 2013: 2)

separate establishment of TaSBO and BeSBO, respectively. Thus, the World Bank (2017: 2), described the TBIWRDP as a pilot project to create "a balance of critical institutional development", which would prepare "a pipeline of well-designed sub-basin development investments for implementation during *successive projects* [emphasis added]". A former MoWIE official confirmed to me that these 'successive projects' referred to the aspired promotion of economic growth through large-scale irrigation investments in the Beles sub-basin (Interview XIII, 01/2018).

However, the growth-promoting rationale upon which the project was conceived could not be pursued within the framework of the TBIWRDP, given the World Bank's critical role in it. This was, among others, the case because the World Bank's operational policies preclude assistance to interventions in trans-boundary river-basins if they evoke downstream objections (Salman, 2016). An Ethiopian official, formerly involved in the conceptualisation of the TBIWRDP (Interview XIX, 08/2018), described the following:

> Regarding the [Tana-Beles] growth corridor, investments were mainly profitable in the area of irrigation. The World Bank pushed this agenda very hard. But Egypt was strongly opposed to this. […] Then, the World Bank began to silently withdraw itself from the project.

Simultaneously, domestic forces equally contested the idea. The same interlocutor explained that the growth corridor was not only objected by the Egyptian government, but also by regional administrations within Ethiopia (Interview XIX, 08/2018):

> While plans for the Tana-Beles corridor were still under preparation, all regional governments developed own growth corridors, characterised by suitable development conditions which required minimal investments […] This universality defeats the concept of a growth pole as a concentrated area. The concept was misunderstood for political reasons, for example to prioritise development in the Oromo region.

Another MoWIE official (Interview XVII, 05/2018) deplored that the promotion of the growth corridor within the TBIWRDP constituted the project's one link with the past hydro-developmentalist imaginations of Tana-Beles during imperial and socialist reign, and with the then ongoing construction of the Beles MPP. Yet, it failed to materialise. In 2011, the World Bank's project managers rated the Tana-Beles growth corridor objectives to be at 'substantial' risk of unattainability in the context of the project. "Then, they wanted to focus on soft issues, cancelling all irrigation [related] plans" (Interview XIX, 08/2018). But eventually the growth corridor component was dropped entirely by 2013, although it had

been a significant trigger for the World Bank's initial commitment to the TBIWRDP (IEG, 2017).

Probing the internal composition of the TBIWRDP

The following sections briefly present the overall design of the TBIWRDP at its outset in order to demonstrate how the growth corridor concept was placed almost casually, or rather covertly, between IWRM activities without having a direct link to these. The project was constituted by an ambitious, multilayered set of four major project components. Although it addressed both Tana and Beles – and despite their ideational connection since the past century – publicly retrievable project documents hardly portray them in a connected sense (among others, World Bank 2008a, 2008b, 2013, 2017). The TBIWRDP's implementation, furthermore, did not occur in a linear fashion. Substantial revisions were made upon project reviews in 2011 and 2013, because, as the Independent Evaluation Group (IEG, 2017: 6) stated in hindsight: "The project design logic was weak and overly complex." Figure 6.2 juxtaposes the initial and the revised 'project development objective' (PDO), according to the World Bank's reports (2017: 60).

Figure 6.2 The initial and revised core objective of the TBIWRDP

Project proposal (2008):	***Mid-term revision (2013):***
To develop enabling institutions and investments for integrated planning, management and development in the Tana and Beles Sub-basins ***to accelerate sustainable growth.***	*To develop enabling institutions and investments for integrated planning, management and development in the Tana and Beles Sub-basins* ***for integrated water resources management.***

At its inception, the overarching goal of the TBIWRDP was the promotion of economic growth. After the project had been running for a few years, it changed towards IWRM. In fact, the revised PDO in 2013 implied the tautological target *"[t]o develop […] integrated […] management […] for integrated […] management"* (see above). The "universally popular" (Pollit, 2007) concept of IWRM thus functioned as a disarming, de-politicising placeholder for the controversial growth corridor idea.

Figure 6.3 lists the main components, activities and cancellations of the TBIWRDP (based on IEG, 2017: 2-4). As a whole, the below table shows that the TBIWRDP was both inter-sectoral, touching upon cross-cutting realms of water management, and multi-scalar,

involving the federal Ministry, regional, and local levels of government, introducing TaSBO and BeSBO at the sub-basin level, and addressing grassroots communities. Pursuant to the principle of IWRM, the project thus incorporated a range of different stakeholders and themes. However, according to my interlocutors at ABA, TaSBO, the regional BoWIED, and the BoARD, it achieved neither integration nor sustainable interaction *between* these different organisations. (Interviews XX; XXI; XXII; XXIII; XXIX, 09/2018). What is more, Components B and C reflect the separation of the Tana and Beles sub-basins as two disconnected, rather than integrated, intervention zones – one in the Amhara region, the other mostly in Benishangul-Gumuz. The TBIWRD was thus a construct of several unlinked agendas which were jointly accommodated under the umbrella of IWRM.

Figure 6.3 Components of the TBIWRDP (2008-2016)

Component A: **Sub-basin Resources Planning and Management** (US$ 23.1 million)	- *Development of enabling institutional infrastructure (support to establishment of TaSBO and BeSBO under the parent organisation ABA)* - *Technical capacity-building activities within TaSBO and BeSBO* - *Establishment of a Water Resources Information System, including a "modern network of hydro-meteorological, groundwater and environmental monitoring"*
Component B: **Natural Resources Management Investments** (US$ 50.1 million) *Not to be confused with the large-scale commercial investments addressed by the *growth corridor* concept. Investments under this component were provided by the World Bank and Government of Finland, targeting local communities within so-called "micro-watersheds."	***1) Watershed development in three "micro-watersheds" of the Tana sub-basin (Amhara region):*** - *Local livelihood improvement (crop and livestock production, upgrading of social infrastructure at kebele level, small-scale water supply and irrigation development)* - *Soil and water conservation works* - *Protection and improvement of degraded land, e.g. through agro-forestry programmes* - *Institutional capacity-building at woreda- and kebele-level* ***2) Flood management around Lake Tana (Amhara region):*** - *Community-based capacity-building for the improved management of, and adaptation to, floods*

	Cancellation: Small-scale structural measures were planned (e.g. access roads to hydrological monitoring stations, 77km escape routes), but "dropped after the detailed designs were completed because of higher cost, safeguard requirements and time constraints."
Component C: **Growth-oriented Investment Facilitation** (US$ 1.56 million)	1) ***Development Agency support:*** *"for relevant existing government bureaux […] and to potential public and private entities for increased private sector participation […] to create a growth zone in the Tana-Beles area"* 2) ***Growth-oriented investment preparation:*** *"[…] surveys, pre-feasibility and feasibility studies, environmental and social assessments, designs, implementation arrangements, and analytical work and stakeholder consultation."* **Cancellation:** The component was first scaled down (2011), and then entirely dropped (despite partial completion of some activities under point 2) in 2013, because of its "complex nature […]" and due to "lack of capacity and clarity within the government on the growth corridor strategy."
Component D: **Project Management** (US$ 2.20 million)	- *Project planning, coordination, management, quality oversight, technical supervision, procurement and financial management, monitoring, evaluation, reporting*

The hydro-developmentalist rationale for the undoing of 'Tana-Beles'

Throughout this thesis, I make the case that conceptualisations of 'Tana-Beles' are fluid; the identification of waterscapes for hydro-developmentalist interventions a matter of political choice. Because of the controversial connotations of Tana-*hyphen*-Beles, however, the selection of Tana and Beles as arenas of intervention is portrayed in World Bank documents as a technical, apolitical approach. Although the growth corridor concept explicitly considered Tana and Beles as "one hydrological unit", which is connected technologically

(Interview XXVI, 09/2018), the design of the TBIWRDP purposefully presents Tana and Beles as two individual, natural, or organic, watersheds. This 'naturalisation' and separation served not only as a justification for the TBIWRDP as such. It also condoned the formulation of the World Bank's rationale to push for the hydro-developmentalist growth corridor agenda in the first place.

This rationale was embedded in the World Bank's imagination of the economic *potential* created by the "hydropower plant and tunnel from Lake Tana to the Beles sub-basin. […] The Beles sub-basin was included in the project due to this link" (World Bank, 2017: 2). The report continues on the same page:

> The Beles sub-basin, located southwest of Lake Tana, has significant hydropower and agricultural potential that was considered part of the growth corridor story to provide the inputs for processing in the more populous and connected Tana sub-basin. The Beles sub-basin is endowed with a large range of virgin land and many tributaries to the Beles River […], water resource and land availability that could contribute to the expansion of different economic activities.

In many of my official and expert interviews about the growth corridor, hydro-developmentalist vocabulary resurfaced. The World Bank itself portrayed the intervention as 'inevitable', or 'imperative', also on the grounds that the waterscapes from Lake Tana to the Beles River were 'fragile' and in "urgent need [of] enabling institutions and capacity [for their] management" (World Bank, 2017: 2). Furthermore, the World Bank's description of the Tana and Beles sub-basins is strikingly contrasting. On the one hand, Tana is presented as rich in resources, "cultural heritage, […], relatively developed urban centres and dense settlements, good roads, reasonable air connectivity, [and having a population of about] three million residents." On the other hand, the foregrounded features of the Beles sub-basin are "productive land that is under-utilized" and its potential for the "development of large-scale irrigated agriculture" (*ibid.*).

In this portrayal, there is no mentioning of the indigenous and migrant populations of the Beles sub-basin; no mentioning of sprawling towns, such as Gilgel Beles on the road towards the GERD, or Pawe, which is connected by an airstrip and more than 250 km of roads constructed during the 1980s TBP. Nor are the social, hydrological and environmental challenges within the Beles sub-basin addressed. The TBIWRDP watershed management component was, among others, concerned with the natural seasonal floods near Lake Tana; however, the unpredictable flood waves created artificially by the hydropower plant between

Tana and Beles do not exist on the agenda of the TBIWRDP. In fact, the differentiation between the sub-basins according to their economic production factors constitutes a clear parallel with imperial conceptualisations of 'Tana-Beles', in which leading planners viewed the Tana sub-basin as more civilised and integrated with the 'core' of the Empire, whereas the Beles sub-basin, located in the 'periphery', represented an idea of the proverbial breadbasket for the highland-based economy. In the context of the TBIWRDP, moreover, the strategic positioning of the institutional infrastructure – TaSBO within the headquarters of the overarching ABA, and BeSBO in the far away Benishangul-Gumuz regional capital, Asosa – also reflects a differential integration into the decision-making hierarchy within the RBOs, as well as between them and the federal authorities. The distance between TaSBO and BeSBO is thus not only geographical but also qualitative with regard to their respective degrees of integration and influence.

Potential and missed opportunities: Divergent perspectives on the TBIWRDP's closure

The World Bank's discontinuation of all support to the Tana-Beles growth corridor within the framework of the TBIWRDP is strongly reminiscent of the Italian withdrawal from Part II of the 1980s TBP (Chapter Four). There are key parallels between the two projects. Both incorporated significant hydro-developmentalist objectives. In both cases, these objectives were embedded in project activities which incorporated components to address the socio-economic development of vulnerable populations. The TBP did so in the Beles Valley, the TBWIRDP in local watersheds near Lake Tana. However, in both cases, these activities also came to an abrupt end, leaving the supposed beneficiaries sidetracked, and producing both physical and figurative types of ruins.

In the following paragraphs, I contrast the divergent perspectives on the TBIWRDP by representatives of the basin-level ABA and TaSBO, and the regional-level Amhara BoWIED and the BoARD. All interviewees perceived that the TBWIRDP held an immense 'potential' within their respective areas of expertise. However, many of my interlocutors also expressed a sense of 'missed opportunities'. The different bureaucrats' contrasting, even competing, interpretations of IWRM attest not only to the ambiguous nature of the TBWIRDP itself, and the incoordination between basin-level and regional state administrations. They also indicate the opportunistic rationale on which the EPRDF government had committed to IWRM. The authors of the final Independent Evaluation Report of the TBIWRDP noted that – after it became clear that the World Bank's endorsement of the growth corridor had pulverised

before it was concretised – the "insufficient [federal] government commitment" to the project's Component B foreclosed considerations of a second implementation phase (IEG, 2017: 14). Discussions between the MoFED and the World Bank had taken place to plan a new phase. However, the MoFED "did not approve of the concept note", which involved several integrated watershed management plans for both sub-basins, and rejected the allocation of budgets for this purpose (Interview XX, 09/2018). The 'chapter', in which the EPRDF had intended to expand the hydro-infrastructural story of 'Tana-Beles' by means of the TBIWRDP, was thus closed, given the federal ministry's volatile interest in interventions that were not hydro-developmentalist.

The following snapshots from my interviews at ABA, TaSBO, and the regional bureaux demonstrate how technocrats in the decentralised agencies involved in the TBIWRDP experienced the project's discontinuation. I focus on three areas: (i) their views regarding the challenges of implementing IWRM; (ii) the TBIWRDP's lacking financial sustainability and high staff turnover; and (iii) different reactions to the project's termination. As a fourth point, I briefly reflect on the existential question of ABA and its sub-basin organisations.

Firstly, although IWRM had been the constitutive philosophy of the TBIWRDP, a senior official at TaSBO observed the basin-level organisations' disconnect from both regional and subsidiary local government agencies, and from water users themselves (Interview XX, 09/2018):

> There is no framework on how to monitor and evaluate integration.[…] At TaSBO, we have no formal relations with local stakeholders on the sub-basin level. […] We conducted stakeholder workshops, but we also do not relate systematically with [economic] water end users. [Furthermore,] water users already related to the Bureau of Water are not interested in coming to TaSBO [e.g. regarding permits]; equally, the Bureau of Agriculture is not interested in our planning workshops.

An ABA staff member confirmed this: activities of the TBIWRDP had been delegated across different regional bureaux and sectors, but effectively, there was "no exchange, no information about the ABA institutions" (Interview XXIII, 09/2018). He added: "[…] most organisations are not willing, interested, or able to interact with the Basin Authority." There are also discrepancies regarding reporting requirements and financing between the various agencies. MoFED is the federal budget holder for the ABA and its branch offices; but regional bureaux receive financing through regional governments. The interlocutor asked

rhetorically: “with this situation, how to establish a coordinated approach between the offices and work towards the same goal?”

At the regional Water Bureau, I spoke to a high level official who stated that the biggest challenge towards the implementation of IWRM was the “lack of facilitation […] each sector continuing to work in its own responsibility.” According to him, the TBIWRDP lacked an overall project component which would have linked the agencies, but there was “no tight relation or communication” between MoWIE, ABA/TaSBO/BeSBO, BoARD, and BoWIED (Interview XXII, 09/2018). Without specifying any details, the informant further criticised the World Bank’s contract management, and complained that – while initially much time had been consumed “inefficiently” in the project preparation process [including the growth corridor concept], the World Bank later on made pressure to spend project money which meant that it did not reach intended gaps and goals.

To the official I interviewed at the Amhara Bureau of Agriculture, IWRM was synonymous with integrated watershed management, that is, “everything that happens in the watershed community […]. Local communities [should] decide on and manage the intervention.” The BoARD worked to some extent with TaSBO, but “their input for IWRM was not significant […]”, the informant stated, “TaSBO was simply not responsible for watershed management” (Interview XXI, 09/2018). Instead, the BoARD was solely responsible for the community development activities within three “micro-watersheds” under the TBIWRDP, while it had, at best, only a weak connection to the federal authority in charge of the project on behalf of the Ethiopian government, the MoWIE.

Secondly, with regard to the sustainability of the TBIWRDP: during the project, twenty water resource specialists from ABA and TaSBO had been sent to Addis Ababa to receive specialised training. By the end of 2018, however, only four of these staff members had remained. “Many colleagues resigned from TaSBO and ABA due to the closure of the TBIWRDP in 2016” (Interview XXVI, 09/2019). TBIWRDP-related salaries and benefits had been paid at attractive World Bank rates. Government salaries could not match these. This led to a new experience of high staff turnover. “In order to ensure sustainability, there is need for another project”, a technical expert at ABA suggested (*ibid.*), but he insisted that periodic, externally funded, development projects would not be sustainable – “the government should commit”. My interlocutor at the BoARD commented on the same issue of cancelled salaries, which was “a big problem when the project closed”.

Thirdly, it is interesting to note the different perspectives on the question why the TBWIRDP's termination was considered a "shame". At ABA, one individual thought so because he viewed "the modernisation of Ethiopia's river-basins [as] a much needed long-term process" (Interview XXXIX, 09/2018). Meanwhile, at the regional Water Bureau my interlocutor repeated several times that a "Tana growth corridor" [not 'Tana-Beles'] had "enormous potential and should be operationalised without delay". His primary interest was, however, upstream hydro-infrastructural development within the Amhara region itself.

In contrast to these hydro-developmentalist views, at the BoARD, my interlocutor deplored the end of the TBIWRDP on behalf of the local communities which had benefitted from its Component B. He argued: "There is a misunderstanding at the ministerial level: any watershed management is a long-term process; the budgets should not have been cut." His attempts to mobilise new project funds from regional state budgets had equally not been successful by 2019. The informant further explained:

> The problem with the TBIWRDP was that it was abandoned at the beginning of the second stage, when almost 90% of physical rehabilitation [of most watersheds] was completed. The project had begun to dedicate itself to socio-economic development activities; it should not have been stopped.

Managing without external support, according to the informant, was "very difficult" – as it also was for him to hide his frustration about the project's ending. There are obvious similarities with the history of the first TBP in the Beles Valley, and the sense of disappointment with its abandonment – although the particular reasons for the disappointment are variable.

Finally, a brief reflection on the, as of yet, uncertain future of the sub-basin organisations is worthwhile. By the time of the closure of the TBIWRDP in 2016, TaSBO and BeSBO had been successfully established, permanent heads appointed, and office buildings constructed and staffed. The organisations were therewith rated as "operational" (World Bank, 2017) – at least in theory. Practically, "the project proposals were too complex and the implementing agencies not clearly mandated" (Interview XXII, 09/2018). Now that the organisations exist, their mode of existence still has to be defined.

At ABA, one of my interlocutors expressed that, to him, water resources management was a "new science", which required "highly technical persons to make decisions" (Interview XXVI, 09/2018). This portrayal corresponds with how some TaSBO staff members identified

themselves to me, as "technical experts, not political ones" (Interview XXVI, 09/2018). In this vein, my interlocutors at ABA and TaSBO also did not unanimously condone the hydro-developmentalist ideology of the federal government: "MoWIE is developing plans for five to six future dams upstream of Lake Tana, but there is no action taken to mitigate negative impacts on the lake levels, even on the [Tana-Beles] power station" (Interview XX, 09/2018). A few months earlier, in Addis Ababa, one official had boldly stated to me that "for some development interventions, one can compromise the environment if it is for human benefit" (Interview XVII, 05/2018). My informants in Bahir Dar, within ABA and TaSBO, however, countered this viewpoint with high scepticism. At the same time, during EPRDF rule, the basin organisations' had no political clout, nor autonomous implementation capacity beyond its authorisation from the federal Water Ministry. In light of Abiy Ahmed's current efforts to restructure the ABA – now renamed 'Abbay Basin Development Office' – and its sub-basin organisations, the future transformations of these governance arenas – presently under the authority of the Prosperity Party – remain to be observed.

6.5 Conclusion

In this chapter, I have elucidated a final manifestation of 'Tana-Beles', namely as an inspiration for the creation of a new *institutional architecture.* This was implemented in the context of the multi-dimensional *Tana and Beles Integrated Water Resources Development Project* (TBIWRDP), which the World Bank coordinated from 2008 to 2016 in collaboration with the MoWIE. I argued that, while the federal government sought to expand hydro-developmentalist infrastructure in the Beles Basin, it was necessary to de-politicise this intention on account of the historically and politically charged connotations of 'Tana-Beles', which I have demonstrated in Chapters Three to Five. I followed Flinders and Buller's (2006) definition of de-politicisation as a process in which political decisions are displaced into seemingly 'independent' arenas.

In this vein, I contextualised my analysis of the TBIWRDP within two broader themes: first, the EPRDF government's space-making (Lefebvre, 1991) decentralisation reforms; second, its instrumentalisation of IWRM (cf. Houdret et al., 2014; Mehta *et al.*, 2017). Both of these processes, I showed, served to reinforce the central government's supremacy with regard to the governance of Ethiopia's national water resources. On the one hand, the EPRDF's federalist 'remapping' of Ethiopia (James *et al.*, 2002) transformed it into a mosaic of

regional administrations, which were ascribed to represent the country's major ethnic groups, while the ruling party amalgamated with the hierarchical bureaucracy of the overall state. On the other hand, the identification of hydrological watersheds, and their transformation into hydro-developmentalist waterscapes, was a process which could be justified scientifically, but which the government also employed politically, to legitimise its hydro-developmentalist priorities. In this vein, the purposeful portrayal by both the World Bank and the MoWIE of 'Tana' and 'Beles' as suitable arenas for water management interventions constituted the foundation for the introduction of specialised, technocratic organisations, which purported to operate on scientific rather than political premises. Yet, as I have shown, the RBOs remained dependent on the federal authorities with regard to budgeting and staffing decisions, as well as their overall agenda-setting, and – significantly – they were subordinate to ministerial decrees. At the same time, despite the integrative philosophy of IWRM, new power ambiguities, and competing interpretations of the vaguely defined concept, emerged between the basin-level and regional administrations, which weakened their ability to synergise and perform their respective mandates.

Against this background, I scrutinised how the World Bank's involvement in the TBIRWDP contributed to the de-politicisation of the EPRDF's hydro-developmentalist plans for producing a Tana-Beles growth corridor as yet another contested intervention space. Based on the EPRDF's national PASDEP policy, the World Bank had committed to the promotion of 'growth-oriented investments' via the envisioned Tana-Beles growth corridor, and embedded this objective into the complex and disparate project design of the TBIWRDP. In the course of this process, the project coordinators at the MoWIE and the World Bank separated the imagined construct of 'Tana-*hyphen*-Beles' into two naturalised hydrological watersheds 'Tana' and 'Beles'. In this vein, the TBIWRDP itself turned into a Janus-faced programme. While its Component B promoted community-based watershed management activities in the Tana sub-basin, Component C aimed to facilitate hydro-developmentalist mega-projects in the Beles sub-basin. Component A, which realised the establishment of the respective sub-basin organisations, TaSBO and BeSBO, under the umbrella of the ABA, was supposed to institutionally endorse the growth corridor plans. However, as my empirical findings show, not only were TaSBO and, more so, BeSBO weakly integrated into the activities of the TBIWRDP. The "over-organisation" of the decentralised basin-level bureaucracy also implied that its individual constituents had narrow political clout vis-à-vis the federal organs of MoWIE and MoFED.

Meanwhile, halfway through the implementation of the TBIWRDP, the World Bank withdrew its support to the EPRDF's growth corridor agenda, as a result of both opposition from the Eastern Nile riparians, but equally because regional governments boycotted the concept. Thus, this chapter has again demonstrated the fickle possibilities for hydro-developmentalist dreams to materialise in Ethiopia. Furthermore, given the EPRDF government's biased commitment to the growth corridor component, the MoFED rejected the continuation of the TBIWRDP after 2016. Almost all of my interlocutors within the basin-level and regional agencies, which had been involved in the TBIWRDP, deplored this decision for various reasons, voicing disappointment about 'missed opportunities'. Similar to the ruins of the 1980s TBP, which I discussed in Chapter Four, not only the failure of the growth corridor, but especially the failure of IWRM, to materialise represents ruination in a figurative sense. However, as I proposed in Chapter Two, ruins are not an end product. They are rather recurrent and dynamic elements on the non-linear trajectory of the hydro-developmentalist visions for 'Tana-Beles', the political history of which this thesis attempted to trace.

Chapter Seven

Conclusion

> [G]ripped by the ideology of developmentalism, leopards are reluctant to change their spots.
>
> (Adams, 1992: 123)

7.1 The politics of hydro-developmentalism in Tana-Beles

This thesis has presented the modern political history of 'Tana-Beles', one of Ethiopia's most controversial, yet scarcely analysed, water management schemes in the Blue Nile Basin. By employing George and Bennett's (2005) *process tracing* approach, which "focuses on the unfolding of events or situations over time", whilst taking "good snapshots at a series of specific moments" (Collier, 2011: 824), I explored the conception of Tana-Beles as a multi-functional hydro-infrastructure from its colonial origins in the early 20th century to its fluctuating materialities in the context of the successive imperial, socialist, and federalist Ethiopian regimes until the present day. Parallel to making an empirical case of 'Tana-Beles', my thesis aimed to contribute conceptually to existing 'political sociologies of water management' (Mollinga, 2008) and theorisations of the relationship between 'water, infrastructure, and political rule' (Obertreis *et al*., 2016).

In this vein, I introduced the notion of *hydro-developmentalism* to denote the temporally non-confined[1] ideology and practice of reshaping rivers and entire waterscapes through the construction of large-scale, state-owned hydro-infrastructures. While such infrastructures can provide constructive solutions to national questions of water, food, and energy availability, my objective was to unpack the *political* underpinnings of hydro-developmentalism with regard to Tana-Beles. My starting point was the hydro-infrastructure itself. It is constituted by a twenty-kilometre water diversion from Lake Tana to the Beles River and an underground hydro-electric power station, about halfway through the tunnel. Aside from electricity

[1] 'Temporally non-confined' means that the hydro-developmentalist *ideology* can be traced back several millennia, as does Da Cunha (2019). The *implementation* of large hydro-developmentalist constructs and technologies must be contextualised with the professionalisation of scientific and engineering possibilities, starting from the 19th century. However, while Molle *et al*. (2009) discuss the peak of the "hydraulic mission" in the early to mid-20th century, I argue, based on the case of Tana-Beles, that the ideology of hydro-developmentalism is persistent, regardless of whether it could be implemented or not.

generation, the purpose of the infrastructure is also the provision of water for the extension of large irrigation schemes in the Beles Basin. When I started researching the Beles Multipurpose Project (MPP) – which is the formal designation of the infrastructure, although public officials, as did my interlocutors, still refer to it informally as Tana-Beles – it struck me that it had materialised between 2005 and 2010, but it had been first proposed about one hundred years before. In the archives of the Ministry of Water, Irrigation, and Electricity (MoWIE) in Addis Ababa, I discovered, among others, detailed reports, published by the Anglo-Egyptian Ministry of Public Works, proposing technologies for 'Nile Control' in upstream Ethiopia (Dupuis & Garstin, 1904; Grabham & Black, 1925). The idea of Tana-Beles is mentioned in these sources. Against this background, my research was embedded in the following questions to explore the political underpinnings of hydro-developmentalism in Tana-Beles: (i) why did successive governments commit to the hydro-developmentalist vision of Tana-Beles; (ii) how and with whose support did they pursue it in the continuously precarious hydro-political and domestic environment; (iii) why did the hydro-infrastructure nevertheless fail to materialise for several decades; (iv) and what were the impacts of these failed attempts, as well as the impacts of the successful materialisation of the Beles MPP itself.

My research led me to a chain of arguments. (i) From a political perspective, both the *hydro-developmentalist vision* and the *materiality* of the Tana-Beles hydro-infrastructure represent *strategies* and *structures* which support(ed) the aim of successive governments to reinforce the hierarchical power of the central state. (ii) In order to achieve this, the governments depended on the involvement of foreign project partners. Together, they converged around a range of tactics to de-politicise the controversial hydro-developmentalist plans. However, shrouded by seemingly apolitical, scientific, technical, and humanitarian objectives, these high-level project partnerships also served to further reinforce the vertical relationship between the state and its subjects. (iii) At the same time, the governments' commitment to top-down hydro-developmentalism, along with the strategic de-politicisation thereof, constituted its endogenous vulnerability. It resulted in continuous external contestation from abroad, as well as domestic opposition from both rival political groups and from competing internal bureaucracies of the state. (iv) Furthermore, new spatial, distributional, and institutional inequities, as well as material and figurative 'ruins' emerged from the various Tana-Beles projects which I discuss in this thesis. These affect(ed) local populations in the vicinity, upstream, and downstream of project sites. But also civil servants within

decentralised government bureaucracies, as well as private individuals, who were formerly employed in any of the respective projects, experienced forms of inequities or frustrations. The inequities reflect, on the one hand, the political implications of the interventions. The ruins, on the other hand, reflect their fragility. The hydro-developmentalist *vision* of Tana-Beles emerged in a non-linear fashion and produced various, non-final materialities. In other words, hydro-developmentalism manifested its *practical possibility* in a circular and fluid fashion, fluctuating between ruination and repeated revivifications, or 'renaissance' in modified forms.

Due to constraints of budget, time, and accessibility, I focused my research on the domestic Ethiopian context, while it could also have been expanded to the trans-boundary level of the Eastern Nile Basin countries. Furthermore, with regard to the groups contesting the respective governments' hydro-developmentalism, I did not incorporate localised opposition. This is because most of my empirical chapters (Chapters Three, Six, and to some extent Four) deal with *hypothetical* hydro-infrastructures relating to Tana-Beles. Chapter Five, by contrast, refers to local confrontations about access to electricity in settlements around Kunzila, near the Beles MPP. Finally, the empirical data which I collected for this thesis, only allowed me to hint at the role of non-humans (infrastructures, technology, the physical landscape) in the case of Tana-Beles. In Chapter Two, I do so with reference to both conceptual and further empirical literature which employs an actor-network lens (Acuto & Curtis, 2014; Ertsen, 2016; Smit, 2019)

Each of the arguments listed further above breaks into a number of recurrent, cross-cutting themes. I subsequently discuss these along with my main empirical findings. They are structured as follows in Section 7.2: First, the link between hydro-developmentalism and the path-dependent *vertical re-ordering of space* is an over-arching theme, which I recapitulate only briefly, in dialogue with the relevant secondary literature. I then divide my empirical findings into two categories. The first group of themes falls under the category of selective *de-politicisation*, namely one which is preoccupied with dismissing social, environmental, or political impacts of hydro-developmentalism by use of a range of tactics. Here, I address three tactics of de-politicisation: the *production of space*; the *invocation of urgency*; and the *silencing of past and present ruins.* The second category is concerned with *impacts* of both the ideology and the practice of hydro-developmentalism, namely, the *production of spatial inequities*; material, figurative, and institutional *ruins*; and a notion of *renaissance*, which I

dissociate from the 'Renaissance' discourses promulgated by the late Meles Zenawi's EPRDF regime. Throughout my elaborations on these themes, I highlight how the respective Ethiopian governments' foreign project partners contributed to the tactics of de-politicisation and the impacts of hydro-developmentalism. In Section 7.3, I reflect on the broader relevance of this thesis within three bodies of literature. The thesis concludes with a short closing statement about the future of hydro-developmentalism in Ethiopia.

7.2 Major themes and findings

Hydro-developmentalism is constituted by ideas and practices which connect humans, nature, infrastructure, and politics in a heterogeneous assemblage. In this thesis, I have emphasised that hydro-developmentalism manifests itself in a variety of forms. Their commonality is both the imagined and actual re-ordering of space – this can imply geographical areas, socio-natural environments, and organisational structures of the state – in a way that attempts to construct new boundaries, connections, and separations, which reinforce the top-down supremacy of the central state. Scott (1998: 4) describes the "re-ordering […] of social and natural spaces by means of technological interventions" as *high modernism.* A number of scholars address the ways in which hydro-infrastructures have been used to strengthen political regimes and to expand territorial control through spatial engineering in different countries (e.g. Wittfogel, 1957; Folch, 2013, 2015; Swyngedouw, 2015; Verhoeven, 2013, 2015; Mohamud & Verhoeven, 2016; Menga, 2016; Obertreis *et al.*, 2016; Fantini *et al.*, 2018; Menga & Swyngedouw, 2018). Individual large dams and irrigation schemes have received much academic attention in this regard.

The complexity of 'Tana-Beles'

Tana-Beles, by contrast, exemplifies a multi-faceted type of hydro-infrastructure, and it shows that hydro-developmentalist agendas can be packaged in a number of ways. 'Tana-Beles' as a project label does not only denote the water diversion technology and hydropower plant itself. It also represents the Derg's major resettlement and agro-industrial development scheme of the 1980s; the EPRDF's "sweet vision" (Kamski, 2016) of large sugar estates and an industrial *growth corridor* in the Beles Basin; as well as the creation of TaSBO and BeSBO as new bureaucratic organisations. Each of these interventions implied a different geographical delineation of the notion of 'Tana-Beles'; institutional 'arena-shifting' even resulted in the undoing the originally imagined, sutured space by its emblematic division into

'Tana' and 'Beles' as two separate entities. Rather than being disconnected, freestanding, singular, or spontaneous undertakings, however, the respective Tana-Beles projects were components of comprehensive 'master plans', which existed long before they were launched.

Another emphasis of mine was the importance of external agencies, including foreign bureaucracies, international engineers, scientists, consultants, corporations, and development agencies within the assemblage. These both imported their own ideas and interests, and supported successive Ethiopian governments – implicitly and explicitly – in producing the new hierarchical structures, boundaries, and orders mentioned above. The structure of the Ethiopian state has not only, historically and to the present day, been characterised by a high degree of centralisation (Clapham, 2018), but also by internal centrifugalism of forces challenging central power brokers. In addition to this, the contentious positioning of Tana-Beles in the Blue Nile Basin is both a *result* of colonial hydro-political calculus and a complicating factor in the contemporary trans-boundary power struggles over the use of the Nile waters in light of the 21st-century Ethiopian hydro-developmentalism.

In the next sections, I discuss, on the one hand, tactics which Ethiopian governments and foreign project partners jointly employed to de-politicise their hydro-developmentalism with regard to Tana-Beles; on the other, a selection of political impacts which emerged from the persistent commitment to and implementation of extensive and incisive hydro-infrastructures in territorial peripheries, under the monopoly of powerful central elites.

De-politicising hydro-developmentalism

○ *The production of space*

"Space", writes Lefebvre (1991: 191), is "always, and simultaneously, both a *field of action* […] and a *basis of action* [original emphasis]" It is "at once result and cause, product and producer" (*ibid*.: 142). At the same time, the core focus of Lefebvre's work is the *social construction* of space, which can result in a "master's project" (*ibid*: 165) – a political expression of domination. My thesis has shown how the respacing of natural river-basins resulted in the construction of 'Tana-Beles', as well as 'Tana' and 'Beles', as waterscapes for hydro-developmentalist interventions. Since the late 19th century, hydrologists identified and delineated river-basins as appropriate units for the planning, development and management of water resources (Barrow, 1998; Molle, 2006, 2009). In Chapter Three, I displayed one of the first 20th-century cartographic depictions of Tana-Beles on a map published in the USBR

(1964) report on the *Land and Water Resources of the Blue Nile Basin.* Following Bassett (1994: 316), these "mapmakers […] promote[d], assist[ed] and legitimate[d] the extension of power" through both the concretisation and abstraction of political geographies. Meanwhile, the authors of the USBR (1964: 17) report described the Blue Nile Basin as a "geologist's paradise". The possibility to 'scientise' and 'naturalise' river-basins, seems to withdraw the question of their spatiality from the political realm. Especially my interlocutors at the MoWIE, the basin-level organisations, and the regional bureaux expressed their conviction about the scientific nature of river-basins, and frequently invoked the need to 'manage' them 'comprehensively'. This is regardless of the fact, that each of these different bureaucratic agencies has a different vantage point, according to which spatiality can be scaled up or down, based on political delineations. From the federal perspective, for example, the Blue Nile Basin is both a domestic and an international river-basin. The ABA considers it as an Ethiopian catchment with sixteen smaller sub-basins. The Amhara regional Bureau of Water envisions hydropower and irrigation development on trans-boundary rivers but only within its own administrative jurisdiction, whereas the Amhara Bureau of Agriculture concentrates on micro-watersheds at the community level. The different spatial meanings of 'Tana-Beles', which I mentioned in the previous section, underscore the flexibility of *space* as a concept. The 'scientisation' or 'naturalisation' of space is an effective form of de-politicisation. However, the idea of Tana-*hyphen*-Beles connotes politically with the tunnel tapping the source of the Blue Nile. The 'institutionalised', 'professionalised' (Escobar, 1999) and technocratic authority of the World Bank thus served as a useful 'apolitical' umbrella under which the EPRDF's Tana-Beles growth corridor objective was accommodated in the context of the TBIWRDP. In this vein, the undoing of 'Tana-Beles' and the reproduction of two naturalised watersheds was a purposeful act of *design.*

Space can also be produced in an institutional sense. Flinders and Buller (2006: 296) define de-politicisation as "arena-shifting". They (*ibid.*: 295) quote Burnham (2001: 128) to describe it as "the process of placing at one remove the political character of decision-making". This involves the creation of new agencies, bureaucracies, governing boards, or authorities, which "enjoy […] managerial and specialist freedom [but only] within the broad framework set by ministers" (Flinders & Buller, 2006: 298). There are many examples of such "arena-shifting" throughout my thesis. The most obvious ones are the EPRDF's decentralisation policies, its instrumentalisation of IWRM, among others, to introduce river-basin 'High Councils' and 'Authorities', and – in collaboration with the World Bank – the formation of sub-basin

organisations, TaSBO and BeSBO, nested in the Abbay Basin Authority. Borrowing from Huxley (1932), I call this densification of bureaucracies "over-organisation". The same phenomenon, however, manifested itself already in imperial Ethiopia when in 1962 the first national river-basin organisation was established to plan the management and development of the Awash Valley – a hydro-politically non-contentious space, because "it starts and ends within the Empire" (Anteneh & Yemanu, 1970). At the same time, the United States Bureau of Reclamation supported the education and training of Ethiopia's evolving imperial *hydrocracy*, and new water-related 'Departments' and 'Commissions' emerged. This process only intensified in socialist Ethiopia under Mengistu Hailemariam, to then be dissolved under the EPRDF. The administration under Meles Zenawi frequently changed the shape of its hydrocratic institutions and specialised bureaucracies for many years, until in 2008 a federal decree announced RBOs as appropriate water governance arenas. However, my research has shown that, as of 2019, the link between MoWIE and the basin-level organisations was weak. The federal government still takes and implements important hydro-developmentalist decisions on international river-basins at its own discretion, and IWRM is so ubiquitous and at the same time so vaguely defined that it is difficult to see the forest for the trees in the current institutional landscape.

- *The invocation of urgency*

Fantini and Puddu (2016) employ Agamben's "state of exception" as a term to explain the joint invocation of emergency by successive Ethiopian governments and donors in order to justify the legally questionable implementation of development projects in authoritarian settings. This notion is highly relevant in the context of Tana-Beles. The most striking example is the mid-1980s famine. A Derg official deplored "human beings falling like flies from famine [in Ethiopia]" (Ayele, 1986, quoted by Erlich, 2002: 174). Within a short time, the communist government became the recipient of Italian financial and technical support to implement the first Tana-Beles Project. The famine gave the Italian Minister of Foreign Affairs a philanthropic reason to commission the globally aspiring construction giant Salini Costruttori/Impregilo with the "pharaonic" project (Giordana, 2006), and strengthened the latter's business foothold in Ethiopia. Before this, Emperor Haile Selassie (quoted in Arsano, 2007: 101) had already described it as a "problem of first order that the waters of the Nile be made to serve the life and the needs of our beloved people". To Prime Minister Meles Zenawi (2011), 'poverty' was the "deadliest killer diseases of all", whilst he portrayed

"environmental extremists" in opposition against hydro-developmentalism as "enemies" who wanted to "condemn […] millions of Africans to poverty." Large hydro-infrastructures, generating high-voltage electricity and irrigating – in many cases – non-edible export crops, constituted one of Meles Zenawi's responses to poverty. The de-politicising discourses were intended as thought-terminating clichés to justify any major hydro-developmentalist intervention and to produce blind faith in the governments' benign intentions for public welfare.

In my interviews and many project-related documents I also discerned a sense of *urgency* based on the notions of 'fertile', 'vacant', 'virgin' land; 'unexploited potential', 'abundant resources', 'abundant rainfall', or the claim that "[w]ell-planned interventions in the Tana and Beles sub-basins will bring substantial benefits. Inaction, on the other hand, will likely result in significant environmental, social, and economic costs" (World Bank, 2008: 2). These portrayals, which foreign project partners strongly endorsed, ignore both the existence of non-sedentary population groups and the negative impacts of issues, such as extensive deforestation, ensuing erosion, soil degradation, and climate change in the Beles Valley (Interview VV, 03/2019).

- *Silencing ruins of the past and present*

Not only *space*, but also *history* is subject to social construction. In *Silencing the Past*, Trouillot (1995) argues, "history is written by victors", and "bundles of silences" are part of historical narratives. This thesis has provided evidence of the historical sources of the 'Tana-Beles' idea, and – among others – the material ruins of the TBP, which I captured in photographs. Regardless of whether it was the imperial, socialist, or federalist Ethiopian government, each purported to propose Tana-Beles on a 'clean slate'. Soon after the Beles MPP was completed, the EPRDF popularised the idea of 'renaissance', not of redress. Complicit in the silence, Salini Impregilo (2016a) published a book in which the TBP (1986-1991) and the Beles MPP (2005-2010) seemed to have merged into one large, un-interrupted 'complex' and 'dangerous', but 'successful', undertaking. Haile Selassie was silent about the colonial British plans, Mengistu Hailemariam about the imperial ones, and Meles Zenawi about the EPRDF's participation in the ruination of the TBP. The silencing of pre-existing archives led to the production of ever more hydro-developmentalist studies, reports, designs and proposals, the demand and supply of which still fuels an avid scientific and engineering-centred consulting industry since the 20th century. Many of these various documents are

retrievable at the MoWIE library. Meanwhile, *silencing* was not only a phenomenon reserved to events of the past. The EPRDF government equally occluded evolving ruination during its present day, such as negative impacts of the Beles MPP and the dysfunctional Tana-Beles sugar factory, which I address further below. Strategic *silencing*, as well as the *politics of perception* through the production of space and through promises of development without addressing the paradoxes of integrative mega-infrastructures and their discriminatory impacts, are thus parallel processes of de-politicisation.

Political impacts of the possibility and practice to create and reshape waterscapes

○ *The production of spatial inequities*

Practical hydro-developmentalism implies a re-ordering of space. During my fieldwork, I discovered various examples of the spatial inequities which this produces. I list some of these here. The first is related to distribution, inclusion, and exclusion near the Tana-Beles hydro-infrastructure. Big pylons connect the underground power plant of the Beles MPP with the national grid. Local villages remained in darkness until groups within the populations raised complaints. I visited the Beles MPP during the dry season, and many rivers along the more than twenty kilometre distance between the tunnel inlet and its outlet were desiccated. Meanwhile, the tunnel underneath the parched landscape transported voluminous amounts of water into the Beles Valley. There, local populations had formerly been able to cross the Beles River at certain times of the year. Now, the powerful gush of water from the pressure tunnel which taps Lake Tana has created a fixed boundary downstream that is no longer easily traversable. Foot bridges are scarce between the tunnel outlet and the middle Beles Basin, and sometimes between 30 and 55 kilometres apart (Annys *et al.*, 2019: 443). Spontaneous flood waves caused by the operation of the turbines in the underground power station have claimed lives within the riverine communities. The infrastructure has brought literal and figurative power closer to the core; and it has pushed the local settlements in its vicinity further into the developmental periphery.

Salini Impregilo contributed to reinforcing the spatial inequities near the Beles MPP construction site. To operate the construction site, new road networks were built, but only tarmacked at the slopes. Expat workers' camps were organised in a neat design and layout – behind closed gates. So-called 'locals' were accommodated in traditional *tukul* huts within separate camp areas. The discrimination between project staff and local residents was even

more blatant in the context of the TBP. Famine victims and other vulnerable groups of migrants moved into makeshift accommodations in the socialist resettlement villages. Salini staff and other sub-contractors enjoyed a swimming pool, recreational facilities, regularly arriving containers which imported food from Italy – all within the immediate neighbourhood of the resettled populations. Meanwhile, both the TBP and the expansion of industrial irrigation in the Beles Valley have pushed non-urbanised population groups, such as members of the Gumuz people, further into the margins of the land.

- *Material and metaphorical ruins*

Tangible ruins of the 1980s TBP could still be discovered in the Beles Valley during my visit in 2019. Damaged infrastructures and machinery scattered in the landscape, abandoned factories, as well as ruins of former expat accommodations and offices. These ruins do not only symbolically represent the failure of the Derg and the Italian project partners to deliver the promise of emergency relief and development. They also serve as tacit signposts of the succeeding EPRDF government's ignorance to the ruination of this former high profile intervention. That said, a number of structures from the former TBP have been repurposed, some farms are again operational, a large agricultural research centre has remained from socialist times. However, in conversations with local eyewitnesses, who had been part of the TBP, their experience of abrupt abandonment after its destruction, and their unfulfilled hopes and dreams of new socio-economic development initiatives of the TBP's kind, emerged as figurative ruins of the past. Meanwhile, the state's 'sweet' development vision – sugar production under the label of 'Tana-Beles' – had not yet yielded profit between 2010 and 2019, but instead consumed the Beles MPP's water to cultivate sugar canes, which the factory could not process. The hydro-developmentalist engineering of new water availability has paradoxically also created new types of ruins in the Beles Valley.

A sense of metaphorical ruination did also transpire in my conversations with various officials at ABA, TaSBO, the regional bureaux, or the Environmental Protection Authority in Bahir Dar with regard to the TBIWRDP. Not only did my interlocutors have divergent and unfulfilled expectations towards the 'magic formula' of IWRM. They also noted 'missed opportunities' and expressed frustration about the 'premature closure' – like that of the TBP – of the TBIWRDP. Valuable, socio-economically beneficial activities, such as the promotion of micro-watershed management with local communities, were rendered unsustainable due to their early discontinuation. This is despite the fact that this component provided benefits to

local populations and was rated a "regional role model" for the grassroots-based promotion of socio-economic development opportunities[2] (Interview XXI, 09/2018). In addition, the cancellation of salaries paid at World Bank rates resulted in the resignation of trained and knowledgeable staff. Comprehensive project documents and the World Bank's TBIWRDP budget reports which reveal large expenses of time and funds for the promotion of the Tana-Beles growth corridor – until the World Bank dropped the objective – are examples of recent archival 'ruins'.

- *Renaissance*

However, neither the idea of the Tana-Beles growth corridor nor the state's and foreign partners' joint pursuit of hydro-developmentalism are likely to remain 'abandoned ideas' in the foreseeable future. This thesis has shown that old project visions, rather than being permanently ruined, can revive under new names and in modified forms. "Leopards are reluctant to change their spots", writes Adams (1992: 123) about the mindset of (hydro-)developmentalist bureaucrats. Meles Zenawi defined Ethiopia's Renaissance as "the rise of Ethiopia to the height of the ancient civilisation of our forefathers" (Alebachew, 2013). The notion of 'rising up' in order to return to an 'ancient civilisation' is paradoxical. It does not correspond with the image of a locomotive's linear trajectory which I used in the Introduction of this thesis to represent Rostowian modernisation and development. However, the concept of 'renaissance' describes well the non-linearity and non-finality of hydro-developmentalism. This is the case, even though the repeated *recycling*, *reproductions*, and *rearrangements* of the old Tana-Beles ideas, and those of other hydro-infrastructural constructs in Ethiopia, are tacit – or rather, *silenced* – renaissances. They are the underlying structures and fundaments behind the veil of the ubiquitously advertised ones.

7.3 Research contributions to three bodies of literature

In its entirety, this thesis has communicated with three broader strands of literature. Firstly, the thesis can be read as a contribution to the particular field of Ethiopian studies. I have highlighted continuities and ruptures regarding the imaginations of modernity and the

[2] NIRAS Development Consulting (2017) 'Community members report multiple benefits from Tana Beles watershed project in Ethiopia'. Note that the article spells Tana Beles without hyphen. (Accessed 19th April 2019 via https://www.niras.com/development-consulting/stories-from-the-field/tana-beles-watershed-project-in-ethiopia/)

dominant developmental paradigms of three mutually hostile regimes, which were headed respectively by Emperor Haile Selassie I (1930-1974), Colonel Mengistu Hailemariam (1974-1991), and Meles Zenawi (1991 until his death in 2012). Meles Zenawi's visions were perpetuated by his succeeding prime minister, Hailemariam Dessalegn, until the latter's voluntary resignation in 2018 as a result of protracted and violent anti-government protests. My thesis demonstrates the coexistence of centripetal and centrifugal forces of Ethiopia's hydro-developmentalism – following Bach's (2011: 45) claim that elite aspirations of state *centralisation* do not necessarily result in *de facto* state *formation*. Neither is the political 'centre', nor the so-called 'periphery', monolithic, self-contained, or unchangeable. The detailed empirical accounts which I provide in Chapters Three to Six, attest to the multiplicity of approaches used by different Ethiopian governments – with essential support from foreign project partners – to wield power and control peripheral resources and population groups (see also Pausewang *et al.*, 1990; Vaughan & Tronvoll, 2003; Pankhurst & Piguet, 2009). In this way, I contribute to the refinement of dominant readings of Ethiopian state formation in terms of geographical or cultural determinism (e.g. Abbink, 2006; Markakis, 2011).

Context plays an important role in each of my empirical chapters. Throughout this thesis, I have made the case that understanding not only the peculiarities of each of these regimes' politics, which eventually culminated in revolutionary coups d'état – or, after 2018, an as of yet unclear transition – but also the traditional cultivation of singular leaders at the top of the state hierarchy is crucial. In this context, I have explained both the respective administrations' urge to control the vital water, energy, and agricultural infrastructure *and* the inherent vulnerability of the *winner-takes-it-all* political system in the multi-ethnic Ethiopian state whose dominant historical narrative was built on the foundations of Abyssinian imperialism. Thus, I have shown through the lens of hydro-developmentalism that the successive Ethiopian regimes have consistently opted for strategies of centralisation and consolidation of power in the large-scale water management sector. However, this power has been subject to equally consistent contestation by different ideological and ethnic groups, as well as competing internal bureaucracies.

Secondly, the thesis is situated within a recent branch of literature which is concerned with the wide-spread upsurge in the construction of large hydro-infrastructure in the 21st century (Hathaway & Pottinger, 2009; Garandeau *et al.*, 2014; Pearse-Smith, 2014; Brown *et al.*, 2015; Dye 2019). By opting for a longue-durée, rather than an anecdotal examination of

‘Tana-Beles’, my thesis has delivered counter-evidence to the sometimes implied ‘novelty’ of hydro-developmentalist projects, or the misperception, which inadvertently arises from some of the afore-mentioned literature, that the current “hydro-rush” (Hathaway & Pottinger, 2009) is a procreation of contemporary governments. In this vein, my work is aligned with an article by Rusca *et al.* (2018) in which the authors employ the case of the Mozambican “hydraulic mission” to show, among others, that the state’s developmental vision based on hydro-infrastructure originates from a long-term trajectory, beginning in the context of colonialism. At the same time, my thesis has also delivered an alternative to presentist literature which casts the limelight on superlative, iconic dams and their representative function in nationalist ‘identity-building’ projects (Kaika, 2006; Menga, 2016; Mohamud & Verhoeven, 2016). I have demonstrated that ‘Tana-Beles’ – rather than referring to one tangible, visible, material construct in a fixed geographical space – has had flexible meanings across time. The designation of ‘Tana-Beles’ is a container for three rather different projects which I have elucidated within their unique sets of circumstances and both conceptually and geographically remote sites in Chapters Four, Five and Six. Consequently, I have argued that there are limitations to the rigour of ‘iconic dam’ theories as comprehensive explanations for the diverse water management strategies and infrastructural projects which many governments plan and implement at the river-basin level, rather than the level of national and sub-national political constituencies. In this vein, I have proposed that hydro-developmentalism, instead of merely referring to obvious and visible mega-constructs, represents a variety of both ideas and materialities, such as different types of hydro-infrastructures, archives, ruins, and organisational structures. Furthermore, I have emphasised that the materialisation of the physical and institutional water management infrastructure of Tana-Beles was not merely a product of the respective Ethiopian governments’ volition, but also – significantly – of the external, non-Ethiopian involvement in the hydro-developmentalist assemblages. Just as water fulfils multiple existential needs, I argue that the ideology and practice of hydro-developmentalism is generated, reinforced, and kept alive by various powerful interest groups. As much as the case of Tana-Beles has provided evidence of infrastructural ruins, I have also disclosed the external interests and foothold of foreign development agencies and of powerful engineering corporations, especially Salini which now operates under the new name ‘Webuild’, as ‘rust-proof’ elements (Giordana, 2006) of the hydro-developmentalist assemblage.

The third strand of literature to which my thesis has added knowledge is the vast and long-standing body of research dedicated to the theory of hydro-politics (e.g. Elhance, 1999; Zeitoun & Warner, 2006; Cascão & Zeitoun, 2010). I have explained the conception of the original Tana-Beles idea, and its decades-long failure to materialise, against the background of the hydro-political context of the Eastern Nile Basin. Chapter Three has illustrated that the 'Tana-Beles' proposition functioned as an instrument of Britain's diplomatic toolbox, posing a potential threat to Egypt's 'water security', rather than as a firm development intention. Later, exclusive colonial and post-colonial agreements prohibited the upstream obstruction, diversion, or manipulation of the Nile flow. These restrictive hydro-political conventions significantly affected the context of each Tana-Beles project. Furthermore, in Chapter Six, I applied the analysis of hydro-political conflict and cooperation patterns to the domestic level. Upstream-downstream rivalries which prevail between the regional Nile riparians, Egypt, Ethiopia and Sudan, are mirrored by the Ethiopian administrations of the Amhara, (Oromo), and Benishangul-Gumuz regional states which the Blue Nile Basin straddles. These institutional rivalries are complicated by the introduction of specific river- and sub-basin organisations. The very selection of the Tana and Beles sub-basins for the creation of additional water management bureaucracies serves as a further confirmation of the political salience of the Tana-*hyphen*-Beles infrastructure, in spite of its scarce publicity.

7.4 Closing remarks

Hydro-developmentalism, I argue, is an obstinate political reality, the implementation of which can reinforce the centralisation of state power. Meanwhile, a senior Ethiopian expert, whose academic and professional life has been dedicated to social development in the context of water management schemes, told me (Interview LXXIII, 05/2019):

> The need to develop the water resources of Ethiopia is obstinate and real, notwithstanding whether the approach is top-down, elitist or otherwise; notwithstanding the merits or demerits of a particular study or project.

Yet, paradoxically, large-scale hydro-developmentalism is characterised by an endogenous vulnerability, namely, its disregard of one of the core continuities of Ethiopian statehood from imperial times until today: internal fragility. Hydro-developmentalist projects of the state – not to be confused with community-level watershed management projects, as well as small- or medium-sized technological interventions – corroborate structures of vertical

governance and the production of peripheral spaces to be controlled from the political core. This is still the case in a context where the control is nowadays increasingly exercised through the lease of land to private investors. However, the deep frictions, tensions, and centrifugalism between competing political forces, which mobilise, among others, on the basis of ethnic identities and Ethiopia's spatial division into decentralised regional administrations, have erupted increasingly and more violently over the past six years. *Material manifestations*, of hydro-developmentalism, such as infrastructures, but also bureaucracies, and even archived plans and visions, remain continuously vulnerable to escalations of these conflicts, destruction, and ruination. But they are not vulnerable to complete oblivion. The hydro-developmentalist *ideology*, and its practicality for the construction of vertically controlled spaces of governance, has no expiration date in contemporary Ethiopia (as of yet).

Epilogue

I had been encouraged by one of my interlocutors in Addis Ababa to visit the Chara Chara weir which regulates Lake Tana's natural outflow to the Blue Nile. This is situated within Bahir Dar. The Abbay Basin Authority had rendered substantial logistical support to me during my field work; thus, I enquired about the possibility of visiting this nearby site. The first reaction was hesitant, but a few days later, I was kindly provided with an authorisation letter, written in Amharic, a driver, and a TaSBO technical expert to join me. As we approached the site, the expert seemed to feel increasingly uneasy, scanning the environment for the guardians of the infrastructure. We could not immediately discover anyone in the landscape of fields, water, trees, and brushwood. However, it did not take long for an old man, wearing a slightly over-sized red coat and army-style rubber boots to start shouting at us from a distance inquiring about our business. Two young federal defence guards appeared from a nearby hut and tacitly joined the scene. The old man was not impressed by the ABA letter which clearly stated our invitation to look at the weir construction. "This site belongs to the federal government," he yelled. "I am risking my job if I let you enter beyond this line." As much as the TaSBO officer argued and implored, the old man remained adamant. Only after much discussion, he advised: "Go to the regional EEPCo headquarters; with their permission, you may come and see." Although ABA has a legal mandate to administer the Chara Chara weir, the old man only saw himself able to trust EEPCo's authority to grant us access to the site. Ironically, the official at EEPCo, who simply placed a hand-written note, stamp, and signature on the ABA letter, did not consider the issue a big deal by any means at all. However, the extended arm of the federal state had reached down to the level of this individual old man, whether faithful or fearful of repercussions, to wield its power in a decentralised fashion, deciding upon boundaries – and the permission to cross them – even though they only exist in the form of imaginary constructs.

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APPENDIX: LIST OF INTERVIEWS

Code	Description
1. I, 08/2017 **(Skype)**	Senior associate, International Water Management Institute (IWMI), Addis Ababa
2. II, 09/2017	Expert on Ethiopian politics and development, based in the United Kingdom with affiliation to Institute of Ethiopian Studies (IES)
3. III, 10/2017	Ethiopian expert on large hydro-projects in Omo Valley
4. IV, 10/2017	Expert on Ethiopian politics and development, based in Canada with affiliation to Awash University
5. V, 10/2017	Senior director of Institute of Ethiopian Studies (IES)
6. VI, 10/2017	Representative of foreign political foundation and expert on Ethiopian decentralisation politics
7. VII, 10/2017	Senior researcher, international expert on Ethiopian political geography, decentralisation
8. VIII, 10/2017	Political advisor, German Embassy to Ethiopia
9. IX, 11/2017	Director of Centre for Cooperation, Research and Dialogue, Ethiopia
10. X, 11/2017	Senior manager at major international construction company, based in Addis Ababa, operating throughout Ethiopia
11. XI, 12/2017	Principal Researcher and expert on eco-hydrology; Consultative Group for International Agricultural Research (CGIAR); International Centre for Tropical Agriculture (CIAT)
12. XII, 12/2017	Former Ethiopian diplomat, current advisor to major international construction company
13. XIII, 01/2018	Senior Management staff at Eastern Nile Technical Regional Office (ENTRO) under the umbrella of Nile Basin Initiative (NBI); former government official

14. XIV, 01/2018 **(Skype)**	Italian agronomist employed as a sub-contractor to Salini during 1980s TBP
15. XV, 02/2018	Political scientist, water governance specialist, Addis Ababa University (AAU)
16. XVI, 02/2018	Employee of Addis Ababa-based Varnero Construction company, working as a Salini sub-contractor during 1980s TBP
17. XVII, 05/2018	Senior official at Ministry of Water, Irrigation, and Electricity (MoWIE)
18. XVIII, 08/2018	Former senior government official, and former senior management staff at ENTRO; now private consultant on water management issues
19. XIX, 08/2018	Senior management staff at Eastern Nile Technical Regional Office (ENTRO)
BAHIR DAR	
20. XX, 09/2018	Senior management staff of Tana Sub-Basin Organisation (TaSBO), ABA Offices, Bahir Dar
21. XXI, 09/2018	Project Coordinator, former Tana-Beles Watershed Management Project, Amhara Regional Bureau of Agriculture and Rural Development (BoARD), Bahir Dar
22. XXII, 09/2018	Deputy head of Amhara Regional Bureau of Water, Irrigation, and Energy Development (BoWIED), Bahir Dar
23. XXIII, 09/2018	Senior management staff of Abbay Basin Authority (ABA), Bahir Dar
24. XXIV, 09/2018	Civil servant, Amhara Regional State Environmental Protection, Land Administration and Use Authority (EPLAUA), Bahir Dar; accountable to BoARD
25. XXV, 09/2018	Ethiopian project manager at German environmental organisation (NABU) in Bahir Dar
26. XXVI, 09/2018	Water resource specialist, previously employed in TBIWRDP, Bahir Dar
27. XXVII, 09/2018	Associate researcher at Abbay Basin Authority (ABA),

	Bahir Dar; PhD Candidate Wageningen University
28. XXVIII, 09/2018	Assistant Professor at Bahir Dar University; Civil and Water Resource Engineering; Blue Nile Water Institute
29. XXIX, 09/2018	Project manager at Abbay Basin Authority (ABA)
30. XXX, 09/2018	Senior technical attendant of Chara Chara weir, Bahir Dar
31. XXXI, 09/2018	Two members of federal defence force guarding Chara Chara weir, Bahir Dar
32. XXXII, 09/2018	*Incidental conversations with local residents near Lake Tana and Blue Nile outflow, Bahir Dar*
33. XXXIII, 11/2018	Senior Researcher, International Water Management Institute (IWMI), Addis Ababa
34. XXXIV, 11/2018	External associate and Strategic Programme Leader, International Water Management Institute (IWMI), Addis Ababa
35. XXXV, 11/2018	Administrative staff, World Bank, involved in TBIWRDP, based in Addis Ababa
36. XXXVI, 11/2018	Focal person for TBIWRDP at Ministry of Water, Irrigation, and Electricity (MoWIE)
37. XXXVII, 11/2018	An Italian sub-contractor to Salini during the 1980s
38. XXXVIII, 12/2018	Legal Expert on Water Policies in Ethiopia, Advisor to UN Human Rights Council, Director of Multi-Talent Consulting Plc
39. XXXIX, 12/2018	An Italian engineer involved in implementation of 1980s TBP
40. XL, 01/2019	*Group discussion with five Italian sub-contractors of Salini involved in 1980s TBP*
41. XLI, 01/2019	An Italian sub-contractor of Salini involved in 1980s TBP
BELES VALLEY	
42. XLII, 03/2019	*Conversations with groups of local residents in Gilgel Beles*
43. XLIII, 03/2019	Female 1980s resettler from Wollo, involved in TBP, Gilgel Beles

44. XLIV, 03/2019	Female 1980s resettler from Wollo, involved in TBP, Gilgel Beles
45. XLV, 03/2019	Male 1980s resettler, village elder, peasant involved in TBP, near Worq Meda
46. XLVI, 03/2019	Police officer, recent migrant to Jawi area
47. XLVII, 03/2019	*Conversations with several groups of local residents in Jawi, Worq Meda*
48. XLVIII, 03/2019	Head of Wobo Maryam School near Worq Meda, involved in 1980s TBP as a child
49. XLIX, 03/2019	*Conversations with guards of Ali Spring dam near Jawi and group of young men spending time there*
50. L, 03/2019	*Conversation with four employees of Tana-Beles Integrated Sugar Development Project, Jawi*
51. LI, 03/2019	Male 1980s resettler involved in TBP, Pawe Hospital
52. LII, 03/2019	Male 1980s resettler involved in TBP, Pawe Hospital
53. LIII, 03/2019	*Conversation with members of Gumuz population, at Pawe Diga, dam constructed by Salini in 1990*
54. LIV, 03/2019	*Conversations with various groups of local residents, Pawe*
55. LV, 03/2019	Senior management staff of Pawe Agricultural Research Centre, Ethiopian Institute of Agricultural Research (EIAR), Pawe
56. LVI, 03/2019	Manager of goat farm established during 1980s TBP, Pawe
57. LVII, 03/2019	*Conversations with various local residents, Almu Town*
58. LVIII, 03/2019	Staff member at Tana-Beles Girls' Boarding School, at the former site of 'Mini Roma'
59. LIX, 03/2019	Young adult, second generation TBP resettler, Almu Town
60. LX, 03/2019	Manager of chicken farm established during 1980s TBP, Almu Town
61. LXI, 03/2019	Senior manager of Pawe *Haya-and kebele* warehouse, established during 1980s TBP and presently under Ethiopian Commodity Exchange (*ye Ethiopia mirt gebeya derejet*)

KUNZILA	
62. LXII, 03/2019	*Conversations with local residents near Kunzila*
63. LXIII, 03/2019	Civil servant, Ethiopian Electric Power Corporation (EEPCo), Kunzila
64. LXIV, 03/2019	Senior EEPCo engineer guiding us through the three components of the Tana-Beles hydro-infrastructure (tunnel outlet, underground power station, water inlet)
65. LXV, 03/2019	Federal defence guards at Tana-Beles tunnel outlet
66. LXVI, 03/2019	Engineers employed by EEPCo in underground power house of Tana-Beles hydroelectric power plant
67. LXVII, 03/2019	Federal defence guards at Tana-Beles water-transfer inlet structure
68. LXVIII, 03/2019	Senior management staff of Abbay Basin Authority (ABA), Bahir Dar
69. LXIX, 03/2019	Laboratory manager at Abbay Basin Authority (ABA), Bahir Dar
70. LXX, 03/2019	Project manager at Abbay Basin Authority (ABA), Bahir Dar
71. LXXI, 04/2019	Government official, Ministry of Water, Irrigation, and Electricity (MoWIE)
72. LXXII, 05/2019	Researcher, Addis Ababa University, Land and Water Resource Centre
73. LXXIII, 05/2019	Senior management staff Nile Basin Initiative (NBI)