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Understanding Agricultural Transitions and Sustainability: A Study of Farmers’ Perspectives in Rural North-West India

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Abstract

Agricultural transitions in Haryana are happening in response to growing socio-economic and environmental concerns because of industrial farming methods. In practical responses, these transitions include innovations in organic and sustainable farming practices, the revival of indigenous knowledge systems, experiments with information and communication technologies, genetically modified techniques, and alternative cropping technologies. Most existing studies of agricultural transitions in India provide a macro-level analysis, overlooking the farm-level decision-making processes of change. Also, the costs and benefits associated with changes in agricultural approaches are, for the most part, distributed unequally among various actors. Inequalities based on gender, class and social agrarian structure are often reinforced due to disproportionate access to land, natural resources, and technologies. While existing studies take into consideration the ecological aspect of transition outcomes limited attention has been given to how sustainable transitions in agricultural practices impinge on social outcomes such as existing or resurfacing social inequalities, gendered power structures and rural migration in India.

In this thesis, I investigate farmers’ perspectives and experiences of moving towards alternative approaches to agriculture in Haryana villages. During eleven months of fieldwork, including interruptions due to Covid-19 and farmers’ protests at the Delhi-Haryana border, I used qualitative research approaches, such as interviews, participant observation and small group discussions. My research reveals four emerging alternatives by a diverse group of farmers: i) crop diversification methods (by large-scale polyhouse farmers); ii) natural farming methods (including both large-scale and small farmers); iii) farmers’ cooperatives (particularly small and marginal farmers); and iv) organic farming methods (by new farmers or reverse migrants).

Using a multifunctional agriculture framework to formulate these farm typologies, I argue that, firstly, studying farmers’ perspectives and their specific attributes of farms and farming practices is necessary to conceptualise agricultural transitions in diverse socio-cultural contexts in India. Secondly, diverse visions of sustainability must be studied while examining alternative agricultural methods in rural India. By studying farmers’ perspectives at the household and community levels, the thesis contributes to the existing gap in the research literature on understanding the social implications of transitions. Although, restrictions posed due to Covid-19 pandemic caused severe limitations on the data collection process that impacted the course of my fieldwork, I tried to make additional efforts to connect with my respondents, be more self-reflexive and adjust according to the circumstances. Finally, this thesis proposes further research at the grassroots level to identify peoples’ approaches at the farm-level and to develop an approach that studies farmers’ experiences in agricultural transition in the diverse rural settings of the country.
Lay summary

This thesis reports on eleven months of research (from September 2020- July 2021) amongst farmers in Haryana villages in the northwest part of the country. Drawing primarily on qualitative research methods, such as interviews, small group discussions and participant observation, my research focussed on the changing character of farming in Haryana, specifically the transition to diverse agricultural approaches in farming practices. The overarching aims of my study were three-fold: first, to examine the evolving conditions that shape farming practices in Haryana; second, to explore the everyday opportunities and challenges posed by transitions to alternative farming practices; and third, to examine the social implications of these transitions at the household and community levels.

Most transitions to alternative agricultural approaches in India are proposed in response to the growing socio-ecological concerns because of the Green Revolution (GR) technologies and policies. However, it is worth noting that not all responses to intensive agriculture are claimed to be sustainable at any given time. Globally, two alternative approaches to intensive agriculture emerged during the late twentieth century and tried to address the question: Why and how do people change the way they practice agriculture? Scholars arguing for ‘ecological modernisation’ believed in using sustainable technologies in modernising agriculture rather than a complete rejection of industrial forms of agriculture scholars. To them, this could be done by exploring the relationship between farmers’ attitudes to sustainable agricultural practices and investigating the potential diffusion of knowledge between various stakeholders. On the other hand, scholars proposing ‘agroecological approaches’ believed in maintaining food production without degradation of resources in the long run by using local resources and knowledge, low-input technologies, maximising recycling, diversifying production, and enhancing biological pest control. There was also an increasing realisation that many new forms of farming models were necessary with changing times, and these must be ecologically sustainable, diverse, local, and socially just. Most proponents of agricultural transitions in India focus on ecological sustainability that emphasises the regeneration of degraded agricultural land and natural resources depending on the local farming conditions. However, studies have produced limited knowledge about different aspects of agricultural transitions at the regional and farm-level, especially encompassing the social outcomes of transitions and decision-making processes of change. By incorporating farm-level perspectives on social processes and outcomes of transitions, my research helps mitigate the existing dearth of literature in this area.

Moreover, agricultural transitions are processes where most farmers are at different stages, making it difficult to study diverse farming practices and the social implications of transitions at the macro or village level. This demands a study at the household or community level that can understand nuances at a micro level to analyse different farming practices, management strategies, and emerging meanings of sustainability. In this research, I examine farmers’ perspectives and their ‘diverse pathways to transition’ to understand the variety of knowledge-intensive farming systems and practices that have emerged from agricultural transition processes. To do so, I attempt to build on the multifunctional agriculture (MFA) framework and an actor-oriented approach to study agricultural transitions, transitioning processes, and their outcomes in different geographical, social, economic, and cultural contexts. My research reveals that different farmers follow diverse farming practices and management strategies at the farm-level. These farming practices range from
using chemical inputs in polyhouse farming to a strict organic farming method following a complete ban on chemical inputs. The marketing strategies range from short-distance sales of produce or growing for self-consumption to marketing at wholesale and high-end supermarkets with the transition to food-processing industries within villages. Studying these diverse pathways to transition helps conceptualise agricultural transitions as a range of dynamic practices and processes of change in a given socio-economic context.

Finally, to examine the social implications of these transitions, I analyse farmers’ perspectives on why and how they transition to diverse agricultural approaches in the villages. On the question of why some farmers adopted alternative farming methods, this study focused on the motivation and experiences of farmers who have shifted from a conventional mode of farming to other practices. Specifically, my research reveals that the main reason farmers change their whole farming style starts with their concerns about health and the environment and goes further once economic, social network and informational gaps are being dealt with. Within these themes, I also analyse why different farmers perceive these factors as an opportunity or a challenge in transition. For instance, in terms of market and economic prospects, some farmers perceived the economic incentives of selling organic food to high-end supermarkets as a motivation factor to adopt organic farming practices. Yet, some others felt marketing challenges such as lack of social network, separate organic market, low premium, and interference of middlemen as demotivating factors in transition. Finally, my research examined two other challenges -- agronomic & and informational gaps and negative pressure from friends and family -- and discussed how these factors led to some thwarted transitions.

Furthermore, on the question of how different farmers transition to diverse farming methods, my research reveals that, though most farmers decided to transition at an individual level, others preferred to do group farming through cooperatives and found it much easier to do 'farming in unity'. Many other factors, such as existing economic resources, social network, and their social and gender position within a rural community, had an impact on who was able to transition more smoothly than others. Yet, these transitions were not limited to any particular socio-economic group of farmers. Caste, class, gender, and age groups emerged as important categories to examine who adopts what kind of farming practices and how they define their own visions of sustainability. For example, I explored the category of new farmers or reverse migrants who had returned to their villages to find career prospects in sustainable farming. These farmers claimed themselves to be organic farmers and defined sustainable agriculture not just through ecological practices to rejuvenate degrading land and soil fertility but also to create equal opportunities for other farmers to learn and adopt these practices. They asserted that sustainable farming might be an individual farmer's struggle, but a collective effort was required to bring a substantive change in society and among the rural farming communities. Finally, by focussing on different forms of farming methods emerging across diverse groups of farmers, I argue that farmers’ specific attributes to farms and farming practices are important for understanding the complexity of agricultural transitions in the given socio-economic context.

Overall, the thesis argued that although diverse farming practices were adopted to transition to alternative agriculture, their pathways to transition differ in terms of the strategies adopted and the socio-ecological outcomes they generate for different groups of farmers. Studying these models by recognising different pathways to transition is important in developing an alternative framework to understand sustainable transitions that acknowledge place-based differences and knowledge of
farming practices that are crucial at a given time and may be suitable in the current socio-economic context in India.
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Lastly, I bear all the responsibilities for the shortcomings of this work.
Abbreviations and Glossary

CAA = Citizenship Amendment Act
e-NAM = National Agricultural Market
FAO = Food and Agriculture Organisation
FPO = Farmers Producer Organisation
GR = Green Revolution
HYV = High Yield Variety
IARI = Indian Agricultural Research Institute
IFOAM = International Federation of Organic Agriculture Movements
KWC = Kisan Welfare Club
MFA = Multifunctional Agriculture
MSP = Minimum Support Price
NMSA = National Mission for Sustainable Agriculture
PKVY = Paramparagat Krishi Vikas Yojana
PO = Participant Observation
ZBNF = Zero Budget Natural Farming

Anaj mandis = seed markets
Andaar se khali = empty from inside
Anna-daata = food giver
Araam ki zindagi = comfortable or peaceful life
Auratoon ke kaam = women’s work
Bahar ke kaam = outside work
Bataai = short-term lease
Bewakuf ladki = stupid girl
Bitora = a structure for storing dry dung cakes
Charpai = wooden headstead
Chaufals = public spaces
Desi = local
Gher ke kaam = domestic work
Gobar ka kaam = dung work
Ichcha = interest
Jaivik kisaan = organic farmer
Jaivik sabziya = organic vegetables
Jaivik = organic
Jeevik taatva = living being
Jokhim = risk
Kheechua = earthworms
Kirane = grocery or convenience shop
Majboori = necessity or compulsion
Mandis = markets
Mangal sutra = necklace with black beads worn by a married woman
Nanga = naked
Naukars = Servants
Pagal aadmi = mad man
Paramparagat kheti = traditional farming
Pawal = paddy hay
Praakrtik kheti = natural farming
Rasaynik kheti = chemical farming
Sanadharniye = sustainable
Tikao = sustainable
Upla = dung cakes
Vishaakt = toxic
Zameen ki aant = intestine of the earth
Zeher = poison
Zehr-mukt kheti = poison-free farming
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Chapter 1: Introduction

With a bag containing spicy snacks, a water bottle, at least two face masks, and a small hand sanitiser, I was on my way to the first field site in a village in Haryana during the fall of 2020. After spending a couple of months in the lockdown, reading about these villages from a small hostel room, I was waiting to feel the greatness of the land used for agriculture and the serenity of the landscape, a scene that continued until infinity. As I made my way to a small settlement in the Rai Block of Sonipat district, full of lush green trees and recently planted Kharif crops, I reminisced about riding a bicycle on similar roads as a child while visiting my grandparents’ home. I would gaze at the insightful view of farmers working hard with their wide variety of remarkable tools on farms, driving tractors and sometimes bullock carts, a glimpse of women milking their cattle, small kirane (grocery) shops and elders sitting on a charpai (wooden bedstead) under a tree or chaupal (public spaces) enjoying hookah and discussing local politics. Little had I then imagined that I would revisit these village settings as a researcher and would speak to the people in these locations about agricultural practices and farming culture in Haryana.

Being someone from a similar background, speaking Haryanvi and having some understanding of the changing agriculture in these villages, I felt quite confident about my course of fieldwork regarding the travel plans, the general outlook of the villagers and their possible response to my initial questions. I had also read a lot about the changes that happened before and after the Green Revolution, the possible viewpoints of farmers, and the agricultural sector in general. However, during my initial few interactions with some farmers in the Sonipat district, I got a reality check of how things might turn out differently. For instance, while I knew about the current challenges and a general disenchantment with the agriculture sector growing among some farmers, the challenges and frustration were much deeper than I could have read or imagined. These farmers talked about their frustrations in statements like: “aaj kal kisaan shram nahi kerna chahte, isliye rasaynik kheti se khush hai” (“These days farmers do not want to work hard and, therefore, prefer to do chemical farming”); “kheti mei kuch nahi rakha hai” (“Nothing is left in agriculture”); “hum to kuch nahi ker sake lekin humare bache kheti chordker aage bharna chahte hai” (“We are stuck in agriculture but our children want to leave farming and do something else to progress in life”) (Fieldnotes, 29-10-2020). What was reflexive in these statements was their infuriation with farming as ‘uneconomical, low and downgraded occupation’, something these farmers themselves would not want to identify with.

For quite some time, I felt disheartened to imagine that this may be the common understanding about farming and agriculture in the villages until I met some farmers who had some different opinions. These farmers were spread across villages in Haryana, experimenting with diverse farming techniques and adopting alternative methods in agriculture. When I interviewed them and visited their fields, they spoke highly of farming in general and the agriculture sector in particular. Most farmers talked about their current farming practices in two terms: rasaynik kheti (chemical farming) and jaivik kheti (organic farming). Farmers using chemicals or industrial farming practices were generally referred to as rasaynik kisaan (chemical farmers), while farmers following sustainable agricultural practices claimed themselves as ‘jaivik kissan’ (organic farmers). However, differences emerged when they defined sustainability or sustainable agriculture.
While defining sustainable agriculture, most farmers used the terms ‘jaivik’ (organic) and ‘prakrtik’ (natural) interchangeably, yet some of them were able to differentiate between natural and organic farming methods in terms of non-chemically grown food. For instance, one farmer said:

Natural farming is meant to utilise naturally and locally available resources for crop production. I use cow dung, urine, green manure, buttermilk, jaggery and other wastages for making compost and do not use any chemical inputs (38, M, 26-01-2021, DC, Village Nr).

Another farmer described his agricultural practices as follows:

Natural farming involves natural inputs, however, organic farming means using these inputs in a fixed and timely manner without adding chemicals. I follow natural farming as it is easy for me instead of following strict rules and regulations in organic farming methods (45, M, 03-03-2021, DC, Village N).

Although both farmers said they used natural farming methods, they introduced themselves to me as ‘jaivik kisaan’ (organic farmers), as this was the common parlance in the villages. Nevertheless, some farmers who used chemical inputs still claimed to contribute to sustainable agriculture by adopting crop diversification as a sustainable measure that helped them improve their land and soil conditions. Thus, sustainable agriculture was not strictly defined by the use of natural, organic, or non-chemical farming methods by these farmers.

Deeper conversations with these farmers also made me realise that they not only looked for alternatives in agriculture to survive economically but, in the process, also tried to reclaim their identity as a farmer and a provider of quality food to their families as well as the public. Most of them talked about the benefits of alternative approaches in agriculture in terms of: ‘progress of the village as a whole’, ‘development of ecological landscape in the village’, ‘improving rural incomes’ and ‘making quality food accessible across farming community’. These farmers emphasised adopting sustainable agriculture not only to improve the quality of food production and ecological conditions of the villages but also for the socio-economic advancement of the rural community. Thus, the component of social, economic, and ecological sustainability was highlighted by these farmers across diverse class, caste, age, and gender groups. They claimed that after adopting non-chemical farming practices, they realised their duty as a farmer who was supposed to produce ‘healthy food’ and promote ‘rural sustainability’ and thereby identified themselves as ‘better’ or ‘good’ farmers in comparison to those who were still involved in conventional farming practices. In my empirical chapters, I elaborate on these farmers and their farming practices, how and why they transitioned, and the diverse meanings of sustainability that emerged with agricultural transitions.

It should be noted that, for the purpose of this thesis, I initially decided to use the term ‘agroecological’ transition to examine agricultural transitions and sustainability undertaken by farmers in these villages. However, during the course of my fieldwork, I realised that these farmers may not be following strict principles of agroecology and so the association of this term with their farming practices may not be appropriate. There was also a realisation that these farmers had their own choice of words, undertook individual routes to transition and defined their meanings of
sustainability, which emerged with agricultural transitions. Therefore, throughout this thesis, I use the term ‘alternative’ instead of ‘agroecological’ or ‘sustainable’ agriculture to show the diverse meanings and understanding of transition and sustainability that gradually emerged. The use of this term is based on the idea that alternative agriculture gathers a lot of different systems (such as sustainable, organic, agroforestry, integrated, pluriactive, permanent agriculture, etc.) and does not fixate on any particular farming system or practices. However, my aim is to explore the term using farmers’ perspectives and experiences of moving towards alternative approaches to agriculture in a given socio-economic and cultural context.

In a nutshell, this thesis draws from findings collected over eleven months of fieldwork in the villages in Haryana, a place where some farmers benefitted the most from the Green Revolution policies and technologies but also faced huge environmental and socio-economic challenges caused due to the industrial form of agriculture (see Chapters 2 and 4 for an explanation on the research context). The study explores: a) how and why do different farmers transition from conventional (or industrial) farming to alternative practices in agriculture? b) the everyday opportunities and challenges in transitioning to alternative agricultural methods and their implications on the rural farming community; and c) the social outcomes of transition across different groups (gender, caste, age, and class) of farmers in the villages.

This chapter is organised as follows: In section 1.1, I justify the significance of studying agricultural transitions in India. In section 1.2, I introduce the research questions which guide this thesis and finally, in section 1.3, I provide a thesis outline and structure. Chapters 2 and 4 incorporate a more detailed discussion of the debates that I introduce in this chapter. This chapter is only intended to provide a brief insight into the objectives of this study.

**1.1 Adoption of conventional (intensive) agricultural practices in India**

The term ‘conventional agriculture’ has come into relatively common use with other terms like ‘intensive agriculture’, ‘industrial agriculture’ or ‘mercantile-industrial agriculture’ (Friedmann, 2017, p. 1213) and will be used here to refer to the industrialisation of food and farming system under state protection and regulations, majorly adopted in India from the US and European countries. Introduced between 1947-1973, the goal of policy makers and scientists for initiating conventional agriculture was to increase the yields of grain and livestock products with the use of highly mechanised equipment such as tractors and irrigation pump-sets, chemical fertilisers, pesticides, antibiotics, the introduction of genetically modified crops and replacing small, diverse farms producing a variety of crops and livestock to monocultures dominated by big multinational corporations (Knorr and Watkins, 1984; Friedmann, 2017).

In general, the supporters of conventional agriculture mostly believed in the centralisation of resources. This includes national and international production of food, concentrated processing and marketing mechanism, and fewer farmers with dominant control over land, resources and capital. Butz (1973a) and Heady (1976) argue that the shift of food processing and distribution system from high-level direct marketing to a sophisticated processing and market structure both at home (US and UK where it first began) and abroad have contributed majorly to cheap and abundant food. They advocate decreasing the number of farms and farmers so that individual farm size could
increase, which increases the “chance to grow into an economic unit that keeps up with the times” (Butz, 1971b, p.5). The push towards an increasing farm size is coupled with the development of highly mechanised farm machinery to promote higher productivity (Drache, 1978). The highly specialised farm and equipment depend heavily on energy inputs and services which are provided by agribusiness sources. Many writers on conventional agriculture advocate extensive use of credit to enable farmers to purchase large machinery and inputs. McMillen (1981) and Butz (1972a) highlighted the farmer-agribusiness relationship as an essential element of an industrial form of farming with continuous financial support to keep farmers motivated in mechanised farming to produce more. They acknowledge the intense competition in agriculture as having a positive impact on society as a whole. Overall, the promoters of this farming practice claim that only by fully utilising the available resources with the most sophisticated technologies, the growing need for food production can be met (Beus & Dunlap, 1990).

However, critics suggest that the adoption of conventional farming practices (through Green Revolution technologies) generated huge environmental and socio-economic costs in developing countries like India. For example, the intensification of agriculture raised severe environmental concerns such as increased soil erosion, land and groundwater contamination, growing pest resistance, and reduced biodiversity (Gill, 1992; Randhawa, 1992; Singh, 2000; Basu and Scholten, 2012). There were also socio-economic impacts visible through rising social inequalities due to unequal access to technologies, lack of economic resources, stagnation of productivity and income, rural out-migration, and feminisation of agriculture (Basu & Scholten, 2012; Agrawal, 2014; Jodhka, 2014; Ohlan, 2016). Identification of these negative impacts of intensive agriculture has led to calls for alternative farming models and methods in food production.

In light of the global concerns about the ecological impacts of agriculture, a significant body of scholarship on agroecology has argued for renewed engagement with traditional approaches to agriculture that are more ecologically sustainable (Altieri & Toledo, 2011; Wezel and Soldat, 2009; Wezel et al., 2009). There is also an increasing realisation that with changing times, many new forms of farming are necessary, and that these must be ecologically sustainable, diverse, local, and socially just (Moragues-Faus and Marsden, 2017). Most proponents of agricultural transitions in India focus on ecological sustainability, regeneration of degraded agricultural land, and natural resources depending on the local farming conditions (Chebrolu and Sen, 2017; Khadse and Rosset, 2019). However, insufficient attention is given on how these transitions impinge on the social sphere. Moreover, agricultural transitions are processes where most farmers are at different stages of transitions which makes it difficult to study the social implications of transitions at the macro or village level. This demands a study at the household or community level that can understand nuances at a micro level, especially the extent to which different members of the household are involved in farming activities and how agricultural transitions, if any, have an impact on social inequalities and decision-making processes within a household or community. In the following paragraphs, I briefly discuss these issues and set out the research objectives of this study.

1.1.1 Why study agricultural transitions in India?

In India, the transitions to alternative agricultural approaches are proposed in response to the growing socio-economic and environmental concerns because of Green Revolution (GR) technologies and policies. However, it is worth noting that not all responses to industrial agriculture
were claimed to be sustainable at any given time. In practical responses, they might involve innovations in organic and sustainable farming, the revival of indigenous practices, experiments with information and communication technologies, genetically modified techniques, alternative cropping technologies, etc. In India, transitions in agriculture take form in various ways, such as organised development initiatives, organic or natural farming methods, farm collectives (e.g., seed saving and sharing), use of local or organic inputs, science-based farming, or the recent wave of ‘neoliberal agro-entrepreneurship’ (Munster, 2015; Hegde and Basu, 2016; Khadse and Rosset, 2019; Bharucha et al., 2020). Lately, Indian states have led initiatives to follow a particular form of agriculture model, namely ‘organic village’ or ‘climate-smart village’, promoted through organic farming policies or regulations in Sikkim, Himachal Pradesh, Madhya Pradesh, Tamil Nadu, Punjab, and Haryana (Bharucha et al., 2020). Nevertheless, the merits of these techniques and practices in offering sustainable alternatives have varied implications for the deeply stratified society of rural India. The social context in which alternatives are developed significantly influences outcomes regarding how widely they are accepted and which groups benefit from them (Brown, 2016, 2018). Therefore, two additional factors may be considered while studying transitions: problems in generalisability, and macro-analyses that fail adequately to consider micro perspectives.

First, although some of these practices have proved beneficial to farmers whose socio-ecological situations have been best suited to them, attempts to generalise from a few successes have usually failed to generate wider support. For instance, some farmers in the southern Indian states have not found Zero-Budget Natural Farming (ZBNF) schemes as beneficial due to increased labour costs, hard work, lower economic gains in initial years and other state and institutional dependencies (Bhalla, 2022; Reddy, 2019; Khadse and Rosset, 2019; Veluduri et al., 2021). Similarly some farmers in north India found access to material and discursive resources, low yield of crops, small landholdings, scarcity of biomass, lack of awareness and financial support and market and infrastructural problems as major constraints to adopting natural or organic farming practices (Azam & Shaheen, 2019; Brown, 2013, 2018; Wani et al., 2017). Also, the costs and benefits associated with changes in agricultural practices are, for the most part, distributed unequally among various actors. Inequalities based on gender, class and social agrarian structure are often reinforced due to disproportionate access to land, natural resources, and technologies (Edelman et al., 2014; Agrawal, 2014). Thus, questions about deciding which specific practice is suitable and sustainable (based on local farming conditions) must consider both social and ecological components such as how easily accessible, such methods are to local farmers, how impactful such methods are on food production, ecological conditions, and human well-being, and what socio-economic impact these choices generate. Insufficient attention has been given to how sustainable transitions in agricultural practices impinge on social outcomes such as existing or resurfacing social inequalities, gendered power structures and rural migration in India.

Second, studies on sustainable approaches to agriculture in India draw on a macro-level analysis of agrarian transitions that either began as grassroots social movement and evolved into a major policy initiative (Duddigan et al., 2022; Khadse, Rosset, Morales, & Ferguson, 2018; Khadse and Rosset, 2019), were primarily sponsored by state and other agricultural institutions (Chebrolu et al., 2021; Azam & Shaheen, 2019; Wani et al., 2017, Suma et al., 2017), or were, in a few cases, sustainable farming initiatives led by rural farming communities across the country (Ohlan, 2016; Singh and Grover, 2011; Yadav et al., 2018; Baskaur et al., 2021). Such macro-level analyses pose
two key challenges. First, understanding the variation of farming systems due to economic, political, social, and ecological factors, even within a single region, makes current agricultural practices highly heterogeneous. Second, transitions to sustainability in agriculture also involve struggles between different visions of sustainability (Bui et al., 2016; Elzen et al., 2012a; Lamine et al., 2015; Vanloqueren and Baret, 2009) that need to be considered while studying alternative agricultural practices. Having said that, a key set of questions for further research centres on the need to consider diverging levels of engagement and types of adoption practices across different farms and between different groups of farmers (Bharucha et al., 2020). Consequently, norms and values that steer farmers’ perspectives must be carefully examined to describe transition pathways (i.e., different routes of farming practices), including their socio-political dimension.

Thus, the overarching aims of my study are three-fold: first, to examine the evolving conditions that shape farming practices in Haryana; second, to explore the everyday opportunities and challenges posed by transitions to alternative farming practices and third, to examine the social implications of these transitions at household and community level. In this research, I draw on ethnographic approaches to engage with farmers involved in diverse agricultural transitions in Haryana villages.

1.2 Research Objectives and Questions

The central objectives of this study are to investigate the perspectives of farmers on the evolving social changes in agriculture in Haryana. I specifically focus on farmers' experiences of agricultural transitions in order to understand the opportunities and challenges of transition initiatives and examine their social implications at the household and community levels.

Studying agricultural transitions in any society at any point in time must engage with the challenge that transitions are processes and farmers may be at different stages of transition. The futures are open; the pasts differ. It may be challenging to study the choices to transition at a macro (village) level, as a complete shift to an alternative farming model may not have taken place in every household. Studying these shifts at the household level will give a better understanding of transition processes, the opportunities, and challenges that farmers might face, and the rationale to adopt a particular model for sustainable agriculture. Similarly, to examine the social implications of these transitions, it is essential to understand the extent to which different members of the household are involved in farming activities and how transitions have an impact on gender inequalities, out-migration, decision-making processes, etc., within a family. A study at the household level would help to understand these nuances and the significance of agriculture in the everyday lives of rural farming communities.

My study focuses on the motivation and experiences of farmers who have shifted from the conventional mode of farming or those in a transition to alternative farming practices in rural farming communities in Haryana. In order to examine the social implications of these transitions, my research focuses on the role of different members in rural households. This help me examine who decides regarding what farming practices should or should not be followed, what should be grown, where, etc. and how transitions to alternative models impact the decision-making processes.
Specifically, I seek answers to the following questions:

1. What are the general agricultural practices and their significance in the everyday lives of rural farming households?
   1.1 How far are industrial agricultural practices followed in the villages?
   1.2 What are the social implications of the GR approaches on the village culture, rural society, and overall lifestyle?
   1.3 What part does agriculture (in comparison to other activities) play in everyday activities and as a source of income?
   1.4 To what extent and in what ways are different members of the family involved in farming activities and decision-making processes?
   1.5 Who chooses what should be grown, where, and what farming practices should be followed?

2. Why do farmers transition to alternative approaches in agriculture?
   2.1 What motivates farmers to transition to alternative farming practices?
   2.2 How do different farmers (based on class, caste, and gender groups) adopt diverse farming practices and who decides what farming practice to adopt or not adopt in a given circumstance?
   2.3 What are the opportunities and challenges in transitioning to alternative agriculture?

3. How do different farmers transition to diverse farming practices?
   3.1 How do different farmers respond to the changing social and ecological conditions that shape sustainable farming practices in the villages?
   3.2 What farm methods and farming practices do these farmers adopt?
   3.3 What do farmers understand by sustainability?
   3.4 How do they make sustainability choices about what to adopt in changing ecological conditions?
   3.5 Do all farmers transition successfully? What challenges do farmers face during the process of transitioning?

4. How do farmers understand the outcomes of agricultural transitions?
   4.1 What are the social outcomes of transition across different groups (gender, caste, age, and class) in the villages?
   4.2 How does the transition to sustainable farming practices impact land, ecology, income, and other opportunities? How do these vary at a household and community level?
   4.3 How far does the transition to sustainable agriculture diversify the role of members (men, women, children, elderly) within households?
   4.4 Do transitions have any impact on existing social and gender inequalities or on reshaping rural and farmers’ identities?
   4.5 How do farmers’ self-identity and perceived community interact to shape farming practices and their relationship to the larger agroecological socio-economic system?

1.3 Thesis structure

This thesis consists of nine chapters. After this chapter, I move on to Chapter 2, the literature review chapter, where I engage with various approaches, studies, and theories that I utilise to support the
empirical analysis of this thesis. At first, I discuss studies related to the social and ecological implications of GR in India and argue that none of the existing studies maps these social changes as barriers to transitioning to alternative agriculture. I then move on to describing diverse approaches to the alternative approaches to intensive agriculture in the Global South. Specifically, I engage with agroecology and ecological modernisation approaches to understand why and how people change the way they practice agriculture. By examining the opportunities and challenges of these approaches, I show why social aspects must be considered in agricultural transitions in a place-based context and argue for studying socio-cultural processes and practices at stake while conceptualising transitions. In the final section, I develop a research framework to understand agricultural transitions. Here, I discuss the concept of multifunctional agriculture and the possibility of its expansion in the South Asian context. Particularly, I draw on Wilson’s (2007, 2008) idea of a multifunctional spectrum to locate transition processes. To assess the perceptions and experiences of farmers in a changing agricultural context, I draw on Sugden’s (2022, 2019, 2013) approach of using social perceptions and motivational behaviours to study agricultural transitions and decision-making processes at the farm and household levels.

In Chapter 3, I outline the research strategy for this thesis. I explain the rationale for my choice of the field sites in Haryana, the research methods used to conduct this study (e.g., interviews, group discussions and participant observations) and reflect on their opportunities and challenges. I also delve into some ethical dilemmas and practical considerations, and discuss how I took a reflexive stance to stay aware of the power relations between the participants and me. Finally, the chapter discusses the challenges faced during fieldwork due to Covid-19 related restrictions and the ongoing farmers’ protest at the Delhi-Haryana borders.

Chapter 4 is the background chapter where I set up the research context for the empirical chapters of this thesis. My overall aim in the chapter is to provide a detailed insight into the geographical location of my field sites, the changing ecology and agricultural land use practices, and how different farmers are involved in the diverse farming practices in Haryana. The purpose of this chapter is to briefly discuss the characteristics of different farmers in my sample and their varied social profile and agricultural practices, to set the base for the empirical chapters of the thesis.

Chapters 5 to 8 constitute the empirical chapters. In Chapter 5, I examine farmers’ perspectives on industrial farming practices, especially after the adoption of GR technologies and approaches. These narratives help me to understand the social implications of conventional agriculture in Haryana villages and study the barriers in transitioning to alternative agriculture. Specifically, I seek answers to the following research questions: How do industrial farming practices impact village agriculture, farming practice and overall lifestyle? And how far have GR approaches created barriers for some farmers to transition and adopt alternative practices?

In Chapter 6, my overall aim is to study farmers’ perspectives on agricultural transitions and, specifically why farmers adopt alternative or sustainable farming practices in agriculture. In particular, I draw upon Sugden’s (2022, 2019, 2013) approach to study social perceptions and processes of change that are shaped by the social agrarian structure and changing socio-ecology in Haryana. Using these narratives help me to answer my research questions on: Why farmers are motivated to adopt alternative or sustainable farming practices? What opportunities and challenges do different groups of farmers face during the transition? A comparative analysis can then be done
between chapters 5 and 6 to study who adopts alternative agricultural practices and who does not and what could be the opportunities and challenges in agricultural transitions.

In Chapter 7, I discuss how different farmers adopt diverse farming methods and transition to alternative agriculture in the villages. Specifically, I draw on Wilson’s (2007, 2008) ideas on multifunctional agriculture to study transitions and answer my research questions on: i) what farming practices do different farmers adopt in transition to alternative agriculture? ii) to what extent and in what aspects do these farms differ from each other? iii) how far are their farming methods informed and, in turn, inform the changing social and ecological conditions in the villages? and finally, iv) what do farmers understand by sustainability? By focussing on the emerging farm typologies in the villages, I argue that: i) farmers’ understandings on diverse farms and farming practices are important for studying the complexity of agricultural transitions in the given socio-economic context and ii) transitions to sustainability in agriculture involve understanding diverse visions of sustainability that must be studied while researching agricultural transitions.

In my final empirical Chapter 8, I analyse the outcomes of agricultural transitions and their social implications at both household and community levels in the villages. Specifically, the chapter answers my research questions on: how farmers understand the impact of transitions on the human health, environment, rural incomes, and other opportunities in the village? How do these vary between various farming groups (age, gender, caste, and class) in the villages? And how do farmers' choices to transition impact the social power dynamics within the household? Again, drawing on farmers’ perceptive, I show how agricultural transitions impacted farmers’ identity and specifically in challenging the stereotypical image of a farmer. Overall, the chapter argues that, in the process of transitioning to alternative agriculture, these farmers not only restructure existing farming culture and practices but also redefine their own identity as important players in the changing village agriculture and rural sustainability.

Finally, in Chapter 9, I reflect on the overall arguments that I have made in this thesis, discuss the limitations and implications of my findings and different kinds of contributions that my research makes, and outline some future lines of enquiry that can be pursued in researching agricultural transitions in a given socio-economic context.
Chapter 2: Literature Review

In this chapter, I discuss different approaches, studies, and theories to examine the socio-ecological outcomes of intensive farming practices and alternative methods to intensive agriculture and finally develop a framework to study agricultural transitions in my research context. The chapter is divided into three main sections. In section 2.1, I discuss the social and ecological implications of GR in general and Haryana in particular. Specifically, I focus on understanding the social implications of the agrarian structure and gender relations in the villages. Although many studies have explored the social impact of the GR approaches in India, I argue that none maps these social changes as barriers to transitioning to alternative agriculture. This allows me to decipher agricultural transitions in my research context and how different farmers were able to adopt or constrained to implement alternative agricultural practices.

In section 2.2, I discuss the alternative approaches to intensive agriculture in the Global South. Specifically, I explore agroecology and ecological modernisation approaches to understand why and how people change the way they practice agriculture. By examining the opportunities and challenges of these approaches, I show the importance of studying social aspects of agricultural transitions in a place-based context and argue for studying socio-cultural processes and practices at stake while conceptualising transitions.

Finally, in section 2.3, I develop a research framework to understand agricultural transitions. Here, I discuss the concept of multifunctional agriculture and the possibility of its expansion in the Indian context. Particularly, I draw on actor-oriented approaches and Wilson’s (2007, 2008) idea of a multifunctional spectrum to locate transition processes at the farm-level. To assess the perceptions and experiences of farmers in a changing agricultural context, I draw on Sugden’s (2022, 2019, 2013) approach of using social perceptions and motivational behaviours to understand agricultural transitions and decision-making processes at the farm and household levels. Overall, the section argues that farmers’ perspectives on the emerging farm typologies are important for understanding the complexity of agricultural transitions in the given socio-economic context.

2.1 The Green Revolution (GR) and its socio-ecological impacts in India

Feldman and Biggs (2012) trace the process of adaptation to the industrial form of agriculture in the Global South. They argue that, during the mid-twentieth century, a large majority of the newly independent countries in the Global South were dependent on subsistence agriculture, with scant research and policy attention focused on industrial agriculture and non-farm rural production. Most rural dwellers were peasant producers or small farmholders whose lives were dependent on agricultural production, even if they were involved in a few non-farm activities or labour exchanges. In the context of the Cold War period, efforts made by the US to win the hearts and minds of newly emerging independent countries and their people included developing strategies and assistance to enhance food production and extend new production techniques. Introducing GR technologies was premised on the belief that the states would attain self-sufficiency in food production and contribute to a reduction in poverty and hunger. Success of this revolutionary goal was to be achieved by two critical components: to build resources and technologies to support this goal and to extend them to the producers in the South. The idea assumed that farmers were ‘rational
economic agents’ (Feldman and Biggs, 2012, p. 109). This meant that while small-scale farmers had few resources, they had efficient ways to manage them and like big farmers, they too responded to economic incentives. This way, it was assumed that the policies employed in the West to influence agricultural production could be applied in developing countries as well.

Based on this idea, modernisation in agriculture was promoted in India and many other developing countries through GR technologies and subsequent policy changes. During the mid-1960s, the GR approach in India was underpinned using modern technology, including high yielding variety seeds, chemical fertilisers and pesticides, tractors, mechanised irrigation facilities, improved farm implements, land reforms and supply of agricultural credit measures (Pingali, 2012). This was followed by policy formulations undertaken by national governments with respect to subsidised inputs, guaranteed commodity prices for major cash crops, including policies to make chemical fertiliser and modern irrigation techniques available at subsidised rates, and training and exposure to new ideas and production practices through the enhancement of extension services and credit facilities to farmers (Feldman and Biggs, 2012; Friedmann, 2017).

Supporters of GR technologies and knowledge argued that by increasing agricultural inputs through GR approach, India could be better placed globally, maintain foreign currency reserves through agro-food exports, assert national sovereignty after a history of famines and dependency on food imports and support growing wage labour and industry in urban areas. This, coupled with other factors, led to the active pursuance of GR technologies by Indian policymakers and scientists (Chopra, 1981; Friedmann, 1982; Perkins, 1997; Gupta, 2002). Although timely investment in GR technologies and policies managed to feed the increasing population and ensured self-sufficiency in food grain production in the initial few years, it also generated some environmental and socio-economic problems of its own, often not only because of technology but also due to policies that promoted rapid intensification of agricultural systems (Pingali, 2012). Also, some local factors affected how GR policies were introduced, so that responses were not uniform globally or within a country as diverse as India. I will, therefore, turn to a detailed discussion of GR in India in general, and in Haryana in particular.

2.1.1 Implications of GR

The GR technologies and subsequent policies were deployed mainly in the areas where agricultural infrastructure was already in place as the technologies were more favourable to land with controlled irrigation and low atmospheric humidity, such as in the north-western part of India (Aggarwal, 2000; Pingali, 2012). In the initial phase between the 1960s-90s, Haryana was one of the states in this region where some farmers benefitted tremendously from GR, with an impressive increase in food grains (mainly wheat and rice) production from 26 lakh tonnes in 1966-67 to 114.48 lakh tonnes in 1996-97 to 163.33 lakh MTs in 2015-16 (Yadav & Rai, 2001; ICFA, 2016). Haryana improved its relative position in terms of per capita income from the fifth position in 1966-67 to the third position during the year 1996-97 and became the second-largest state to contribute to the national food grains pool after Punjab (another state that showed a massive increase in wheat production after GR). Famously known as the ‘Breadbasket of India’, both Punjab and Haryana have been at the forefront in terms of the adoption of the latest technologies in agriculture and were also counted as the leading states for agriculture production in the country (ICFA, 2016).
Agricultural activity in Haryana is mostly dominated by an economically sound and socially dominant community of Jats. An increase in income promoted the production of non-food grains with a few economically well-off farmers willing to produce cotton, oilseeds, sugar, vegetables, and animal products such as milk, eggs, and broilers (Yadav and Rai, 2001). The proximity to the capital city, Delhi, enables access to a range of big markets for agricultural goods, which became an essential incentive for farmers to produce high-value crops like fruits, flowers, and allied activities (Sardana et al., 1997). Currently, around 37 mandis (markets) in the state are connected with the e-NAM (National Agricultural Market) scheme in order to make the agricultural market system transparent and farmer-friendly (ICFA, 2016). However, the period of agricultural intensification in India could not sustain for long as it led to increasing degradation of land and resources, stagnation in crop production and growth and resulted in huge socio-economic inequalities. The following section discusses these issues in greater detail.

I. Ecological impacts of GR

Between 1960 and the late 1990s, many studies reported massive increase in food production for all developing countries like India, especially in crops like wheat, rice, maize, and potatoes (FAO, 2004). Moreover, it was reported that the GR saved a large portion of new land from conversion to agriculture, a known source of greenhouse gas emissions and possible driver of climate change (Millennium Ecosystem Assessment, 2005; Burney et al., 2010). This provided the land to develop alternate ecosystem services such as the regeneration of forest cover. However, despite the initial growth in yields and total output of selected crops, there were severe environmental impacts resulting in soil degradation (Giller et al., 1997; Singh, 2000), groundwater depletion (Matson and Parton, 1997), loss of crop genetics diversity (Thrupp, 2000; Tilman et al., 2002) and increased pesticide concentration in food products (Gupta, 2004).

In Haryana, a gradual onset of environmental degradation is visible through the decline in soil fertility, changes in the water table, rising salinity, the resistance of pests to many pesticides, and the overuse of nitrous fertilisers (Singh, 2000; Basu and Scholten, 2012). The lower growth rate in rice and wheat yields was reported in the late 1980s-90s mainly due to stagnation resulting from the decline in organic and nitrogen content in the soil (Nand Ram, 1998; Aggrawal, 2000). The role of hybrid crop varieties in enhancing productivity has been tremendous. However, the Indian Council of Food and Agriculture report on ‘Haryana Agriculture and Farmers’ Welfare’ in 2016 stated that the yields of many crops were plateauing. The growing low productivity of crops was coupled with difficulties in weed management and the rise of yellow pest rust disease in wheat, leading to substantial crop losses. Finally, the challenges associated with climate change are affecting both crop and livestock systems in the region, increasing the consumption of resources and the chances of pest resistance and resurgence (ICFA, 2016). The risks involved were more severe for smallholder farmers in low-yield production, resulting in reduced acreage, non-profitability of traditional crops, food insecurity and increasing indebtedness (Acharya, 2006). Furthermore, the ecological costs had different implications across different groups of farmers in the villages and within the households in a village. In the following paragraphs, I study the social implications of GR in more detail and across caste, class, and gender groups.
II. Impact on agrarian social structure: class and caste analysis

Many studies (Alauddin and Tisdell, 1995; Jeffrey, 1997; Harris-White and Janakarajan, 1997; Patnaik, 1986) in India showed that the impact of GR on economic growth, agricultural productivity, benefits to the farmer, incentives through investment in technologies and an overall reduction in poverty and hunger were influenced by the agrarian class structure. Utsa Patnaik (1972, 1986) conceptualised the agrarian development in Punjab experienced in the form of ‘peasant capitalism’ (1972, p.5). This development took place within a capitalist path dominated by ‘landlord capitalism’ within a ‘semi-feudal structure’ (Patnaik, 1986, p.791). She argued that since the ex-landlord class dominated agriculture, they invested in agricultural improvements only when the profits exceeded what they could earn from (a) ground rent by way of leasing out the land, and (b) income from investing their surplus outside of agriculture. Also, the pre-capitalist, caste-based, non-economic structures of oppression were still an integral part of the rural economy through which surplus was appropriated (Lerche, 2013). The newly induced agrarian capitalist structure in the rural villages created a ‘rich landlord class’ in comparison to ‘poor landless labourers’ and hindered the required form of economic growth that would allow for the reduction in poverty (Patnaik, 1972; Lerche, 2013).

Bernstein (2008) referred to the peasants as ‘petty commodity producers’, combining the role of labour and capital within the household. He suggested a new concept called ‘classes of labour’, which included both classical wage labourers and small-scale petty producers. The latter may have the means of production but, like wage labourers, were equally oppressed and exploited by the wealthy landlord class (Bernstein, 2008, p.18). Other studies in Tamil Nadu (Harriss-White, 2008, 2010), Odisha (Mishra, 2008) and Andhra Pradesh (Sharma, 2010) revealed that poor cultivators had less access to institutional credit and were often tied in through loans from traders in agricultural inputs, intermediaries, or wealthy producers. A few others (Breman, 1990; Varshney, 1994; Bhalla, 1999) argued that GR enriched wealthy farmers with surplus production and even helped them mobilise and put pressure on the government for better prices and other benefits, while rural labourers were primarily involved in the struggle over wages.

In Byres' seminal work on the adoption of new technology, class formation and class action in the Indian countryside (1981), he critically examines the repercussions of mechanisation in agriculture on the formation of labour classes in Northern India. Byres contends that while mechanisation promises efficiency and productivity gains, its impact on rural societies is far from benign. According to him, the GR-induced agricultural technologies, such as tractors and harvesters, disrupt traditional labour structures by diminishing the demand for manual labour, thus leading to the displacement of rural workers. Consequently, a significant portion of the rural populace finds themselves marginalised and pushed into the category of landless labourers, lacking access to land and compelled to sell their labour for subsistence wages. He argued that this transformation in labour dynamics underscores a broader restructuring of the rural class system, where traditional distinctions between landlords, peasants, and agricultural labourers become blurred as mechanisation alters land ownership patterns and labour relations. However, a critical examination of this process reveals deeper layers of exploitation and vulnerability among the landless labourers. Mechanisation not only displaces labour but also consolidates power in the hands of landowners and economic elites who control access to land and employment opportunities. Consequently,
landless labourers are subjected to precarious working conditions, low wages, and limited agency, perpetuating cycles of dependency and exploitation.

Moreover, the possibility of increased productivity through mechanisation often fails to materialise for small-scale farmers and labourers, as they lack the resources and infrastructure necessary to adopt and adapt to new technologies. This often exacerbates inequalities within rural communities and reinforces existing disparities in wealth and power. In another work, Byres (1999) highlights the resistance and agency exhibited by landless labourers in response to their marginalised status. According to him, labour movements and political mobilisation emerge as crucial strategies through which landless labourers seek to challenge the structures of inequality perpetuated by mechanization and demand better working conditions and rights. However, he argued that these efforts are often met with resistance from entrenched interests and face significant barriers in achieving meaningful change. Overall, Byres' critique of mechanisation in agriculture sheds light on the complex interplay between technology, class formation, and social change, emphasising the need for a more nuanced understanding of the implications of technological advancements in rural contexts. While Byres' analysis offers valuable insights into the limitations of mechanisation in addressing rural inequalities, yet his emphasis on resistance overlooks potential socio-economic complexities and unintended consequences, necessitating a more comprehensive examination of alternative development strategies.

For this study, understanding agrarian social relations is essential to comprehend the distribution of benefits to different groups of farmers and to understand the evolving agrarian relations with changing socio-ecological conditions. In Haryana, several studies (Bhalla, 1977; Jodhka, 2012, 2014) reported two significant changes in social agrarian relations with the adoption of the GR approach:

First, the immediate impact of GR saw small and marginal farmers with small landholding and economic resources least benefitted from GR as compared to the dominant ‘Jat’ community, who had economic resources and willingness to adapt to new industrial inputs. Jodhka (2012, 2014) argued that although the benefits of industrial agriculture were able to reach to some small & marginal farmers due to trickle-down effects, Dalits were reduced to mere agricultural labourers with no substantial land for cultivation. Low economic resources to purchase machines and agricultural inputs, lack of regular access to financial credit facilities, unfavourable loan conditions, non-repayment of debt due to uncertainties in agricultural productivity, and natural calamities were some of the other reasons that affected the poor and marginalised farmers in Haryana.

Second, in the late 1970s in Haryana, a downward shift in the acreage composition of cultivating households was visible due to three main reasons: i) subdivisions of inherited landholding (due to land reforms and rise in nuclear families); ii) resumption of rented land (either for self-cultivation or tenant switching); and iii) the purchase of the land (due to increase in income) or renting of small plots of land (mainly because of out-migration) (Bhalla, 1977). In the study of two Haryana villages in 2008-09, Jodhka (2014) reported a similar trend of increasing smallholder farming. He, however, reported two significant changes: first, a rise in the category of labourers (refer to fig 2.1), though not necessarily in the agriculture sector and second, occupational diversification with most households becoming ‘pluriactive’ (Lindberg, 2005; Jodhka, 2006) with the rise of small businesses/shopkeepers, government jobs and other non-regular services (refer to fig 2.1 and 2.2). Nevertheless, previous caste-based segregations were still prevalent: landownership and cultivation
continued to be the prerogative of the dominant and upper castes in the villages, while Dalits and OBCs occupied the major section of labourers (refer to Fig 2.2).

**Fig 2.1: Primary Occupation of the Respondent Households (Haryana)**

<table>
<thead>
<tr>
<th>Primary Occupation</th>
<th>Village-I</th>
<th>Village-II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivators</td>
<td>117 (23.26)</td>
<td>172 (35.03)</td>
<td>289 (29.07)</td>
</tr>
<tr>
<td>Labourers</td>
<td>206 (40.9)</td>
<td>153 (31.16)</td>
<td>359 (36.11)</td>
</tr>
<tr>
<td>Shopkeepers/business</td>
<td>39 (07.75)</td>
<td>45 (09.16)</td>
<td>84 (08.45)</td>
</tr>
<tr>
<td>Regular service/Government job</td>
<td>108 (21.4)</td>
<td>63 (12.8)</td>
<td>171 (17.20)</td>
</tr>
<tr>
<td>No clear arrangement</td>
<td>33 (06.55)</td>
<td>58 (11.8)</td>
<td>91 (09.15)</td>
</tr>
<tr>
<td>Total</td>
<td>503 (100)</td>
<td>491 (100)</td>
<td>994 (100)</td>
</tr>
</tbody>
</table>

Percentages are presented in parentheses.
All the tables are based on the author’s primary survey. Source: Jodhka (2012, p. 7)

**Fig 2.2: Caste-wise Primary Occupation of the Respondent Households (Haryana)**

<table>
<thead>
<tr>
<th>Caste</th>
<th>Cultivator/Farmer</th>
<th>Labourer</th>
<th>Shopkeeper/Business</th>
<th>Regular service/Government Job</th>
<th>No regular Job</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dalit</td>
<td>7 (3.8)</td>
<td>106 (57.9)</td>
<td>0</td>
<td>51 (27.86)</td>
<td>19 (10.38)</td>
<td>183 (100)</td>
</tr>
<tr>
<td>BC</td>
<td>17 (5.5)</td>
<td>202 (65.37)</td>
<td>14 (4.5)</td>
<td>42 (13.5)</td>
<td>34 (11.0)</td>
<td>309 (100)</td>
</tr>
<tr>
<td>DC</td>
<td>201 (61.28)</td>
<td>25 (7.6)</td>
<td>23 (7.01)</td>
<td>55 (16.7)</td>
<td>24 (7.31)</td>
<td>328 (100)</td>
</tr>
<tr>
<td>UC</td>
<td>64 (36.78)</td>
<td>26 (14.94)</td>
<td>47 (27.01)</td>
<td>23 (13.21)</td>
<td>14 (8.04)</td>
<td>174 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>289 (29.07)</td>
<td>359 (36.11)</td>
<td>84 (8.45)</td>
<td>171 (17.20)</td>
<td>91 (9.15)</td>
<td>994 (100)</td>
</tr>
</tbody>
</table>

The category Dalit corresponds to the local ex-untouchable communities. The category “backward class” (BC) has been in usage in the region for a long. These are broadly speaking, “lower” sections of the currently popular official category “OBC”. Some of the OBC (the “upper” layer, such as the landowning Gujjars) are locally dominant caste (DC) and thus have been included in the category DC. Some “upper castes” (UC), such as Brahmins, Rajput and Punjabi Aroras, have also been landowners and cultivators in the region. Percentages are presented in parentheses. Source: Jodhka (2012, p. 7)

Finally, recent studies have informed the changing nature of rural public spaces and their impact on community relations. Suthar (2022) in his study of villages in three regions in India (Vidarbha region of Maharashtra, Malwa region of Punjab, and Bundelkhand region of Uttar Pradesh) reported that with the increasing role of market players, political party activities, and state
intervention, rural public spaces or chaupals\(^1\) have witnessed a three-dimensional change: spatial, physical, and ethical. Suthar concluded that the cumulative effect of these changes has been a decline in communal relationships and the rising sense of alienation in the rural male population. In Haryana, Jodhka (2014) reported the disappearance of social and emotional commons that led to two significant changes to the sense of collective identity in the villages. First, the gradual disintegration of caste and hierarchical social order having different implications for diverse social groups. On the one hand, for lower castes and Dalits, this change freed them from the oppressive normative order of caste and the traditional value of hierarchy. On the other side, for the dominant and upper castes, this meant a reduction in their power and privilege. Second, the disintegration of community identity was replaced by a new sense of individuation in the village society, producing a “neo-liberal sensibility” (p. 17). This was particularly reflected in their desire for mobility (outside the village), the growing reach of electronic media and cell phones, changing eating habits (consumption of fast food, Chinese cuisine, and modern beverages) and an overall shift towards a culture of consumerism.

Overall, these studies are helpful in studying the social implications of GR on the social agrarian structure and changes in rural villages. I draw on these to understand the agricultural changes and their social implications in Haryana villages in Chapter 5. However, I argue that most of these studies remained silent on how changes in the agrarian social structure may have implications for agricultural transitions in the villages. More importantly, none of the existing studies map these social changes as barriers to transitioning to alternative agriculture or how some farmers were able to transition as compared to others. In Chapter 5, I show how understanding these changing social relations is important to study the barriers in transitions among diverse caste and class groups and across different villages in Haryana. I use this analysis to compare with farmers who were motivated to transition to alternative farming practices in the next two chapters (6,7). Thus, I attempt to fill this research gap by studying transitions across caste and class groups of farmers and mapping their motivations and experiences of moving towards alternative agriculture. Finally, I examine how increasing diversification of rural economy and out-migration had an impact on transitions. Here, I not only study the implications of male out-migration but also explore the category of young farmers or reverse migrants who had previously left their villages to study or work in urban areas and now wish to return back to their villages and find their career prospects in sustainable agriculture.

III. Impact on gender relations: Cause and effect

Several recent studies have dealt with the impacts of GR on women, their rights and freedom and on the environment (Shiva, 1991; Rahul, 1995; Agarwal & Herring, 2015). The increased female workforce in agriculture (both in absolute terms or in proportion to men) raises questions about how such participation affects women’s power and autonomy at home and in the community, and how agricultural work activities are managed in relation to traditional household duties (Shah &

\(^1\) Chaupals were usually in the centre of the village and provided space for discussions ranging from management and supervision of the rural commons, disbursement of common information, and above all, discussions on agriculture, weather conditions, issues related to crops, and political opinions and thoughts. Despite being exclusionary in nature, such spaces played a crucial role in fostering community relations, helped make friends, and consolidate rural social relations (Suthar, 2022).
Patnaik, 2015). The concept of the ‘feminisation of agriculture’ is often invoked to understand the changing relationship between women and agriculture. In a limited sense, it refers to an increase in the amount or proportion of farm-related work undertaken by women, and hence, it is seen as agriculture being feminised (Patnaik, 2018). In a broader sense, the concept addresses the extent to which women can define, control, and enact the social processes of agriculture or how the process of feminisation is played out in agriculture. The latter interpretations are helpful in studying the nature of women’s work in agriculture, female labour, ownership of farmland and other resources and decision-making power in the public sphere, particularly with respect to matters that were earlier considered as male concerns (Duvvury, 1989; Chawdhry, 1993; Zuo, 2004; Deere, 2005; Agrawal & Herring, 2015; Tamang, Paudel & Shrestha, 2014).

The feminisation of Indian agriculture occurs in a complex interplay of socio-ecological factors that involves shrinking landholdings, degraded soils and water resources, declining accessibility to traditional seeds and other inputs, distorted market incentives, growing labour shortages, mechanisation, and out-migration (Ohlan, 2016; Patnaik et al., 2018). Rawal and Saha (2015) observed that supporters of economic liberalisation have reported that the increase in women’s workforce in agriculture has contributed to the overall economic empowerment of women in India. However, critics (Kelkar and Wang, 2007; Kanchi, 2010; Srivastava, 2011) argue that an increase in women’s participation is mainly associated with unprofitable crop production and distress migration of males. Terming feminisation of agriculture as ‘feminisation of agrarian distress’, Pattnaik et. al (2017) argued that women’s growing contribution of labour in agriculture adds to the already heavy work burdens of most rural women, thereby further undermining their well-being. Others reported that increasing participation among rural women in agriculture also raises questions about how such participation affects women’s power and autonomy at home and in the community and how agricultural work activities are managed in relation to traditional household duties (Pattnaik et al., 2018; Shah and Patnaik, 2015; Agrawal, 2012; Srivastava et al., 2010). How has the feminisation of agriculture taken place in Haryana, specifically with respect to male out-migration and managing dual responsibilities at home?

In Haryana, the out-migration of men from rural to urban areas led to an increase in the participation of women in both agricultural processing and animal husbandry. These women contribute substantially to subsistence activities in farming and carry out a good proportion of labour work within farming households (Bhasin, 2007; Satyavathi, Bharadwaj, & Brahmanand, 2010). However, they were often associated with low, inferior tasks as compared to men (Chawdhry, 1993). Some scholars (Agarwal & Herring, 2015; Patnaik, 2018) have shown how women farmers and female-headed households have gained proportionally less than their male counterparts on the socio-economic scale, in both the agriculture sector and within the household. Although women have enjoyed equal property rights since 1992, most agricultural land is still owned by men (Agrawal, 2014). Their participation in household decision-making processes is usually low, and free movement is often restricted (Das & Tarai, 2011). Technology transfer primarily focused on male farmers (McIntyre et al., 2009), making women farmers less efficient when using the same productive assets and, as a result, face barriers to accessing productive resources and technologies (FAO, 2011).

Recent studies (Altenbuchner, Vogel, and Larcher, 2017; Nath and Athinuwat, 2020) in Asia argue how sustainable agriculture approaches can lead to women empowerment and changes in strict
gender roles. Even international collaborations on sustainable farming approaches have been increasingly promoting gender equality besides addressing the environmental and economic dimensions. For instance, according to the International Federation of Organic Agriculture Movements (IFOAM, 2007, 2014), organic farming helps women to gain access to education, better health and increase their power in decision-making. The reports claim that women’s engagement with the environment is useful in retrieving traditional knowledge in seed conservation and resource management. Furthermore, the Nyeleni declaration of food sovereignty movement explicitly promotes women’s roles and rights in food production and the representation of women in all decision-making bodies. The movement argues that women, especially in rural and tribal areas, are creators of knowledge about food and agriculture but are often devalued when it comes to real powers and rights of managing resources and production. However, little research has been done on: How far gender roles vary with the adoption of alternative agricultural practices among different rural communities? How does women’s involvement in sustainable agriculture lead to changes in the social power structure and gendered relations at home? And, how far have agricultural transitions addressed gendered decision-making, social standing, and financial security at home?

Thus, for this research, discussion on the feminisation of agriculture and gender roles is vital to highlight the impact of changing socio-ecological conditions on women farmers. In Chapters 5 and 8, I draw on these existing studies to study the social implications of GR on rural farming communities and households. In particular, I examine how gender played a critical role in the division of agricultural work and how women’s work in agriculture is changing over a period of time. I argue that none of the existing studies maps gender as an important variable while studying agricultural transitions. Although transitions to natural farming practices and methods have been promoted for many years in India (Eyhorn, 2007), yet gender equality is not explicitly addressed in these models. Women farmers in north India are actively involved in cow-dung making, which is a good source of manure for organic farming, but are rarely credited for their work in terms of either monetary value or management and decision-making powers (Jeffery et al., 1989). Therefore, an essential aspect of my study will be to analyse how the transition to alternative approaches in Haryana impacts gender discrimination in regard to the distribution of benefits and decision-making processes within households and rural farming communities.

2.1.2 Conclusion

To sum up, conventional agriculture led to drastic changes in the methods and modes of food production in India. Although GR approaches helped recover from the growing food insecurity and hunger crisis in India, the repercussions of intensive agriculture were massive on both the ecological and social fronts. In the last two decades, many scholars have tried to challenge the model of industrial agriculture by replacing the industrial values with that of agroecology and ecological modernisation approaches to sustainable agriculture (Blaschke et al., 2004; Karami and Keshavarz, 2010; Altieri & Toledo, 2011). These approaches have, so far, emerged as alternatives to the industrial form of agriculture by replacing conventional mode of food production. In the
following section, I discuss these alternative approaches to understand the opportunities and challenges in transitions that they may have in the given socio-economic context.

2.2 Understanding alternatives to intensive agriculture

Research that analyses transitions to sustainable agriculture is often proposed in response to the environmental and social challenges posed by industrial agriculture (IAASTD, 2009; MEA, 2005). Two such approaches emerged during the late twentieth century and tried to address the questions: Why and how do people change the way they practice agriculture? Scholars arguing for ‘ecological modernisation’ approaches believed in the use of sustainable technologies in modernising agriculture rather than a complete rejection of industrial forms of agriculture (Evans et al., 2002; Rezaei-Moghaddam et al., 2006; Horlings and Marsden, 2011; Duru et al., 2015a, b). To them, this could be done by exploring the relationship between farmers’ attitudes, sustainable farming practices and investigating the potential diffusion of knowledge between various stakeholders. On the other hand, scholars proposing ‘agroecological approaches’ believed in maintaining food production without degradation of resources in the long run by using local resources and knowledge, low-input technologies, maximising recycling, diversifying production, and enhancing biological pest control (Altieri, 2009, 2004, 1995; Wezel et al., 2009; Ferguson and Morales, 2010). By examining these approaches, I show why social aspects must be considered while researching agricultural transitions in a place-based context.

2.2.1 Ecological Modernisation Approach

Joseph Huber (1982, 1985) and Martin Jänicke (1985, 2000) are identified as prominent theorists who introduced the notion of ecological modernisation. They proposed that the growing ecological impact of the capitalist industrial economy could be better solved by developing environmentally friendly technologies rather than completely doing away with industrial mechanisation in agriculture. As Jänicke (2008, p. 563) puts it, “the potential of an ecological modernisation approach to radically reduce the environmental burden of industrial growth – to green capitalism rather than overthrow it – is without any alternative”. Arthur Mo1 (1995, 1996) claims that while the existing institutions based on modern science, technology and industrialism may be responsible for the lack of environmentally sensitive policymaking, they could also be the source of ecological redemption (Mo1, 1996, p.313). This could be done by shifting state practices from their previous hierarchical forms to more decentralised, participative, and preventative environmental decision-making models.

Ecological modernisation theories have received a great deal of attention in sustainable agriculture approaches. Razaei-Moghaddam et al. (2006) argue that ecological modernisation and de-modernisation could be used to develop a conceptual framework for sustainable agricultural development. While the conceptual path based on de-modernisation shows a more significant concern for environmental protection and less attention to increased production, the agriculture theory based on the ecological modernisation approach proposes the idea of reconciliation between environmental problems and agricultural growth and productivity by further modernising agriculture (Evans et al., 2002). In contrast to conventional agriculture, ecological modernisation theory proposes introducing ecological criteria to the production and consumption process by
assigning an essential role to science. The idea is based on environmental readaptation of economic growth and industrial development with the use of resource and energy-efficient products, innovations in environmental and supply management chains, clean technologies, and the substitution of hazardous substances. However, critics (Webster, 1999; Blaschke et al., 2004; Karami and Keshavarz, 2010) argue that ecologically sound agriculture is a complex system which not only involves ecological sustainability on land, crops, animals, and farming but also in terms of human knowledge, learning, social processes, and institutions.

Efforts were made to address the social implications of ecological modernisation approaches through recent scholarship on ‘Sustainable Intensification’ (Rasmussen et al., 2018). Pretty and Bharucha (2014) defined sustainable intensification as a process or system where agricultural yields are increased with minimum impact on the environment and without the conversion of additional non-agricultural land. The concept does not privilege any particular vision or method of agricultural production but emphasises ends rather than means and does not pre-determine technologies, species mix or particular design components. Drawing on Hill’s idea of ‘redesign’⁴, these scholars focus on the composition and structure of agro-ecosystems to achieve sustainability across all dimensions to facilitate food production. Most importantly, sustainable intensification in agriculture emphasises both ecological factors (utilising crops varieties, avoiding unnecessary use of external inputs, harness agroecological processes, minimise use of technology that impacts environment and human health, etc.) and social outcomes (use of human capital in terms of knowledge and capacity to innovate, social capital for joint production of food and distribution, farmer-to-farmer learning, trust in social organisation, etc.). However, Garnet and Godfray (2012) argue that the concept focuses more on what is to be achieved (in the end), rather than a description of the existing practices (or a means to an end), such as existing approaches like conventional, smallholder or agroecological agriculture, etc. In other words, instead of going beyond privileging any particular form of technology and focusing only on desirable socio-ecological outcomes, there is a need to evaluate any technique, approach or practice pragmatically and empirically and judge on the variability of outcomes.

To sum up, ecological modernisation approaches promote what they see as sustainable technological advancement as a key feature of alternative agricultural farming models. However, with limited evidence of cases where intensification leads to enhanced ecosystem services and overall human development, one needs to be cautious of any alternative model as a perfect model for sustainable agriculture. In this context, sustainable intensification is often used as an umbrella term that includes a wide range of different agricultural practices and technologies as the precise extent of existing practice has been mostly unknown and must be explored in situated time and space within different socio-economic contexts (Plumecocq et al., 2018).

2.2.2 Agroecology and Food Sovereignty Approach

The concepts of food sovereignty and agroecological-based production systems have gained worldwide attention in the last two decades with the role of peasant agriculture in food security

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⁴ Hill (1985) proposed three non-linear stages in transitions towards sustainability: i) efficiency; ii) substitution; and iii) redesign. He proposed ‘redesign’ as the pre-requisite stage for sustainable intensification to achieve impact at scale.
amidst growing socio-economic and ecological crisis (Altieri, Nicholls & Funes, 2012). Two major international reports (IAASTD, 2009; De Schutter, 2011) claimed that, to feed nine billion people in 2050, there is an urgent need to adopt the most efficient farming systems. One of these reports argued that:

food security concerns could be met using environmentally friendly and socially equitable technologies and methods, in a world with a shrinking arable land base (which is also being diverted to produce biofuels), with less and more expensive petroleum, increasingly limited supplies of water and nitrogen, and within a scenario of a rapidly changing climate, social unrest, and economic uncertainty (IAASTD, 2009).

They recommended a fundamental shift towards agroecology as a way to boost food production and improve the situation of the poor and the marginalised. Based on consultations with agricultural experts, scientists, and previous studies, both reports argued that small-scale farmers have the capability to double food production within a decade by using agroecological methods already available in the most critical regions (IAASTD, 2009; De Schutter, 2011).

Agroecology as a discipline gives an important insight into the path of equitable and sustainable agriculture in the changing socio-ecological conditions. It is described as a scientific, methodological, and technological advance for a new ‘agrarian revolution’ worldwide (Altieri, 2009; Wezel and Soldat, 2009; Wezel et al., 2009; Ferguson and Morales, 2010). Agroecology-based production systems aim at the transformation of industrial form of agriculture by finding alternatives to a fossil-fuel-based production system, encouraging biofuels, and local/national production mainly by small and family farmers based on local resources, innovation, and knowledge. It is based on the idea that agriculture in developing countries has thrived for centuries on traditional environmental practices over land and the use of local resources that have been nurtured biologically and genetically by local communities. For centuries, these lands have been traditionally managed in the form of raised fields, terraces, polycultures and agroforestry system based on indigenous agricultural strategies and the creativity of traditional farmers (Koohafkan and Altieri, 2010). Although many factors like population growth, market penetration, migration, political reform, introduction of new technology, and others have accelerated the pace of change in rural areas, many of these traditional practices continued to exist and contributed substantially to food security at local, regional, and national levels (Toledo and Barrera-Bassols, 2009).

However, whether local knowledge practices and production by itself could be sufficient to address the food and hunger crisis as well as generate viable income to sustain livelihood in rural farming communities is unclear. Arun Agrawal (1995) argues that complete dependence on indigenous knowledge systems and local food production cannot be the basis of society until it empowers those poor and marginalised groups who may be the real producers of the knowledge base. He asserts that the process of empowering must be accompanied by challenging the power structure of society that claims the superiority of one knowledge over the other and must have equitable distribution of benefits in the rural communities. Moreover, the potential and spread of agroecological methods depend on various factors and changes in policies, institutions and research and development (Altieri, 2009). Any proposed agroecological model that targets the poor and marginalised section must aim for a holistic model of development by aiming at creating employment, providing equitable access to local resources, and local markets. Having said that, particular emphasis must
be given to farmers to incorporate their views in formulating the research agendas and focus on sharing experiences, strengthening local research and problem-solving capacities.

La Vía Campesina (from Spanish la vía campesina, the peasants' way) is one such farmers’ organisation founded in 1993 in Belgium. The idea behind the organisation was to coordinate peasant organisations of small and medium-scale producers, traditional or family farms, rural women, and indigenous communities from across the world to advocate family farm-based sustainable agriculture. The concept of food sovereignty that emerged with La Via Campesina movement focused on national self-sufficiency and diversity in food systems and was spread across many other countries. In the context of Global South, Raj Patel (2009) defines food sovereignty in the following paragraph:

Food Sovereignty is the right of people to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute, and consume food at the heart of food systems and policies, rather than the demands of markets and corporations…. [It] implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social and economic classes, and generations (Patel 2009, p.673–4).

The critics, however, point to some shortcomings in this approach. Burnett and Murphy (2014) argue that advocates of local production and distribution often neglect how smallholders cultivating export crops may encounter a reduction in their incomes if they were required to switch to growing staple foods for local markets. Likewise, Edelman et al (2014) point to the extent to which non-local dietary preferences can or should be challenged. While food cultures are relatively place-based and tied to agricultural capabilities in a given region, some distance between food production and the final consumer may be inescapable, considering the difficulties to produce a variety of food within a given geographical territory. Similarly, Agrawal (2014) argues that self-reliance in food production may not be an easy way ahead due to restrictions posed by limited arable land, irrigation water and other essential resources, mainly in geographically poor regions or nations. Lastly, critics (Patel, 2009; Edelman et al., 2014; Agrawal, 2014) argue that the increase in urbanisation, rural to urban out-migration and low possibilities of local farming practices in urban spaces are central challenges to overcoming geographical distance in most developing countries.

Agrawal (2014) argues that the emphasis on small and marginal farmers and family farms is likely to pose a serious threat to farming communities of developing countries. This is so because most of them are trapped in low productivity cycles post-agricultural intensification. For instance, in Asia, almost 60 per cent of the workforce remains in agriculture, while the contribution of agriculture to overall GDP remains as low as 13% (Agrawal, 2014). The difference between agriculture’s GDP contribution and the population it supports is indicative of the fact that many farmers are mostly engaged in low-yield and subsistence farming. Moreover, this trap is gendered in nature. Small farmers, especially women farmers, have a key role to play in reviving the agricultural economy by withstanding the onslaughts of climate change and environmental degradation. However, they face serious socio-political and cultural constraints such as insecure land rights, gendered access to natural resources and management, low credit facilities, limited access to agricultural inputs or technology, and low skills to handle agricultural intensification.
Lastly, Agrawal (2014, 2017) questions the farmers’ democratic right to choose or if they have the option to choose at all, given the socio-economic constraints that they face. A significant number of farmers are disillusioned with farming itself or compelled to eschew food production for self-sufficiency due to economic reasons. By way of illustration, an all-India survey of over fifty thousand rural farm households carried out by the National Sample Survey Organisation (NSSO) of India in 2003 (Government of India 2005a) posed a question to those who were farming full-time: ‘Do you like farming as a profession?’ Almost 40% said that they did not, and if given a choice would prefer another source of livelihood. Most of these farmers had small landholdings with low income and were dependent on other economic resources to sustain a healthy lifestyle. They were less likely to know about governmental measures such as minimum support prices, crop insurance policies, or be members in a farmers’ organisation or a self-help group, have knowledge about bio-fertilisers or have any formal training in agriculture (Agrawal, 2014). The survey suggested that the most vulnerable and resource-poor are most likely to want to leave agriculture. Thus, relying on small and family farms may contribute to the revival of traditional practices and use of local resources among small landholders and marginalised farmers but often takes place without a democratic process of choice and consent and may lead to a new form of gendered prejudices, and biases in rural farming communities.

To sum up, the concepts of agroecology and food sovereignty are crucial for understanding as they highlight the importance of the local use and management of natural resources and the revival of traditional knowledge and practices for sustainable practices with a particular focus on improving the livelihood of small landholders and women farmers. At the same time, looking at these approaches through a critical lens is equally important to investigate transitions to alternative agricultural practices and methods of farming.

2.2.3 Conclusion

The section discussed two alternative approaches to intensive agriculture emerging in the Global South context but not limited to that. While the proponents of ecological modernisation believed in sustainable farming by use of sustainable technologies in modernising agriculture, agroecological approaches proposed sustainable practices with the use of low-input technologies, local resource use, diversifying production and involvement of local communities, including women and small farm holders, in decision-making processes related to food production and distribution. Here, I argue that both ecological modernisation and agroecological approaches may have their opportunities and challenges and to implement these approaches one must consider both the social and the ecological implications they may have in any given socio-economic context. It is crucial to study processes and practices involved in transitions to alternative forms of agriculture and how they may affect different socio-economic groups involved in transitions. In the next and final section, I develop my research framework on how and why to study transitions in agriculture. I also conceptualise it in the Indian context using multifunctional agriculture approaches and emphasise studying farmers’ motivations and perceptions in transitions.

4 The survey defined a farmer as someone who not only operated some land but was engaged in agricultural activities during the 365 days preceding the day of the survey. Landless agricultural labourers who were not leasing in land and those owning but not cultivating land were excluded.
2.3 Researching agricultural transitions

In this research, I focus on how different farmers adopt diverse farming methods that shape current farming practices in the villages in Haryana. Specifically, I examine farmers’ perspectives and their ‘diverse pathways to transition’ (IPES-Food, 2016), to understand the variety of knowledge-intensive farming systems and practices that have emerged from transition processes in agriculture. To do so, I attempt to build on the framework of multifunctional agriculture (MFA) to study agricultural transitions, transition processes, and outcomes in different geographical, social, economic, and cultural contexts. In this section, I explain my research framework. It is divided into three parts: 2.3.1 discusses transition processes using the MFA framework and specifically draw on Wilson’s (2007,08) concept of multifunctional transition pathways; 2.3.2 discusses approaches to study farmers’ motivations and attitudes in agricultural transitions, wherein I justify the need to explore farmers’ perspectives in transitions. Lastly, 2.3.3 discusses transition outcomes by examining farmers’ behaviours and the changing farmers’ identity vis-a-vis rural community. Finally, while elaborating on my research framework, I also discuss how to conceptualise these frameworks in the Indian context.

2.3.1 Understanding transition processes: Conceptualising transitions using multifunctional agriculture framework

I. Studying multifunctional agriculture approach in redefining agricultural activities

The term multifunctional agriculture (MFA) broadly embraces the concept that agriculture has purposes apart from food and fibre production, including management of renewable natural resources, landscape and biodiversity conservation, and contributing to the socio-economic viability of rural areas (Eftekhari & Shadparvar, 2018; Renting et al., 2009). In MFA analyses, agriculture is seen as not just an economic activity but also a sector that can generate multiple outputs and amenities (including food production and processing; ecosystem, energy, and water services; recreational opportunities; landscape and scenery and cultural heritage) from an individual farm or across an agricultural landscape. This production of multiple outputs from agricultural systems is termed multifunctionality (Wilson, 2007). MFA may also involve the regeneration of ecosystem services, a process which requires more than simply increasing farm diversity (Hodbod, Barreteau, Allen, & Magda, 2016), which produces both production and non-production benefits such as agricultural heritage, reduced soil erosion, enhanced ecosystem services, ecotourism and other income and employment benefits, etc. (Smith & Sullivan, 2014).

Multifunctional agriculture is generally conceptualised under ‘narrow’ and ‘wider’ approaches, signifying differences across research disciplines and its broader application to different geographical, social, and cultural contexts. ‘Narrow’ approaches to MFA include the analytical framework of the OECD (2001) and related contributions from neo-classical and welfare economics, which largely conceptualise it from the perspective of market regulation. In this approach, they define multifunctionality as: (i) the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture and (ii) exhibiting the characteristics
of externalities\textsuperscript{5} or public goods, for which markets do not usually exist or function poorly (OECD, 2001). Calls for ‘wider’ approaches to MFA are based on exploring the non-market aspects of multifunctional agriculture that cater to more general changes in the relations between agriculture, society and farming practices at large (Van Huylenbroeck and Durand, 2003; Knickel and Renting, 2000; Knickel et al., 2004). These scholars argued that,

the growing attention for multifunctional agriculture, rather than a direct response to market failure, is considered as a consequence of the changing needs and demands of consumers and society at large in combination with the failure of conventional, productivist farm development models in sufficiently meeting these (Renting et al., 2008, p. 364).

Within ‘wider’ approaches, relevant functions are not restricted to public goods or externalities (jointly) produced by agricultural activity, but rather a considerably larger scope of goods, services and ‘functions’ that cannot be strictly derived from food and fibre production. Fig 2.3 includes a list of possible functions that may be considered under MFA approaches. These functions are crucial to understand what part agriculture-related activities play in extending these functions from merely a definitive economic perspective to other socio-ecological and cultural perspectives. Moreover, these functions reflect how changes in agriculture may be conceptualised as any change may not just affect the ecological or economic part but also have implications for the socio-cultural aspects of a society.

\textsuperscript{5} Here, externalities refer to both positive (e.g., biodiversity, landscape, water management, etc.) and negative (e.g., environmental pollution, soil erosion, etc.) elements.
Fig 2.3: The social, ecological and economic functions of farms expressed by farmers and local development groups

<table>
<thead>
<tr>
<th>Social functions</th>
<th>Ecological functions</th>
<th>Economic functions</th>
</tr>
</thead>
<tbody>
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<td>a) farms are meeting places for villagers</td>
<td>a) farmers maintain and enhance biological and genetic diversity</td>
<td>a) farms produce food and fibres</td>
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<td>b) farms are places for social activities</td>
<td>b) farmers maintain the agroecosystem</td>
<td>b) farmers maintain roads important to all inhabitants</td>
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<td>c) farms represent cultural heritage</td>
<td>c) farmers maintain and increase soil fertility</td>
<td>c) farms create local job opportunities</td>
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<td>d) local farms offer knowledge on where the food comes from</td>
<td>d) farmers have local ecological knowledge</td>
<td>d) farmers have machines possible to use for other activities than farming</td>
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<td>e) farms create feelings of safety and trust since someone is at home at most times and since the farmer is known to most people farmers create an aesthetic open landscape</td>
<td>e) farms are places for recycling of nutrients locally</td>
<td>e) farms with farm shops offer products with added value</td>
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<td>f) farmers create the cultural landscape</td>
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<td>f) farmers are often those with available risk capital for investment</td>
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However, these wider approaches have their own shortcomings. A recent systemic review on understanding the social dimension of MFA in Europe reported a bias towards agriculture’s interrelations with its ‘ecological functions’ in the whole discourse on MFA (Nowack et al., 2022). They pointed out that the social functions of agriculture have generally received little attention and were hardly conceptualised as compared to the other two. Moreover, one might ask if such a division of functions can be universally accepted across the world as a legitimate component of MFA. Put simply, there are vast differences in the way that agriculture is conceived across countries and regions that may consist of diverse components and differ in the needs for each of them (Moon, 2015).

Overall, the use of the MFA concept can be traced back to different historical roots and concerns. The framework, for a long time, was dominated by neo-classical economic approaches with a particular focus on trade-related issues and international policy debates concerning the legitimacy of public support for agriculture and the liberalisation of commodity markets. Yet, scholars have
argued that this singular focus does not do justice to the merits and potentials of the multifunctionality concept (Renting et al., 2008, 2009). In this regard, various other approaches have emerged, which justify a broadening of perspectives beyond trade-related issues and suggest that the MFA concept may play a central role in opening new, innovative perspectives on crucial questions such as the evolving relations between agriculture and wider society and the changing role of agricultural activities in sustainable rural development (Zander et al., 2007; Cairol et al., 2008; Knickel and Bruckmeier, 2008). There is a growing number of contributions from non-European scholars on multifunctionality topics, albeit sometimes under different headings such as ‘ecosystem services’, ‘diversification’, or ‘pluriverse’ (Boody et al., 2005; Holmes, 2006; Swinton et al., 2006; Demaria Et al., 2017; Kothari et al. 2019). These developments suggest sufficient scope and interest for further research in the application and use of the multifunctionality framework in understanding agricultural diversification and transition processes. In this regard, Renting et al. (2009) argue,

The fact that the MFA concept was first mentioned in the context of the Rio Earth Summit is only one reason to argue that the concept be best assessed, both politically and scientifically, as a means to contribute to a better understanding of transition processes towards the much broader objective of sustainable development (2009, p. S113).

The study highlights a strong linkage between MFA and sustainable development in the sense that sustainable development provides a framework for describing and assessing all the economic, social and environmental aims associated with MFA. For further research, MFA may be a useful framework in contributing to a better understanding and realisation of different aspects of sustainable development in the context of agriculture and rural areas.

Using these studies, I attempt to reconceptualise agricultural transitions by extending the conceptual framework of MFA in the Global South, especially India. Having said that, my research reconceptualises the MFA perspective from an actor-oriented approach that gives central attention to MFA issues at the farm-level and, in particular, to decision-making processes of farmers in the social construction of multifunctional agricultural practices. In extending the MFA framework to the South, Losch argued,

The fundamental questions posed by the ‘multifunctional view’ show it to be one possible means of generating solutions ‘tailored’ to specific conditions of agriculture, and economic development more generally, in the South (2004, p. 355).

In other studies, Wilson (2007, 2008) viewed MFA as a ‘spectrum bounded by productivist and non-productivist actions’. This view conceptualises transitions taking place among weak, moderate, and strong multifunctional pathways at the farm-level and multifunctionality is assessed by a multitude of dimensions such as social, economic, cultural, moral, and environmental capital (see for explanation below). Using these studies, in the following sub-section, I discuss how agricultural transitions may be studied at the farm-level. I focus on studying farm diversity (that includes farming practices and management strategies) and the spectrum of transition pathways that may be used by different farmers. I also show how far this conceptual framework is suitable to understand the changing farming practices and agricultural transition pathways adopted by different farmers in diverse geographical and socio-cultural contexts in India.
II. Conceptualising farm diversity & farm-level multifunctional transitional pathways

The analysis of agricultural activity from an MFA perspective makes the selection of relevant farm models and farm categories a rather complex issue. The modernisation approach, which dominated scientific and political debates on agricultural development in recent decades, has been associated with the definition of specific farm categories such as size (acreage, economic size), scale, and the proportion of income derived from agricultural activities (‘professional’ farms) as important in defining ‘viable’ and ‘vanguard’ farms. However, scholars using the MFA approach called for evaluating these criteria for what is relevant according to various farm methods and strategies. Later approaches to farm diversification focused on various on-farm activities other than food production, ranging from the cultivation of unconventional crops to the provisioning of services for tourism/leisure purposes (agri-tourism) and the processing and marketing of quality foods. Wider definitions of farm diversification included any form of non-agricultural income-generating activity on and off the farm (Renting et al., 2005, 2008), and therefore overlapped with part-time farming and pluriactivity models (Evans and Ilbery, 1993; Feher and Szepesy, 2003).

Renting et al. (2005, 2008, 2009) were among the few who tried to broaden the framework of MFA by including relevant categories of farms that need to be addressed while considering the redefinition and extension of agricultural functions (see Fig 2.4). They distinguished relevant farm populations along two dimensions:
1 The centrality of food production versus diversification into other activities than food production (horizontal axis).
2 The dependence of household members on income generated by farm/firm activities versus the existence of off-farm/firm income from other activities (vertical axis).

**Fig 2.4: Relevant farm/firm categories for the study of MFA**

![Fig 2.4](source: Renting et al. (2005, p. 370))
The combination of agricultural activities with other income activities off the farm appeared on the research agenda in the 1970s, and especially in the 1980s, was studied under a variety of headings (part-time farming, pluriactivity, other gainful activities). In Fig 2.4, Renting et al. (2005) show how both food-producing and diversified activities allow for a range of categories of farms and enterprises. According to the study, five main categories of farms emerged in Europe: i) pluriactive farms (combination of agricultural & other income activities not necessarily related to agriculture), ii) diversified farms (variety of on-farm activities other than food production but more likely related to agriculture such as agri-tourism, food-processing industry, etc.), iii) large-scale non-family-based farms, iv) small and medium enterprises, and v) subsistence farms. Each farm had its distinctive characteristics and equally contributed to the idea of diversification of farm and agricultural practices. However, the study remained limited to a Europe-centric economic perspective by conceptualising diversification along income-based demarcation and objectives.

The last three decades or so have seen the use of the notion of ‘multifunctional agriculture’ in a wide variety of contexts, including economic approaches, policy-based approaches, and ‘holistic’ approaches (that incorporate the strengthening of social capital and changing societal perceptions of farming as key components of multifunctionality) (Marsden, 2003; Clark, 2005; Wilson, 2007). Critics of economistic interpretations of multifunctionality (Holmes, 2002; Garzon, 2005) have called for a more normative view of multifunctionality. Wilson (2007, 2008) was one among the few to develop this concept, suggesting that,

multifunctionality should not only be seen as a term appropriated by European policy-makers to defend the European farm culture but also as a normative process explaining what is happening at the farm-level (2008, p. 367).

In (re)conceptualising multifunctional agriculture, Wilson’s (2007) concept of a normative view of multifunctionality as a complex transition comprised of weak, moderate, and strong multifunctionality pathways provides a useful framework to address the key issue in studying agricultural transitions. In his clarification, Wilson characterises agricultural transitions as:

i) temporally non-linear (i.e., agricultural post-productivism does not necessarily follow sequentially from and replace ‘productivism’),

ii) spatially heterogeneous (i.e., not all geographical localities are affected in similar ways by transitions),

iii) structure–agency inconsistency (i.e., ‘structure’ and ‘agency’ are not equally affected by agricultural transitions).

Wilson explains his concept of ‘strong’ and ‘weak’ multifunctionality with certain basic elements and characteristics. According to him, strong multifunctionality is characterised by:

i) strong social, economic, cultural, moral, and environmental capital,

ii) strong tendencies for local and regional embeddedness (strong governance structures),

iii) activities that will help provide new income and employment opportunities for agricultural and other related activities,

iv) high environmental sustainability practices or activities with a reluctance to use GR technologies,

v) higher food quality associated with more differentiated food demand by consumers, creation of additional value for rural regions, and enlightened visions about food and health,
vi) revaluation of existing farm household knowledge (e.g., of women and young people), substantial mental changes through open-minded techniques of farming that see ‘farming’ and ‘agriculture’ as processes that go well beyond productivist food and fibre production (e.g., ‘deepening’ and ‘diversification’ of farm activities),

vii) more likely to be weakly integrated into the global capitalist market, or complete disengagement from global capitalist (productivist) networks and agriculture liberalisation processes (see for e.g., Hollander, 2004).

Wilson argues that the ‘strongest’ level of multifunctionality can be achieved if all the above processes and activities occur simultaneously. In Figure 2.5, Wilson shows multiple transitional pathways for hypothetical individual farm trajectories (farms ‘a’ to ‘h’). The figure shows examples of farm trajectories and how these may vary over time, ranging from strong multifunctionality pathways to moderate and weak multifunctionality. According to him, a farm closer to non-productivist action would be more likely to be a conserver or thinking beyond food and fibre production, while a productivist action would entail more production focussed activities that generate income and growth without environmental outcomes. For him, weakly multifunctional agricultural systems would show the inverse of the above dimensions (i.e., weak sustainability, weak local embeddedness, etc.). However, he also acknowledges that striving for a ‘strong’ multifunctional agricultural system may often represent a theoretical ideal rather than a fully achievable goal and that most systems will be characterised by complications and deviations from the ‘ideal’ strong multifunctionality model.

**Fig. 2.5: Multifunctionality as a spectrum bounded by productivist and non-productivist action and thought enabling a normative conceptualisation of weak, moderate and strong multifunctionality pathways for individual farm-level transitions**

![Diagram](image)

*Note: ‘a’ – ‘h’ represents individual farm development pathways; Source: Wilson, (2007, p. 284)*

Building on these normative views of MFA, Wilson investigates multifunctional pathways at farm-level and emphasises the importance of understanding factors and processes that influence transitions and decision-making about diverse pathways. In this thesis, I draw on Wilson’s understanding on agricultural transitions. In chapters 6 and 7, I show how and why different farmers
adopt diverse farming practices and farm methods to move towards alternative agriculture in Haryana. However, I argue for two additional elements that must be considered while studying agricultural transitions in India:

Firstly, transitions at farm-level must be studied and theorised as a range of dynamic practices, evidenced in the ever-changing farming practices, marketing strategies, and emerging meanings of sustainability. While the above discussed studies on MFA have done a fair job in understanding diverse farm-level practices and management (or marketing) strategies, they leave out the emerging meanings around sustainability or sustainable agriculture. In Chapter 4, I explain different types of farmers, their agricultural practices, and meanings of ‘alternatives’ in my research context. In Chapter 7, I combine my theoretical formulation with empirical evidence from my field study to show how different farmers adopt diverse farming practices along with different visions of sustainability as perceived by them rather than a preconceived notion of sustainability. Finally, I argue that studying farmers’ perspectives and understandings on sustainability is significant to evaluate transition outcomes as ecologically sustainable and socially just based on a given socio-economic context. This helps to answer my research question 3: What do farmers understand by sustainability? And how do they make sustainability choices about what to adopt in changing ecological conditions?

Secondly, while conceptualising agricultural transitions in India, one must also consider the social implications it may generate at a household and community level. While transition outcomes have been evaluated through ecological and economic sustainability and diversity among actors involved, none of the existing studies evaluate processes of change around socio-cultural transformations, prevailing social inequalities and changing farmers’ identities. In chapter 8, I study the social outcomes of transitions in Haryana, wherein I argue that, in the process of transitioning to alternative agriculture, these farmers not only restructure existing farming culture and practices but also redefine their own identity as important players in the changing village agriculture and rural sustainability. This helps in answering my research question 4, which entails: What do farmers achieve with agricultural transitions? And what are the social outcomes of transition across different groups (gender, caste, age, and class) in the villages?

III. Conclusion

Scholars, in the past, have urged for a holistic framework of multifunctionality that should be applicable globally for explaining agricultural changes in any agricultural area (Buller, 2005ii; Holmes, 2006). Some limitations of these studies were that they concentrated on narrow criteria, were restricted to an economic perspective, and to a Western (Europe-centric) context. Moreover, understanding the role and motivations of actors at the farm and territorial levels was missing from most of the studies, which called for a more comprehensive research framework to study agricultural transitions and decision-making processes. Wilson’s suggestion of a normative view of multifunctionality and the multifunctional spectrum is seen as one of the few attempts to reconceptualise multifunctionality in a developing world context (Hollard, 2004; Wilson, 2007). Wilson’s framework is useful for this research to study transitions at diverse farm-levels and multifunctional transitional pathways, as it would be rare for a farm to stay at the same level of multifunctionality for a very long time. However, I argue that transitions at farm-level must be
studied and theorised as a range of dynamic practices, evidenced in the ever-changing farming practices, marketing strategies, and emerging meanings of sustainability.

Furthermore, scholars using the MFA framework to study agricultural activity claim that using this perspective not only implies an extension of the types of farm categories but also requires an acknowledgement of the role of different motivations and identities of actors involved as driving forces for multifunctional agriculture. They pointed out that previous sociological and economic studies of agriculture have mainly studied agricultural activity as a profit-seeking activity or a strategy of farm households to guarantee their livelihoods in economic and financial terms. More importantly, in the late 80s, moving to sustainable agriculture also became popular among farmers in the developed societies of the US and other European countries and later in the developing nations of the Global South. It is equally interesting to note the differences and contradictions among farmers’ motivations within and across developed and developing countries. In the next two sections, I further develop my research framework on why and how to study farmers’ motivations, behaviours, and perceptions in agricultural transitions and how my research contributes to this theoretical gap while conceptualising transitions.

2.3.2 Studying farmers’ perspectives on the factors of motivations and challenges in agricultural transitions

To understand farmers’ perspectives on transitions to alternative agriculture, it is important to learn the process of decision-making among farmers and how they make choices regarding which practices to follow and which ones to leave out. Agricultural decisions are made in response to the multi-scale and interlinked pressures on agriculture, rural livelihoods, and natural resources (Singh et al., 2016). Farmers’ decision-making are processes that follows the assessment of one alternative as more preferable than other and involves a number of variables that are both internal (values, preferences, personal knowledge, risk tolerance, trust in agents of change, goals and plans to attain said goals, attitudes, ambitions, and beliefs) and external (national policies, infrastructure, environmental changes including water availability, climate, soil quality, pests, and land holdings, labour availability, socio-cultural background, as well as market demand, prices, and access) (Roberts, 2015; Robert et al., 2017). Besides these, other factors such as political pressures from the local or national government, untimely crop failures due to natural calamities or catastrophes and personal values and emotions make an impact on decision-making processes. For this research, it was not possible to consider all the variables in a single study; however, I tried to consider some of them within a socio-ecological context. This was done within a broader framework that connects farmers’ responses to the larger systems -- social, cultural, political, and environmental -- that they are a part of and make choices within.

Calls for the study of farmers’ perceptions and attitudes are not new (Gasson, 1973), however, very few tried to link farmers’ motivations to the underlying discourse on the conservation, adaptation and sustainability issues (Potter, 1986; Beedell and Rehman, 2000 Abid et al., 2015; Soriano et al., 2017). Some studies in the US and Europe are worth mentioning here. In the US, Cacek and Langner (1986) view the trend of transition from conventional to sustainable farming as a reaction by farmers to the increasing costs of chemicals and the stagnation of commodity prices, forcing farmers to look for new ways to decrease input costs in order to stay profitable. In the UK, Rigby and Cáceres (2001) identified improvement in soil health as one of the key motivational factors for
organic farming. Hall and Mogyorody (2001), while studying the main motivations of farmers to adopt sustainable farming in Canada, concluded that more and more farmers are acknowledging the business aspect to organic farming, that is, a profit must be made to continue farming, whether it be conventionally or organically. Likewise, Padel (2001) viewed this shift as a way for farmers to deal with the increasing financial hardships faced by farmers in England. Other studies reported that factors like subsidies paid to farmers (Padel, 2001; Daugbjerg et al., 2011; Offermann et al., 2009), market access and consumer demand in the country (Hamm & Gronefeld, 2004; Lamine & Bellon, 2009) or just higher profits with organic farming practices (Dabbert et al., 2004; De Cock, 2005) were some of the reasons for the conversion to organic agriculture in the developed countries. Although non-economic factors such as social, health or environmental reasons (Padel, 2001; Best, 2010; Cranfield et al., 2010; Mzoughi, 2011) also play a significant role, there are limited studies from developed countries identifying non-economic factors as important ones (Karki et al., 2011). More so, most farmers in the Global North consume only a small part of their food from their own plots, unlike the Global South, where a greater share is more common, and therefore, economic factors become a priority for the developed countries.

Studies in the Global South have extensively reported the process of adoption of GR technologies and industrial agricultural practices during the mid-1960s among most farmers in rural areas (Pingali, 2010, 2012; Feldman and Biggs, 2012; Friedmann, 2017). The transition to sustainable agricultural approaches, especially after the 1990s, was proposed in response to the growing ecological and socio-economic challenges posed by industrial agriculture (IAASTD, 2009; MEA, 2005). In Nepal, for example, Karki et al. (2011) identified environmental awareness factors like ‘reduction of soil erosion’ and better ‘soil fertility’ and health awareness factors including ‘healthy products for the consumers’ and ‘maximum utilisation of farm internal resources’ as important motivations for farmers to adopt organic tea plantation. Likewise, Pornpratansombat et al. (2011) came to quite similar results with regard to the factors of Thai rice farmers for the adoption of organic farming. They identified that the factors ‘human and animal health’ and ‘demand for healthy food’ led to a high probability to adapt to organic farming practices. In India, Riar et al. (2017) studied the factors for adopting organic cotton-based farming systems in the Nimar Valley of Madhya Pradesh. They reported health and environmental concerns such as perception of climate change, long-term sustainability, and interest in growing safer food as motivational factors to adopt organic farming. Azam and Shaheen (2019), in their study on decisional factors driving farmers to adopt organic farming in India, classified the following factors in the top seven rankings: ‘premium price of the produce’; ‘quality food’; ‘avoid chemicals’; warehousing facility’; ‘conversion compensation’; ‘health benefits’; and ‘fertiliser subsidy’. While these studies reported some motivation factors for farmers to transition, their quantitative research method allowed a limited understanding of farmers’ perspectives and decision-making processes to study these transitions. In Chapter 6, I examine farmers’ understanding and experiences of adopting alternative farming practices and show how they navigate decision-making processes of change. In particular, I argue that the main reason farmers switch to different farming practices begins with their concerns about health and the environment and goes further once economic, social network, knowledge and other informational gaps are dealt with.

Conversely, some studies in India and Africa (Alonge and Martine, 1995; Rasul and Thapa, 2003; Cramb, 2005) highlight that although more farmers are now aware of the negative environmental and socio-ecological impacts of conventional agriculture, this may not have been translated into
sustainable practices in agriculture. In a study on smallholder organic production and marketing in South Africa, Thamaga-Chitja & Hendriks (2008) stated that the conditions favouring a conversion to organic agriculture in developing countries were very different from those in developed countries, especially concerning the policy environment and in particular concerning the economic policies, access to appropriate markets, strong domestic demand for organic products, farmers' financial resources, proper training facilities, and availability of extension services.

Other studies in India have reported agronomic, informational and market challenges that restricted farmers from adopting alternative agricultural practices. For example, Riar et al. (2017), in their study in Nimar Valley (Madhya Pradesh), reported four major limiting factors of organic cotton production: climatic uncertainty, pests and disease attack, low productivity and prices, and more labour requirements. In Haryana, Bhatia et al. (2016) highlighted some major constraints in the adoption of organic paddy cultivation, such as low premium prices, lack of subsidy or incentives by the government, no minimum support price for organic paddy, lack of local demand and organised market facilities, interference of the middlemen, and lack of proper guidance and training for organic practices. Kumar Pradhan & Singh (2018) and Bhatt & John (2023) conducted their study in Sikkim and reported the following challenges in transition to organic agriculture: reduction in yield and plant protection, risk of diminished income with increased transition and transaction cost; certifications and standards, knowledge and extension, marketing and infrastructural barriers, such as transportation, electricity and irrigation. Azam and Shaheen (2019) conducted a cross-sectional study with a pan-India sample of 200 farmers to understand the decisional factors driving farmers to adopt organic farming and highlighted challenges, such as proper training and development, marketing issues, price premium, certification issues, warehousing problems, etc. faced by farmers after adoption of organic farming. While these studies tried to broaden the existing framework by studying barriers to transition, much more research is needed to understand the development of alternative agricultural practices in developing countries regarding the changing socio-economic factors that impede farmers from adopting different practices and the decision-making processes among diverse groups of farmers. In Chapter 5, I examine how changing socio ecology, farming culture, and women’s work in agriculture created barriers for some farmers to transition to alternative agricultural practices. Moreover, in Chapter 6, I examine the two existing challenges -- agronomic and informational gaps and negative pressure from friends and family -- and discuss how these factors led to some thwarted transitions, forcing some farmers to return to their previous conventional farming after transitioning to alternative practices.

Apart from studying farmers’ motivations and challenges in adopting a particular form of a farming method, it is equally important to study the variations in choices that may emerge among different farmers due to differences in their socio-economic, gender and caste status within which they interact. As discussed before, the choice of a particular mode of farming in India varies across different castes, classes, genders, and age groups depending on access to information, resources and technology, economic viability, income, topography, governmental policies, etc. It further varies depending on gender, especially in a patriarchal and male-dominated rural village. Trent Brown (2018) critically examines the organic farming movement in Tamil Nadu and highlights the need to articulate the socio-economic benefits of ecological farming rather than merely focusing on the environment in light of growing indebtedness and poverty among small landholders. In another study of the Anand district in Gujarat, Patel (2016) argues that gender-based hierarchies and disproportionate access to land and local resources must be studied as important impediments.
in the transition to sustainable practices. A few other cases in Haryana show how the younger populations who have moved to the cities are now curious to leave their urban jobs and return to the villages to pursue organic farming for sustainable living (Ohlan, 2016). What motivates the youth to migrate to urban areas and reverse migrate, is an important study of inquiry that any transition process may consider.

To understand these social processes of change, gender inequalities and other existing power hierarchies, recent scholarship in South Asia draws on actor-oriented approaches and people’s perceptions on decision-making practices and processes. For example, a recent study by Leder, Sugden, Raut, Ray and Saikia (2019) draws on feminist political ecology and actors’ responses to study the extent to which collective farming enables marginalised groups to engage in smallholder agriculture in eastern Gangetic plains and Nepal. Based on extensive fieldwork in six villages, the study attempted to undertake a ‘non-extractive research by experiencing and learning from communities’ responses’ (Clement et al., 2019) to document social engagements and changes of the marginalised groups over a four-year period. By engaging and observing diverse gender relations within and beyond farmers’ collective groups, the study aimed to understand group development in ‘everyday practices’, going ‘beyond the homogenising versions of the development enterprise and of feminism’ (Leder et al., 2019, p. 113). The study found that unequal gender relations, intersected by age, ethnicity, class and caste, were reproduced in collective action and resource management and argued for a critical feminist perspective that could support a more reflexive and relational understanding of collective farming processes.

In another study, Sugden et al. (2022) seek to understand out-migration and economic and environmental change by understanding migration decision-making processes and how both fit within the larger process of the agrarian transition in the Global South (particularly Ethiopia, Kenya, and Nepal). Using mixed method approach, the study collected quantitative data on agricultural production, livelihoods, and migration. A qualitative analysis was done to assess perceptions and experiences of out-migration in a changing agricultural context. The study proposes a qualitative approach undertaking social perceptions to explore the process of migration and how it shapes agrarian livelihoods by focusing on migrating households, the main actors in the study. In conclusion, many examples were drawn from how the society (or youth) perceived the ‘modern’ lifestyle as a reason for migration and how a place-based (rather than individual) perception of poverty facilitates the emergence of particular cultural narratives through which young people aspire to migrate.

My research draws on these studies, particularly Sugden’s (2022, 2019, 2013) approach, by using farmers’ perceptions to study agricultural transitions and decision-making processes at the farm and household levels. Specifically, in chapters 6 and 7, I focus on understanding transitions through farmers’ perspectives on what and why some farmers adopt and do not adopt certain farming practices, how they define sustainability and the variety of socio-ecological outcomes it generates. This helps in answering my research questions 1, 2 and 3, such as: what are the general agricultural practices and their significance in the everyday lives of rural farming households? And why and how do farmers transition to alternative agriculture? Finally, I argue that there is a lack of more robust interpretations of sustainable agriculture that are evidenced by micro-level practices and perspectives of diverse types of farmers. More specifically, research revealing farmers’ perspectives is necessary to identify various elements: the complexities within the existing agri-
food system configurations, innovative behaviours and particular visions of sustainable agriculture, and possibilities for achieving them (Hinrichs, 2014).

To sum up, farmers’ decision-making is essential to determine the rationale for adopting a particular agricultural model or in making a choice to farm for self-sufficiency, to grow or not to grow food crops, a choice to switch to organic inputs, etc., subject to constraints that the farmers face. As discussed in this section, there are several factors that influence farmers’ decision-making and their rationale for adopting a particular farming model. In my study, understanding farmers’ rationale and perceptions is helpful in studying agricultural transitions due to two reasons: first, to identify and examine why farmers are motivated to adopt alternative farming practices and what opportunities and challenges do different groups of farmers face during transition, and second, to examine the decision-making processes within a household and to learn in what ways and how far different members of the family are involved in farming activities.

2.3.3 Understanding transition outcomes: Studying farmers’ behaviours and the changing farmers’ identity vis-a-vis rural community

Globally, much of the discussion around identity and community involves a need to understand how individual farmers conceptualise their own farming identity and their roles within the various social groups to which they belong (Iles et al., 2020). Broadly, identity has been defined through a unique set of meanings and characteristics depicting an individual and holding a specific role in a group or within society (McGuire et al., 2015; Stets and Burke, 2000). Within such self-identification processes, individuals embrace and sustain their uniqueness and are, at the same time, able to perceive themselves as members in something larger (Stets and Burke, 2000). McGuire et al. (2013) argued that by connecting with a shared group identity, an individual’s identity becomes stronger and strengthens its interaction within the social group as well. Others argue that individual’s interaction with the “physical world, animals, and the land” would enable them to have “a stronger sense of self-in-place, which is important for the development of self and a personal identity” (Kallstrom and Ljung, 2009, p. 377). This sense of self-in-place goes beyond traditional notions of connection between people and nature but rather encompasses social, economic and community ties, along with the natural environment (Eaton et al., 2019). To examine how individual farmers perceive themselves involves an understanding of their interactions within their society and rural farming communities in a diverse research context.

Some studies on farmers’ identity conducted in the US, European Union and Australia have focused on developing a better understanding of farmer beliefs about how agriculture should be performed and translated into the practices that are used on the farm (McGuire et al., 2015). For example, in the US, agriculture was being pushed to produce more food, fibre and feed the growing population, that made farmers adopt and incentivise industrial farming practices, which also resulted in several negative impacts on the environment (EPA, 2013; Rabalais et al., 2002). As the need for quality food and a clean environment grew simultaneously, so have society’s expectations that farmers will adopt practices that will significantly reduce or eliminate the negative impacts of agriculture. This societal expectation creates a social situation that can be challenging for some farmers to verify their farmer identity as doing “good” for the environment (McGuire et al., 2015). Thus, previously, most research on studying farmers’ identity had largely explored the two ideal types of farmers -
the productivist and the conservationist - and examined what they perceived of themselves and how their decision-making was influenced by external factors (or society) at large.

In the UK, the concept of farmer identity was developed by Burton (2004b) to better understand why farmers refused to participate in a plan to reforest their farmland. He concluded that farmers’ roles and identities are closely linked to their personal identities (or what individuals think of themselves). In the study, he found that a strong relationship existed among the farmers’ personal role and group identities, which prompted him to propose the concept of a ‘good farmer’ identity. He identified four key sub-identity from which the good farmer role identity was built: i) physical appearance of the crop and or livestock; ii) measure of crop production (yield per hectare or other similar measures); ii) through ‘Hedgerow farming’ (a process that involves comparison and evaluation of how well farmers in specific geographic areas are meeting the local, informal, farming standards); and iv) the ‘farm’ identity (that particularly represents the farm’s physical characteristics including the family farming method and the history of the farmland) (Burton, 2004).

Later, Burton and Wilson (2006) developed the idea of a “farmer identity” by creating a typology of the farmers. They experimented with various social-psychological scales of farmer identity and formally devised the productivist/post-productivist/multifunctional model (P/PP/MF model). Through this model, they investigate how far farmers are maintaining their productivist self-concepts (based on production-oriented roles) or moving towards post-productivist or multifunctional selves. They also identified three issues pertaining to the construction of farmers’ self-concept: first, the identities may be definitive and can be conceived of as multiple and hierarchical; second, an individual’s identity may not be based solely around the primary occupation but maintains identities in a number of occupational categories. Thirdly, occupational identities, due to their grounding in everyday life, are amongst the most salient, making the identity around farming activity extremely important. Lastly, they emphasised the notion of “othering” as an important part of building identities, in which farmers’ identities are based on their specific role behaviours. For instance, ‘traditional’ farmers may oppose modern large-scale agribusiness techniques of their neighbours, while the latter may be equally scornful of their lack of innovatory zeal towards their farming practices (Bell & Newby, 1974). Finally, in their P/PP/MF model, they discovered four types of farmers’ self-concept emerging: ‘agricultural producer’, ‘agribusinessperson’, ‘diversifier’, and ‘conservationist’ (Burton & Wilson, 2006, p. 102).

Although this model has mostly been applied in the context of large-scale agriculture to assess factors that influence farmer adoption of conservation practices, over time, it has been adapted to incorporate agricultural regimes that include multiple land uses, environmental conservation objectives, and sustainability concerns. For example, while investigating how individuals view their roles as farmers in the Midwestern state of Iowa (US), McGuire et al. (2015) identified two additional dimensions of farmer identity, namely ‘civic-mindedness’ and ‘naturalist orientations’, that extend the P/PP/MF model to reflect Iowa farmers’ self-identity better.

While these studies tried to address some knowledge gap between the theoretical understanding and practical elements of farmer identity, there is limited research on how farmers’ self-identity and perceived social roles together shape their ability to sustain their agricultural enterprises socially, economically, and ecologically (Iles et al., 2020). Critics highlight that the current
empirical studies on this topic focus less on studying identity and community and more on documenting conservation behaviour and the unique needs of different types of farmers and farm typologies (Brock et al., 2018; Perry-Hill and Prokopy, 2015; Ulrich-Schad et al., 2017). In the context of small-scale agriculture, scholars argue that, while public interest in small-scale agricultural products continues to grow and new kinds of farmers and farming practices are embarking on this kind of agricultural production (Jarosz, 2012; Kirschenmann, 2010), there is an increasing need to understand how these farmers perceive their self-identity and how their identity in turn impacts decision-making around land use, conservation, and community development (Wilson et al., 2003). Such in-depth understanding is important because it will help avoid treating all small or large-scale farms as homogenous and uncritically assuming their social and ecological benefits (McEntee, 2010; Carlisle, 2013; Guthman, 2008; Born and Purcell, 2006).

In India, some studies have articulated issues around farmers’ behaviours and identities with the changing agrarian political economy and emerging social movements in the last few decades. In the local contexts, studies have explored the changing nature of farmers’ identities in agricultural households with growing diversification into off-farm activities and enhanced market linkages for rural communities (Ellis, 2000; Razavi, 2006) or de-agrarianisation with social change (Bryceson, 2002) or through changing social differences (Arun, 2012; Jodhka 2012, 2014) and gender relationships (Ravera et al., 2016; Arun, 2012) within the altering political economy in rural India. While socio-religious (especially Hindu) identity has taken a new rise in developmental politics in India, recent studies have made some reflections on the reassertion of farmers’ identities with the growing of social movements and farmers’ protests in India (Baviskar & Levien, 2021). For instance, Kumar (2021) talked about the revival of Jat farmer identity during the ongoing farmers’ protests as having a great potential to change political equations and to challenge BJP’s hegemony in north India. He argued that the pushing of corporate capital and big agribusiness farm laws aggravated the existing fears of losing their land among both dominant and other rural farming communities in north-west India. This led to a growing disenchantment among both young and middle-aged farmers, which then laid the groundwork for the reassertion of a farmers’ identity over Hindu identity.

While these studies were able to fulfil some empirical gaps in understanding various aspects of (re)shaping farmers’ identity in India, they remained confined to a few specific areas resulting from the changing agrarian politics and farmers’ confrontation during movements and protests. No study has been conducted that analyses changing farmers’ identity and self-reflexivity in everyday forms of practices and processes of adopting alternative agriculture. In this research, I take identity and rural farming community as two important facets that underlie changing farming practices and use these concepts to analyse how farmers think of themselves, their changing social identities, and their roles within them once they adopt alternative agricultural practices. By doing so, I seek answers to my research questions: do transitions have any impact on existing social and gender inequalities or on reshaping rural and farmers’ identities? How do farmers perceive their identity and the changing agrarian community? What are the underlying factors that shape their perceived identity?

To answer these questions, I partially draw on Burton and Wilson’s (2006) P/PP/MF model to understand farmers’ self, particularly how they perceived themselves and their farming practices as ‘different from others’, especially after adopting alternative agriculture. However, I also show
how studying transformations in farmers’ identity is much more complex than being solely multi-functionalist producers and that their identity contains multiple meanings (that is, “natural”, ‘organic’, “sustainable”, “diversified,” “gendered”) in a given socio-economic context (see chapter 8).

2.4. Conclusion

In this chapter, I have laid out several studies and approaches which I utilise to support the empirical analysis in this thesis. In section 2.1, I have shown how most existing studies on the social implications of GR talked about the changes in the agrarian social structure and gender-based inequalities but did not study these changes as barriers to transition. In my research, I address this issue in Chapter 5 by studying the social implications of changing farming practices as a barrier to transition in Haryana villages. More importantly, my research studies whether a transition to an alternative or sustainable farming model addresses the issue of class, caste, and gender-based inequalities in the rural farming communities in Haryana (see chapters 7, 8). I state so because most sustainable agricultural approaches promote farming on small and family farms for restoring degraded land and ecosystem, as better alternatives to intensive agriculture (Altieri, 2009; Wezel and Soldat, 2009; Wezel et al., 2009; Ferguson and Morales, 2010). In doing so, they also try to highlight the concerns of small, marginalised, poor and women farmers who were mostly deprived of the socio-economic benefits of intensive agriculture while the condition worsened for a few of them in the long run. Understanding farmers’ experiences on sustainable approaches to farming may inform how these transitions impinge on agrarian social structure and inequalities in the villages of Haryana.

In section 2.2, I described two alternative approaches to study intensive agriculture. Here, I examined the opportunities and challenges to implement these approaches and argued that there is a need to study agricultural transitions from a perspective that is suited to place-based conditions and to consider the social, economic, cultural, and ecological dimensions of transitions in a given socio-economic context. I do not completely deny their presence and importance in my research context. However, I argue that these studies remained silent on how individual actors understand transitions and how the definition of alternatives or sustainability may vary among those transitioning. In Chapter 6, I use these approaches to study how individual farmers understand transitions and examine why different farmers adopted diverse farming practices in agriculture in my study villages. Moreover, chapters 7 and 8 answer several research questions, such as: how do different farmers approach diverse farm methods and understand sustainability? How do alternative approaches in agriculture impact different members of a household? Who adopts what farming practices, and how do they redefine village agriculture and rural sustainability? My approach helps me to develop a research framework on why and how to study agricultural transitions differently in diverse socio-economic contexts.

In the final section 2.3, I talked about my research framework. Here, I discussed the concept of multifunctional agriculture and the possibility of its expansion in the Indian context. Particularly, I draw on actor-oriented approaches and Wilson’s (2007, 2008) idea of a multifunctional spectrum to locate transition processes by different groups of farmers. In Chapter 7, I use multifunctional agriculture perspectives and transition pathways to conceptualise agricultural transitions in the
Indian context. I argue for studying transitions at the farm-level through a range of practices – farming, marketing, and developing meanings around sustainability – and explore its conceptual possibilities evidenced through my empirical data in the villages in Haryana. By focussing on farmers’ specific attributes to farms and farming practices in understanding the complexity of agricultural transitions, I fill an important research gap in the existing MFA literature on conceptualising transitions in the given socio-economic context.

Finally, to assess the perceptions and experiences of farmers in a changing agricultural context, I draw on Sugden’s (2022, 2019, 2013) approach by using farmers’ perceptions to study agricultural transitions and decision-making processes at the farm and household levels. Understanding farmers’ rationale and perceptions helps in answering my research questions: Why farmers are motivated to adopt alternative farming practices? And, what opportunities and challenges do different groups of farmers face during transition? Understanding farmers’ perspectives and the motivational processes of change helps in examining the decision-making processes within a household and in learning what ways and how far different members of the family are involved in farming activities and who decides what practice to follow and what not. This approach was also helpful in studying transition outcomes that focus on farmers’ behaviours and the changing farmers’ identity in India, which I examine further in my final empirical chapter 8.

In the next chapter, I outline the research strategy for my thesis. In particular, I discuss the rationale for my choice of the research sites in Haryana and the methods I deployed to conduct my fieldwork. I show the advantages of using qualitative approaches (e.g., interviews, group discussion and participant observation) in my study and reflect on the opportunities and challenges of these research tools. Since I conducted this study during Covid-19 period, I specifically discuss the ethical challenges and concerns that emerged due to mobility issues and their implications during my fieldwork. The chapter is followed by a description of the research context and empirical chapters of my thesis.
Chapter 3: Research Design

In this chapter, I outline my research strategy for this thesis. The chapter is organised into three main parts. Section 3.1 explains the rationale for my choice of field sites in Haryana. Section 3.2 discusses the methods that I utilised to carry out the fieldwork. In particular, I discuss the merits of qualitative research methods such as interviews, group discussions and participant observations and reflect on how I used and developed these methods during the course of my fieldwork. Finally, in section 3.3, I talk about the opportunities and challenges in my research and reflect on five major issues: researchers’ positionality and ethical consideration; parental concerns and taking relatives to the field; issues of mobility and self-reflectivity; challenges of telephonic interviews during Covid-19 and; finally the data analysis process. Since I conducted my fieldwork during Covid-19 pandemic, throughout these sections I also reflect on how pandemic-related restrictions hampered the course of my fieldwork and how I navigated through these challenges.

3.1 The field organisation and rationale for the selection of field sites

The fieldwork on which this study is based was conducted in Haryana for 11 months between September 2020 to July 2021. However, I did not work or stay in the field for the entire time as the study was interrupted due to Covid-19 restrictions and the farmers’ protests at the Delhi-Haryana border (2020-21). This also had significant impact on the course of my fieldwork. For instance, for the first half of my fieldwork period, I decided to visit the villages closer to Delhi, and could not visit the far-off villages until January 2021 when Covid-19 related restrictions were relatively eased. Also, initially I decided to visit only two villages and conduct a primary survey; however, due to varied reasons during the course of my fieldwork, I decided to visit and meet farmers across different villages in Haryana. In this section, I will discuss some of these reasons and the rationale for the selection of field sites.
My first plan was to visit two villages in the Sonipat district where sustainable farming had become established (selected online after searching through documentary sources and YouTube videos). However, it was impossible to carry out proper ethnographic fieldwork and data collection with a full primary survey of the village due to Covid-19 restrictions and mobility-related issues. Also, I was informed that I may not get suitable respondents (i.e., farmers who had undergone or were undergoing a variety of forms of agricultural transition) in those two villages (as what is available online may not be true when we go into the fields) and thereby I had to expand my field visit to multiple field sites. I took several criteria into account for choosing the research sites (also see Fig. 3.2 below):

1. I wanted to visit farmers in the villages closer to Delhi to get an idea of the kinds of agriculture being followed near Delhi, and to see if I could find any examples of transitions. These villages were located in the Rai Block of Sonipat District and showed higher presence of industrial equipments and conventional farming practices. Some parts were also affected by increasing urbanisation and land conversion to non-agricultural activities. I visited these villages to understand why different conventional farmers were continuing or not continuing industrial farming practices and what alternative farm practices they adopted.

2. Since I wanted to study transitions, I visited those villages where farmers had adopted or were willing to adopt diverse farming practices such as, crop diversification, natural and organic farming practices. During my visits to Rai Block, I was informed about some farmers adopting crop
diversification through polyhouse farming. These farmers were my initial group of interviewees. Through snowballing and visits to an agricultural department in Sonipat, I got a list of farmers who were experimenting or had adopted natural farming practices and were spread across villages in rural Sonipat. Therefore, I visited these farmers mostly located in the villages of Ganaur and Gohana Block (in Sonipat District), and a few villages in Jind and Panipat District (who had transitioned for a longer time). These villages were far from Delhi and had a lower presence of industrial farming practices as compared to the Rai Block. This helped me to find out answers to questions on how and why do different farmers adopt diverse farming practices? And what socio-ecological challenges they faced during transitions to alternative agricultural practices?

3. I was also curious to know the outcomes of transitions and therefore, I particularly visited farmers in Jind and Panipat district, who had adopted natural farming practices for a longer period and could share with me their transitioning processes, opportunities and challenges faced during transitions. This helped me answer the questions: What motivates farmers to transition to alternative farming practices? How far does the transition to sustainable agriculture diversify the role of members (men, women, children, elderly) within households? And, has there been any impact of agrarian transitions on different farmers across gender, class, and caste in these villages?

4. I searched for reverse migrants adopting organic farming through internet sources (social media and YouTube channels) and family contacts and visited their farms located in Haryana.

5. Finally, I talked to farmers across caste, class, gender and age groups in these villages to get a better picture of how agricultural activities in general and transitions in particular impacted different groups of farmers.
Fig. 3.2: List of interviewees, their location and key features of the villages

<table>
<thead>
<tr>
<th>No. of Interviewees / Group discussions</th>
<th>Village name (Coded)</th>
<th>Block/ District Name</th>
<th>Type of farmers</th>
<th>Key features of the village</th>
<th>Common agricultural practices in the village</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 in-depth interviews, 3 Group discussions</td>
<td>M</td>
<td>Rai Block, Sonipat District</td>
<td>Both Chemical and Polyhouse farmers, Dalit labourers</td>
<td>Closer to Delhi, high presence of industrial equipment and farming practices, increasing urbanisation and conversion of land to non-agricultural activities; High presence of Dalit labourer &amp; factory workers</td>
<td>Conventional farming of wheat and rice + Polyhouse farming of sweetcorn</td>
</tr>
<tr>
<td>11 in-depth interviews, 1 group discussion</td>
<td>A2</td>
<td>Rai Block, Sonipat District</td>
<td>Both Chemical and Polyhouse farmers, Factory workers</td>
<td>Closer to Delhi, high presence of industrial equipment and farming practices, increasing urbanisation and conversion of land to non-agricultural activities; High presence of Dalit labourer &amp; factory workers</td>
<td>Conventional farming of wheat and rice + Polyhouse farming of baby corn + processing industries of mushroom, peas, and baby corn production</td>
</tr>
<tr>
<td>7 in-depth interviews</td>
<td>B</td>
<td>Rai Block, Sonipat District</td>
<td>Both Chemical and Polyhouse farmers, 1-woman farmer</td>
<td>Closer to Delhi, high presence of industrial equipment and farming practices, increasing urbanisation and conversion of land to non-agricultural activities; High presence of Dalit labourer &amp; factory workers</td>
<td>Conventional farming of wheat and rice + Polyhouse farming of bell peppers, vegetables, and sweet corn</td>
</tr>
<tr>
<td>4 in-depth interviews</td>
<td>K</td>
<td>Ganaur Block, Sonipat District</td>
<td>Individual farmers involved on their farms</td>
<td>Far from Delhi, less urban, an idea of the kinds of agriculture being followed near Delhi, and to see if you could find any examples of transitions</td>
<td>Natural Farming + Multicropping method</td>
</tr>
<tr>
<td>10 in-depth interviews</td>
<td>J</td>
<td>Jind District</td>
<td>Farmers’ cooperatives, women farmers</td>
<td>Far from Delhi, less urban, lower level of industrial farming, farmers transitioning to NF through cooperatives, spread of NF more vital</td>
<td>Natural Farming</td>
</tr>
<tr>
<td>4 in-depth interviews</td>
<td>Nr</td>
<td>Panipat District</td>
<td>Farmers’ cooperatives</td>
<td>Far from Delhi, less urban, lower level of industrial farming, farmers transitioning to NF through cooperatives, spread of NF more vital</td>
<td>Natural Farming</td>
</tr>
<tr>
<td>No. of Interviewees / Group discussions</td>
<td>Village name (Coded)</td>
<td>Block/ District Name</td>
<td>Type of farmers</td>
<td>Key features of the village</td>
<td>Common agricultural practices in the village</td>
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<tr>
<td>4 in-depth interviews</td>
<td>N</td>
<td>Ganaur Block, Sonipat District</td>
<td>Farmers’ cooperatives</td>
<td>Far from Delhi, less urban, lower level of industrial farming, presence of canal water making natural farming more suitable, spread of NF more vital</td>
<td>Natural Farming + Multicropping method</td>
</tr>
<tr>
<td>1 in-depth interview</td>
<td>U</td>
<td>Panipat District</td>
<td>Individually involved on their farm</td>
<td>Far from Delhi, less urban, lower level of industrial farming, presence of canal water making natural farming more suitable, spread of NF more vital</td>
<td>Natural Farming</td>
</tr>
<tr>
<td>1 in-depth interview</td>
<td>D</td>
<td>Panipat District</td>
<td>Individually involved on their farm</td>
<td>Far from Delhi, less urban, lower level of industrial farming, presence of canal water making natural farming more suitable, spread of NF more vital</td>
<td>Natural Farming</td>
</tr>
<tr>
<td>1 in-depth interview</td>
<td>R</td>
<td>Gohana Block, Sonipat District</td>
<td>Individually involved on their farm</td>
<td>Far from Delhi, less urban, lower level of industrial farming, presence of canal water making natural farming more suitable, spread of NF more vital</td>
<td>Natural Farming</td>
</tr>
<tr>
<td>1 in-depth interview</td>
<td>Ad</td>
<td>Ganaur Block, Sonipat District</td>
<td>Individually involved on their farm</td>
<td>Far from Delhi, less urban, lower level of industrial farming, presence of canal water making natural farming more suitable, spread of NF more vital</td>
<td>Natural Farming</td>
</tr>
<tr>
<td>2 interviews, 2 group discussions</td>
<td>A1</td>
<td>Sonipat Block, Sonipat District</td>
<td>Reverse migrant + Farm workers/ Dalit labourers</td>
<td>Closer to Delhi but less urbanisation, only specific household adopting organic farming, high-value and sale of the product in national and international market, High presence of Dalit labourer &amp; factory workers</td>
<td>Organic farming</td>
</tr>
<tr>
<td>1 in-depth interview</td>
<td>A</td>
<td>Sonipat Block, Sonipat District</td>
<td>Reverse migrant</td>
<td>Closer to Delhi but less urbanisation, only specific household adopting organic farming, high-value and sale of the product in national and international market</td>
<td>Organic farming</td>
</tr>
<tr>
<td>1 in-depth interview</td>
<td>GT</td>
<td>Sonipat District</td>
<td>Reverse migrant</td>
<td>Closer to Delhi but less urbanisation, only specific household adopting organic farming, high-value and sale of the product in national and international market</td>
<td>Organic farming</td>
</tr>
</tbody>
</table>

*Source: Author*
In total, I interviewed farmers from fourteen villages in three districts: ten in Sonipat, three in Panipat and one in Jind district. Farmers belonging to these villages turned out to be a good choice for many reasons. First, villages here were mainly agriculture-dominated with both men and women involved in agriculture and allied activities. The main crops grown here are rice, wheat, maize, baby corn, sweetcorn, mushroom, sugarcane, and other vegetables. Since Haryana had particularly benefited from the GR, farmers in these villages were well aware of the impact of GR technologies, on both agricultural land and within society. Furthermore, in some villages like A and M in Sonipat, a few farmers were keen to invest in intensive agricultural practices and food-processing industries and made a good source of income and employment within the village. On the contrary, some farmers in J and Nr villages in Panipat practised natural farming practices and organised farmers’ cooperatives on small farmlands contributing to sustainable agriculture in their villages. Some of these farmers have adopted different methods of sustainable farming, which not only involve the usage of non-chemical inputs but also other practices such as beekeeping, dairy management, multi-cropping farming, biogas production, water harvesting, composting and making the most appropriate, sustainable use of naturally available resources. Thus, meeting different farmers and understanding diverse farm methods and farming practices helped me to examine how and why these farmers were motivated to transition or not transition to alternative farming practices and what were the possible opportunities and challenges in these transitions.

Secondly, small, marginalised and women farmers in these villages were involved in different activities ranging from low-skilled industrial work to the making of organic compost, and shared a good amount of knowledge and experiences in dealing with the environment in general (Fieldnotes 20/9/2020). Dalits were mostly involved in labour work in both industries and agricultural fields. However, the adoption of sustainable practices was not limited to a particular socio-economic class or caste, but farmers from different social backgrounds were involved in alternative practices. Engaging with different farmers across class, caste and gender helped me to understand transitions at a household level, specifically who does what work in agriculture, who decides the choice of crop production or farming practice, and how transitions may or may not affect different members in a household. Finally, it helped me to understand both current farming practices and transitions to sustainable agriculture as well as the diverse meanings of sustainability that may be generated in these transitioning processes.

Lastly, very few villages in Sonipat showed the presence of young migrants who have either migrated to urban areas for better job opportunities or reverse migrated to their village in Haryana and started organic farming. The purpose of interviewing these migrant farmers was to understand their motivation to adopt similar methods of sustainable farming among the younger generation. The choice of migrating back to the native village and the decision to opt out of well-paid urban jobs and switch to farming was another reason for choosing these cases in the selected villages.

I was introduced to most participants through my family contacts, my visits to agricultural departments and offices in Sonipat district, internet and social media searches. Snowballing method was used to connect with more farmers everytime I interviewed a farmer from a particular village.

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7 https://www.youtube.com/watch?v=aUWyD47eh7I&t=44s
Additional efforts were made to reach out to farmers while I was participating and observing their daily farm activities or just walking in the villages or sometimes when I was informed about a farmer who followed any agricultural practice that was uncommon and non-conventional. Due to Covid-19 restrictions, my initial interviews with farmers were mostly held by phone (especially during September 2020), however, I kept visiting the field sites on and off whenever I got a chance to do so.

<table>
<thead>
<tr>
<th>Fig 3.3: Timeline of fields visits and telephonic conversations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>September to December 2020:</strong> Both telephonic interviews and field visits whenever possible. Covid-19 and farmers’ protests restricted travel to the field sites.</td>
</tr>
<tr>
<td><strong>January 2021 to 18th April 2021:</strong> Field visits.</td>
</tr>
<tr>
<td><strong>19th April 2021- 30th May 2021:</strong> Complete shift to telephonic interviews due to Covid-19 restrictions.</td>
</tr>
<tr>
<td><strong>June 2021- July 2021:</strong> Gradual shift to field visits.</td>
</tr>
</tbody>
</table>

### 3.2 Research Methods and Justification

My study involves multiple research agendas, namely understanding of socio-ecological changes that shape farming practices, perspectives on alternative farming models, transition initiatives and social change. Many European and Indian scholars have employed ethnographic methods to study village dynamics and qualitative change in power relations at the local level (Jeffrey, 2002; Agrawal, 2005; Ciotti, 2009; Witsoe, 2012; Waghmore, 2013). Ethnography usually involves documenting a detailed account of 'life' in a specific cultural setting either 'exotic' and far away or closer to home (in terms of researching specific events, groups or subcultures, or institutions) (Barbour, 2014). The objective is to produce 'thick description' (Geertz, 1973) by paying attention to minute details in observing and interpreting social meaning in qualitative research. Arun Agrawal (2005) highlights the importance of ethnographic methods in understanding environmental subjectivities and local ecology in India. He documents that:

> an ethnographer's observations, conversations, interviews and surveys are ways of the opening window and throwing light on how people think, act, imagine or believe at any given moment and how their ways of doing are changing over time (Agrawal, 2005, p.167).

Drawing on the importance of ethnographic approaches from these studies, I hoped to use similar methods to comprehend the perspectives and experiences of farmers, moving towards alternative approaches to agriculture. I planned to use qualitative methods such as semi-structured and in-depth interviews, small group discussions and participant observations and finally, comparative case studies to substantiate my research. Qualitative methods are useful when they are used to discover how the respondent sees the world, social reality, and everyday life. Schutz observes,

> the observation field of the social scientists - social reality - has a specific meaning and relevance structure for the beings living, acting, and thinking within it. By a series of common-sense constructs, they have pre-selected and pre-interpreted this world which they experience as the reality of their everyday life (Schutz, 1962, p.51).
In this approach, the main task is "to capture this process of interpretation" (Bogdan and Taylor, 1975, p.13). In the following paragraphs, I discuss these three qualitative methods and their importance in my research.

I. Interviews

Hochschild (2010) observes that a semi-structured interview helps to frame questions in an organised way around a particular topic and allows for open-ended questions and informal discussions, which are important to build trust and comfort with the interviewee. I began my research with semi-structured interviews with farmers to get a better sense of the field, learn about my participants and their general farming practices, develop basic knowledge of farming models and how transitions to alternative practices (if any) exist or have taken place within the farming communities. As mentioned, my initial interviews with farmers were mostly conducted through telephonic conversations, whereby I introduced myself, talked about my research work and asked general questions on common farming practices in their villages. While most farmers were happy to meet me in-person for an interview, some were willing to give longer interviews by phone. In this research, I conducted 15 semi-structured interviews on the phone (according to the timeline mentioned above) and 62 in-person interviews (see appendices 1, 2, and 3) that helped me to build up initial rapport, whereby I could ask most of the generalised questions related to my research work and got a better idea of my field location and possible participants (see Appendix 5 for interview guide). All interviews were conducted with an oral informed consent. However, sometimes some personal interviews were interrupted by either family members or other people around. It was difficult to get informed consent from all these people every time but was managed as and when possible. Strict confidentiality was followed, and the guarantees of confidentiality and anonymity were given to research participants and honoured until the end of the research process.

Semi-structured interviews were, however, not enough without an in-depth analysis of farmers' responses and experiences of agricultural practices. In-depth interviews are considered particularly appropriate for a naturalist vision, oriented towards "rich description of people and interaction as they exist and unfold in their native habitats" (Gubrium and Holstein, 1997, p.6). Guest et al. (2013) argue that the defining characteristic of in-depth interviewing is inductive probing, that is, asking questions based on the interviewee's responses that are usually linked to the research objectives. This helps produce the meanings, insights and causal chains that provide the richness of qualitative data. For my study, in-depth interviews were mainly conducted with farmers who were willing to meet for personal interviews after the initial telephonic conversations. These farmers were located across all the selected villages in Sonipat, Jind and Panipat districts and were experimenting with diverse farming practices in agriculture. I conducted 33 in-depth interviews across caste, class, gender and age groups. They were conducted in different phases depending on cropping patterns like sowing and harvesting of Rabi crops (November 2020 to April/May 2021) and, sowing of Kharif crops (April 2021 onwards) and, the availability of farmers (both digital and or in-person). In-person interviews were either conducted in the household, common village settings (chaupals or public spaces, agricultural markets) or in work settings (offices and farms). Most interviews lasted approximately two to three hours, depending on the context.

Unlike semi-structured, in-depth interviews allowed me to have deeper conversations and answers to the questions beyond the basic facts of who, what, when, and where. Since they were more open-
ended, it was an easy way to engage with the participants in their normal day-to-day activities related to farming. Finally, the in-depth component allowed me to access detailed accounts and rich explanations of participants’ feelings, emotions and experiences during the transition from one form of farming practice to another. In one such conversation, a farmer recalled:

when I started doing organic farming, everyone used to call me a *pagal aadmi* (mad man). They thought I am stupid to invest in something other than wheat and rice. My mother and wife were also upset with me, but I was determined to continue doing natural farming. Now that I have made enough money and keeping the environment healthy, people around me praise my efforts and knowledge (Sanjeev, M, Village A, 04-02-2021).

Although semi-structured and in-depth interviews helped me to streamline my data with specific attention to direct questions and deeper analysis wherever required, several of the interviews turned into small group discussions (privacy being a rare condition in a natural rural setting in the villages), which forced my participants to move beyond the formulaic responses that they could have fallen back upon as individuals. For this and many other reasons, small group discussions were an extremely important research tool in my study.

**II. Small group discussions**

Bloor (2001) argues that focus group is the method of choice when the purpose of the research is to study group norms, group meanings and group processes. Similarly, Kitzinger and Barbour (1999) and Barbour (2014) highlight that group discussions are often used in order to access groups which are viewed as hard to reach, such as women, minority ethnic groups, children or the marginalised so that it becomes less intimidating to the respondents. However, it may be challenging to have a focus group discussion, in the strict sense of the term, especially in rural settings in India. The participants may not be brought together easily within a particular group (especially if they have a different social background or may be dominated by one or two speakers), and they may rarely stay ‘focussed’ on a specific topic. To overcome this, I planned to use small group discussions with people of similar social backgrounds and engage with topics that would involve almost all the participants to deliberate over. In total, I conducted six small group discussions across class, caste and gender groups (see Appendix 4). There were around four to seven respondents in each group and the discussion usually lasted about two to three hours. I recorded four group discussions with oral informed consent and took notes for the other two, especially with women agricultural labourers.

In my research, small group discussions were most suitable for female participants on topics related to social dynamics, decision-making processes, and the role of members within households of the farming communities. To avoid male interference within the home, I mostly chatted with women while they were working in the fields. Such discussions outside their homes were more appropriate for women as they were a bit reluctant to talk about specific issues in the presence of male family heads. In one incident, for example, during a conversation with the family members of a large-scale farmer, I asked female members of the home if they were willing to work and contribute to farming activities (Amar Singh, village K, 05-04-2021). They replied that they were happy to work at home and even in agricultural fields whenever they got time out of their domestic chores. The male members then interrupted and told me they would not want their wives to work in the fields as they
were ‘still alive’ to do the work. However, a few weeks later, I had a better interaction with similar kind of groups when they were outside their home and working in their kitchen garden alone. This way, I found that discussions on topics related to decision-making power within households and their role in deciding farming practices could be better understood with a group of women talking and deliberating over these issues among themselves.

I was also conscious and aware of my positionality as an urban educated woman that may compromise my rapport with informants, given the nature of my fieldwork. Rural Haryana is a male-dominated and caste-ridden society where interviewing women in general and lower caste women, in particular, is a challenging task. Keeping this in mind, I planned to conduct the discussions in different groups for lower and upper caste females. I interviewed Dalit women mainly at their work locations such as factories or agricultural fields, and in groups, so that they could talk and discuss among themselves to feel more comfortable with me. To build a good rapport, I used to help them with their work and offered tea and snacks before I could initiate the discussion on my research topics.

Moreover, group discussions were not limited to female farmers, as some of my interviews with male farmers turned into small group discussions too. In village M, for example, I made an appointment with a farmer for an in-person interview (Arun, M, 05-02-2021). As I finished my introduction, overhearing my research study, more farmers got interested and joined the discussion. After a few minutes, the discussion became quite intense and each person had his own viewpoint to share. For over ten minutes or so, each farmer discussed the pros and cons of natural farming in Haryana, while I remained an interested spectator. Ultimately, we had a vibrant discussion on most of my research questions and also discussed varied opinions on the ongoing farmers’ protests.

Overall, group discussions were helpful in managing interviews with women and marginalised farmers and some unplanned discussions with male farmers. Through these discussions, I specifically tried to understand the role of women farmers in agriculture, social implications of farming practices and decision-making within households, and farmers' perspectives on transitions and their implications on different aspects of rural farming community.

III. Participant Observation (PO)

During my fieldwork, sometimes interviews and group discussions were not sufficient to capture the insights of the farming practices, farm methods and daily life challenges in the field. Moreover, I understood that it could be difficult for my participants to easily allow me to have access to their farms and talk to me openly. In order to overcome this issue, rapport building was essential.

PO can be an important research tool for many reasons. Green & Thorogood (2009) argued that one of the shortcomings of interviews is that they provide access to what people say but not what people do. In this case, observing the daily activities of your participants becomes significant. Similarly, Kathleen Blee (2012) combined in-depth interviews with participant observations and proposed this combination as an essential method of a qualitative study, which is particularly useful when we wish to analyse the meaning individuals attribute to the external world and their participation in it, the construction of identity and the development of emotions. Likewise, for my research, I largely drew on Agrawal's (2005) study of environmental culture in the Kumaon region.
in India which highlights participant observation as an essential method that facilitates a more reliable sense of how experiences, identities and changing conditions influence environmental subjectivities. In my study, PO involved three essential elements: i) observe, ii) converse, and iii) record, as elaborated in the following paragraphs.

Participant observation mainly involved observing farmers’ experiences in agricultural fields, seed markets, daily challenges while sowing and harvesting crops, conversing with farmers on their concerns and how they managed usual farm activities, and recording these observations both on-field and later. I planned to observe the farm activities of both male and female farmers. For this, I planned to observe at least one crop cycle. This was possible during the sowing of Rabi crops (Wheat, mustard, peas, etc.) in winter (December 2020) and harvesting before April 2021. Following the crop cycle highlighted different problems encountered in everyday farming practices and how they were dealt with. During my in-depth interviews with the farmers, I requested them to take me to their fields or conduct interviews in the fields. This way, I was able to have at least one weekly visit in the field.

On my field visits, I spent the day chatting with the farmers and provided some assistance in the farm work like sowing of seeds, plucking of coriander leaves, etc. Participating in other activities like cow dung preparation and cow milking helped in rapport building with women participants. This allowed me to capture insights from their daily routine and helped me understand the role of agriculture and related activities in their daily lives. A casual ‘hanging out’ activity helped to build initial trust and rapport with most of my participants. In the case of large-scale farmers, I tried to observe who and how they managed labour work in the field during the day and chatted with them when they were free in the late afternoons. I also spent time in Anaj mandis (seed markets) to learn how different farmers negotiated between seed varieties, how different crops were sold, etc., to understand the market dynamics and challenges faced by the farmers. Conversation with farmers and other actors was a continuous process and listening to their concerns and views and how they managed usual farm activities and challenges on the fields was my priority. Finally, these conversations were recorded in the form of field notes or on recorder (with due permission) which was essential to be maintained and updated consistently. Overall, being a participant observer in day-to-day farming activities allowed me to go beyond a structured pattern and grasp the relevant meanings, preferences and beliefs of people and helped me to understand how far sustainable practices or alternative transitions impact the sociological conditions (if any) within the village in its cultural context.

However, due to Covid-19 restrictions, it became difficult to visit the farms of every participant or to continue weekly visits as planned. Group discussions in the field also became difficult as most farmers in the villages did not follow social distancing norms and face-covering protocols. Moreover, in the latter stage of my fieldwork, especially from April 2021 onwards, the second wave of Covid-19 forced me to shift my fieldwork to telephonic interviews. This further restricted my reach to the participants and thereby hindered rapport building process. Previously, the ongoing farmers’ protest from November 2020 had already restricted my movement due to the closure of the Delhi-Haryana border. Some other challenges to my research methods were issues in negotiating changing positionalities, parental concerns and taking relatives to the field and the overall changing course of the fieldwork due to concerns of mobility, accessibility, and self-
reflexivity. In the next section, I elaborate on these opportunities and challenges and how I engaged with the ethical dilemmas during the course of my fieldwork.

### 3.3 Opportunities and challenges to research methods

#### I. Negotiating positionalities

Native social scientists and researchers, who choose to work in their own communities and culture, gain insights and experiences of working both as an insider and outsider (Nagar, 2002; Chacko, 2004). As an insider, I was born and raised in Delhi, and fluent in the Haryanvi language and acquainted with the local culture there. As a woman, I felt I could empathise with and understand the experiences of the local women in Haryana villages. However, after a few weeks into my fieldwork, I realised that my linguistic capability may not necessarily translate into cultural fluency. Although I tried to assimilate myself into the culture by wearing similar kinds of clothes, keeping a simple hairstyle and using a Haryanvi tone in my accent, my participants could sense the ‘privileged position’ I had in terms of my economic circumstances (due to my frequent travels in a taxi which I took as a Covid-19 safety measure to avoid public transportation), my education and independent course of life. This easily projected me as an “outsider” who was an ‘urban middle class’ dweller and ‘foreign’ educated (referring to my ongoing education in the UK). The lack of cultural fluency also obstructed me while I was trying to understand sustainable farming practices and used the words ‘paramparagat’ (‘traditional’) and ‘jaivik’ (‘organic’) to refer to ‘sustainability’. Some of my respondents corrected me and told me to use ‘sanadharniye’ or ‘tikaoo’ as a better terminology for ‘sustainability’.

Researchers’ positions as insider-outsider may not remain static throughout the fieldwork (Gilbert, 1994; Trinh, 1997; Mullings, 1999; Sultana, 2007). Multiple factors like caste, class, gender, ability to speak English and family ties in the village are valuable in ascertaining access and rapport in the field. Feminist geographers highlight how the field becomes “space of in-betweenness” (Katz, 1994, p. 67) or a “leaky space” (Cupples & Kindon, 2003, p. 212) where a researcher’s positionality and social relations shape on-field encounters. In India, there are many layers of caste, class, gender, education, and urban-rural location that work along to determine the positionality of a researcher with different participants during the fieldwork. For instance, during my field visits, farmers belonging to the Jat community would easily be comfortable in talking to me once I told them about my origins in Haryana, my ancestral village name where I ‘exactly’ belong, and information about my grandparents and family kinship in Sonipat. However, it took more time to build rapport with a lower caste farmer or Dalit labourers. In other words, my position as a dominant caste ‘English’ educated woman was perceived differently by participants according to their own social position in caste-based rural Indian villages.

To overcome most of the cultural barriers and built rapport, a good introductory round of topics seemed really important, especially when I was meeting a farmer for the first time. Realising this, I made sure I introduced myself and my topic as elaborately as I could. However, sometimes in a group discussion, introductory round of questions became far more overwhelming to respond for me. For instance, during one such group discussions, as soon as I finished introducing my research topic and educational background, one of the farmers asked me whether I was from the UK too. In
response, I asked him what made him think so, to which he responded that, “You look too fair to be an Indian” (Raghu, 40, M, Village M, 05-02-2021). Such comments became quite common from my participants when they were in a group rather than as individuals; they were more open to ask me these questions in group discussions. Moreover, once I had answered all these questions, I felt freer and more relaxed with the group to initiate my research topics. Additionally, once I had told them about my ancestral home, my village name where I ‘exactly’ belonged, and the information about my grandparents, most of the respondents thought of me as one of them and felt safe and secure to discuss and share any information they wanted. At times, I also felt that these introductory questions were mandatory, but they sometimes become too personal to be answered in a group in comparison to individual interviews. However, once I was considered as an “insider”, it became easy to interact and receive their response in much more detail than before.

On the issue of native researchers’ positionality, Henry writes:

But the question about where I am really from was often aimed at uncovering more than my national or ethnic identity. The question often spurred on other identity questions, especially in relation to class (2003, p.236).

For me, the question of identity was not only related to a particular class but also to social and marital status. For instance, I had a contrasting experience of group discussions with Dalit labourers before and after my marriage. In the former, I met some Dalit women labourers working on a participant’s farm, and so I decided to have a conversation with them (village A2, 29-10-2020). I began by introducing myself and asking them a few general questions on farming and their daily activities. Although they had little knowledge about different kind of farming practices, we had some interesting discussions on how they managed their fields and household work, what kind of farm work they were mostly employed to do, and how much income and savings were they able to earn and manage. I even got an interesting topic to discuss with them regarding the challenges they faced when migrating from their hometown in Bihar to settle in Haryana and how they managed after the recent lockdown. These additional topics made me rethink my research design and questions during my fieldwork. We continued our discussion along with some tea and snacks, and after thirty minutes, they became more comfortable talking to me. Some of them were also interested in knowing about me and my marital status. Similarly, I was eager to know about their social position in their household and community. Yet, after more than two hours of interaction, I learned that they were still not comfortable talking about their financial and social conditions at home. It seemed unethical to ask any personal questions at that point, so I refrained from doing that and focussed on topics concerning their role in agriculture and general farming practices in the villages.

However, I had a different experience when I had a discussion with similar kind of group after my marriage in March 2021. This time, I met a group of Dalit women working in the neighbouring village in the same Block (village M, 28-3-2021). From my previous experience, I knew it may require me to answer many questions before they could become comfortable with me. As it began, we kept talking for an hour or so. Simultaneously, I was helping them in plucking coriander leaves and tying them in a bun. Suddenly, one of them saw me wearing a mangal sutra (neckpiece with black beads worn by a married woman) and she started asking me questions about marital life. Some of them even judged me for not wearing bangles and for starting to work too soon after
marriage. After I answered all these questions, they became quite comfortable and shared their own marital narratives and experiences. This gave me a bit more space to ask a few personal questions related to my research, which they were happy to respond to. We sat for lunch in the fields and continued our discussion. I could collect more information on their daily activities, financial and other household conditions, what their husbands thought of them working in the fields, and how far they were perceived as income providers at home. By the end of the day, I realised that the information about my marital status made a huge difference in the quality of interviews I could previously collect with a similar kind of women’s group. Moreover, deeper conversations with this group helped me to gather some personal information, something which seemed unethical in my previous group discussion.

II. Parental concerns and taking relatives to the field

De Silva and Gandhi (2018) state that the practice of taking relatives to the field brings forth the complexities of being an independent researcher while simultaneously performing (in my case) the role of a daughter who should be under her parent’s protection. Since my research required me to make frequent visits to the villages in Haryana, I knew that my parents’ social capital would be crucial to identify gatekeepers and in building a good rapport with my respondents during the initial phase of my research. However, the complexities of working as an independent researcher and maintaining the positionality of a daughter grew stronger as soon as I began my fieldwork. For instance, on my first visit to the field, I was excited to go alone and meet a farmer at his farm (28-10-2020). However, my parents were too sceptical to let me go alone to some “unknown place” and meet someone I barely knew. When I shared my travel plans to move around in an autorickshaw, they simply refuted the idea, calling me a “bewakuf ladki” (stupid girl) who does not know how to take care of herself. This was followed by a series of reminders about the safety precautions I must take while I was alone in the villages of Haryana and meeting strangers. Also, what added to their worry the most were the rising cases of Covid-19 with the unlocking of the state borders during mid-October and people taking the least precautions while getting back to their work and businesses. It was because of these reasons I mostly avoided public transport, hired a private taxi to travel and started visiting the field with my grandfather. This, in turn, had its repercussions as my ‘economically privileged’ side would re-emerge during my interviews with participants when they saw me travelling in a private taxi. However, I tried to overcome this, and many other challenges that I used to face repeatedly, and successfully crossed the barrier of an “outsider” after a couple of weeks in the field. I begin by discussing some primary opportunities and challenges in the field and my response to them in the following paragraphs.

Lunn and Moscuzza observe “whether a field researcher is accompanied or not, and by whom, constitutes one of [their] identities” (2014, p. 72). In the context of native researchers whose fieldwork is within their own community, Islam highlights that “we are not automatically considered insiders in our respective ethnic communities” (2000, p. 42), and participants’ evaluations of researchers’ positionalities are mostly based on their understandings of belonging to a particular social group. These complexities were heighten by the presence of my grandfather on the first day of my field visit. I started my first visit to the field by visiting the organic farm of a 27-year-old male farmer, Ujjawal, at village A2 (28-19-2020). I was already in contact with him over the phone and thought of him as a very optimistic and knowledgeable farmer who was keen on promoting organic and sustainable farming practices in his village. My grandfather, like me,
was eager and excited to meet the farmer and had already planned to buy a couple of organic seeds for his kitchen garden.

My interaction with Ujjawal began with a few introductory questions where I explained to him my research topic and motivation behind visiting and interviewing him and the farmers at his farm. He kept asking me a lot of questions about my educational background and whereabouts in Delhi. I learned that he got more interested in my research work once I told him about my family lineage in Haryana and ‘where I actually belong to’ (for example, my grandfather’s village in Haryana). The fact that I was accompanied by my grandfather to his farm in a taxi made him have his own judgements on my social status. However, I realised that once he knew about my family home and kinship in Haryana, it worked in my favour to build up a good initial rapport and trust with him, yet being accompanied to the field by a ‘relative’ to the field had its own repercussions.

After our introductory session, we went on a tour of Ujjawal’s farm, which, according to him, outlined a “comprehensive plan of sustainable farming”. While we were discussing some of his farming practices, I saw my grandfather struggling to understand how a banana plant could grow one meter longer than its usual size in his fields. Curious to know about this farming technique, he finally asked Ujjawal some technical questions about it. Ujjawal answered a few questions happily, but I could see him already tired and feeling uneasy with my grandfather’s counter-questions. So, at one point, I had to change the conversation and divert him to some other part of the farm. I realised Ujjawal was more comfortable and willing to give elaborate answers to whatever I asked the following day when I ensured my grandfather did not accompany me. We then had many elaborate conversations on farming practices and what motivated him to leave the urban lifestyle and work in the villages, and what challenges he faced initially. I could sense that when I was asking similar questions to him with my grandfather around, he wasn’t able to openly express himself (fearing that his response was cross-checked by a senior person) and mostly remained silent after a line or two. Realising this, I made sure to interview all my future participants in the absence of my family member or relative around.

However, my grandfather’s presence was not always inapt as once it helped me to gain access to some vital information from a government office. This happened when I visited one of Sonipat’s administrative department that catered to the agriculture and farmers' welfare programs and policies (22-11-2020). Knowing how government offices in India work, I knew that getting information from Sonipat’s administrative staff would be challenging. However, I thought that if I had someone known and elderly with me, I might get the work done easily. With this thought, I asked my grandfather to accompany me to the Agriculture Department just a few minutes’ walk from our place. We walked into the Departmental Head’s office and introduced ourselves. The officer asked me a couple of questions regarding my educational qualifications, the purpose of the meeting, and my research work. After listening to me for a while, he seemed quite interested in my work and family lineage in Haryana. Furthermore, my grandfather's army background and personal connections in Sonipat and Hisar (another district in Haryana and the officer’s hometown) had already impressed him. Finally, he provided me with a list of 14 progressive farmers from various districts in Sonipat, along with some of his own contacts of prominent farmers. Taking my grandfather to the office turned out to be fruitful this time since things became a lot easier once we developed an informal relationship with the staff.
Partners have also received attention, especially regarding the ways in which their presence conveys that female researchers are conforming to the social and cultural norms of the field site (Bell, 1999; Lunn & Moscuzza, 2014). While taking her partner to the field in India, Jenny Lunn writes,

> being accompanied or unaccompanied may affect whether a researcher conforms with or contradicts socio-cultural norms in the fieldwork location. For example, in societies where a woman in her thirties would be expected to be married, going to the field accompanied by your spouse may lend respectability and acceptance, whereas leaving your partner at home (for whatever well-justified reason) may cause people to make negative judgments and create barriers to building rapport (Lunn & Moscuzza, 2014, p.73).

Similarly, I often felt that sometimes I was an object of societal ‘gaze’ and was not taken seriously about my work until I was accompanied by someone. For instance, when I first met a farmer (who was my potential gatekeeper for Ganaur Block) in November 2020, our interaction turned out to be quite formal and reserved. Although he kept me asking about my research project and other qualifications, he was sceptical about my approach to travel alone in the villages which could be unsafe for a single woman like me. Later, when I visited him with my husband, rapport building became easier once he knew I was married to someone in the same community, and we all shared the same ancestral village in Haryana. After two hours of interaction with me and my husband, he became quite comfortable sharing with me his own networks, knowledge of sustainable farming, changing relations within his family and his plans to market organic produce (03-04-2021).

Experiences from my previous interviews warned me against conducting a personal interview in the presence of my family member. However, sometimes, the presence of my partner helped me to have some private conversations with women, specially when I had to interview them in their homes. I visited one such household with my husband in a village in Ganaur Block (06-04-2021). It was the house of a farmer who had installed a biogas plant inside his home and wanted to show how he lived and sustained a healthy lifestyle both in the fields and at home. He mostly handled the farm work outside the home while female members were involved in the animal work, made cow dung, sold cow milk, and used biogas in the kitchen instead of LPG. After the farmer gave me a tour of his home, we were all sitting in a living room when the women members of the family served us some drinks and snacks. I was curious to take a group discussion or personal interview with some of the women members, but I also knew it would be difficult to do it in the presence of a male member. When I thought I had a chance to do so, I requested my husband to take the male member out for a walk to show him their nearby farms while I stayed back at home and talked to the female members privately. This was handled quite well with my husband around and I could talk to these women in private to understand what happens inside the home, and whether they are really contributing to sustainable farming and living, as their husbands claimed, or remained mostly as the silent members in the household.

**III. The course of fieldwork: Issues of accessibility, mobility, and self-reflexivity**

The course of fieldwork for a researcher in social sciences is never an effortless and undemanding journey in terms of accessibility and mobility, especially if it is to be conducted in rural villages in India. Although I had the advantage of accessing the field through my own contacts and the social
capital of my family, mobility constraints were heightened by both Covid-19 related restrictions and farmers’ protests that blocked Delhi-Haryana borders for the entire duration of my fieldwork. In this section, I will discuss the course of my fieldwork with regards to the expansion of field sites and locations, accessibility to new farmers and villages, constraints on mobility, and the ongoing process of self-reflexivity.

After some telephonic conversations in September 2020, I began my field visits in the month of October 2020 when Covid-19 protocols were gradually easing in Delhi and Haryana after seven months of strict lockdown due to the pandemic. The government offices were resuming their work with Covid-19 guidelines, and most people were starting their usual routine again. Considering these relaxations and the reopening of the economy, I started with my original plan of fieldwork. I planned to conduct face-to-face interviews with the farmers and a short survey of the two selected villages (if possible by following Covid-19 guidelines), which required me to shift my location from my own home in Delhi to Haryana so that I could reduce the travel time to the field and have a better interaction with my participants. Therefore, I decided to stay at my maternal grandparent’s home in Sonipat, which was around 50 km from my home in Delhi and 15 km from my field location.

Most of my travels from Sonipat to nearby villages were done in a private taxi as I was trying to avoid public transport due to Covid-19. Taking all precautions, I had a mask on my face and was regularly sanitising my hands, however, this was something very uncommon in the villages of Haryana. People here mostly believed that Covid-19 was just a hoax or a usual viral fever, which was not to be worried about. Although it was mandatory to wear a mask inside a vehicle, I could hardly see anyone following it strictly in Haryana. As I moved from Sonipat city to villages, I found fewer people following Covid-19 protocols. It all appeared to be a bit scary for a while, but I made sure that I followed all the protocols during my interviews or any other interaction with people here.

My first few visits to Ujjawal’s farm in village A2 gave me a fairly good understanding of current farming practices in this village (25th to 29th October 2020). However, I cancelled my plan to conduct a short survey of this village for two reasons. The Covid-19 situation was growing serious as the pandemic was still there, but most people were not taking as many precautions as they should have. Visiting and talking to farmers in their homes was a big risk to my own health and quite time-consuming given that I already had time and movement constraints. Secondly, Ujjawal informed me in our discussions that no other farmer in the village was willing to switch to alternative farming. He said that these farmers feared losses and did not have enough risk-taking capacity to transition so easily. However, I thought to cross-check this information by reaching out to some of the farmers in the village. Instead of reaching out randomly to the farmers, I thought to first meet the Pradhan of the village. The Pradhan of this village was a middle-aged Dalit woman staying in a half-painted bungalow with her family in the centre of the village. I tried to reach out to her through her husband, who happened to be more active with his networking inside the village. I contacted him over the phone, where he made sure he knew enough about me and my research before he could let me meet his wife. When I entered their home, I was sure that in no way this interview could turn out to be a personal interview as the members of her family and other visiting farmers joined us, until I finished my introduction.
After around thirty minutes of discussion with this group on common agricultural practices and land distribution in the village, I asked Pradhan if she happened to know about Ujjawal’s work and farm in the village. She looked surprised to hear about someone in her village doing organic farming on such a large-scale. In fact, she was quite sure about the major farming practices in the village, which were majorly chemical input based. She further added that most farmers were willing to sell their land for industrial or other businesses. Other farmers in the group also said the same thing and discussed the changing conditions in the village. One of them affirmed that “it was because Ujjawal’s family had the primary means, sustainable land and basic knowledge of growing organic crops, they could still sustain their land and farming technique” (Group discussion with Pradhan Shanti Devi at village A1, 26-11-2020).

My discussion with this group made me rethink the next fieldwork strategies and location of the study. By the end of the visit, I was self-assured that my previous plan to study two villages would not be sufficient for my research objectives, and I needed to explore other possibilities and possibly expand my fieldwork location. There were two likely reasons to believe this. First, the transition of one prominent farmer in a village may not necessarily have any impact on other farmers in the same village. So, the study of one or two villages may not provide enough research data to analyse the opportunities, possibilities, and challenges of agricultural transitions. Secondly, talking to farmers in general, I learned that agriculture as a main economic activity was declining in parts closer to Delhi, however, some other farmers were transitioning to sustainable practices, but they were spread across villages in Sonipat. It was difficult to study transitions in a few villages and, therefore, to achieve my research objectives, I might have to consider studying a cluster of villages in a Block rather than focusing on my initial strategy to interview farmers within two villages. Reading through my original research design again, I also learned that comparative case studies between different farms and farming practices could be an interesting study in itself, given the changing circumstances and field dynamics of my research (Fieldnotes 27-11-2020).

In the meantime, a group of farmers’ organisations that were already protesting in Punjab against three farm bills had turned into a huge mobilisation around the borders of Delhi. The news about a massive two-day farmers’ protest at the Delhi-Haryana border on 26th and 27th November 2020 was circulated in the national media, which meant a complete closure of movement around the borders. During this time, I was in Sonipat on my second fieldwork trip and could not go back to Delhi due to road blockage. So, I extended my stay in Sonipat and started meeting farmers from the contact list of progressive farmers that I had.

I started contacting the farmers on the phone and learned that most of them were located across four or five villages in Rai Block, which was close to Delhi-Haryana border and has been an evolving hub for growing industrial and educational institutions in the last decade. A massive amount of agricultural land has been either sold or shifted to non-agricultural purposes in this area. Even among the list of progressive farmers, almost 80% of farmers belonged to this Block. These farmers were called progressive because they were able to generate a good amount of income through their experiments in farming practices, investments in food-processing industries, and other farming methods. So, without shifting my research focus, I planned to widen my research field location to meet a greater number of farmers and conduct face-to-face interviews wherever possible. Looking at the restrictions in movement due to farmers' protests and the Covid-19
situation, I planned to follow the snowball method for selecting my respondents instead of random selection. With this plan, I began my visit to the villages in Rai Block.

My first visit was at a farmhouse of a farmer in village M in Rai Block (28-11-2020). He owned five acres of land and started farming at a very young age. For the past few years, he has been trying to transition from chemical to natural farming methods but was successful only on a small portion of his land. During our first meeting, we discussed various agricultural practices in his and the surrounding villages. The information helped me learn about the changing farming culture in the Block. He described how his own village turned into a famous “sweetcorn village” while the farmers in the neighbouring village, A2, were known as “baby corn farmers of Haryana”. Farmers in this Block were a close-knit group, also working as a Farmers Producer Organisation (FPO) and were keen to invest in different farming models like polyhouse, net-house, and processing industries. I was informed that very few among them were able to transition to natural or organic farming methods and were hardly successful. Also, most of the farmers were already selling off their land for industrial or other non-agricultural purposes, especially after they or their children had migrated to cities for education or jobs. Overall, the group appeared to be a good network of farmers in this Block through which I could possibly reach out to my potential participants for a personal interview and learn about their farming practices.

In my second visit to the same farmer, I also realised I must be cautious not to assume fixed definitions with respect to farming terms in the field and prompt my participants on various meanings and definitions as they arise. I learned this while I was trying to understand his definition of sustainability. So, when I asked him how he would define sustainable farming, he said, “if a farmer who used to put five packs of urea in his fields and for some reason reduced the number to two or three packs, he is still trying to do sustainable farming” (Dinesh, M, polyhouse owner, 05-02-2021). For him, the gradual process of reducing chemicals during the transition could also mean adopting sustainable agriculture, unlike most farmers who, till now, defined sustainable farming as a process where one would completely replace a chemical with a non-chemical or organic input of production. An hour-long interview with him prompted me to reflect on my understanding of ‘sustainability’ and made me more cognizant of using definite meanings for various terms in future interviews.

On my subsequent visits to the villages in this Block, I tried to follow a network of farmers that I was able to build up by snowball and approached them for personal interviews. I was meeting them on their farms, or their homes, and simultaneously observing their farming and daily activities. After a couple of interviews, I realised there had been a shift in the way I interviewed these farmers and the way they perceived me. Firstly, I learned that since I was interviewing mostly big farmers who were relatively educated and well-read, it was easy for me to communicate to them my educational background and current research study. They would, in turn, ask me about my study and work culture in the UK and about my general lifestyle. Such topics would easily make the introductory ground to build up initial trust and rapport, from where I could then talk about my research topics. Secondly, most interviewees were now more interested in talking about the recent farmers’ protests and my political opinions, if I had any. This made me rethink my strategies to approach my respondents. Earlier, I planned to conduct semi-structured interviews and began with a set of topics in relation to farming methods and techniques. However, later on, sometimes I did not follow a fixed pattern of topics to begin with but discussed issues that they were interested in.
Yet, I was still cautious not to let my personal opinions divert the ongoing topic of discussion. So, whenever they started talking about their opinions on farmers’ protests, I was keener to discuss that and related issues that I had in mind and encouraged them to indulge in the varied perspectives they had. This made the interview process more comfortable for both of us, and I successfully got more information than I would have had I followed my own set of topics first.

In the next few weeks and a couple of more interviews with these farmers, I could gather responses to most of my research questions and trace some new topics emerging in the course of time (Mid-December 2020). Following the snowball method, I started meeting a few more interested farmers who have transitioned from chemical to non-chemical or natural-based farming practices. Many informed me that I may not find such farmers in huge numbers in this Block as the land and soil conditions no longer suited the requirements of natural or organic farming practices. However, I was told that I may find a good number of farmers in Ganaur, a Block 50 km from Rai, and a growing hub for non-chemical-based farming practices. This made me rethink the logistics to expand and relocate my research field.

By the end of 2020, the situation of Covid-19 was improving in India and so I decided to expand my field location further and meet farmers in Ganaur Block. Here, I began by contacting farmers who were progressing through their experiments in natural and organic farming methods. Through my ongoing network from the previous Block and the list of progressive farmers I got from the Agricultural Department, I happened to contact a farmer named Sunil, who was a former lecturer of English literature in a college in Gurgaon and had left his job to pursue organic farming in his village N in Ganaur Block and eventually became my gatekeeper for contacting other farmers.

Finally, after three months of my fieldwork, I implemented some major changes in my field location and strategies to approach my respondents. The former corrected my approach to studying farmers across villages instead of an elaborative study of just two villages. While the latter made me rethink my research questions and the way I should approach my interviewees in order to have much more detailed and engaging conversations with them. These changes were in response to the two main challenges in the field. First was the ongoing Covid-19 situation in India, that had put limitations on qualitative approaches such as participant observation and a proper survey of the villages. Secondly, restrictions posed on my movement due to farmers’ protests made my entry into some villages far more difficult. However, it gradually became an additional topic of discussion with the farmers, which often turned out to be more engaging and interesting for the farmers to deliberate upon.

IV. Second wave of Covid-19 and shift to telephonic interviews

By mid-April 2021, I had almost completed seven months of my fieldwork. My research field had broadened from my initial plan of visiting two villages to a couple of villages spread across three districts in Haryana. I had made some important contacts with prominent farmers in these villages and built up a decent rapport with them. Most of my informants were now interested to know more about my work than my background and I was getting invitations from them to attend their workshops and seminars on jaivik kheti. One of them invited me for a talk on pests’ knowledge and how to handle pest attacks in organic farming organised at Jind district, closer to Ganaur Block. I planned to attend it and meet some more farmers there.
However, the second wave of Covid-19 was already emerging in India. Within a week, there was a complete lockdown beginning from mid-April 2021. This period marked the most dreadful phase of the pandemic in India. There were reports of all kinds of shortages in Delhi hospitals—admission beds, ICU, ventilators, Remdesivir drug, oxygen cylinders, etc. The entire nation seemed to have stalled and people were running after drugs and oxygen cylinders, exposing the conditions of health infrastructure in major states like New Delhi, Maharashtra, Bihar, Uttar Pradesh, Gujarat, Tamil Nadu, and Kerala.

The second wave was different as it had entered the rural villages in India. These villages had been successful in protecting themselves in the first wave. For instance, there was news that some villages in Haryana had closed their borders with people guarding the gates, and following strict orders of the government by not allowing any movement to and from villages. However, four months after the country was unlocked, movement could not be restricted further. Most people in the villages neither wore a mask nor practiced social distancing during the initial phase. Now that a deadlier version of Covid-19 was already there, these villages were impacted the most as they had never developed a habit of following Covid-19 related precautions and guidelines. Government offices and all major departments were shut down. The Union Government also requested protesting farmers on the borders to call off the protest and return to safe locations. However, despite the increasing number of deaths in the villages, a few of the villagers still thought Covid-19 to be a common virus, while the Haryana government warned about the increasing deaths but with little formal reporting.

My fieldwork was on a halt from mid-April to June 2021 as I could not travel to the villages. More so, my own family members were infected with Covid-19 and were hospitalised one after the other. After a couple of weeks, I tried to resume my work through telephonic interviews. It was the time when I could actually talk to the farmers about the Covid-19 situation in and around their villages. I could sense that most people, who were critical to follow Covid-19 norms and social distancing earlier, were now ready to follow government protocols and were even promoting such behaviour among other people in the village. A few of them were in contact with me over the phone during the entire time and kept asking me if my family and I were doing fine. They seemed to be genuinely concerned about the Covid-19 situation in Delhi and wanted to know if all that they were reading and listening through news channels and other people was true or not. During one such conversation, a farmer told me that earlier he believed that the pandemic was all made up by the government to take down the ongoing protests on CAA (Citizenship Amendment Act) and farm bills, and never could have imagined something like this could be true. But after I informed him about the reality, he appeared quite shocked and surprised to learn about it. Many such conversations with the farmers kept going on, where we both were able to share a lot of information on what exactly was happening in cities and villages around Delhi during the second wave of the pandemic.

After a month, I thought of resuming my fieldwork through online interviews from June 2021. I tried to contact the farmers I was supposed to meet before the second wave and asked their availability for telephonic interviews. I could then manage to take a couple of interviews on the phone. However, after a research experience of face-to-face interviews and group discussions, I found it hard to go forward with telephonic interviews for a long time. I could see two sharp
differences with this method: first, it is difficult to initiate a conversation with the respondents and gain their confidence without personally meeting them and building a rapport. From my previous experience, I knew that multiple introductory rounds could open up the space to directly talk to the farmers about my research topics and engage them in a longer conversation. On the contrary, in telephonic interviews, I didn’t get much chance to have an elongated introduction as there were time constraints, and so I had to share minimum information. So, most of the interviews were more structured rather than an elaborate engagement or discussion over a topic. Secondly, the farmers wanted to tell me more about what they knew and had knowledge about and would simply avoid questions that they thought were less important for a discussion. Thirdly, I would find it difficult to make them talk about some topics they were less familiar with or did not wish to engage in. However, on the positive side, I found that telephonic interviews were better to conduct personal interviews with an individual farmer as they did not turn into small group discussions like some of my previous interviews.

Overall, given the circumstances, I was happy to conduct some telephonic interviews as they kept me engaged in my fieldwork and I did not lose touch with a possible new network of farmers whom I was supposed to meet once the Covid-19 guidelines were eased. I finally resumed my field work after a break of one and a half months and visited those farmers I was supposed to meet before lockdown and continued my field work for a month.

V. Data Analysis

The current study resulted in a large amount of data derived from interviews, participant observation and group discussions (see Appendices 1, 2, 3, and 4). The original names of all the informants and their villages have been anonymised with pseudonyms and codes in the database and this thesis. A major part of the analysis was done with the help of on-field recorded interviews and fieldnotes. Secondary sources were used to supplement primary data and when field visits became difficult due to Covid-19 related lockdown. Relevant themes and categories emerged both during the fieldwork and after data collection was completed.

During the fieldwork, I used constant comparison of cases to guide my interview procedure and to obtain a general categorisation. For example, after the first interview with a natural farm owner, the interesting topics that emerged to me were: i) the relatively weak economic concerns compared to the strong desire for eating healthy and non-chemical food; ii) an increasing awareness for environment and rural sustainability; and iii) the network of farmer-to-farmer knowledge transfer. I then built on these understandings to interview more farmers and to compare the similarities and differences. This iterative process helped me to dig deeper into a) why some farmers were motivated to adopt alternative farming practices while some others did not and b) to distinguish important indicators that shaped the factors of motivation for different farmers. After meeting a couple of farmers and discussing the topics related to agricultural transitions, I understood that these farmers not only differed in their motivation factors but also in their farming practices, and farm management strategies. This helped to categorise farmers according to different farm typologies. In the same way, constant comparison helped me through the entire data collection and analysis procedure, especially in terms of gaining practical knowledge about alternative approaches to agriculture (in the field) and identifying key clues for theoretical works later.
I used the naturalised style to transcribe the fieldnotes and recordings into Hindi and English. This is because “a naturalised version contains many details which the research could turn to if in-depth analysis of conversation (i.e., accents, communication style and speech idiosyncrasies) needed to be examined” (Oliver et al., 2005, p.1275). For the interview questions such as “what are the challenges of adopting natural farming” or “what do you mean by sustainability”, how interviewees chose terms to respond to these questions was an important part of the analysis to understand how different farmers understood the transitioning processes and defined sustainability. Another part of the fieldnotes came from my observations from on-site visits at different villages. These fieldnotes were also transcribed into contextual documents with pictures added. Although these descriptions alone cannot provide explanations, they served as important contexts to rationalise specific situations (Mays and Pope, 1995).

With learnings from the fieldwork and the transcriptions, this research unpacked the transitional processes to examine alternative approaches to agriculture through interpretations of data and linking them to different studies and theories for explanations. In the first draft, I focused on categorising the types of farmers into different categories of farm typologies that emerged. The framework was built on both empirical findings and literature reviews of multifunctional agriculture and the alternative approaches to intensive agriculture. My research revealed four major farm types to categorise the farmers who had transitioned: ‘crop diversification method’; natural farming method; organic farming method; and farmers’ cooperatives. The analysis revealed that the social position of farmers themselves, their approaches to diverse farming practices and their reasons to adopt a new style of farming, were the crucial factors that caused the differences. Variations emerged among different class, caste, and age group of farmers which were analysed into the themes accordingly. In the second draft, I focussed on the social implications of agricultural transitions. I categorised the response of transitioned farmers into four major emerging themes: impact on human health and environment, impact on rural income and employment, implications on social power structure and women’s role in agriculture and reshaping masculine identities in crisis. A deeper analysis of these themes revealed that in the process of transitioning, these farmers not only adopted alternative agricultural practices but also redefined their identities as farmers and important players in the changing village agriculture and rural sustainability.

Finally, the collection of secondary data through digital alternatives was also a part of my data analysis. To support the online data with documentary sources, I mostly relied upon formal information from the following sources: (i) Ministry of Agriculture and Farmer Welfare, Haryana Government; (ii) Indian Council for Agricultural Research; (iii) IARI (Indian Agricultural Research Institute) (iv) International Food Policy Research Institute, India; (v) Hisar Agricultural University; and (vi) The Food and Agriculture Organisation (FAO). The articles and reports from these sources gave me macro-level numerical data and project reports on recent initiatives in agriculture in Haryana. A few other journals (International Journal on Agricultural Sustainability, Indian Journal of Agricultural Economics, Economic and Political Weekly, Indian Journal of Agricultural Research, Rural Sociology, etc.) were accessed as a regular source of data for keeping updated information about agricultural transitions, and farmers’ knowledge and perspectives on sustainable agriculture and social change. Local newspapers (Dainik Jagran, Navbharat Times, etc.) and pamphlets were accessed to gain insights into current techniques of farming and guidelines issued by government or agricultural experts on farming. I also got myself enrolled in two WhatsApp groups run by a few progressive farmers to discuss and disseminate information on
sustainable farming, sale and purchase of organic seeds, protection from pest attacks, etc. I participated in their online workshops and seminars every fortnight. Lastly, I used to update myself with weekly or monthly reports on agricultural practices, crop patterns and sustainability published by popular NGOs in Haryana such as Uthaan and Prerna.

3.4 Conclusion

In this chapter, I talked about the major research tools and methods useful in my fieldwork. I chose qualitative research methods, such as interviews, small group discussion and participant observation, as the principal methods of my research because they provide rich and detailed accounts of people’s daily lives to an extent that other research methods do not. For my initial conversations, I used semi-structured interviews because even though they do not eradicate the power dynamics between the researcher and interviewee, they give at least some control to the interviewee over the entire interview process. Moreover, small group discussions were helpful in rural settings where privacy may not always be guaranteed, and women respondents felt more comfortable talking.

I have also delved into some concerns regarding my positioning, taking relatives to the field and ethical dilemmas that occurred during my research and shed light on the importance of doing self-reflexivity to stay aware of the power relations and changing research scenarios during fieldwork. I showed how my positionality as both insider and outsider shaped my experiences in the field and some of the challenges I faced as a woman researcher. Although being an insider helped me assimilate with the people quickly and make initial contacts in the field and at administrative offices, sometimes I was not taken seriously until I was accompanied by a family member or told my personal details as to where I actually belonged to. My marital status also remained a concern for most women respondents but sometimes worked in my favour to delve into conversations related to power dynamics at the household level. Throughout the process, I followed ethical guidelines for this research by informing participants about the purpose of the research and securing their oral consent. To ensure that the research did not cause harm to informants, I anonymised the names of all informants and the study villages with pseudonyms and codes.

Finally, I shed light on how I managed my field work with two big challenges - Covid-19 related restrictions and farmers’ protests - that not only limited my mobility but, at times, were mentally and emotionally draining in terms of managing the field work along with the personal health and risks of the participants involved.

In the next chapter, I set up the context for the empirical chapters of this thesis. I discuss briefly the key geographical features of my field sites, the social profile of the rural farming community, especially across caste and class groups, and finally show the different types of farmers and diverse agricultural practices that emerged in my research context. The chapter is followed by the empirical chapters of this thesis.
Chapter 4: Context

This chapter has three main sections. In section 4.1, I briefly discuss the key geographical features of my field sites with respect to the changing ecology and agricultural land use in Haryana. The section shows how village sites near Delhi have been more influenced and affected by growing urbanisation and industrialisation than far-off villages. This also had an effect on the choice of crops and farming practices in the villages. In section 4.2, I discuss the social profile of the farming community, especially across caste and class groups, and show how agricultural land was distributed among diverse rural farming communities in Haryana and what implications ecological and agricultural land use changes had on different groups of farmers. Finally, section 4.3 discusses an agricultural policy, its implications for sustainable farming and the characteristics of different types of farmers that emerged in my research sample. Here, I focus on analysing Paramparagat Krishi Vikas Yojana, a scheme launched as a part of the National Mission for Sustainable Agriculture in India, followed by a brief description of my sample comprising different types of farmers and rationalise their discussion in various empirical chapters.

4.1 Geography and location of the study villages

The idea of a typical Indian village representing the traditional social structure and cultural values of Indian society in a microcosm is essentially a myth (Jodhka, 2014). This idea constructed the colonial ethnography and served their political interests (Cohn, 1987; Inden, 1990). Historically, villages in India varied significantly according to their location, size and social fabric. Their character was determined more by regional agrarian histories and the local trajectories of socio-economic and ecological processes. No single village or a group of villages could represent all of rural India.

The villages selected for this study represent a particular type of rural setting, which is becoming increasingly common in different parts of the country as well as elsewhere in South Asia. For instance, these villages were connected by the urban centres and have been in the process of change due to increasing industrialisation and technological advancement. Although five villages were sufficiently far from the urban centres to be treated as urban peripheries, they cannot be called economically ‘backward’ or socially and culturally ‘traditional’. Five other villages were closer to Delhi and had access to both national and international markets due to better transport and airport facilities. Moreover, urban expansion to Haryana villages was visible through the conversion of agricultural land for industrial and educational purposes, especially in the Rai Block of Sonipat district. Lastly, all the villages were multi-caste villages with diverse resident caste communities and had experienced the Green Revolution during the 1960s. Agricultural transitions happening in different parts of the state constituted an important part of the changing rural society and socio-ecology of these villages in Haryana. In this section, I discuss the key features of my study areas, including the significance of their geographical location and their changing aspects with respect to urbanisation and industrialisation.
4.1.1 Significance of the geographical location

The geographical location of Haryana makes it one of the most prominent states of the country. It covers a geographical area of approx 463ha, of which 82% is cropped. Haryana falls within the Punjab plains, which have been developed by the river systems of Ravi, Beas, Sutlej and Yamuna over geological timescales with the sediments of Shivaliks and Himalayas in the north and Aravallis brought by the tributaries of the Yamuna river. The range of rainfall varies in the state from 300 to 1100 mm. The river Yamuna is a crucial water system in the Haryana state. For instance, it forms many irrigation canals that flow in and around the Sonipat district. This major water source flows along the eastern side of the district along with the rural belt (see location in Fig 4.1).

Fig 4.1: Map showing Sonipat district (including three field sites - Rai, Ganaur and Gohana Block) and Yamuna river

The locations of the study villages in the Sonipat district, such as Rai and Ganaur Block, lie within the flood plains of Yamuna River (see fig 4.1). This makes the soil loamier in the upland plains and is perfect for cultivating rice, wheat, sugarcane, and other fruit trees (Kumar, 2022). The upland plain of neighbouring districts like Jind and Panipat are covered with old alluvium, which is highly
productive if the region is irrigated correctly. There is extensive farming of flowers, vegetables, horticultural plants, oil seeds and crops in that part of the state (Kumar & Singh, 2021). However, over time, the widespread use of chemical fertilisers coupled with the growing urbanisation and industrialisation around the Delhi-Haryana border caused massive changes in the ecology and the agricultural land use practices in these villages. I elaborate on these two changes in my research sites in the following paragraphs.

I. On the aspect of ecology, Singh (2000) estimated that by the 1990s, approximately 60% of the state’s geographical area was battling with the problem of alkalinity, salinity, and waterlogging. Although increasing pressure of the population on the land dictates the need for potential utilisation of all available land, however, large parts of the land were degraded by desertification, soil salinity, waterlogging, floods, and droughts, due to inefficient agricultural practices, and deforestation causing excessive soil erosion (Gill, 1992; Randhawa, 1992).

Groundwater depletion was another major concern in Punjab and Haryana, primarily due to energy-intensive agricultural practices (Van Dijk et al., 2020). In Haryana, the dependence on groundwater increased due to the limited availability of canal water to meet the irrigation water requirements of key cereal crops in the state (Kaur et al., 2010; Asoka et al., 2017).

**Fig 4.2: Location of Rai and Sonipat Block**

![Location of Rai and Sonipat Block](source: Singh et al. (2023, p. 4))

In a study of villages in Rai and Sonipat Block, Singh et al. (2023) reported that the average groundwater depth declined from 6.49 m in the year 1990 to 15.97 m in 2020, while in the Sonipat...
Block, it was 7.62 m in 1990 and 8.57 m during 2020 (see fig 4.2). The study mentioned reasons such as the dependence on wheat and rice cultivation using GR approaches and the lack of canal water available in Rai Block compared to Sonipat Block as contributing to the lower groundwater level. Moreover, the shrinking water table demanded the use of electric pumps to irrigate the fields, which necessitates added investment by the farmers in the already increasing cost of production. This also meant that only a few wealthy farmers could afford the added investment, while poor and marginal farmers suffered from low harvest and productivity during peak agricultural seasons. The study proposed key solutions in the form of crop diversification, which could take limited water intake and resources from the ground and replenish the soil fertility over a period of time. Although, over the last couple of years, many farmers in Rai Block have adopted diverse crops like baby corn, sweetcorn, mushroom, and bell peppers, in my research, I show how only a few farmers could adopt these practices based on their already existing economic resources and social networks. In chapters 5 and 6, I study narratives on how farmers were motivated or restricted to adopt crop diversification as an alternative farming practice.

II. On the aspect of agricultural land use change: Many studies in Haryana have reported a decline in agricultural land use and its increasing use for non-agricultural purposes due to growing population, urbanisation, industrialisation, migration of people to cities and the growing disassociation with the agriculture sector (Singh, 2000; Kumar et al., 2013; Jodhka, 2014; Malik, 2012; Kumar et al., 2021; Bagchi, 2021). Moreover, the early-2000s saw a massive rise in real estate business on the national highway of the Delhi-Haryana border due to the preference for working-class employees living in closer reach to the national capital, Delhi (Times of India, 09-05-2012; also see fig 4.1). The decline in agricultural land use in Sonipat district (the nearest district to the border) has been reported to be more than 5% from the period of 2005-06 to 2011-12 due to the decrease in fallow land, conversion of wasteland into built-up areas and migration to urban areas (Saroj et al., 2014). This was coupled with an increase in educational institutes near the Sonipat district to transform the area bordering Delhi into an educational city (Bagchi, 2021). Furthermore, proposals have been made to connect this educational hub with two expressway corridors in the Regional Plan-2021 (Bagchi, 2021). For instance, the Western and Eastern Peripheral Expressways have been recently proposed as a peripheral road network facilitating rapid transit between Haryana and Delhi, bypassing the inner city. The idea of developing a ‘global corridor’ with sector-specific, theme-based sub-cities along the expressway is planned to transform the area, especially the bordering Sonipat district, into a new township with functional theme towns covering education, trade and finance, medical health, knowledge, biotech, entertainment, leisure.8

These developments meant two significant changes for the rural society near the Delhi-Haryana border: firstly, an increase in the demand for land that was previously used for either agriculture or left fallow/barren for a long time, and secondly, attracting the younger population to study or work in these institutes instead of pursuing prospects in the agriculture sector, which was already in a state of distress (Jodhka, 2012, 2014). This prompted many farmers, particularly in Rai Block, to either sell their lands for non-agricultural purposes or leave agriculture altogether. Several studies conducted on land use change in Haryana have also concluded that because of urbanisation and industrialisation, the proportion of land that was classified as urban has increased over the three

decades (2001, 2011, 2021) while the proportion of cropland decreased as a result of the influence of the capital region within this study area (Rana et al., 2022; Naikoo et al., 2020; Kumar et al., 2013; Malik, 2012). In Chapter 5, I talk more about the growing disenchantment with agriculture among these farmers and how it led to barriers in transitioning to alternative practices in the Rai Block.

Regarding other field sites in Blocks like Ganaur, Gohana and villages bordering Jind and Panipat districts (See fig 4.1), the decline in agricultural land use has been reported to be less than 3% from the period 2005-06 to 2011-12 (Saroj et al., 2014). The distances of villages from urban centres, especially Delhi, have been a critical factor in this slow change. I was also informed by some of my respondents in these villages about the lack of willingness among farmers to travel to far-off places to sell their produce:

We want to produce and sell our products in the local market. We do not want to travel to Delhi and Gurgaon as it entails a huge travel cost with limited profit-making opportunities (Dinesh, 33, M, DC, member of Jind organic farmers group, 23-06-21).

During our conversations, these farmers also talked about better availability of canal water and their villages being less affected by urbanisation and industrialisation processes like other villages in the Sonipat district (See Chapters 5 and 7 for elaboration).

However, it is worth noting how agricultural land was distributed among diverse rural farming communities and what implications ecological and agricultural land use changes had on different groups of farmers. This is so because rural farming communities in Haryana villages are quite divided across caste and class lines, wherein land-ownership has been an important determinant factor for the choice of farming practices and crop production. Moreover, factors such as access and management of land by dominant caste groups, existing caste hierarchy, and rural migration have implications over why some farmers are able to transition while others do not. In the following section, I discuss an overview of farming communities and their social profile to understand the diversity among farmers and their agricultural practices in my research context.

### 4.2 Communities and their social profile: An Overview

Social sciences in India have become much more sensitive to several social variables and indicators of development. While mainstream economics has moved from simple calculations of income and productivity to the complex realities of ‘human development', sociologists and other social scientists have rediscovered the notion and meaning of ‘communities’ (Jodhka, 2001) and have started to give much more importance to other forms of subjectivities, including the way people constructed their own notions of ‘well-being’.

The idea of the community as a category of development experiences of the village seemed to work much better than any other grouping during my fieldwork. My respondents often articulated the differentiated experience of developing sections of their village over the past 40 years through the prism of communities, particularly class and caste communities. Furthermore, they classified the village population in terms of these communities and viewed the socio-economic experience of
agricultural transitions among the rural population and diverse communities. In this section, I elaborate on the social relations among the diverse farming community that emerged in my research. In particular, I describe the rural population in Haryana across different communities and understand the changing caste and class structure of these communities in my research context.

4.2.1 Class categories

Land ownership and non-ownership are important factors in determining the structure of opportunities and socio-economic well-being of households in rural India. Therefore, during my fieldwork, I worked with a category of social class loosely defined by land ownership. According to the Ministry of Agriculture & Farmers Welfare survey of the government of India (2019), land ownership can be categorised under five classes: marginal, small, semi-medium, medium, and large. Fig 4.3 depicts these categories and the class size.

**Fig 4.3: Table showing class division**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category</th>
<th>Size-Class (1 hectare = 2.47 acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marginal</td>
<td>Below 1.00 hectare</td>
</tr>
<tr>
<td>2.</td>
<td>Small</td>
<td>1.00-2.00 hectare</td>
</tr>
<tr>
<td>3.</td>
<td>Semi- Medium</td>
<td>2.00-4.00 hectare</td>
</tr>
<tr>
<td>4.</td>
<td>Medium</td>
<td>4.00-10.00 hectare</td>
</tr>
<tr>
<td>5.</td>
<td>Large</td>
<td>10.00 hectares and above</td>
</tr>
</tbody>
</table>

(Source: Ministry of Agriculture & Farmers Welfare, 2019)

The pie chart below depicts the size of operational holdings to be 1.62 million operational holdings in Haryana. According to the Ministry of Agriculture and Farmers’ Welfare report (2016), the majority of land size holders, i.e., 67 per cent, are small and marginal, and only 3 per cent are large holdings. Also, according to the same report, the average size of holdings has steadily declined. This limits farmers’ capacity to invest in advanced technologies, sustainable farming practices and harvest higher yields due to economic constraints.
In my research, farmers talked about their land size in terms of hectares and acres. Therefore, I use both units to describe their farm size. For ease and convenience, I categorised my sample into three land size classifications as below (also see Appendices 1, 2, 3, and 4 for interview sample and classification):

i) Small-scale and Marginal farmers: between below 0 to 2 hectares (or below 0 – 4.94 acres)

ii) Medium-scale farmers: 2-10 hectares (or 4.94 – 24.7 acres)

iii) Large-scale farmers: above 10 hectares (or above 24.7 acres)

However, the category of social class cannot be studied without caste analysis. As in most other parts of the country, agricultural land in rural north-west India was owned mainly by a few caste groups during the post-independence period. After the adoption of GR technologies during the 1960s, it was the “big” and “rich” landowners from some upper class and caste groups who suddenly emerged as the new regional elite and challenged the dominance of the erstwhile elite from previous ‘upper caste’ community (Jodhka, 2014). Unlike most other parts of India, the Punjab-Haryana region also has a single caste dominance, the Jats (commonly pronounced as Jutts in Punjab and Jaats in the Haryana region). Even though the two states have several other caste communities also owning agricultural land, none has the numbers and economic power to compete with Jats at the regional level. I further elaborate on the caste analysis below.

### 4.2.2 Caste analysis

The institution of caste and the practice of untouchability have perhaps always been a part of everyday life in rural northwest India. However, the region has its own specificities. For various historical reasons, the caste hierarchies and Brahmanical ideology in the region have been relatively less rigid when compared with some other parts of India (Tandon, 1988; Saberwal, 1976). Until 1947, the united Punjab had a majority Muslim population. The demarcation of Punjab came up in
1966 following the Punjab Reorganisation Act, which split the states into the Sikh majority Punjab state and Hindu majority state of Haryana (17th state of India), with Chandigarh being administered separate union territory, as the shared capital of both the states. Among the Hindu-majority state of Haryana, most of the land was controlled by Jats, who also had numerical strength at the time of demarcation (Jodhka, 2011). The other agriculturist castes were Ahirs, Gujjar, Sainis and Bishnois (Singh, 1979). These agriculturist castes constituted around 51% of the population and controlled 80% of the land, which enabled them to control the means of production and dominance over others (Jodhka, 2014). While analysing the land holdings in Haryana, it came out that most of the landholders were these agriculturist castes that also dominated other castes that were traditionally upper castes such as Brahmins, Khatris, Rajputs and Banias.

**Fig. 4.5: Breakdown of the caste composition of my study area**

<table>
<thead>
<tr>
<th>Name of the District Block/visited</th>
<th>Total Rural Population</th>
<th>Caste Category</th>
<th>Percentage of Scheduled Castes to total rural population (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Brahmins/DC/OBC</td>
<td>SC</td>
</tr>
<tr>
<td>Sonipat District</td>
<td>957,800</td>
<td>776,640</td>
<td>181,160</td>
</tr>
<tr>
<td>Rai Block (includes 3 villages)</td>
<td>11,239</td>
<td>9,854</td>
<td>1,385</td>
</tr>
<tr>
<td>Ganaur Block</td>
<td>146,781</td>
<td>121,177</td>
<td>25,604</td>
</tr>
<tr>
<td>Gohana Block</td>
<td>291,370</td>
<td>233,278</td>
<td>58,092</td>
</tr>
<tr>
<td>Jind District</td>
<td>948,250</td>
<td>749,460</td>
<td>198,790</td>
</tr>
<tr>
<td>Panipat District</td>
<td>649,866</td>
<td>543,761</td>
<td>106,105</td>
</tr>
</tbody>
</table>

*Source: Census of India 2011*

Note: DC and OBC separate data is not available as caste census for OBC is unavailable.

In my research, I classify farmers into three caste categories: i) Dominant Caste groups (such as Jats, Ahirs, Gujjar, Sainis, Aroras and Bishnois); ii) Other Backward Classes (OBC) (such as Aheria, Naik, Thori, Barra, Bagi, Changar, Dhobi, Daiya, Kohli, Gauria, Kurmi) and; iii) Dalits (or Schedule Caste). The first category of “Dominant Caste” (DC from here) became popular after it was used by M.N. Srinivas in 1953 during his field trips to Rampur, a village in Mysore, Karnataka. On this concept, Srinivas puts forth the following:

A caste may be said to be “dominant” when it preponderates numerically over the other castes and when it also wields preponderant economic and political power. A large and powerful caste group can be more easily dominant if its position in the local caste hierarchy is not too low (Prasad, 2021, p. 33).
Srinivas argues that, under these qualities, a dominant caste exercises control over the affairs of its village, commands respect from other castes, and becomes a model for Sanskritization where the members of the dominant caste are consulted by other castes on important occasions, including ceremonial ones (Srinivas, 1966). Moreover, in a village setting, everyone is attentive to power dynamics, and the dominance of members of a particular caste plays a decisive role in resolving a dispute or resolving a caste conflict at the local level (Srinivas, 1955). Understanding this dominance and power structure is important in studying the changing socio-economic and ecological processes and the changing human-nature relationship with time and socio-cultural context.

The agricultural boost that came through the GR further strengthened the position of these dominant caste farmers in the Haryana villages. This was because the new technology benefitted producers who controlled the optimal production environments such as good quality soil, access to irrigation facilities, and locations favourable to markets because of cheap transportation, communication, and other linkages to urban centres. Another point worth mentioning is the fact that even in a favourable environment, the big (or large-scale) landlords reaped the most from the new technology due to their existing economic resources and social networks (Mitra, 2005). On the other hand, producers without access to such environments were at a disadvantage and were less competitive as compared to producers in favourable zones (Poleman & Freebairn, 1973).

The second category of social profile is that of Other Backward Classes (OBC), a collective term used by the Government of India to classify educationally or socially backward castes (Gehlot, 1998). It is one of several official classifications of the population of India, along with General castes, Scheduled Castes and Scheduled Tribes (SCs and STs). They are castes in the Indian social system that are situated above the Untouchables but below the forward or upper castes (e.g., Brahmins, Kshatriyas and Vaishyas) and the intermediate castes (mostly peasant proprietors and even dominant castes) (Yadav, 2002). The OBCs occupied a subaltern position until they were identified as a separate category and were given reservations in government jobs and educational institutions in 1992, having implications not only on their socio-economic profile but also their political outlook (Jaffrelot, 2000). In Haryana, the gradual rise of OBCs as a socio-political category had its own consequences on how they dealt with the changing agrarian political economy and farming culture. However, landownership among them remained an important factor in agriculture. Jodhka (2014), for example, highlighted that some backward castes, such as Gujjars and Malis (or Sainis), benefitted from being either landowners or took advantage of the reservations, while some others, like Jhimmers, Kumhars or Prajapats, remained landless, worked as casual labourers, or invested in small businesses but struggled on the borderlines of poverty.

Although the OBC holds a strong category in the development politics of the country, in my research, I primarily use the term to denote the diversity among the farmers and their farming practices. In my research, most small and marginal farmers belonged to this category; hence, this category helped me to situate the social position of these farmers under various class and caste groups. In my empirical chapters, I show that agricultural transitions were not undertaken only by dominant caste and wealthy farmers but also across different caste and class groups in Haryana.

Thirdly, while mostly the agricultural land in the Punjab-Haryana region has been under the direct control of the traditionally cultivating castes, particularly the Jats in Haryana, the exclusion of Dalits from the agrarian economy continues even today. For example, the agricultural land owned
by Dalits is virtually negligible despite constituting nearly 29 per cent of the total population of Punjab in 2001 (much higher than the all-India average of around 16 per cent) (Prasad, 2021). Though the proportions of the SC population are lower in Haryana (19.3 per cent in 2001), their relationship to the land is not very different from their counterparts in Punjab as only 8 per cent of them were listed as cultivators in the state in 2001 (Government of India Census, 2011). Due to a lack of landownership and cultivating capacity, Dalits are mostly reduced to agricultural labourers or factory workers in the agro-based industries in the villages. However, over a while, two significant changes have occurred in the social position of Dalits vis-a-vis agrarian changes: firstly, a change in the landlord-labour relationship due to a decline in the sajhi system and secondly, a general decline in demand and supply of local Dalit labour in Haryana. I elaborate on these two changes below.

Some studies discussed the decline in sajhi system or attached labour in Haryana and the increase of casual and contractual labourers (mostly on a fixed cash rate) (Jodhka, 1994, 2012, 2014; Bhalla, 1976). A ‘sajhi’ was generally a landless labourer who worked on a plot of or on the entire land of the landowner and received a share of the total farm yield. Sajhis were usually employed by Rajput landlords who did not touch the plough. Attached labourers were almost always indebted to the landlord they worked with. Most of them came from menial castes. Post-independence, Bhalla (1976) observed a gradual change in the system of attached labourers, especially during the 1970s, when they were replaced by naukars (servants) employed at a fixed annual wage. Jodhka (1994) observed a major change in the system of attached labourers due to the adoption of GR practices. He argued that most large-scale farmers who previously employed sajhis now preferred to work independently due to the ease of work with the use of machinery and chemical fertilisers. Also, these farmers did not want to share the benefits of new technology and increased production, and gradually, the old yield sharing system ended.

Jodhka (2014) also talked about other alternatives emerging in Haryana in the form of labour sharecropping. Labour sharecropping was a form of tenancy agreement where middle and large-scale landholders preferred leasing their lands out on a shared basis to the labouring households. In such a case, land is leased out to a labourer who works on the land with his family and gets one-fourth of the entire yield. In some interviews, I was informed about the growing practice of taking land on lease or bataai by some Dalit labourers, thereby indicating a rise of alternate modes of labour attachment emerging in these villages. Although I had limited field interviews and discussions on these changes, I was however informed by some Dalit labourers that they often took small land (usually one acre) on bataai for a short-term by saving some money over the years. Due to short term lease these farmers usually invested in only selective crops like wheat, rice, bajra and maize as they were economically viable and easy to sell. I talk more about these changes in chapters 5 and 6, where I argue that although these farmers were able to partially challenge the previous form of attached or bondage relationship with the landowners, they followed conventional farming practices of wheat and rice cultivation that made them indebted to their landowners.

Lastly, some studies (Suthar, 2022; Jodhka 2012, 2014) have reported a decline in labour demand during the later phase of the GR (1980s onwards) mainly because of the second phase of mechanisation (with the increase in the number of tractors and use of combine harvesters). However, this decline was not limited to the demand side, the supply of labour also shrank gradually. Specifically, there was a decline in the labourers from a local Dalit caste. Jodhka (2014)
reported two reasons for this: first, the migration of local Dalits to industries and other informal sector jobs in the urban centres, and second, the migration of Dalits and OBCs (later in 1992) who benefitted from reservation quotas in universities and government jobs to different places. In my research context, these changes had implications on a diverse group of farmers related to their adoption of agricultural practices and the management of the landowner-labour relationship. Reflecting on some of these changes in chapter 5, I show how some Dalit households had digressed into the non-agricultural sector and how far the changing agricultural practices and farming culture contributed to this diversion.

Overall, understanding rural community and their social profile is essential to study who adopts what farming practices and how far different factors such as social position, age, land size holding, and caste identities play a role in farmers’ motivations and behaviours to transition. In the next section, I elaborate on the current agricultural policy on sustainable farming in India and the basic characteristics of the types of farmers that emerged in my research context.

4.3 Agricultural Policy and Types of Farmers

In chapter 1 and 2, I discussed common agricultural practices in Haryana and how are they shaped by the adoption of GR technologies and approaches. I also talked about agricultural transitions in India happening in various ways, such as cluster-based initiatives, organic or natural farming methods, farm collectives (e.g., seed saving and sharing), use of local or organic inputs, science-based farming, or the recent wave of neoliberal agro-entrepreneurship. In this section, I discuss briefly: i) a policy initiated for promoting sustainable agriculture: Paramparagat Krishi Vikas Yojana (2014-2015), and analyse its implications related to farming systems and diverse farming groups; and ii) the basic characteristics of farmers that emerged in my research; and show how different farmers are adopting diverse farming methods and practices in Haryana. However, the section only briefly elaborates on these changes in my research context, and a broader discussion will be done in the subsequent empirical chapters.

4.3.1 Analysing agricultural policy on sustainable farming in India

Efforts have been made by the Government of India under the National Mission for Sustainable Agriculture (NMSA, 2014-15) to make agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific and integrated farming systems. Paramparagat Krishi Vikas Yojana (PKVY) is one such programme launched as a sub-component of the Soil Health Management scheme for supporting sustainable farming via cluster approach (see fig 4.5 for all components). The policy aims at development of agricultural models for sustainable practices by reducing the use of chemical fertilisers, adopting a mix of traditional wisdom and modern science to ensure long-term soil fertility, methods for resource conservation, and encouraging farmer entrepreneurship through direct market linkages. The scheme stresses end-to-end support to the existing organic farmers, that is, from production to certification and marketing.

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9 https://nmsa.dac.gov.in/
Fig 4.6: Components of the National Mission for Sustainable Agriculture (NMSA, India)

Source: https://nmsa.dac.gov.in/

Fig 4.7: Programme implementation of PKVY (Pictorial Representation)

Source: Reddy (2018, p. 54)
Although the Central Government has designed the larger scheme, PKVY is implemented by the Department of Agriculture of the respective states. At the state level, the Joint Director of Agriculture is supported by agriculture and extension officers to execute the programme. The implementation is usually done through farmer groups at the village or cluster level. The idea is to mobilise the farmers and pool their lands to form clusters with 50 acres of land to be converted for organic farming. Every cluster would then comprise of 50 or more farmers, and in a span of three years, 10,000 clusters would be planned covering 5 lakh acres under organic farming (Saran et al., 2018). In this way, the scheme envisages: a) chemical and pesticide-free produce which will contribute to improving the health of the consumer; b) promotion of commercial organic production through certified organic farming; c) increase in farmer's income and a potential market for organic farming and; d) motivate farmers for natural resource mobilization for input production (Reddy, 2018).

According to the Ministry of Agriculture and Farmers Welfare Report (2023), the maximum area (more than 10k hectares) added to organic farming through PKVY scheme since 2015-16 was in the states of Andhra Pradesh, Madhya Pradesh, Uttarakhand and Rajasthan, while the states that stood at the lowest rankings were Haryana (400 h), Arunachal Pradesh (380 h), Nagaland (480 h), Jammu & Kashmir (560 h). Other studies that analysed the impact of PKVY in different parts of the country claimed that the policy helped in the promotion of organic practices among some farmers with the increase in the use of green manure, compost making, bio-fertilisers, adoption of horticulture crops through cluster formation and capacity building training, and greater access to knowledge about market linkages and organic certification process (Ghosh, 2023; Yadav et al., 2022; Reddy, 2018; Saran et. al, 2018).

While the purpose of PKVY was to make it easier for the farmers to attain a smooth transition towards sustainable farming from conventional methods, the success of the programme was hindered by a couple of challenges in policy making and implementation. In analysing the scheme in four states (Gujarat, Bihar, Himachal Pradesh and Karnataka), Ghosh (2023) reported a lack of proper marketing channels for organic food as a major hindrance to adopting sustainable practices. This was coupled with low yields in initial years and a decrease in the profit margin due to high labour costs. The report recommended proper provision of a supply chain mechanism to be developed as a part of the programme to make sure that farmers opting to practice sustainable farming get proper prices for their produce and could sell their produce in markets differentiated from those of conventional produce.

In another study by Reddy (2018) on the impact of PKVY reported the following limitations of the programme: i) insufficient and delay in fund release from state governments; ii) lack of awareness about organic certification among consumers, retailers and wholesalers; iii) ineffective support from regional centres in facilitating handholding of PKVY clusters; iv) lack of training to the farmers; v) lack of integration of livestock (which provides alternate incomes and resources as bio-inputs), farm machinery and horticulture departments; vi) lack of flexibility in PKVY guidelines (to adopt practices depending upon the local situations) and; vii) duplication of beneficiaries (with existing organic farmers being part of other schemes).

Tiwari & Khurana (2017) in their analysis of PKVY called it ‘a certified problem’ (Down to Earth, 15-10-2017), highlighting the problems of lack of training among the farmers and low level of information for seeking organic certification under the scheme. The report mentioned farmers in Chhindwara district in Madhya Pradesh struggling with information to collect the samples for testing and other basic knowledge of Participatory Guarantee System-India Green certificates, which the PKVY was promoting.

To sum up, while governmental initiatives through programmes like PKVY reflect some legal attempts to generate some interest among farmers to adopt sustainable farming practices across the country, their limitations cannot be overlooked, especially regarding which farmers are adopting those practices and how long they sustain. No farmer in my research sample who transitioned to alternative practices mentioned PKVY or any similar policy that motivated them to transition. Moreover, PKVY’s emphasis on the cluster-based approach may be useful for the adoption of non-chemical-based farming on a larger scale, yet it tends to ignore the local and farm-level opportunities and challenges to transition and how individuals, particularly small and marginal farmers, struggle to adopt alternative practices. In the following sub-section, I discuss some of these issues in the context of different types of farmers that are relevant to this study and describe their basic characteristics.

4.3.2 Types of farmers

Some studies conducted on the adoption of sustainable agriculture in rural north-west India suggest that a few farmers across different socio-economic groups have adopted or are willing to adopt sustainable farming practices (Ohlan, 2016; Singh and Grover, 2011; Yadav et al., 2018; Baskaur et al., 2021). These studies, however, do not explicitly talk about any socio-economic group of farmers who were more willing to transition than others. Only two studies in Rajasthan (Singh and Chauhan, 2006; Singh & Sharma, 2019) mentioned a positive correlation between caste and the adoption of organic farming among farmers. Furthermore, a few studies in Asia have pointed to the emerging ‘new farmers’ in sustainable agriculture. They are usually young middle class people primarily from urban regions, with higher educational levels, following successful urban careers, who turn to agriculture and differentiate themselves from traditional or established farmers prominently (Shi et al., 2011; Cody, 2014; Si & Scott, 2016; Xie, 2020). Similarly, in Haryana, some studies and reports have hinted at the rise of a new kind of farmer: comparatively younger (than established farmers), born in the villages but educated or having worked in urban areas and now wishing to return to their village and explore their prospects in organic farming (Ohlan, 2016; Satyajeet et al., 2018; Tribune, 12 May 2018; Hindustan Times, 15th July 2017).

In my research, I met 50 farmers who followed either chemical or non-chemical (e.g., natural/organic) farming practices on their land. Fig 4.7 characterises the distribution of these farmers into four categories: i) conventional farmers, ii) established farmers, iii) new farmers or reverse migrants, and iv) farmers who converted back to conventional farming after transitioning briefly to alternative farming practices. In the following paragraphs, I explain these categories of farmers, their significance and discussion in my empirical chapters.
### Table showing types of farmers and key features (see Appendix 1 for details)

<table>
<thead>
<tr>
<th>Types of farmers &amp; where they are discussed in this thesis</th>
<th>Conventional farmers</th>
<th>Established farmers pursuing alternative agriculture</th>
<th>New farmers or reverse migrants</th>
<th>Farmers with thwarted transitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews with farmers (50)</td>
<td>17</td>
<td>25</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Key Features</td>
<td>Use of chemical-inputs, following industrial practices in wheat &amp; rice cultivation, limited exotic crops</td>
<td>Limited or no use of chemical inputs, crop diversification, natural farming methods</td>
<td>Complete ban on the use of chemical inputs, urban exposure,</td>
<td>Transitioned to natural farming for some time but couldn’t survive in long term so switched back to chemical inputs.</td>
</tr>
<tr>
<td>Caste / Class background</td>
<td>Dominant Caste or OBC, includes farmers from all scale of landholdings (large, medium, small comprising)</td>
<td>Dominant Caste, OBC, includes farmers from all scale of landholdings (large, medium, small</td>
<td>Dominant Caste, large-scale farmers</td>
<td>OBC, medium or small-scale farmers</td>
</tr>
<tr>
<td>Location</td>
<td>Rai Block (include villages, A2, M, B)</td>
<td>5 farmers of Rai Block (villages A2, M, B), village N, K, Nr, U, D, Ad, J, R</td>
<td>Village A1, GT, A</td>
<td>Village Nr, N, B, M</td>
</tr>
<tr>
<td>Discussed in Chapter</td>
<td>Chapter 5</td>
<td>Chapter 6,7,8</td>
<td>Chapter 6,7,8</td>
<td>Chapter 6</td>
</tr>
</tbody>
</table>

Source: Author

### I. Conventional farmers:

I interviewed 17 farmers across class and caste groups who were mainly involved in wheat, rice and maize cultivation using conventional farming practices. These farmers belonged to Rai Block, had good access to national and international markets, adopted industrial practices after the introduction of GR and earned huge profits from the 1960s-1990s. These farmers can be characterised as conventional farmers because: i) they followed industrial farming practices such as the use of chemical inputs, high-yield variety seeds, chemical fertilisers and pesticides, and used tractors and mechanised equipment in their farm during sowing and harvesting; ii) some of them either employed labour to do all the work or rented some portion of their land on lease to other small farmers who followed similar practices; iii) all believed in increasing their farm size to increase their production and earn profit; iv) they were either dependent on credit services to fund
heavy machinery or sometimes owned as well as rented their machines to other farmers, and v) they knew the social and ecological impacts of conventional farming yet followed industrial practices due to various reasons such as farm dependency on chemical inputs, lack of knowledge about alternative practices, marketing challenges and other transitioning risks involved. In chapter 5, I discuss these farmers to understand why some were not motivated to transition to alternative agricultural practices. I focus on understanding farmers’ accounts to study current industrial farming practices and how it generate barriers for these farmers to transition.

II. Established farmers pursuing alternative agriculture: I interviewed 25 established farmers belonging to different caste and class groups who talked about their willingness to adopt alternative practices. These farmers may be called ‘established’ as they were mostly those who remained in the rural countryside for most of their life and were well acquainted with both conventional and sustainable farming practices (which they inherited from their father or forefather) in their villages. More importantly, they gathered various information on diverse practices through farmer-to-farmer knowledge transfer, social networks and being a member of an ‘organic farmer group’. Mostly, these farmers relied on chemical fertilisers since the 1960s and made a living (although poorly) through conventional farming practices until the late 1990s. Most of them decided to transition to alternative practices in agriculture post-1990s due to health-related awareness (with the growing illness within the family or eating non-chemical food), environmental consciousness and economic benefits (of producing and selling non-chemical-based food). In chapters 6 and 7, I elaborate on why and how these farmers adopted diverse farming practices in agriculture. I show that these farmers adopted crop diversification and natural farming methods and gradually reduced or completely stopped using chemical inputs in farming. In chapter 8, I examine their perceptions on how transitions had an impact on their income, employment, health and ecological conditions in the villages which led to reshaping farmers identities.

III. Thwarted transitions: I interviewed five farmers who told me they had to return to conventional farming practices after adopting sustainable farming for some time. These farmers talked about two reasons that forced them to do so: i) agronomic challenges such as increased workload, structural changes to the farm and problems with the process of soil rebuilding and weed control, coupled with higher input costs and lower productivity in the initial few years of transition; and ii) growing social pressure from family and friends to follow conventional farming practices and not to take transitioning risks. Due to these two reasons, these farmers returned to their industrial practices using chemical inputs. I examine these farmers' narratives in chapter 6 to understand why some farmers successfully attempted to transition while others could not.

IV. New farmers or reverse migrants: Apart from these three categories of farmers, I interviewed three new farmers or reverse migrants who had previously migrated to urban areas for better job and education opportunities and now reverse-migrated to their village and started doing organic farming. They shared some similarities: i) two were young farmers aged between 25 to 35, and one 58-year-old who migrated back to her village when she was 30; ii) they shared higher levels of formal education and previous work experiences in various employment types -- lecturer, business management, chain stores, academia, and other job fields. Their previous work experience helped them to accrue substantial social capital (e.g., developing a consumer base, access to the market, bureaucratic and administrative hurdles, etc.) to shift their careers to farming; iii) they shared discontent with conventional agriculture and its food safety problems; iv) these reverse migrants
were not only motivated to produce quality food and address food problems but also hoped to improve the social and ecological landscape of the villages by addressing social issues of rural areas such as rural incomes, employment, women and Dalit labour and improving the ecological conditions of land, soil and water resources of the villages and; v) had strong entrepreneurship and marketing abilities for a productive sale of their products to nearby urban areas, other states and international exports. In chapters 6 and 7, I examine the motivation factors for these farmers to return to their village to pursue their prospects in sustainable agriculture. Furthermore, in chapter 7, I examine how these farmers transitioned to organic farming practices and what methods they adopted. Since these farmers intended to improve the socio-ecological conditions of the villages, in chapter 8, I examine farmers’ perceptions on these changes in their villages and how they explain their transition initiatives led to the positive developments in the villages.

4.4 Conclusion

Overall, in this chapter, I have shown how my field sites closer to Delhi- Haryana border has been affected by growing urbanisation and industrialisation and thereby had implications on the agricultural land use and farming practices among diverse farming communities in those villages. For instance, Rai Block (which is closer to the Delhi-Haryana border) is likely to have more farmers who follow industrial farming practices or are willing to sell off their land for non-agricultural purposes as compared to farmers in Ganaur or Gohana Block in Sonipat. The social profile of these farmers across caste and class reflects which farmers are likely to be at a more advantageous position to transition as compared to others. In particular, the caste profile of the dominant caste (DC) and Dalits is significant here in terms of the choice of agricultural activity and ownership of farmland. Studies argued that under prevailing conditions such as existing economic resources and social networks, it is likely that an upper caste, large-scale farmer would be able to adopt alternative agriculture with much less difficulty than a small farm holder. However, in my empirical chapters, I show that this may not always be the case as many small and marginal farmers were willing to adopt alternative agriculture and have been successful too. Finally, I analysed PKVY, a policy introduced to promote sustainable agriculture in India. I argued that the policy might be useful in generating some interest among farmers to adopt alternative practices in agriculture but tends to overlook the local and farm-level opportunities and challenges in transitions, especially for small and marginal farmers. I then outlined four types of farmers that will be discussed in my empirical chapters. Segregating these farmers into categories helps me understand the diversity among farmers in my empirical chapters, especially regarding their key characteristics and transition processes.

I begin my empirical chapters by discussing conventional farmers and their farming practices, especially after they adopted GR approaches. In particular, chapter 5 focuses on understanding their narratives on how industrial farming practices created conditions that restricted these farmers to transition to alternative practices. This will help me answer my research questions on: Who adopts what kind of farming practices? How do industrial farming practices impact on village agriculture, farming practice and overall lifestyle? How far did GR approaches prevent some farmers from transitioning and adopting alternative practices? Chapter 5 follows farmers’ perspectives on why they are motivated to transition to alternative approaches in agriculture. This would help develop a comparative analysis of why some farmers transition while others do not.
Chapter 5: Studying social implications of Green Revolution as barriers to transition

My family had a small landholding and we used to do paramparagat kheti (sustainable farming).

In doing so, first, you need a joint family so that you do a lot of work by yourself and do not outsource the labour work. Second is pashu-dhan [animals like cow and buffaloes]. It provides us with milk, cow dung, etc., and goes like a virtuous cycle: agricultural waste is eaten by them and they in turn provide soil for making organic manure. With time [after GR], natural soil was added with chemicals like urea and DAP that decreased the importance of cow dung. Gradually the land was exposed to many other chemicals and we became dependent on them.

(Virender, M, conventional farmer, 19-01-2021)

The purpose of this chapter is to examine farmers’ perspectives on industrial farming practices, especially after the adoption of GR technologies and approaches. These narratives will help me to explain the social implications of conventional agriculture in the study villages and identify the barriers in transitioning to alternative agriculture. Specifically, I seek answers to the following research questions: who adopts what kind of farming practices? How do industrial farming practices impact village agriculture, farming practice and overall lifestyle? And how far have GR approaches created barriers for some farmers to transition and adopt alternative practices? Overall, the chapter identifies three social implications of GR that created barriers for transitions: i) changing farming culture and agricultural practices in the villages; ii) emerging alternatives and challenges of transition ‘risks’ or jokhim among small and marginalised farmers; and iii) changing role of women’s work in agriculture. In the following paragraphs, I elaborate briefly on these findings and their significance in my research.

Chapter 2 discussed the changing agrarian social structure and gender relations with the adoption of GR approaches. In the context of rural Haryana, Jodhka (2012, 2014) talked about the ‘expanding vulnerabilities’ of rural social settings related to the changing patterns of village agriculture associated with farm practices, decline in cattle ownership, changing social ecology, gender relations and an overall disenchantment with the agriculture. In section 5.1 of this chapter, I argue that these changes in the farming culture and practices, especially with the use of chemical inputs, introduced the preference for a ‘comfortable’ and ‘stress-free’ lifestyle among farmers, also creating conditions that restricted them from considering alternative agricultural practices. I also elaborate on the two implications it created: first, the weakening of the cultural lifestyle associated with village agriculture and second, a possible dissociation of farmers from agriculture itself.

Secondly, Chapter 2 cited research that showed how some large-scale farmers were able to take advantage of GR due to existing economic resources, social network, and willingness to adapt to new industrial inputs. Low economic resources to purchase machines and agricultural inputs, lack of regular access to financial credit facilities, unfavourable loan conditions, non-repayment of debt due to uncertainties in agricultural productivity and natural calamities were some of the other reasons that affected the poor and marginalised farmers in Haryana (Dhanagare, 1987; Bhalla, 1995; Jodhka 2012; Westley, 2019). In section 5.2 of this chapter, I examine how social inequalities play a significant role in deciding who can and cannot adopt alternative agricultural practices. In
In particular, I show that some farmers are able to transition to alternative agriculture because of the existing economic resources and social network. However, existing power hierarchies and inequalities, across caste and class, are still significant in creating barriers for some small and marginal farmers and Dalit labourers to transition to alternative agriculture.

Thirdly, I describe how changing women’s role in agriculture specifically with the GR technologies and approaches had an impact on village agriculture and transitions. Chapter 2 identified studies that reported changes in women’s work and understanding of agriculture. However, I argued that no existing study discusses how this may have caused barriers in transitions to alternative agricultural practices. In this chapter, I show how industrial agriculture led to the changes in women’s work in agriculture which, in turn, created conditions responsible for the barriers in transitions. In particular, my research examines the social implications of technological changes, and the gradual withdrawal of women and children from village agriculture activities. Finally, I argue that these implications led to the circumstances that restricted women to transition to alternative agricultural practices.

Finally, the interviews used in this chapter are from my visits to farms and farmers in the Rai Block only, because I could interview farmers following conventional farming practices only in this Block due to my mobility constraints. The chapter depicts accounts of chemical farmers from a specific region in Sonipat district, and it may not be typical of the entire study area or Sonipat district. Moreover, farmers within this region varied in terms of their farming practices and cropping patterns. Fig. 5.1 depicts the cropping cycle of conventional and non-conventional farmers in the Rai Block. In the following sections, I analyse how different farmers understood conventional farming in these villages and how it impacted their ability to transition to alternative forms of agriculture.

### Fig. 5.1: Table outlining the cropping cycles of conventional and non conventional farmers

<table>
<thead>
<tr>
<th>Seasons</th>
<th>Rabi</th>
<th>Kharif</th>
<th>Zaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sown (between)</td>
<td>October to December</td>
<td>July (onset of monsoon) to August</td>
<td>April to September</td>
</tr>
<tr>
<td>Conventional farmers</td>
<td>Wheat</td>
<td>Paddy, maize, jowar</td>
<td>Seasonal vegetables only</td>
</tr>
<tr>
<td>Non-conventional farmers (polyhouse farmers)</td>
<td>Wheat, Barley, Peas, grams, and mustard</td>
<td>Paddy, maize, jowar, bajra, sweet corn, moong, groundnut, soyabean</td>
<td>Vegetables, fodder crops, sugarcane, baby corn, watermelon, muskmelon</td>
</tr>
<tr>
<td>Non-conventional (natural/organic farmers)</td>
<td>Barley, Peas, grams, mustard and rarely wheat</td>
<td>maize, jowar, bajra, moong, vegetables</td>
<td>Vegetables, sugarcane</td>
</tr>
</tbody>
</table>

*Source: Author*

### 5.1 Changing farming culture and the preference of ‘araam ki zindagi’ (‘comfortable’ or ‘peaceful life’)

In this section, I describe how changes to the farming culture and practices, especially after the adoption of GR, created barriers for farmers to transition to alternative farming practices.
Specifically, I examine changes in the village agriculture in three ways: first, the impact on farming practices with the adoption of chemical-based inputs; second, the shifting human-animal relationship, particularly with the decline of animal work; and third, a general disenchamentment with agriculture among some younger population. While examining these factors, I argue that farmers’ preference of *araam ki zindagi* (comfortable or peaceful life) resulting due to ease of agricultural work after GR technologies created conditions that restricted these farmers to transition.

5.1.1 During my initial conversations with farmers in the Rai Block, they used the phrase *araam ki zindagi* to describe the changing farming culture in the villages, especially with the use of chemical inputs. In general, the phrase is used to describe a comfortable and peaceful life with little stress or tension about work. In these agricultural villages, the phrase was used to describe the current industrial farming culture where most conventional farmers were using chemical inputs such as fertilisers and pesticides instead of previously home-grown organic manure or bio-fertilisers (which were often time taking and labour consuming), for pest control and other agricultural activities. To probe further, I asked these farmers to describe what they meant by this phrase. Dinesh (46, M, large-scale, DC) said,

> Chemical farming led to *araam ki zindagi* as these farmers were now free to do whatever they wanted once the chemicals were sprayed and field was ready for pest control. With the use of chemicals, farming became quite easy and farmers gradually became too lazy to change to any other practice or agricultural diversification. Any change or move to non-chemical farming would now require much hard work and is quite time-consuming and no farmer would want to do that as they want an easy and relaxing life (Village M, 05-02-2021).

Two other interviews gave similar descriptions:

Earlier farmers spent a lot of time in the fields: ploughing, sowing, weeding, and other animal-related work. Since chemicals and machines have replaced most of the farm work, farmers are now relatively free and so prefer to sit in the sun, play cards with friends or just gossip (Parveen, 40, M, medium-scale, village M, DC, 28-11-2020).

Chemical farming made farmers *andaar se khali* (empty inside) -- it made them dependent on chemicals and lazy in their routine life (Virender, 40, M, medium-scale, DC, village B, 19-01-2021).

These narratives point to two conclusions: first, while farmers’ dependency on chemicals increased over the period of GR, it simultaneously replaced the farm activities from being an exhausting, time-consuming job to a less hectic and demanding activity. According to these respondents, this was particularly because chemical agriculture demanded less labour work in form of physical plucking of weeds or sowing seeds. Farmers who earlier spend hours doing such physical labour gradually realised the amount of time and energy saved by simply spraying chemicals in the fields or driving vehicles for ploughing the ground and sowing seeds. Second, this easing farm activities, however, promoted a culture of lethargy and indolence among these farmers who then became dependent on the chemicals to ease off their work despite knowing at some level, consciously or sub-consciously, its severe social and environmental repercussions. These farmers claimed that those who did not want to adopt alternative practices were those who did not wish to put in the amount of hard labour and dedication that alternative agriculture may demand. While commenting
on the working habits among conventional farmers, some natural farmers stated: “yeh log shram nah karna chahte” (these farmers do not want to work hard), indicating a lethargic attitude developed among some conventional farmers post GR (see chapter 6 for details). Even Virender’s emphasis on andaar se khali was a reference to those farmers who were used to a stress-free existence, with less labour work (with the use of chemicals) and did not wish to change to any alternative practice as it may involve more labour, time, and effort. Overall, these narratives indicate that the preference of araam ki zindagi or comforts associated with conventional farming practices created barriers for these farmers to transition to alternative agriculture.

5.1.2 Although continued use and dependence on chemical inputs and mechanised agriculture led to araam ki zindagi for these farmers, it had further implications for village society which discouraged these farmers from transitioning or adopting alternative farming practices. One such implication of conventional agriculture was the change in human-nature relationships, especially with the decline in the ownership of cattle. According to my field observations of these villages, most farmers were doing conventional farming and owned limited livestock and that too mostly for domestic purposes. I did not see the use of bullock-carts on the fields, nor were there as many bovine animals as one could have observed a couple of years back. My conversations with these farmers led to vibrant discussions on this changing cultural practice wherein they informed me the reasons for this change such as loss of natural organisms from the soil, low preference of doing animal-related work particularly by women members and the gradual loss of indigenous farming knowledge. They also claimed that due to these reasons they were unable to switch from chemical farming practices, thereby, creating a barrier in transitioning to any other farming practice.

Virender (40, M, medium-scale, DC, village B), for example, told me how the adoption of GR impacted the traditional social settings in the villages and altered the human-nature relationship:

Agricultural land is a jeevik taatva (living being). It has many organisms that are crucial for natural farming. However, when we started adding chemicals unmindfully, we destroyed all these natural organisms living under these fields. Now it is difficult to get them naturally back (05-02-2021).

Virender pointed out the difficulties in retrieving the previous fertile land due to loss of naturally occurring bacteria with the overuse of chemicals. In his view, due to declining fertility of land and groundwater pollution, many farmers like him were forced to either continue conventional farming or switch to a non-agricultural sector altogether. According to him, the declining land fertility could not be easily replenished soon as he did not have organic manure (due to selling of cattle) nor had enough knowledge of how to decrease the use of chemical inputs without reducing farm production and income. This, for him, was one of the factors that restricted any transition to alternative farming practices.

However, Virender’s narrative was not an isolated case where I was informed about changes in the village agricultural practices that created transitions rather difficult for some farmers. Like him, many other farmers highlighted how the decline in cattle ownership and dung cake making practices had forced them to continue using chemicals instead of organic manure (usually made from cow-dung). Before explaining the reasons for this, let me briefly explain the animal-related tasks in agriculture and their significance.
In agriculture, the animal-related tasks included: bringing fodder from the fields, chaff-cutting, preparing feed-mix for the cattle, giving water and feed, bathing and cleaning the cattle, cleaning the cattle shed, treating the sick cattle, making dung cakes, preparing 'bitora' (a structure for storing dry dung cakes) and compost making. Within these activities, the most significant is dung work or **gobar ka kaam**, particularly in the white revolution areas of Haryana with their high concentration of cattle, but also in other villages across the country (Chowdhry, 1993). Collecting dung and turning it into **upla** (cakes) is the most tedious and time-consuming task. Dung cakes are made from the excreta of animals like cows and buffaloes, moulded with bare hands and turned into curvature to be able to keep stuck to the walls (See fig 5.1). Once dried, the dung cakes are put in a pile and covered with thatch called **bitora**. These **bitoras** are visible in many parts of rural India albeit with different names. The size and shape of the cake might vary with the region. The work involved women (usually) bending and lifting heavy loads, carrying them for at least a quarter mile on their heads. Although men owned most of the cattle, yet **gobar ka kaam** (dung work) was largely women’s work. Previously, women from a wide range of social classes, including upper class and caste households, were seen spending a great deal of time performing tasks related to dung. However, some studies reveal a significant decline in cattle ownership and therefore women’s involvement in animal work in Haryana (Vijayamba, 2022; Jodhka, 2014).

**Fig 5.2: Images showing drying of cow dung**

Most farmers I spoke to in Rai Block also informed me about the gradual decline in cattle ownership after adopting chemical agriculture. They told me that with the use of chemicals in the fields and the replacement of bullock carts with tractors, there was no need to make organic manure from cow dung, and so most farmers preferred to keep limited animals, only if they had time to do the animal work. For example, Virender said, “after GR, it was realised that if a chemical form of production could grow and produce enough, why is there a requirement of cow and its associated work? (05-02-2021). Others talked about increasing difficulties in managing livestock, specifically with withdrawal of women from animal and dung work. For instance, Dinesh said:

My wife knows everything about farming but is more interested in household activities. She does not like doing **gobar ka kaam**. Appointing someone else to do this work is an added expense. So, I sold my animals (Village M, 05-02-2021).
Similarly, another farmer said, “previously my mother and sister used to wake up early and do the animal work. But today women are not interested in touching cow dung” (village M, 21-01-2021). According to these farmers, the withdrawal of women members from doing dung work forced them to either sell their livestock or substitute organic manure with chemical inputs. Throughout their conversations, these farmers talked about gobar ka kaam as their wife’s or mother’s job, while they preferred to shun any discussion on men’s contribution to dung work. I talk more about women’s role in agriculture and their response on this issue later in this chapter. However, these narratives reflect that a decline in cattle ownership and animal work had shaped current farming practices. None of these farmers preferred to do increased animal work nor was it socially accepted by these male members in the community who eventually got used to their araam ki zindagi with the use of chemical inputs. Thus, for these farmers, non-availability of organic manure was an important factor that influenced their decision to continue using chemical inputs in farming and acted as a barrier to transition.

5.1.3 Lastly, in these villages, the growing disenchantment with agriculture was visible among some younger population who did not wish to work in agriculture anymore nor were interested in finding alternatives to current form of farming practices. For these younger population araam ki zindagi was associated with urban lifestyle and middle class luxuries and they aspired to find work opportunities in high income jobs that were mostly outside the villages. Only in two cases could I find these children wanting to return to the village and work in the agriculture sector. First, the son of a polyhouse farmer was studying masters in an agricultural university and wanted to help his father in his polyhouse agriculture farming after learning new and innovative techniques in the university (village M, 12-01-2021). Second, the son of an organic farmer went to Delhi to pursue his schooling and later did master’s in management and now wished to return to his village to pursue organic farming practices and pursue his career in the production and selling of organic food products in the nearby urban markets (village A1, 29-10-2020). However, in both cases, previously established social networks and economic resources influenced their choice and motivation to pursue career prospects in agriculture (see chapter 6 for further discussion). Some children from Dalit households were also enrolled in schools and colleges to pursue education. One Dalit labourer aptly remarked:

I asked my children if they want to do farming and if I should invest to buy some land, but they denied. We all know farming does not have much economic benefits in future (42, M, village A1, 28-11-2020).

Jodhka (2012) also mentioned about Dalit households leaving agricultural work in Haryana villages and securing better jobs and education owing to the caste-based reservations. Even if they could not excel in school or university, these children preferred to work in small village industries, or other small businesses such as mechanics in car repair and other appliances, tailoring, teashops, flour mills, and other retail stores. Jodhka remarked:

The third generation of the green revolution does not want to have anything to do with agriculture. Most of the younger kids were clear about their dislike for agriculture and wanted to move ahead in life, which meant out of the village and settle to the comforts of urban life (2014, p. 16).
His study reported that even while living in the village, they had become urbanised. They owned expensive gadgets, mobile phones, cars, refrigerators, television sets and air-conditioners. This changing village culture was not new. Previously, Jeffery et al. (2011) too mentioned in their study in Bijnor district (western Uttar Pradesh) during 2000-02 about the changing village culture and a growing preference of urban comforts and lifestyle such as sofa-sets, TVs, air-coolers, marble floorings, dining tables, especially among rich Jat peasants. They reported how men claimed, “now in the villages, too, you can obtain everything, everything is comfortable now” (p.160). Although Jodhka (2014) reported significant difference across caste grouping in the ownership of luxury goods, yet, the ownership of these ‘middle class luxuries’ were not completely absent among the Dalits and OBCs. Overall, these narratives point towards a rise in the consumerist culture in these villages dominated by changing socio-cultural lifestyle and growing aspirations outside village agriculture. For these people, *araam ki zindagi* symbolised a growth of an individualist nature led by an ‘urban-middle class mentality’ and they developed their ambitions according to that. Considering these changes, for these people, attempting a transition to alternative agriculture was unattractive due to a growing disenchantment with agriculture altogether.

### 5.2 Emerging alternatives & challenges of transitioning ‘risks’ or jokhim: implications across caste and class

In Rai Block, transitions to alternative farming practices happened through crop diversification methods by some farmers. However, many others, across caste and class, continued to produce wheat and rice by industrial farming methods. During my conversations, these farmers spoke about the lack of alternative opportunities or choice to transitioning due to overdependency on chemicals, fear of low productivity, and economic viability of their produce. In this section, I examine these continuities and changes, specifically after adoption of GR, and describe how different farmers explained the emerging alternative opportunities and transitioning risks.

#### 5.2.1 In my sample in Rai Block, five polyhouse owners talked about crop diversification and polyhouse farming as an ‘alternative’ agricultural model in farming. These farmers informed me that before diversifying their crops, they used to do wheat and rice farming with conventional methods. They also told me that by late 1990s, farming of these crops had become stagnant which forced them to look for better alternatives to improve their farm income and productivity. These farmers were now growing crops like baby corn, sweetcorn, mushroom, and bell peppers. They talked about various benefits of transitioning to polyhouse farming such as increased productivity and income, fewer chances of pests and insect attack, the safety of crops from extreme climatic conditions, better quality of food production, and the availability of a growing urban market for the produce. Although they could adopt crop diversification practices, they still could not completely switch to natural farming practices and continued using chemical fertilisers in their fields. Two of them, Rahul and Arun, informed me that once they tried to use organic fertilisers for some time, however, they could not prevent the crops from pest attacks and thereby continued adding chemicals after suffering initial loss. Talking about transitioning risks involved, a polyhouse owner, Dinesh, said, “farming of diverse crops like sweet corn and bell pepper may be the best alternative in the given circumstance, as we too cannot take risk to lose all our investment in polyhouse” (05-02-2021).
Although these farmers believed that changing farming practices from chemical to non-chemical may be more ‘sustainable’, yet they claimed that in the current situation in agriculture, moving away from growing wheat and rice cultivation to high value crops and vegetables was in itself a better alternative. They emphasised that industrial farming was an economically viable and profitable farm practice in their given circumstances. Despite identifying the growing ill-effects of conventional farming practices, these farmers continued doing conventional farming due to reasons ranging from overdependency on chemicals, fear of low productivity, and economic viability, to a hope that things might change for the better in the future.

5.2.2 Three upper class farmers talked about transition risks due to overdependency on chemicals and lack of economic prospects in alternative agriculture. For example, Kuldeep (52, M) informed me that doing industrial farming was the only choice he had when he decided to work in agriculture:

My father was a school teacher so most of the land was rented out to other farmers who started chemical-based farming. I joined farming after 30-40 years when the fields were already used to the chemical inputs (21-01-2021).

According to Kuldeep, adding chemicals to his fields had become a necessity, else his income and production might have decreased by half. Two other large-scale farmers believed that changing farm practices after a long time was not economically viable and shared their fears about low productivity and high input costs (with additional labour and learning new techniques). They believed, “ab humari zameen ko chemicals ki adat ho gayi hai” (Our land is used to chemicals now) (Vinod and Vicky, Village M & A2 respectively, 21-01-2021) and feared losing regular income without any alternative economic resources. They told me that rarely farmers in these villages would take a jokhim to change from current farming practices without having alternative opportunities in hand. According to them, this would involve existing economic resources, social network and proper knowledge or information to transition but very few farmers think about doing so much labour and hard work.

Nonetheless, the possibility of transitioning to alternative practices was bleaker for small and lower caste farmers who had limited farm holdings and income sources along with a bigger risk of transition. In these circumstances, most of these farmers preferred to either continue with conventional farming practices or switch to other income or farm diversification methods by investing their time and money in non-agricultural activities. In my sample in Rai Block, out of ten small farm holders, six did full-time farming of wheat and rice and owned side businesses like small retail shops, selling or repairing household appliances, mechanics, grocery stores and teashops. Most of these small-scale farmers told me that they switched to occupation diversification due to ‘overdependency and declining income in agriculture’. They claimed that by diversifying to other income sources they could overcome periods of low productivity and seasonal unemployment that they experienced in agriculture. These farmers were still into wheat and rice cultivation using industrial methods and found it difficult to switch to other crops or farming practice. Monu (26, M, OBC) said, “I do not get enough Minimum Support Price (MSP) rate on my wheat production and had to open a kirana (grocery) store to earn additional income” (village A2, 28-11-2020). Rakesh (34, M, OBC) said, “I saved money for ten years and sold one acre of land to set up a repair shop. Now I earn more from this store and do not have to be dependent on farm income” (village M, 28-11-2020). Only three small-scale farmers told me that they could transition to alternate crop
farming such as sweetcorn and baby corn but only after they had assurance of enough sales and profit margin in their production. They were, however, dependent on large-scale farmers in the village to sell the produce in their processing industries and also had little negotiation power on their selling price. One of them, Shilu (45, M, OBC) said:

I started growing baby corn five years back. I made good profits in initial years, but now many farmers have started growing baby corn so I do not get the same income. I have to struggle to negotiate price or travel long distances to sell the produce to get a better price (Village A2, 09-02-2021).

Two other small-scale farmers who recently switched to exotic crops from wheat and rice cultivation believed that they would not be able to grow these crops without adding chemicals. Rashid (35, M, OBC) said, “I have already invested my time in diversifying crops, now I cannot take the risk of not using chemicals” (village B, 09-01-2021). Sonu (37, M, OBC) said, “if I don’t add pesticides in summers, not only mine but nearby fields may also be attacked” (village B, 09-01-2021). These farmers informed me that with the limited farm holdings and income sources, they had to think about how to utilise them and transitioning to alternative farming practices became a bigger risk, especially without much prior information and knowledge about it. Therefore, these farmers switched to alternate income sources and preferred to diversify their farm activities instead of adopting alternative farming practices.

Lastly, for most Dalit labourers, doing agricultural work in itself was not a personal choice but a consequence of migration from elsewhere due to lack of choice or alternative work opportunities. While talking to a migrant labourer at village A2, I learned how agriculture was the only option for these labourers:

Agriculture was a common activity in my village in Saharanpur (UP). When I migrated to this village, I knew only farming and thought of working at this farm. It was an easy option to earn income and did not require much skill and investment (Mohan, 48, M, Village A2, 09-01-2021).

According to Mohan, doing agriculture labour work was the only choice he had once he had migrated to a new place, as everything else demanded a huge amount of time, investment, and knowledge. A daily wage, contractual work became an easy job for people like Mohan for whom the decision to transition to alternative farming practices was out of their hands due to the lack of ownership of land. In very few cases, however, I learned about labourers purchasing land on short-term lease or bataai to do agriculture by saving some money over the years. Due to short-term lease these farmers usually invested in only selected crops like wheat, rice, bajra and maize as they were economically viable and easy to sell in the market. My interview with a 40-year-old Dalit labourer Monu, working in village B, informed me about his choice of crop selection and farming practices:

I tried growing wheat by taking land on bataai. I chose wheat as I was sure I would be able to make at least some amount. Wheat could be sold easily in the mandis (market). I cannot take the risk with any other crop because if my crop fails, how will I pay the rent? (29-11-2020).
According to Monu, the land in these villages was mostly polluted with chemicals that made it difficult to grow any crop without adding chemicals. He told me that he could earn money only by following conventional practices as experimenting with any other farming method was not feasible on short-term rented land. Thus, restricted land ownership and lack of alternate options to cultivation made them follow and continue similar conventional practices. Also, with declining farm incomes and a low MSP rate for wheat cultivation, the possibility for these farmers to switch to other farming practices remained low and they mostly remained dependent on their employers.

To sum up, while mechanisation process that began with GR had continued to grow in these villages, some farmers were able to transition to alternate crops and experiment with different farming practices. However, transitions to alternative agriculture remained limited to a certain class and caste groups which had the economic resources and social network to undertake transition risks. My research suggests that even some upper class farmers were unable to take transitioning risks out of fear of losing income and productivity. Many others such as small, marginalised farmers and Dalit labourers remained either under conventional farming of wheat and rice or adopted alternate crops but with their market dependency on upper class farmers. The choice of transitioning, thereby, remained limited for these farmers as these opportunities came when agriculture itself was under serious stress and the farm incomes were declining. Finally, my research suggests that some of these farmers preferred to diversify their household economy, not because other sectors were growing but because dependence on farm income seemed a considerable risk and therefore, they preferred to transition from agricultural sector altogether instead of finding alternatives within agriculture.

5.3 The changing role of auratoo ke kaam (women’s work) in agriculture

As mentioned before, I could interview a limited number of women due to accessibility and travel constraints during my field work. On women’s role in conventional agriculture in the Rai Block, most of my understanding was developed based on the interviews conducted with male farmers who employed women as labourers to work on their fields, and sometimes when I was able to interview their wives and other women family members. In this section, I analyse these narratives in congruence with the existing literature and studies on changing women’s work in agriculture. Specifically, I examine the changing role of women after the adoption of GR: first, technological change and its implications on women; and second, general withdrawal of women from agricultural activities. While examining these factors, I argue that changes in the nature of women’s work in agriculture, coupled with a lack of decision-making power and managing responsibilities at home, created conditions that restricted these women to transition to alternative agriculture.

5.3.1 Implications of technological changes and women’s work in Haryana villages: In an old study, Sheila Bhalla (1979) examined the impact of technological change on women workers in the initial phases of the introduction of HYV and mechanisation in Haryana. Her study reported that women (and children) were called upon to work generally when there was an absolute shortage of male labourers, as well as specifically for certain crop operations, such as cotton picking, for which women were preferred. This meant that most skilled agricultural work was either taken over by machines or men who handled those machines, and women’s work was largely reduced to low-skilled tasks. For example, wherever mechanisation has occurred making the task easier, men have
taken over the activities traditionally performed by women, like threshing and fodder cutting. This gradually replaced hand threshing (which was traditionally women’s job) with the use of power threshers or electricity operated fodder mostly handled by men. While men’s work had been greatly simplified and the time spent was reduced by machines, tractors and harvesters, women still spent six to eight hours of their day in performing menial jobs involving hand labour (Bhalla, 1989).

In later years, when participation of men declined in agriculture in Haryana (due to low rural incomes and out-migration) women took over most of the agricultural work (see Chapter 2). However, several studies have cautioned that such a trend should not be identified with women empowerment or increasing participation of women in agriculture, as the nature of women’s work in conventional agriculture had barely changed over the period of time (Agarwal & Herring, 2015; Pattnaik, 2018; Rani, 2019; Lal & Khurana, 2011; Sharma, 2012). According to National Commission for Women report (2005), 86% of farm women are still involved in inter-cultivating activities followed by 84% in harvesting, reaping, winnowing, drying, cleaning, storage and other animal, especially dung work. Gradually, not only have these jobs come to be seen as “auratoo ke kaam” (women’s work) but are also underpaid and undervalued.

My research interviews with some male farmers in Rai Block helped me to understand the division of labour and the ideology operating behind the evaluation of women’s work in agriculture. Parveen (M, 40, medium-scale, DC) informed me how, after GR, most farmers focussed on the mechanisation of agriculture and specifically on growing wheat, rice and sugarcane. According to him, it made it difficult to employ women as it was assumed that they would not be able to handle skilled jobs involving machines and high-end technologies. He believed that women were traditionally trained to work in the horticulture sector and had experience in doing manual work like sowing, plucking harvested crops, making and spreading cow dung in the fields and sprinkling water and weed management. He also informed me that with the coming of mechanised agriculture and the use of chemicals, manual work was reduced, and so was women’s’ employment in the agricultural sector (Village M, 28-11-2020). Two other farmers shared similar opinions and remarked: “auratoo se zyada bhaari kaam nahi hota” (women cannot do heavy work). In her field interviews, Chowdhry (1993, p. A-145) came across similar statements like: “aurat ki mat to guddi ke peeche ho sai” (a woman’s mind is never in its right place). She reported how most men ridiculed a woman’s intellect and passed crude remarks about her intellect being between her thighs. This consequently reserved jobs like weeding, sowing, transplantation, intercultural, etc., requiring much less skill, exclusively for females, that were both labour intensive and low paid.

More importantly, the effect of this division of work helps to explain not only the nature of work and wages but also a partial decline of indigenous or local farming knowledge and practices. For instance, when I asked a group of women labourers about the type of seeds they sowed or fertilisers they added, one of them said: “we are generally given hybrid seeds. We don’t have much knowledge about the chemical used, but we mostly spray a bottle that is provided to us” (Group discussion, village M, 21-01-2021). They told me that using cow dung and natural inputs was common in their villages back home. According to them, this changed with the use of chemicals and rasaynik kheti and now they had little knowledge of how agriculture was done without the use of chemical fertilisers:
Anjali: What do you use to protect the field from pests and insects? Do you use cow dung as manure or add chemical fertilisers?

Anu: We are not sure what organic or chemical compost is. We just do the labour work here.

Shallu: I think most of the farmers now add urea and DAP. They don’t use cow dung. There used to be cows earlier but now most of them are sold (Group discussion, Agricultural labourers, village M, 21-01-2021).

Farm and agricultural knowledge seemed limited for these women, who mostly knew industrial farm practices and had little awareness of any other agricultural practice that may exist in these villages. Although some of them were aware of dung-cake making practices and its usage in agriculture in general, none of them were sure if it was used as a manure in farming by anyone in the village. They talked about the decline of cattle numbers as a major reason for their non-usage in farming. However, many of them also talked about how women in household have left dung work and animal-related activities. I talk more about these changes in the following section. However, one can possibly conclude that with the technological changes in agriculture, these women were reduced to labour intensive activities in the village that were in turn low paid and undervalued. Moreover, being restricted to certain kinds of agricultural activities and the gradual loss of previous farming practices had an impact on their decision to either continue doing the same farming practices or leave agriculture altogether. Rarely could it have led to adoption of alternative agriculture or a transition to better farming practices, given that these women had little awareness, knowledge, and decision-making power to do so.

5.3.2 Implications of withdrawal of women from agricultural activities: In Rai Block, I found withdrawal of women from agricultural activities in three ways: first, the replacement of female labour with naukars or servants in rich households and upper caste families; second, the decline in dung work in the villages; and third, aspirations of younger population, including female child, to move out of the villages for education or job opportunities. In the following paragraphs, I explain how these factors became a barrier for some women to transition to alternative agriculture.

I. I was informed about some women who had withdrawn from agricultural work, especially going to the fields. This was specifically among some higher caste and class women where work was now being replaced by agricultural labourers (in the fields) and naukars or servants (at home). Chowdhry (1993) argued that keeping naukars to do agricultural work was an entirely post-colonial phenomenon prevalent in rich upper caste households. Similarly, during my field work, I learned that the incidents of replacing female labour with naukars have increased in some upper class and upper caste households. Although I was not able to personally interview any women farmers belonging to this group in this Block, I was told by other women farmers that they usually stayed at home, mainly involved in domestic work and caring responsibilities, and were commonly referred to as ‘bade gher ki aurate’ (wife’s of big landowners or upper caste families):

Bade ghero mein naukar kaam karte hai (servants work in the rich households) (Anu, 42, Dalit, village M, 21-01-2021).
They have enough money to spend on naukars so why would their husbands send them to work? (Shallu, 45, Dalit, village M, 21-01-2021).

I believe they hardly do any household work at home too. They have naukars to clean their home and take care of most of the work? (Sarita, 52, Dalit, village M, 21-01-2021)

According to these women, female members of economically well-off families had stopped doing agricultural work due to the availability of cheap labour outside their home. They believed that the male members of these households also preferred to appoint naukars to carry out additional labour work, which was earlier done by the women members. Two upper class male farmers talked about this change and informed me that their wives were more interested in doing domestic work than agriculture. Dinesh (upper class/caste, polyhouse owner) told me that although his wife knew all the agriculture-related work but she preferred to do ‘gher ke kaam’ (domestic work) rather than ‘bahar ke kaam’ (outside work). Rahul (upper class/caste, agro-based industry owner) too, seemed reluctant to involve his own wife or mother in his agricultural business and said,

they prefer to do gher ke kaam ...why would they be working outside when there are plenty of things to do at home (09-02-2021).

These narratives indicate how some women had stopped doing “bahar ke kaam” that involved visiting the agricultural fields. However, this does not indicate that they may not be involved in dung work at home in case the family had any cattle. Some households kept cattle for domestic use and the making of food items like buttermilk, ghee, yogurt, milk and milk-products. Nevertheless, the amount of animal-related work had reduced as these households had shifted to chemical farming and there was little need for cow dung in agriculture. Moreover, in some rich households, even dung work done by female family member was replaced with naukars that were readily available at cheaper costs. Furthermore, some traditional high castes, such as Brahmins, Banias and Khatris, who have never allowed their women to work in the fields, continued the same practice. This observation was widespread in all the villages I visited. Commenting on the mentality of upper caste landowners, Sarita (52, F, Dalit) said, “they believe that when their mothers have never done any work in the field so why would they allow their wife to do it” (21-01-2021). Yet, it does not indicate any change in their social position. Chowdhry (1993, p.A-137) remarked that despite being less burdened with dual responsibilities, these upper caste women who did not perform any agricultural work were by no standards considered ‘superior’ but only ‘different’ as ‘their men-folk do not allow’ or ‘have never allowed them to work outside the house’.

To conclude, it seems reasonable to suggest that while most upper caste, upper class women in these villages remained restricted to gher ke kaam or domestic duties, and contributed little in industrial agriculture, they gradually lost interest in agricultural activities and remained unconcerned about agricultural transitions in general. Replacement of daily agricultural activities with naukars also made them disinterested and incurious about changing village agriculture in general while it was not hampering the immediate socio-economic needs of the family. Moreover, with GR, women’s work in agriculture was already limited to a low skilled manual job with limited access to resource use and decision-making responsibilities. Considering these changes, it may be assumed that the role of women in agriculture gradually declined in these households, especially
after their work was replaced by servants in economically rich families and thereby had little contribution or no say in the agricultural transitions in the villages.

II. In some cases, I found women’s withdrawal from agricultural work, especially dung work, due to decline in cattle ownership. Section 5.1 mentions how some male farmers felt that they lost traditional practices of organic compost making as women members in their families were no longer interested in doing the dung work. These men talked about the changing conception of *gobar ka kaam* from a ‘sustainable farming activity’ to a ‘dirty and shit work’:

if a girl comes to know that a particular family has a cow or buffalo, she will prefer not to marry into that family (Village M, 21-01-2021).

Nowadays, women feel disgusted to do this work. They think it is smelly and tedious work (Village M, 21-01-2021).

According to these men, the role of women in animal-related work has reduced as some women had no *ichcha* (interest) in doing animal-related work, something which forced men to either adopt industrial farming practices or hire labour to do the animal work, adding an additional cost of production. However, unlike these men, some women respondents differed on the reasons for decline in cattle ownership and women’s choice of work. They talked about the general decline in cattle ownership as a decision of male members of the family while women had little say in this decision-making:

I believe women are not given that opportunity and freedom to decide whether to keep animal or not. It is generally male members who decide this. Then how can women stop doing animal work? (Savita, 70, F, Dominant caste, village B, 19-01-2021).

I left animal work five years back. There was no usage of dung as we have LPG at home and do not use it in the fields. My husband sold cattle thinking we could at least make some money (Nilu, 45, F, Dominant caste, village J, 23-06-2021).

According to these women, the ownership of cattle was a decision made by the male head of the household. In this scenario, the decision to do animal-related work could be least decided by the women members in the family. According to them, the replacement of dung making practices with chemical inputs and the use of LPG cylinders for cooking, were some of the factors responsible of decline in cattle ownership. They, however, mentioned that it was the male head of the family who took decisions about the sale of cattle because, according to them, cattle demanded extra care and work without much output in the GR period.

Yet, for some lower caste and Dalit women, handling both animal work and domestic work was a *majboori* (necessity or compulsion) to earn more income than a personal choice or *ichcha* (interest). Four Dalit women informed me that they took up animal-related work as it became a *majboori* once they migrated and settled in a new place. They told me that moving to a different state and being faced with the added expense of a child forced them to take up additional work, and dung work paid that extra money. Two of them worked as domestic help in an upper caste household told me that they did animal work as a part of their domestic work duties in those upper class
households and were not paid separately. Only after objecting to their low wages were they paid a little extra money for any additional animal work (21-01-2021). Managing both agricultural and animal work seemed to be a necessity for these women, who were struggling to get out of poverty to meet the basic socio-economic needs of the family.

Moreover, the gendered nature of decision-making power and resource management was more visible among Dalit households. Narratives of some Dalit women agricultural labourers reflect how lack of land ownership had restricted their involvement in the decision-making processes in agriculture. In my research sample, only two agricultural labourers told me that their husbands owned one acre of land on bataai (short-term lease), yet these women still worked as agricultural workers both on their husbands’ land and outside. Despite providing additional free labour, most of them were rarely considered in decision-making and had limited financial security at home. Sarita (52, F) said, “I help my husband on our farm but do not decide which crop to grow. I just do some manual work” (village M, 21-01-2021). Kishor (46, F) said, “how can I decide what crop to grow? My husband is better informed and has more knowledge. I don’t’” (village M, 21-01-2021). These women told me that they were rarely considered in agricultural decision-making or distributing finances at home. In these circumstances, managing declining rural incomes and socio-economic needs was much more important for them than looking for transitions in agriculture.

Overall, the narratives indicate a withdrawal of these women from animal-related work and especially dung work in agriculture. However, unlike what some men claimed, this withdrawal did not seem to happen due to a lack of interest of these women in agriculture or changes in their social position, but due to lesser demand of dung cakes for both agricultural and cooking purposes. Moreover, these women claimed that the decision of the sale of cattle was mostly undertaken by men (or their husbands) and they themselves had little authority to decide on animal-related work. In some Dalit households, the choice to do agricultural and animal work was a decision to fulfil the immediate socio-economic needs of the family where Dalit women had limited power over decision-making and financial security at home. Therefore, it seems reasonable to suggest that under these circumstances, transitions to alternative agriculture and specifically to sustainable farming was not a choice that these women could make because of various reasons such as general decline in dung work, meeting the socio-economic needs of the family and the lack of decision-making power within the household.

III. Lastly, aspirations of younger people to either study or work in the non-agricultural sector had become quite prevalent in these villages. Some women respondents, across class and caste, told me that their children wanted to either study or work outside farming and were equally supported by the family in these aspirations. During one such conversation, Savita (70, F, DC) said, “nowadays no one wants their children to work in agriculture. We wish if they find work outside village” (village B, 19-01-2021). While in the upper class and upper caste families, availability of economic resources made sure that their children chose their own career prospects outside agriculture or even villages, women and children from middle class families also thought likewise and wished to somehow leave agriculture due to growing agrarian distress and low-income opportunities. My interviews with some Dalit women also informed that even the education of girls had become quite common in these villages, and households across castes preferred to educate girls at least till schools and colleges (Village M, 21-01-2021). As mentioned in section 5.1.3, children of Dalit households were already aspiring to study or get a government job owing to reservation quotas.
Although some children from lower caste and class households helped in agriculture and animal-related work, the general opinion was to educate and find a better alternative for them instead of involving them in agriculture or related work. Thereby, changing aspirations of these younger population and growing importance of girls’ education were some other crucial factors that limited some households’ ability to adopt alternative transitions in agriculture.

5.4 Discussion and Conclusion

In this chapter, I showed how industrial farming practices, especially after the adoption of GR had various impacts on village agriculture and social life. In particular, I examined three implications in the form of changing village culture and farm practices, challenges of transitioning risks among small and marginalised farmers, and finally the changing role of women’s work in agriculture. I argued that these social implications created conditions that created barriers for these farmers to transition to alternative agricultural practices.

Previous studies talked about the changing agrarian social structure and gender relations with the adoption of GR approaches (see chapter 2, section 2.1.2). These studies discussed how farmers were either moving towards industrial form of farming practices or leaving agricultural sector altogether and looking for alternatives in the form of small businesses or moving out of the villages. Other studies in India have reported agronomic, informational and market challenges that restricted farmers to adopt alternative agricultural practices (see chapter 2, section 2.3.2). These studies were, however, limited to some quantitative variables and did not incorporate the changing socio-economic factors and decision-making processes among diverse group of farmers. Moreover, none of these scholarships studied the existing social implications of GR and the changing socio-economic conditions of the villages as barriers to transitions. In this chapter, I showed how changing social and gender relations in the villages, especially with the change in agricultural practices, created conditions that restricted farmers’ willingness and ability to transition. It is important to examine these implications to understand the underlying conditions as to why some farmers transition while others do not. Also, studying these factors across caste, class and gender groups gives a deeper understanding as to how far these criteria played an important role in facilitating or impeding transitions. These narratives help to then compare and understand what motivates other farmers to transition despite previously following similar farming practices and to understand the differences in farmers’ motivations and behaviours in transition across villages, that I study in chapter 6. Finally, these narratives also help to compare and understand the changes in the social agrarian structure and gender relations once farmers transition from industrial farming to alternative agricultural practice, which I analyse in chapter 8.

In the next chapter, I study farmers’ perspectives on agricultural transitions and examine why some farmers are motivated to transition despite these existing barriers. Understanding these perspectives is important to study the decision-making processes of farmers, specifically who were able to transition to alternative agricultural practices, and is helpful in comparing with those farmers who were unable to change. The chapter shows that the main reason why farmers change begins with their concerns about health and environment and goes further once economic, social network and informational gaps are being dealt with.
Chapter 6: Why do farmers transition? Understanding factors of motivation, opportunities, and challenges

खेती तभी उतम है अगर आप जहर मुक्त कर रहे हैं
बाकी तो खेती आप कर नहीं रहे, करवाई जा रही है आपके दरारा ताकि कंपनी के केमिकल बिक सके

Farming is great only if it is done poison [chemical] free,
the rest is not being done by a farmer; it is being forced on them so that the chemicals of the company can be sold.
-Manjeet Singh (a member of Jind organic farmers group)

In this chapter, my overall aim is to analyse farmers’ perspectives on why some farmers adopt alternative farming practices in agriculture. For my research, examining these perspectives is important for two reasons: understanding the decision-making processes of farmers who were able to transition despite many barriers involved; and second, why some farmers were able to successfully transition while some others could not. In particular, I draw upon Sugden’s (2022, 2019) approach of using social perceptions and processes of change in the everyday lives of rural communities and examine farmers’ perspectives that are shaped by the social agrarian structure and changing socio-ecology in Haryana. Using these narratives will help me to answer my research questions on: why are farmers motivated to adopt alternative farming practices? What opportunities and challenges do different groups of farmers face during transition? Finally, the chapter argues that the main reason why farmers change their whole farming style starts with their concerns about health and the environment and goes further once economic, social network and informational gaps are being dealt with.

Chapter 2 (section 2.3.2) highlights several factors that influence farmers’ decision-making and their rationale to adopt a particular farming model. My research suggests four major factors of motivation: health consciousness and environmental awareness; market and economic prospects; farmer-to-farmer knowledge transfer; and membership in an organisation. All farmers in my research claimed health and environmental factors as the main motivation for them to transition to alternative agricultural practices. However, the majority of them had more than one reason to transition. As they had multiple reasons to transition, I will present and discuss these reasons thematically. Within these themes, I also discuss why different farmers perceive these factors as an opportunity or a challenge in transition. For instance, in terms of market and economic prospects, some farmers perceived the economic incentives of selling organic food to high-end supermarkets as a motivation factor to adopt organic farming practices. Yet, some others felt marketing challenges such as lack of social network, separate organic market, low premium and interference of middlemen as demotivating factors in transition. Finally, I examine two other challenges: agronomic & informational gaps and negative pressure from friends and family and discuss how these factors led to some thwarted transitions.

The chapter draws on 33 interviews from farmers across villages in Sonipat, Panipat and Jind districts in Haryana. These farmers are those who have either transitioned to non-chemical farming practices or adopted some other alternative methods of farming (such as crop diversification) or those who transitioned sometime before but then returned to their previous practices of
conventional farming. In the first section, I discuss the four factors of motivation, followed by some other challenges and cases of thwarted transitions in the second section of the chapter.

### 6.1 Factors of motivation in agricultural transition: opportunities and challenges

My research data shows that, in total, 33 farmers transitioned to alternative farming practices. All 33 farmers who transitioned were motivated by health and environmental concerns, followed by farmer-to-farmer knowledge transfer (20 farmers), market and economic incentives (18 farmers) and finally, through membership in an organisation (10 farmers). However, these were not mutually exclusive categories as many farmers were motivated by more than one of these reasons. Finally, five farmers told me that they transitioned to alternative farming for some time but could not continue due to agronomic challenges and social pressures to follow conventional farming norms. In section 6.1.1, I examine these factors of motivation and, in section 6.2, I discuss the challenges and thwarted transitions.

#### Fig 6.1: Factors of motivation

![Bar chart showing factors of motivation](chart.png)

**Total number of respondents- 33; farmers had one or more reasons for transition; Source: Author**

### 6.1.1 Factors of motivation

#### I. Health consciousness and environmental awareness

In my research interviews, all 33 farmers talked about health and environmental awareness as significant factors that motivated them to transition to alternative farming practices. These farmers identified ‘growing illness in the family or in the village’ and ‘eating chemically grown food’ as some major health concerns. The changes on the land, soil, water and growing air pollution were identified as some common ecological concerns in their narratives. These farmers claimed that once they switched to sustainable farming, they could see improvements on their land and recognise...
changes in ‘soil fertility’, ‘taste of water’ and ‘natural surroundings’, which kept them motivated to follow similar practices. In the following paragraphs, I examine these farmers’ perceptions and analyse their implications across class, gender and age groups.

Sunil (M, 45, large-scale, DC, Village N), for example, informed me that he was motivated to adopt natural farming after learning about the rise in cancer patients in and around his village. After talking to some health professionals, he learned that the problem of cancer was high in these areas due to the increasing and unmindful use of chemicals in the agricultural fields and eating chemically produced vegetables. He told me that he found this issue worrying as cancer-related illness was not just restricted to male members, but even women were facing similar problems. Moreover, a couple of years back, he found that his wife was suffering from an ovarian cyst and would not be able to conceive a child. Sunil read about his wife’s health condition and finally decided to switch to non-chemical-based food and adopt other healthy eating habits. Sanjeev (32, M, large-scale, DC, village An) shared a similar worry about the increasing cases of cancer in the villages that motivated him to adopt non-chemical farming:

I know a village in Punjab which has at least one cancer patient. I do not want Haryana to become like Punjab, where a separate train carrying cancer patients was running.12 (04-02-2021)

Two other farmers (Mintu and Amar, DC, small-size landholding) talked about transitioning to natural farming to ‘consume healthy and non-chemical food’ and treat their family members for growing illnesses due to diabetes and respiratory disorders. Another farmer, Rajeev (40, M, OBC, village R, medium-scale) did chemical-based farming of wheat, rice, and maize on his farms but switched to natural farming after learning about the benefits of eating and producing non-chemical-based food:

I realised the importance of a farmer as ‘anna-daata’ (food giver), but I was selling ‘zeher’13 (poison) to the people to make money and, in turn, also degrading my fields (26-01-2021).

Rajeev’s reference to chemical food as zeher highlights his perception of chemical-based farming as unethical and dishonourable to the image of a farmer who was known to produce and sell ‘healthy and good quality’ food. Thus, his conversion to a non-chemical farming method appears to be an act to get back to the moral duty of a farmer who was supposed to provide ‘healthy food’ to his family and the general public.

For some women farmers too, the benefits of doing sustainable agriculture meant eating and looking healthy. These women farmers were mostly wives of those who had adopted natural farming practices. They were mainly involved in farming practices that were common in their household, and usually, the main agricultural work was handled by their husbands. However, a few of them shared viewpoints on why they adopted alternative farming and how they contributed to the transition:

12 Cancer patients from various towns of Punjab travel on Lalgarh-Abohar-Jodhpur Train to a hospital in Bikaner (Rajasthan) for cheap treatment. This train is locally known as the cancer train and got its name from a sudden increase in cancer cases in Punjab that many blame on pesticide use in agriculture, growing pollution and lack of response by the government authorities.

13 Referring to the chemically produced food.
My husband did *rasaynik kheti* but then we realised its harmful effects on our body. We [referring to women members in her family] have started looking so pale and old after eating chemical food. I told my husband that I could do the animal work, and so, we gradually moved to natural farming (Anita, 48, DC, village J, 23-06-2021).

*hum shudh khaana kha na chahte the* (we wanted to eat pure [chemical-free] food) (Sarita, 45, OBC, Village J, 23-06-2021).

Two women (Neeta and Roop) told me that although it was their husband’s decision, they were happy to eat non-chemical food once they started producing it themselves, which motivated them to continue practising sustainable agriculture, unlike other households in the neighbourhood (23-06-2021). These narratives also highlight their association of non-chemically grown food with ‘purity’ and ‘healthy’ and their perception of themselves as better farmers for growing and eating healthier food than others in the vicinity (see chapter 8 for elaboration).

Studying these perceptions across younger and elderly farmers indicate how diverse factors concerning urban exposure, education and everyday forms of changing agriculture motivated them to pursue non-chemical farming practices. For example, three farmers aged between 20 and 34 told me that they switched to non-chemical farming practices out of health and environmental concerns once they started living in the urban cities. Ujjawal (27, M, organic farmer) said: “I learned how apples and mangoes are coated with strong chemical colours and sold in the cities at higher prices. Rising pollution and low-quality food in the cities drifted me away from urban areas” (29-10-2020). Similarly, Vikram (28, M, part-time organic farmer) said: ‘I was detected with respiratory problems due to rising pollution in Delhi. I adopted organic farming on rented land to bring change in the farming practices in Haryana” (28-10-2020). Arpit (21, M), who was learning sustainable agricultural technologies at a university in Haryana, talked about implementing his skills and knowledge on his father’s agricultural land: “I am graduating from an agricultural university and would want to introduce sustainable methods and technologies to improve the farming practices in my village so that we could produce healthy and natural food” (01-02-2021). Overall, these younger farmers criticised chemically produced food, claiming it was poisonous and detrimental to the human body and wished to transition to change these agricultural practices.

While interviews with these young farmers highlight a growing interest in sustainable agriculture among them, my interviews with some elderly people suggested concerns related to environmental degradation due to industrial (or GR) farming practices. Manveer (60, M, village J), for example, told me that during the 1990s, crops in his village were destroyed by pest attacks, and he lost most of his farm earnings. He said, “that year I realised how much I have destroyed my fields by using chemicals and obstructing the growth of *kheechua* (earthworms)” (23-06-2021). He told me that after that incident, he decided to switch to natural farming practices for the rest of his life and promoted the idea of ‘*zeher-mukt kheti*’ (poison-free farming). Similarly, Ranjit (83, M, village N) believed that the overuse of chemicals had caused major harm to human health and the environment:

People have used chemicals unmindfully. They have destroyed the land, water, and clean air of the villages. People are now suffering from various diseases like cancer, diabetes, lung
infection, obesity and viral infections, all because of chemically grown food. They eat chemicals and stay around chemicals all day (06-04-2021).

Practising sustainable farming for 40 years, Savita (F, 70) shared her lived experiences with the changing farm practices before and after GR. She told me that she could easily identify the changes in the land and ecology but always adopted natural farming practices for a healthy and sustainable living:

People in the villages have spoiled their land, soil and underground water by using chemicals in the fields. I could tell the difference in the quality of the chemical food they eat and the environment they are grown in (village B, 19-01-2021).

Unlike these farmers, Divender (80, M, village M) told me that he never wanted to use chemicals on his fields as he knew it would be harmful to the land, soil and even the human body. Recalling his younger days, he told me that sustainable farming was the most common farming practice in Haryana, however, with GR, extensive use of chemicals degraded the fields. He informed me that he could foresee his future with the use of chemicals in the fields and on his family, and so, decided to quit farming altogether (Village M, 21-01-2021).

Thus, studying farmers’ narratives across age groups reflects how changing farming practices influenced the choice of different farmers in adopting alternative farming practices. The narratives with some elderly population reflect their lived experiences with the changing village agriculture and suggests their growing concerns related to ecology (such as degrading soil fertility, low production of earthworms, declining water quality) and eating unhealthy food, that motivated them to adopt non-chemical farming or in one case leave agriculture altogether. Narratives from young farmers also criticised chemically grown food and talked about changing village agriculture by introducing alternate techniques of production that were more natural and sustainable. Farmers across these groups talked about growing health and environmental worries and were motivated to adopt alternative practices to address these concerns.

To sum up, these narratives highlight the importance of alternative farming practices for these farmers and their motivation to adopt these practices due to health and environmental concerns. On health consciousness, the majority of farmers talked about improving ‘human health in their family or in the village’ and ‘eating chemically grown food’ as important factors that led them to transition to sustainable farming. In terms of being environmentally conscious, these farmers talked about improvement in their land, soil, water and clean air as important factors of motivation for transition. Studying these perspectives across class, gender and age groups reflects the importance of health and environmental awareness as crucial factors in the everyday lives of these farmers. However, the transition to alternative agriculture practices was not just related to eating and producing non-chemical food, but there was a gradual realisation of their duty as a farmer who was supposed to provide ‘healthy food’ and keep the village agriculture more environment-friendly and sustainable. This realisation had further implications on how agricultural transitions were perceived by these farmers and how it led to the changes in the way they understood farming and village agriculture and identified themselves as different from others in their contribution to rural sustainability. I elaborate further on this topic later in the thesis, where I discuss farmers’ understanding of the
social outcomes of transitions. In the next sub-sections, I discuss how these farmers were motivated further to pursue transitions once health and environmental concerns were met.

II. Market and economic prospects as a factor of motivation

Chapter 2 discussed some studies in Asia which highlighted that the conditions favouring a conversion to alternative agriculture were influenced by the existing policy environment in the developing countries, especially concerning the economic policies, access to appropriate markets, strong domestic demand for organic products and farmers' financial resources. My research shows that, for some farmers, the transition to alternative farming practices was an economic decision. These farmers sold their products to both local mandis (market) and high-end super-markets, wholesalers and a few also invested in food-processing units to sell packaged products. However, certain farmers with upper class and caste backgrounds took advantage of their social position and urban exposure to gain greater economic incentives as compared to others. Some others pointed out challenges such as a lack of separate organic market, low economic prospects, difficulties in making consumer network, and low negotiating power in the market as some common challenges faced by them while transitioning. In the following paragraphs, I examine these perspectives and explore market and economic prospects as a factor of motivation.

Seven farmers talked about how the potential increase in their income and market opportunities influenced their choice of transitioning. Two farmers (Ujjawal and Seema), for example, did organic farming on large acres of land (more than 20) and earned a major source of income from selling their organic produce. Both of them were reverse migrants who started doing organic farming once they returned to their villages. While Seema began it from scratch, Ujjawal already had an established base and initially handled the marketing of organic products before turning into a full-time farmer and managing both fields and the market. According to them, finding an appropriate market for the sale of produce was an important factor to transition. Ujjawal said,

I started looking for an appropriate market in Gurugram when I was studying at a nearby university. I knew I had to return to my village to manage my organic fields, however, I thought to look and diversify my organic products beyond my village area (27, M, Organic farmer, DC, village A1, 29-10-2020).

Seema had a similar opinion: “one has to look for marketing prospects before beginning and expanding your organic farm base. If a product is not sold timely, one may suffer losses” (58, F, organic farmer, large-scale, DC, village GT, 28-04-2021). Three other large-scale farmers who were also polyhouse owners talked about easy access and readily available markets in the production of exotic crops like baby corn, sweetcorn, strawberry and bell peppers. They held a view that better marketing opportunities influenced their decision to switch to other crops. Arun (40, M, large-scale, upper caste) said, “baby corn was just getting popular in the nearby areas, and so I thought to switch to this crop to earn better in the bigger markets in Delhi” (05-02-2021). Two farmers (Dinesh and Rahul) told me that they did contract farming of bell peppers and were able to earn good income in the first few years, which kept them motivated to pursue alternate crop farming.
Two farmers, Kanwal Singh Chauhan (73, M, large-scale, DC) and his son, Rahul (41), not only transitioned to crop diversification but also invested in food-processing units and sold packaged products to urban markets across the country. Kanwal Singh talked about his motivation to switch to baby corn production as an economic decision which proved quite profitable:

In 1998, I decided to give baby corn farming a try. There were perhaps no baby corn farmers in India at the time, and the vegetable was being imported from Thailand for restaurants and hotels. Those were priced at Rs 4000 (£40)/kg. Initially, I did not make many sales in the village, but there was a huge demand in the urban areas and supermarkets (village A2, 13-02-2021).

After earning huge profits, Kanwal Singh decided to set up a baby corn processing unit in 2009 and fixed a minimum guaranteed price for the crop for small farmers who were willing to produce baby corn. Gradually, these industries were set up for eight different kinds of products, including baby corn, sweet corn, pineapple, fruit cocktails, mushroom buttons, and mushroom slices (ETV Bharat, 13-10-2020). According to Rahul, currently, a single unit exports 1.5 tonnes of baby corn and other vegetables to countries like England and the US and provides employment to a large number of local farmers (09-02-2021).

Although these farmers believed market prospects and economic benefits were crucial factors in deciding whether they should adopt alternative practices or not, it is worth looking at their class and caste backgrounds. Most of these farmers belonged to the upper socio-economic class and caste and had previous social networks and relations with other rich farmers in the vicinity, who were either interested in purchasing their produce or helped in promoting their products to urban markets in Delhi through contacts. These farmers belonged to the dominant caste groups in Haryana who had stronger social networks, both in urban cities and state bureaucracy or administrative offices, which made easy access to information, latest technology and financial aids that may be helpful in transition. Moreover, existing economic resources and urban exposure proved beneficial for them to experiment and implement sustainable practices or search for market opportunities outside villages. Also, for these farmers, the increased workload in sustainable agriculture could be handled by appointing additional labourers in the fields. Considering that not many farmers had existing networks and economic resources, I elaborate below how the risks involved seemed higher for those farmers who belonged to lower socio-economic groups and with small farm holdings.

Highlighting problems of marketing non-chemically produced food, four small farmholders talked about the lack of market opportunities and low economic benefits during the initial phase of transition. They talked about difficulties in managing the increased workload and finding an appropriate market for the sale of the produce unless one had a previous social network and economic resources to bear the risks of transition. Moreover, due to small and fragmented landholdings, it became difficult for them to manage their time and responsibilities on diverse farms. Vikas (36, M, OBC, village U), for example, informed me that his struggle increased during Covid-19 lockdown as it further delayed his plans to network and access an appropriate market. He believed that as a natural farmer, one had to think about the possible market for the sale of produce before transitioning else it becomes difficult to manage both household income and increased workload. Explaining his views, he added:
If you plan to grow organic vegetables, then you cannot grow just one to two products and try to sell them. A customer would want to buy a couple of vegetables. The problem in front of me was that should I start doing organic farming or search the market first? (23-06-2021)

In either case, for Vikas, the decline in income in the initial phase was the biggest struggle as he did not have an alternate source of income that could make his transition to new farming practices smoother. Another farmer, Virbhan (35, M, OBC, village D), talked about the low possibility of finding a suitable market and lower economic resources as biggest challenges. He also mentioned that his socio-economic status as a small-scale farmer belonging to a non-dominant caste created trust issues among his customers to purchase any organic produce from him. He said:

whenever I try to sell my produce, most people would laugh at me as they would not believe that organic was possible on this chemical-prone land and degraded groundwater. Even when I told them how I produced it and ask them to visit my fields, they would still not believe me. It is different for big farmers [that is, farmers with higher socio-economic status] (23-06-2021).

Ashok (35, M, OBC, village Nr) said:

my village is located near an urban market, however, I still have to make additional efforts to build up a network of customers and also arrange some pre-existing income to take the risks involved. Things are far easy if you have a substantial social and economic networks prior to transitioning (25-06-2021).

These interviews reflect on the problems in marketing and low economic incentives during the initial phase of transition. In their conversations, these farmers talked about the difficulties of a limited social network, lack of economic resources and dependency on middlemen as some factors that often discouraged these farmers from transitioning to new farming practices. Deeper conversations with these farmers reflect how socio-economic status, especially their belonging to a non-dominant caste with limited landholdings, created challenges in building trust with their customers, finding an appropriate marketing network, and compensating for the loss of household income in the initial stages of transitioning to alternative agriculture.

However, unlike these farmers, one farmer of similar class and caste background differed. Praveen (36, M, OBC) told me that he wanted to adopt sustainable farming for a long time but initially had doubts about whether it could be a reliable source of income or not. However, after reading and learning about some market strategies from his friends and on the internet, he felt more confident and was motivated to transition. According to him, developing a good network of people and gaining customers' trust were the two most important things in marketing organic produce. He informed that he began by growing organic baby corn that he learned from farmers at village A in Rai Block. He told me that he used to market his produce by calling it as ‘zehar mukt aur prakritik corn’ (‘poison-free and natural corn’). According to him, networking was a crucial element in marketing and making customers difficult but not impossible. He said,

I developed my own network of farmers who were interested in purchasing organic vegetables. I produced vegetables according to the demand of my customers and gradually
increased my production. You need to play with the mindset of the customers. They need to be told that what they are eating is poison [referring to chemically grown food] and that eating organic food is much healthier. Even during lockdown, I worked to build my own market network using social media. I now have a few customers to as far as Gurugram who contact me to buy organic vegetables (village Nr, 06-04-2021).

Praveen’s narrative highlights that economic incentives are an important and crucial factor of transition but may not be limited to farmers belonging to upper caste and class backgrounds. Throughout the interview, he felt confident and motivated to continue doing non-chemical-based farming, as he had developed his network of customers who were willing to purchase his produce. Moreover, he was ready to travel to far-off places like Delhi and Gurugram for home deliveries. Although he agreed that not everyone was willing to travel long distances, he did not describe problems in marketing as a discouraging factor for transition. When I met him, he had already planned to collaborate with different farmers in a farmers’ producer organisation to do group farming. Overall, his motivation to adopt sustainable farming, along with finding marketing opportunities, differentiated him from other farmers who struggled to find economic incentives through agricultural transitions. In chapter 8, I talk about how this difference manifested into a renewed identity wherein Praveen asserted himself as an economically prosperous and ecologically sustainable farmer.

Nevertheless, some farmers had completely different opinions on the ‘idea of market’ and economic challenges involved in sustainable farming. These farmers were against the idea of large-scale marketing of organic produce or travel outside their villages for the sale of their produce. They mostly produced organic food for self-consumption and tried rejuvenating their land and water resources. A very few of them sold their produce in their village, only if it was left from self-consumption. Most of these farmers were influenced by other farmers (usually referred to as jaivik kisaan or organic farmers) in the village, who had successfully transitioned to alternative farming practices for a long time. These organic farmers, therefore, had the knowledge and experience to share with those farmers who wished to transition and influenced many farmers across the villages. In the following section, I discuss the role of these organic farmers in motivating many other farmers in the villages and how far farmer-to-farmer knowledge transfer was a crucial motivating factor.

III Factor determining access to knowledge, information and farmer-to-farmer networks

Some studies argue that, in developing countries where agriculture plays a significant role in rural livelihood, informal networks often contribute to the effective management of land and resources in times of rapid change, especially when bureaucracy or other agricultural outreach programs may not be fruitful (Spielman et al., 2011; Isaac, 2012; Meinzen-Dick, 2014; Pretty 2003; Folke et al., 2005). In my research, varied perspectives on the role of formal education and farmer-to-farmer knowledge transfer helped me to decipher how farmers learn about environmental knowledge and practices. And how does education level matter in adopting alternative practices? In my research sample, 20 farmers told me that they were influenced by farmer-to-farmer knowledge transfer, but only three of them emphasised technical education in a university as one of the ways wherein they gained information and knowledge about sustainable farming practices. I elaborate on the latter ones first and show how they had different perceptions from the former.
One aspiring farmer, Arpit (21, M), the son of a large-scale farmer, told me that his father wanted to provide him with proper education before he could implement any techniques related to sustainable farming. This made him take a course in agriculture at a university in Gurugram. Arpit was in his third year of university and told me that he wanted to return back to his village soon and start experimenting with his ‘new, efficient and sustainable methods’ on the fields which he learned in the university. He said, my father has trust in my skills and education degree. If I learn new skills from the university, he will definitely want me to apply them on the field rather than trusting someone else. Also, taking agriculture as my main study topic enhanced my knowledge and confidence to experiment with new techniques in the field (village M, 1-02-2021).

In another interview, a 58-year-old woman agro-entrepreneur Seema, informed me how education influenced her to adopt sustainable practices. She informed me that she was a bright student in the school, studied in a science background, and her parents wanted to continue her studies so that she could have a bright future. As she grew up, she pursued a BSc. in Biotechnology in Delhi and later on completed her doctorate degree from Australia. However, her interest in farming stayed with her and she informed me that after completing her education, she thought of doing something in agriculture. She said,

I was always connected to my land and village in Haryana. After all the education I received, I was motivated to extend my knowledge and support in the field of agriculture. I wanted to help other farmers by improving agricultural standards, investing in processing units and generating employment opportunities in the villages (village GT, 28-04-2021).

Another young farmer and reverse migrant, Ujjawal (27, M), talked about his education in management degree and how it helped him to develop marketing skills and knowledge of the organic food market. He did not express his opinions on whether his graduation degree motivated him to pursue sustainable practices. However, he talked about the skills he gained during his schooling and university days and the exposure to the urban market outside his village that helped him to pursue his interests in organic farming.

These three narratives reflect how specialised education in the universities and exposure to studying outside their village helped them to pursue their interests in agriculture and especially sustainable farming. In these cases, farmers told me about their motivation to adopt alternative practices in agriculture after adopting the required skill and knowledge and learning some appropriate techniques that may be useful in sustainable farming. In their conversations, these farmers emphasised not only learning new and advanced techniques or marketing skills but also how this knowledge could be applied to the rural economy and how to incorporate local farmers to adopt these techniques. Seema said, “I do not want to implement new technologies blindly but want to train farmers to adopt it in mushroom cultivation” (28-04-2021). Ujjawal said, “I personally provide training and knowledge to those farmers who want to adopt natural farming practices” (29-10-2020). Overall, these farmers emphasised how formal or university education was a significant factor in their motivation to adopt alternative agricultural practices.
However, many farmers in my sample, despite being formally educated in schools and colleges, criticised the role of formal education and its significance in the adoption of sustainable farming. One of them remarked:

Although our forefathers had sufficient knowledge of natural farming, it was actually lost during the GR phase. Now, these universities promote ‘Americanised’ solutions and technologies that are harmful to our environment (Anuj, 90, M, village J, 23-06-2021).

Another farmer said:

We [referring to natural farmers in general] thought that what has been taught in the university is the proper 'knowledge and science' but it was not true. We realised that under conventional agriculture, we were going under the trap of debt farming, but the universities were promoting this practice. It appeared as if we were fooled by these institutes to follow their knowledge and practices (Dinesh, 33, M, village J, 23-06-2021).

The interviews suggest that, for these farmers, gaining appropriate knowledge and skill was important, but formal education was not a significant factor that motivated them to adopt sustainable practices. These farmers criticised the formal or university education system and institutes for not providing enough knowledge and information on sustainable practices and focusing on their own agenda of promoting modern education based on Western science and chemical-based farming. A recent study (Yadav et al., 2022) on the knowledge level of organic farmers in four districts of Haryana also reported that more than half of the respondents who were illiterate (56%) had a higher level of knowledge of organic farming, as compared to farmers who had education upto primary school (14%), secondary school (40%) and secondary school and above (32%).

In my sample, seventeen farmers informed me that they were influenced by a jaivik kisaan (organic farmer) in their or nearby village to adopt sustainable practices. These farmers believed in farmer-to-farmer knowledge transfer as an influential factor of motivation to adopt sustainable farming. According to them, this was possible due to close-knit and strong social ties among rural farming households in the villages. I was informed by these farmers that most of them knew each other’s methods and techniques of farming. If anyone wanted to adopt any new technique of farming, learning about it from a friend, family member or their acquaintance was quite common in the villages. I learned more about it during a personal conversation with a natural farmer, Sunil. He told me that to understand and have a deeper knowledge about sustainable farming, he contacted some famous organic farmers in his village and visited them to gain more practical knowledge. Then he tried to build his network of jaivik kisaan wherein these farmers gather together once in a while to discuss and experiment with different techniques of organic farming. According to him, 'farmer-to-farmer' knowledge transfer was the best way to learn organic farming and one of the reasons that motivated him to adopt sustainable farming. He said:

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ek jaivik kisaan se sabse zyada seekha ja sakta hai, aur jab hum sab milke kaam kerte hai, tab aur bhi chize seekhne ko milti hai (one can learn better from an organic farmer, and if we all work together, we can learn much more) (village N, 06-04-2021).
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After talking to Sunil, I was quite intrigued by his network of organic farmers and requested him if I could meet some of them. I then went to Ranjit (83, M, large-scale, DC), who, according to Sunil, was the ‘messiah’ of the group. During two hours of our discussion, Ranjit talked about how he gained his knowledge on sustainable farming and the importance of farmer-to-farmer knowledge transfer. Ranjit told me that most of his learning came from his forefathers who used to do sustainable farming and by reading books on sustainable agriculture and attending various seminars organised by nearby NGOs. He informed me that he gathered information on sustainable farming through these sources and often experimented with his techniques in his fields. According to him, this way, he never lost his skill and knowledge of sustainable farming. He informed me that today, people from different states visited his farm to learn sustainable farming techniques. He added:

Today, farmers have a tendency to learn more from each other than anything else. This is because they trust other farmers more than established institutions and organisations. I have become a popular farmer not by myself but by these farmers who come to me for learning about organic farming and related practices. (village N, 06-04-2021)

During my fieldwork, I was informed about another organic farmer, Manveer (60, M, medium-scale, DC), who helped many farmers to transition to alternative farming practices by providing information and knowledge in sustainable agriculture. These farmers told me that they learned about how to save their crops from pest attacks and recover degraded soil with the help of Manveer’s information and farming methods. My interview with Manveer informed me about his motivation to adopt sustainable farming and his future plans to spread knowledge of sustainable agriculture among other farmers in and around his village. Manveer told me that he learned about sustainable agricultural practices after meeting and attending seminars organised by an agricultural officer, Dr Surender Dalal, who visited his village during the 1990s on a project to eliminate American Sundi (a pest that attacked cotton crops). Manveer informed me that Dr Dalal’s seminars were helpful in teaching him and other farmers about pest attacks and how they could gradually transition to non-chemical-based farming. Manveer told me that after attending the seminars and experimenting with those methods in his fields, he developed a good knowledge about organic farming and has been involved in spreading it to those farmers who wanted to transition and adopt sustainable farming practices. He also informed me that by 2020, he was able to organise a group of 70 members under ‘Jind organic farmer group’, which initially worked as an informal organisation to spread sustainable farming methods and recently got themselves registered as a Farmers Producer Organisation (FPO). I talk more about the role of membership in an organisation as a motivation for farmers to adopt alternative farming practices in the following section.

Interviews with farmers like Sunil, Ranjit and Manveer suggest two things: first, in a rural farming community, many farmers were influenced by looking at the success and failures of other farmers in their process of transition. The success of some organic farmers in these villages may have motivated other farmers to transition to alternative farming practices. Second, many farmers who lacked the skill and knowledge to transition were motivated by other ‘organic farmers’ with the exchange of knowledge and information about sustainable farming instead of any extension worker or university education. Although getting formal education and training in agriculture was helpful to some farmers in adopting alternative practices, others criticised formal education and universities for promoting farming based on ‘western science’ instead of reviving indigenous knowledge and practices in agriculture. Some previous studies (Spielman et al., 2011; Isaac, 2012; Meinzen-Dick,
have also demonstrated that social ties could play an important role in agricultural knowledge exchange, resulting in more effective and sustainable farming practices in developing countries. My research too suggests farmer-to-farmer knowledge transfer and social network of organic farmers within and across villages as an important factor that influenced some farmers to adopt sustainable farming. While some of these farmers worked independently on their farms, others grouped together in FPO’s and worked jointly in producing and selling organic fruits and vegetables.

IV Membership in an organisation

Membership of a farm association is also a major determinant for the adoption of organic farming, as shown in some studies (Sapbamrer, R., & Thammachai, A., 2021; Singh et al., 2015; Karki et al., 2011). They reported that as a member of a group, farmers could share information and experience more effectively and also increase their bargaining power with governmental agencies and institutions. It also encouraged a positive attitude towards organic farming and norms in the agricultural community.

In my sample, ten farmers informed me that they were influenced to practice natural farming after their association with different groups of organisations. They told me that they became more health and environmentally conscious through various trainings and interactions that occurred as a result of being a member. Recently, these two groups got registered under two FPOs -- Jind organic group and Panipat group -- with an objective to inculcate and spread sustainable farming methods and knowledge, conduct monthly seminars and workshops to disseminate useful information and motivate those farmers who wanted to transition to sustainable farming practices. Although I could not personally attend their seminar during my fieldwork due to Covid-19 restrictions, I was told that they continued sharing information about sustainable practices and motivating other farmers during the pandemic through WhatsApp and Facebook groups.

Being a part of ‘organic farmers group’ helped and motivated some of these farmers to transition to sustainable farming practices. For example, one of the farmers from Jind organic group, a 31-year-old small-scale farmer, Vikas, told me that he was always interested in doing natural farming but was never ready to take the risks involved. After visiting one of their group seminars and personally learning sustainable farming skills, he began to experiment on a small landholding. He informed me that after attending the seminars and workshops he started growing organic sugarcane, and in a couple of years, he realised that it was possible to earn a stable and viable income (23-06-2021). Similar stories were shared by four other farmers who talked about benefits like information sharing and support from other farmers in an organisation as a crucial and motivational factor to adopt sustainable practices.

Two farmers (Jayesh and Praveen) told me that they were already growing organic vegetables, but after joining the Panipat group, they were able to access a marketing network, which further motivated them to convert their land into organic farming. They told me that during peak season, they often distributed the work -- some handling the marketing work while the rest took care of the production -- and this way, they were able to coordinate with each other. Jayesh (40, M, small-scale, OBC) said,
connecting to this group was the biggest factor that motivated me to leave conventional farming practices and think about switching to alternative practices. (village Nr, 8-04-2021)

These narratives reflect the increasing motivation of some farmers towards the practice of sustainable farming through group membership and engagements in FPOs in Haryana. Most of these farmers claimed they were less informed and had little knowledge about alternative agriculture, but after joining these groups, they felt motivated to transition. According to these farmers, being part of regular workshops, seminars and interaction with other farmers helped them to gain the required information and mindset to adopt alternative practices. Moreover, as a member of the group, they not only shared their knowledge and experiences but also tried to develop a village community where members from all backgrounds could come together and participate. I was informed that the two FPOs included farmers across class and caste who were interested in adopting alternative or sustainable practices. Two farmers (Manveer and Sunil) mentioned their objective to include farmers from less privileged and small landholders as they found them most vulnerable to the growing debt crisis and wanted to transition. Although I did not hear about women members being part of these two groups, some male respondents told me that their wives supported them in adopting sustainable farming practices and contributed by managing some agricultural duties. The participation of these people from marginalised sections had many social implications, which I discuss under ‘transition outcomes’ in chapter 8.

Finally, some other farmers talked about informational and knowledge gaps in their understanding of sustainable farming despite being members of these organisations and exchanging information with other farmers in the villages. For these farmers, agronomic challenges remained a crucial part of the transition, which either impeded the transition or forced them to return to previous conventional farming practices. I elaborate on these challenges and thwarted transition in the following section.

6.2 Other challenges and thwarted transitions

My research suggests two main challenges: i) agronomic constraints and ii) the challenges related to overcoming social 'norms' to follow conventional farming that have often impeded transition and forced some farmers to return to their previous/conventional farming practices.

I. Agronomic challenges

Some studies in India have reported agronomic constraints such as increased workload, structural changes to the farm and problems with the process of soil rebuilding and weed control, coupled with higher input costs and lower productivity as some of the growing challenges in the initial few years of transition to sustainable farming (Singh, 2020; Kumar and Kumar, 2018; Bhatia et al., 2016; Pandey and Singh, 2012). Most farmers I interviewed raised similar concerns while talking about the challenges to transition. For example, a natural farmer, Rajeev, told me that since his land was previously used for chemical farming, he was scared from the very beginning about how the land would react to the transition. He informed me that for the initial two years, the farm yield was massively reduced, and everyone in his neighbourhood told him to add chemicals or else he would face huge losses. Similarly, a chemical farmer Kuldeep (52, M, large-scale, DC) said,
if a small-scale farmer sees that his production is half, he will not be able to bear the burden of that. Sustainable farming requires a lot of commitment without much output for at least three years (village M, 21-01-2021).

In my sample, three farmers told me that they tried to adopt alternative practices but had to return to previous conventional practices due to agronomic challenges like low yields, time-consuming and hard labour in the initial few years:

I started doing natural farming but could not sustain myself due to the low productivity of wheat and rice (Jayesh, 40, M, small-scale, OBC, village Nr, 23-06-2021).

I have not used chemicals for the past two years. I can see changes in the quality of produce, but I am unable to increase the production to be sold in the market. It takes a lot of time and hard labour without any economic benefits (Rohit, 33, M, medium-scale, DC, village B, 25-06-2021).

Organic farming requires a lot of hard work. I should do it for what - low productivity and no consumer? It will be a waste of time and energy. (Sumit, 36, M, medium-scale, DC, Village M, 23-06-2021).

These narratives have two implications for this study, both empirically and theoretically. Empirically, the narratives reflect how these farmers struggled in the process of transition and finally returned to their previous conventional practices. They talked about problems of low productivity, lack of marketing opportunities, higher time consumption and low income as some major challenges in the phase of transition. During our conversations, they also told me that overuse of chemical fertilisers had led to degradation of land and soil quality, and it takes up more than usual time to recuperate the land for natural farming practices. According to them, this led to low yields and a decline in income in the initial few years, and they found it difficult to sustain for a long time. Although these farmers were able to overcome the initial barriers of transition, they could not survive on the reduced income over a period of time and decided to return to the previous practices.

Theoretically, although previous studies talked about the barriers and challenges in transition, none of the existing studies reported factors that provoked these farmers to return to the previous conventional practices. Thus, these thwarting transitions become an important part of my research as they reflect on the problems and challenges during the processes of adopting alternative agricultural practices that forced some of them to return to old practices. Finally, these challenges may be seen along with individual’s nonconformity to follow prevailing conventional practices and overcoming negative pressures from friends and family, a topic I elaborate below.

II. Overcoming social ‘norms’ of following conventional farming

For some farmers, challenges in transition were more difficult as they not only struggled with the market opportunities, low productivity and lack of knowledge sources but also the social pressures from family and neighbours to follow conventional ‘norms’ of farming practices. Veisi et al. (2017)
reported that ‘negative pressure’ from farmer organisations and other farmers was one of the important challenges faced by farmers during conversion to organic farming. The conventional social setup in Haryana villages does not easily allow people in the rural communities to divert or do something different from the usual practice. Long standing ‘norms’ of the society were upheld by the rural communities quite strongly, especially when it came to agriculture, which was one of the important economic activities in these villages. Anyone diverting from these norms was thus regarded as a ‘rebellious’, ‘revolutionary’ or ‘mad’ person who needed to be brought back to the ‘right state of mind’. Most farmers I interviewed told me that they were often ridiculed and referred to as ‘pagal aadmi’14 (mad man) wherever they told someone that they wished to convert their land into organic or natural farming practices. Although most of these farmers were discouraged from transitioning by other conventional farmers, some of them were determined to adopt sustainable practices and continued with their decision anyhow. I elaborate on some of these accounts below.

For a small-scale farmer, Rajeev (38, M, OBC), transitioning to sustainable practices was not a quick and easy decision. The real challenge, according to him, was the negative social pressure from family and other farmers:

My neighbours used to laugh at me for doing natural farming, and many called me a pagal aadmi for taking so much risk and investing my time and energy in something less productive (26-01-2021). Rajeev told me that his own wife could not bear the criticism and requested him to switch back to conventional methods. However, he continued his experiments with natural farming. After one year of hard work, he saw that his production was increasing, and it kept on a gradual rise since then. He told me that after looking at some positive results on his farms, his family became more supportive of his farming practices. He also informed me that other farmers who used to call him stupid were now appreciating his hard work and good results.

Another farmer, Pradeep (35, M, dominant caste), told me about similar challenges while adopting sustainable farming practices. Pradeep wanted to do organic farming in a polyhouse model. In 2020, he invested around Rs.10 lakhs (£10000) to set up a polyhouse farm model on two acres of his land. However, when he told his friends that he wanted to switch to organic farming, not many of them supported his idea. More so, his own family was sceptical of his approach to investing money in a polyhouse instead of doing a ‘normal conventional farming’ of wheat and rice. When he shared his plans to do organic farming in the polyhouse, most of his friends and neighbours discouraged him from doing so and said, “aisa bewakufo wala plan to kisi pagal aadmi ke dimag mei he aiega” (such a stupid plan could come only in the mind of a mad man). Pradeep told me that after listening to these comments, he was initially quite discouraged to continue with his plans. He then focussed on learning and gaining knowledge about polyhouse and the techniques and practices of farming involved. When I met him, he was still undergoing the process of learning sustainable farming techniques by using digital sources and meeting farmers across the country. He told me that he felt more confident in his approach after reading and learning about methods to

14 Here ‘pagal’ or mad does not mean mentally ill but a stupid person taking a big risk by transitioning. This is a usual way of saying when people want to refer to someone who is challenging the social norms of society. In this case, transitioning to organic farming means taking a big risk in terms of time and money and challenging the conventional methods of farming.
grow organic vegetables in a polyhouse and did not feel discouraged by criticism from other farmers. He said, “koi baadlaav lane ke liye ek pagal aadmi ki he zarurat padhii hai, varna har chize aise he chalegi jaise chal rahi ahi” (To bring any change in society, it needs a mad man, else things will remain as they are) (village N, 23-06-2021).

In another account, Amar (52, M, DC), one of the first few farmers to convert his fields into organic farming in his village in 2010, shared a similar story. He told me that whenever he travelled to his fields with big drums of organic manure on his bike, each passer-by who saw him used to comment, “dekho, pagal aadmi ja raha hai” (look, a mad man is going!). He told me that initially, he was quite discouraged and felt humiliated but was still determined to continue with the transitioning process. Amar told me that after becoming a successful organic farmer, many of his friends and neighbours started following him and admired him for his farming practices.

These narratives highlight the difficulties these farmers faced while transitioning to non-conventional farming, especially related to challenging the prevailing farming norms and practices. Commenting on existing social norms in farming and village society, Manveer said:

“yaha pe logo ki soch yeh hai ki Bhagat Singh to sab chahte hai lekin koi apne gher mei nahi chahta”15 (Here, the mentality of farmers is such that everyone needs a Bhagat Singh in a village but not at their home). (23-06-2021)

According to him, most farmers in the villages knew the benefits of sustainable farming but were reluctant to be the first ones to transition and take the risks. He told me that even if someone was willing to take these risks, others would think of him as a stupid person who was putting himself into so much trouble without any short-term economic benefits. Manveer blamed this mentality and negative comments by other farmers as major impediments to the process of transition. He informed me that some farmers had often returned to their conventional methods as they were either discouraged or not fully motivated to transition.

I met two farmers who told me that they stopped doing sustainable farming after they were ridiculed by their friends and neighbours and could not transition fully after continuous efforts and hard work. One such farmer, Jitender Montu (38, M, small-scale, OBC), began doing sustainable farming as a part-time activity while working as a driver in Delhi Transport Corporation. Jitender was an owner of three acres of land and started doing sustainable farming in 2018 after being inspired by another organic farming in the neighbouring village. However, most of his neighbours and friends did not approve of his methods and techniques. He told me that they questioned his practice, and when he did not make enough money in the initial years, they all laughed and ridiculed him. Jitender said,

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15 Bhagat Singh was an Indian revolutionary, born in an agriculturalist class in Punjab, and left his home at a young age to participate in India’s freedom struggle. He was associated with many violent and non-violent freedom movements which were considered quite revolutionary during those times. Here, is it referred to mean that most farmer in the villages are willing to make changes and transition, but they want others to do it first so that they could see the results and then decide if they want to transition or not.
log mujhe dekh ke bolte the ki ke bawla hai yeh, naukri to theek ker raha hai lekin jaivik kerke naksan bhi ker raha hai (people used to say I am stupid person, earning well as a driver but wasting my money in doing organic farming). (village N, 06-04-2021)

Jitender told me that with the growing social pressures from others and low productivity in his fields, he finally decided to discontinue farming in 2020. He also informed me about some other farmers who had stopped farming and switched to other small businesses, as they could not make enough income from sustainable farming and became susceptible to constant social pressures from friends and family to discontinue it. In a similar case, another farmer, Shaam (35, M, small-scale, OBC), talked about a lack of support from family and friends that forced him to switch back to conventional farming practices. He told me that although he had gathered information and knowledge on sustainable farming, however, he was discouraged by family members due to the risks involved and decided not to implement the techniques on his farm:

I started doing natural farming on one acre. I used to spend most of the time at my farm. After six months, when I could not make enough production, my friends started making fun of my condition. They called me nanga (naked), bewakuf (stupid) and pagal (mad) (village Nr, 08-04-2021).

In both narratives, these farmers shared similar feelings of ridicule and humiliation, which forced them to return to their previous practices. The calling of phrases like bewakuf and pagal to someone who wanted to change conventional practices reflects the growing fear, lack of trust and low risk-taking capacity of some farmers who had accustomed themselves to industrial farming practices. Any change or decision to transition, thereby, required strong will power and motivation by farmers to overcome constant humiliation and lack of support from close ones during the initial few years. In a similar study in Nimar Valley (Madhya Pradesh), Riar et al. (2017) identified social motivational characters controlling the rational decisions of farmers to opt for either organic or conventional agricultural systems at farm-level. The study reported that factors like ‘for reputation in community’ and ‘be appreciated by family’ prevented some farmers from shifting from the existing conventional farming practices. Although limited to a few examples, my research develops on these factors and informs ‘negative pressure from family and neighbours’ and ‘ridicule and humiliation’ that prevented some farmers from transitioning and, in a few cases, forced them to return to previous conventional practices.

6.3 Discussion and Conclusion

The main purpose of this chapter is to empirically investigate various factors that motivate farmers to adopt alternative practices in agriculture and the possible challenges that they face during transitions. My research reveals four main findings:

1. Corresponding to some previous studies (Karki et al., 2011; Pornpratansombat et al., 2011; Riar et al., 2017), my research concluded four factors of motivation for farmers to transition to alternative agricultural practices: health and environmental concerns; economic incentives; farmer-to-farmer knowledge transfer; and membership to an organisation. Among these, health and environmental concerns emerged as the major motivating factor, followed by the other three
factors. Although existing economic resources, education, urban exposure, and social networks influenced the choice to transition for some farmers, the final transition was not limited to a few higher caste and class farmers but undertaken across caste, class, gender, and age groups. Lastly, while previous studies identified factors like “human and animal health”, “demand for healthy food” and “interest in growing safer food” as some of the health-related concerns, my research reveals that these factors not only motivated farmers to pursue alternative farming but also redefined their duty as a farmer to produce and sell non-chemical food that promotes a healthy lifestyle and rural sustainability. These farmers talked about how transitions changed their farm practice and culture and finally brought a new sense of individuality whereby they could differentiate their roles and responsibilities in providing healthy food and sustainable production, something I explore further in chapter 8.

2. For most farmers, farmer-to-farmer knowledge transfer (20) and membership in an organisation (10) were important factors that motivated them to transition to alternative agriculture. These farmers talked about the importance of social ties, informal networks among farmers, and their association with formal or informal groups as the main factors that motivated them to transition. Environmental knowledge transfer in these groups has been significant due to the level of trust and companionship these farmers had among themselves. Specialised training and university education remained significant only in a few cases where farmers wanted to learn about something specific to a particular technology. Most of the farmers believed in learning from each other rather than extension workers or agricultural universities. This is significant for agricultural policy making in India, which currently promotes extension workers and relies on government-appointed agricultural officers rather than farmers’ networks to encourage sustainable agriculture.

3. Thwarted transitions answer an important research question: why some farmers were able to successfully transition while some others were not? While previous studies have reported challenges in transitions, such as increased workload, structural changes to the farm, higher input costs, lower productivity and social pressures from family and neighbours (Singh, 2020; Kumar and Kumar, 2018; Bhatia et al., 2016; Veisi et al., 2017; Pandey and Singh, 2012), none of the existing scholarship studied reasons that forced farmers to return back to the previous industrial practices. Thus, thwarting transitions in my research becomes an important part of the study as they reflect on the problems and challenges during the processes of adopting alternative agricultural practices that forced some of them to return to old practices. In my research, two prominent reasons forced five farmers to withdraw from transitioning to alternative agriculture: first, agronomic and informational constraints like low knowledge levels, high risk, increase in workload, structural changes to the farm and low yield and productivity in the initial few years; and second, social motivational challenge in terms of negative pressures from family and friends which demoralised farmers during the initial phase of transition.

4. Corresponding to Sugden’s (2022, 2019) approach to studying people’s perceptions of decision-making practices and processes, this chapter uses farmers’ perspectives to understand transitions and processes of change that are shaped by the agrarian social structure and the changing social ecology in Haryana. Studying farmers’ perspectives helped me to firstly, examine the decision-making processes at work and, especially, why farmers adopt or change a particular farm practice and; secondly, to study how these transitions are perceived by different groups of farmers across different caste, class and gender groups, in diverse socio-economic settings. In the next chapter, I
further explore these perceptions, especially regarding how different farmers adopt diverse farming practices at the farm-level, their innovative behaviours and strategies to manage transitions and their particular visions of alternative agriculture.

Keeping these motivations and challenges in mind, in the next chapter, I will discuss how farmers transition to alternative farming practices and what kind of alternative methods of farming are emerging in the villages in Haryana. My objective is to study the processes of transitions by understanding diverse farms, farming practices and their emerging meanings of sustainability. Finally, the chapter examines different farming methods and explore the complexity of understanding alternative or sustainable agriculture in a diverse socio-cultural context.
**Chapter 7: How do farmers transition? Understanding diverse farms, farming practices and meanings of sustainability**

*I believe that a progressive farmer is one who is experimenting with his farming practices and improving his lifestyle accordingly. Even if a farmer is doing something different and not following other farmers blindly, he is doing his part in ‘sustainability.’*

--(interview with a farmer in transition, 05-02-2021)

In this chapter, I discuss how different farmers adopt diverse farming methods and transition to alternative agriculture in the villages. Specifically, I examine these transitions to answer my research questions: i) what farming practices do different farmers adopt in transition to alternative agriculture? ii) to what extent and in what aspects do these farms differ from each other? iii) how far their farming methods are informed and, in turn, informs the changing social and ecological conditions in the villages? And finally, iv) what do farmers understand by sustainability? By focussing on different forms of farming methods emerging in the villages, I argue that farmers’ specific attributes to farms and farming practices are important for understanding the complexity of agricultural transitions in the given socio-economic context.

In Chapter 2, I discussed two alternative approaches to industrial agriculture - agroecology and ecological modernisation - and argued for studying socio-cultural processes and practices at stake while conceptualising transitions. I also talked about how agricultural transitions may be studied through the MFA framework. In particular, I drew on Wilson’s (2007, 08) conceptualisation of ‘strong’ and ‘weak’ multifunctionality. I argued that transitions at the farm-level must be studied and theorised as a range of dynamic practices, evidenced in the ever-changing farming practices, marketing strategies, and emerging meanings of sustainability. While the existing studies on MFA have done a fair job in understanding diverse farm-level practices and management (or marketing) strategies, they leave out the emerging meanings around sustainability or sustainable agriculture.

Based on previous literature on alternative approaches in agriculture and multifunctional agriculture, my research reveals three aspects of farm operations or transition processes to study agricultural transitions (see fig 7.1). The first aspect relates to farming practices, by which farmers build relations with soil, water, organisms, land, and the overall ecosystems. This aspect also reveals the environmental, technological, social, cultural, and economic dimensions (e.g., selection of seeds, uses of farming techniques, local farming methods, yield orientation, etc.) of farm operations. The second aspect links to marketing strategies, through which farmers establish relations with mandis, consumers, and other stakeholders. This aspect further exhibits different social and economic dimensions (e.g., social network uses, farmer-to-farmer connection and empowerment of local actors) of farm operations. The third aspect links to their understanding on sustainability, wherein individual farmers develop their own meaning and understandings on alternative agriculture. This may be linked to their motivation to transition and helps in achieving outcomes based on the given socio-economic conditions.
Fig 7.1: Table showing criteria of farm operations and range of practices

<table>
<thead>
<tr>
<th>Criteria of Farm operations</th>
<th>Practices that reflect weak to strong MFA (Indian context)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming Practices</td>
<td>e.g., <em>from</em> chemical fertilisers and pesticides <em>to</em> non-chemical-based farming and the use of organic manure</td>
</tr>
<tr>
<td>Market strategies</td>
<td>e.g., <em>from</em> long-distance food chains <em>to</em> alternative marketing channels, self-sufficient villages</td>
</tr>
<tr>
<td>Understanding on sustainability (adding to the framework)</td>
<td>e.g., <em>from</em> changes in human health and ecological sustainability <em>to</em> social sustainability, empowerment of local farmers and rural development</td>
</tr>
</tbody>
</table>

*Source: Author*

This chapter builds on this framework to investigate operational strategies, farmers' perspectives, and decisions on alternative agriculture emerging in the villages. Fig 7.1 highlights the range of practices that reflect a transition from a weak to strong MFA in the Indian context.

On the aspect of farming practices, sustainable agriculture is at its weakest when interpreted as a ‘one-size-fits-all’ solution to the environmental impacts that do not question the [homogeneously] associated landscapes and standardised agricultural practice (Duru et al., 2015b). On the contrary, strong agricultural initiatives and approaches involve coping with agricultural pollution by replacing the chemical inputs such as fertilisers, pesticides and herbicides with organic ones and optimising inputs through sustainable farming techniques and local knowledge-based solutions (Francis et al., 2003; Duru & Therond, 2015a). However, within this model, farmers adopt a range of farming methods and practices that involve boosting biodiversity, multiple cropping or mix cropping, preparing organic fertilisers, building soil strength, farm collectives, use of local or organic inputs and science-based farming.

On the aspect of marketing strategies, weak agricultural alternatives involve practices that blindly follow the logic of capitalism to manage food production and distribution, resemble the market rules to expand production and reproduction, and therefore rely on mass urban markets for distribution and consumption. Such management strategies entail loosening social ties lacking locally embedded socio-cultural capital (Wilson, 2009; Horlings and Marsden, 2011). In contrast, typically strong agricultural initiatives include short food chains, selling quality food within or nearby village structure, alternate food networks, developing social networks, exchange of farmer-to-farmer knowledge, and local food movements. These marketing strategies recognise the importance of social networks and economic relations along with the needs of the local population, unlike adopting a complete neoliberal economic system of production and exchange.

The aspect of understanding sustainability emerges from what these farmers think about alternative agriculture in general and sustainability in particular. In general, the transition from weak to strong
agriculture meant adopting non-chemical-based farming practices, improving the ecological landscape, soil fertility, water and air quality, empowering local farmers and thinking about overall village community and rural sustainability. However, understanding deviations in this transition is essential to study how different farmers navigate the process of transitions and (re)imagine the idea of sustainability in this process. The specific meanings of sustainability involve understanding praakrtik kheti (natural farming), jaivik kheti (organic farming), zehr-mukt kheti (poison/chemical-free farming) and other alternatives in agriculture that not only involve improvements in the quality of food production but also have possible implications on human health, ecological and wider socio-economic community.

This chapter uses these three aspects to examine diverse farms and farming practices emerging in Haryana villages. The first section discusses four types of farm methods: i) crop diversification through polyhouse methods; ii) natural farming methods; iii) farmers’ cooperatives; and iv) organic farming methods. Here, I examine how these farmers transition to diverse farming practices, create marketing channels and how they understand sustainability in the process. This way, I study transition processes and explore how these transitions were informed by and further influenced the existing social and ecological conditions in their villages. The final section discusses my research findings in the context of the wider literature on agricultural transitions and farmers’ perspectives.

7.1 Research Findings: A Typology of diverse farms and practices

Here, I examine the farming practices and methods of 28 farmers who transitioned from conventional to alternative farming practices. Out of these farmers, five farmers adopted crop diversification methods, ten farmers transitioned to natural farming methods, ten farmers were part of two different farmers’ cooperatives (registered under Jind FPO and Panipat FPO) and adopted natural farming methods, and three farmers were new or reverse migrants who adopted organic farming methods. These farmers owned their farms in the villages of Sonipat, Jind and Panipat district in Haryana. Broadly, their farms can be categorised under four types of alternative farming methods (refer to Fig 7.2 for key features of these categories).
Fig 7.2: Typology of alternative farming methods in Haryana

<table>
<thead>
<tr>
<th>Farm types</th>
<th>Case 1: Crop diversification by polyhouse</th>
<th>Case 2: Natural farming</th>
<th>Case 3: Farmers’ cooperatives</th>
<th>Case 4: Organic farming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers (28)</td>
<td>(5) Established individual farmers: upper class and Dominant caste, generally large-scale landholding.</td>
<td>(10) Established individual farmers: small/ medium-scale farmers, includes both upper class and OBCs</td>
<td>(10) Established farmers: (stronger farmers’ network) small/medium-scale farmers, includes both upper class and OBCs</td>
<td>(3) New farmers/ reverse migrants: generally upper class/ caste, educated with urban exposure</td>
</tr>
<tr>
<td>Farming practices</td>
<td>May or may not follow non-chemical-based farming; use of chemical fertilisers and pesticides still prevalent in polyhouse farming, some switch to food processing industries</td>
<td>Non-chemical-based natural farming; multi-crop farming &amp; strong crop diversity; inherited farm knowledge &amp; experiences.</td>
<td>Follow natural farming principles &amp; monocropping but pay attention to landscape biodiversity; group farming &amp; management practices</td>
<td>Strictly follow organic principles of farming: use of organic seeds and soil production along with dairy farming, water conservation techniques and the use of solar panels.</td>
</tr>
<tr>
<td>Market strategies</td>
<td>Some sell in local market, some in high-end supermarkets, urban areas, wholesalers, &amp; processors. Investment in food processing units.</td>
<td>Self-consumption with a few private customers within and outside the village, selective urban customers with home deliveries, &amp; on-farm tours and pickups.</td>
<td>One group developed network to market together to both nearby and far-off places or home deliveries. Other group interested in sustainable production only and no marketing.</td>
<td>Selling mostly certified organic produce within village and outside to urban supermarkets, far-off wholesalers and processors. Investment in processing units.</td>
</tr>
<tr>
<td>Understanding on sustainability</td>
<td>Transition to crops other than wheat and rice; experimenting in alternative farming practices (may not necessary be non-chemical-based); creating employment opportunities in the villages</td>
<td>Eating healthy, non-chemical-based food; ecological changes along with living a healthy lifestyle</td>
<td>Eating healthy non-chemical food; revival of their farms and farming techniques, &amp; ecological landscape; contribution to sustainable rural development.</td>
<td>Chemical-free farming; ecological practices to rejuvenate land and soil fertility; create equal opportunities for other farmers to learn and adopt these practices; involving wider</td>
</tr>
</tbody>
</table>
### Fig. 7.3: Some differences between Natural and Organic farming in Haryana

<table>
<thead>
<tr>
<th>Farm types</th>
<th>Case 1: Crop diversification by polyhouse</th>
<th>Case 2: Natural farming</th>
<th>Case 3: Farmers’ cooperatives</th>
<th>Case 4: Organic farming</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Farming</strong></td>
<td>It encompasses a diverse range of techniques, including minimal soil disruption, crop rotation, intercropping, and the use of indigenous resources such as cow dung and cow urine for natural fertilisers.</td>
<td></td>
<td></td>
<td>community to grow together, nostalgic of rural lifestyle</td>
</tr>
<tr>
<td><strong>Organic Farming</strong></td>
<td>It is defined by its strict principles, emphasising the exclusion of synthetic chemicals and the use of approved organic inputs for crop cultivation and livestock management.</td>
<td>It incorporates approved organic inputs as part of its practices.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Its essence lies in the creation of self-sustaining ecosystems while minimising, and gradually, complete abstention from external inputs.</td>
<td>It encourages the breakdown of organic matter by microorganisms and earthworms right on the soil surface, gradually adding nutrients to the soil over time.</td>
<td>While following similar practices of natural farming, organic farming also involves ploughing, tilling, mixing manure, weeding, and other fundamental agro activities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It is regarded as an extremely low-cost farming method that completely moulds with local wildlife.</td>
<td>Organic farming is still costlier due to the necessity of bulk manures, and it has an ecological footprint on the surrounding.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not much legality involved</td>
<td>Organic certification is important to claim the product as ‘organically’ produced and to be sold in the high-end markets for an appropriate price.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Author*
I. Crop diversification by polyhouse method of farming

**Farming practice of polyhouse farmers:** A polyhouse is a protected structure in which plants are grown under a controlled condition. These structures range in size from small sheds to industrial-sized buildings. A polyhouse may have different types of covering materials, such as a plastic roof, polythene, and other transparent materials, that heat up quickly because incoming visible sunshine is absorbed inside the structure. They are extremely useful when plants, in particular periods of the year, cannot be grown in open country or areas where the climate conditions are too harsh to guarantee a good quality crop (Gusman et al., 2008). In India, polyhouse farming was recommended under the National Horticultural Mission in 2005 and encouraged a move towards alternative farming methods. In Haryana, it promoted a shift from traditional farming of wheat and rice to other fruits and vegetables such as strawberries, papayas, baby corn, tomatoes, spinach, onion, coriander, chillies, cauliflower, radish, capsicum, bitter gourd, and cabbage (Business Standard, 25-02-2013). Haryana government supported this move by offering a 40% to 65% subsidy on the polyhouse structure and cost of production of the crops. By 2012, a commercial polyhouse was set up in Haryana, which used high-tech production facilities like screening installations, heating, cooling, and lighting that were automatically controlled by a computer for growing fruit, vegetables, and flowers (Business Standard, 25-02-2013).

**Fig 7.4:** Images of a polyhouse structure in Village M, Rai Block; Crops grown: Bell peppers, sweetcorn, green capsicum, bottle gourd and tomatoes

In Rai Block, five polyhouse owners talked about crop diversification and ‘polyhouse farming’ as an ‘alternative’ agricultural model in farming. These farmers informed me that before diversifying their crops, they used to do wheat and paddy farming with conventional methods. They also told me that by the 2000’s, farming of these crops became stagnant and non-profitable along with growing health concerns associated with chemical food. These reasons made them search for alternate food production methods. Interviews with these farmers raise several interesting questions: which crops are popularly cultivated through this method? What are the advantages of polyhouse method? How does it affect the marketing strategies? And what do these farmers mean by ‘alternative methods’ or progressive farming practices? I answer these questions below.
Benefits of a polyhouse: While talking about the multiple benefits of doing polyhouse farming, Arvind (40, M, Large-scale, DC) informed me that with polyhouse structure, he was able to grow certain crops like cucumber, cabbage, bottle gourd, and capsicum throughout the year and would not have to wait for their cropping season. Dinesh (46, M, large-scale, DC) talked about fewer chances of pests and insect attacks, safety of crops from extreme climatic conditions and better quality of produce as other benefits. Similarly, Arun (45, M, large-scale, DC) informed me that polyhouse farming was advantageous in providing the proper environmental conditions for different crops to grow at perfect temperatures. He also told me that with polyhouse farming, he was able to increase his production of vegetables like bell peppers, bottle gourd and tomatoes without much use of chemical fertilisers. Two other farmers (Kanwal Singh and his son Rahul) talked about how, after switching to different crops like baby corn and mushroom, they used lesser fertiliser and pesticides and were able to save a considerable income that was earlier spent on chemical inputs. Both now owned food processing units of and sold packaged baby corn to urban and high-end supermarkets.

Fig 7.5: Images of food-processing and packaging industries in village A2; Crops grown: Production and packaging of baby corn, mushroom, and peas

Source: Author's

During my interview with Rahul (41, M, Large-scale, DC), he talked about the benefits of agricultural diversification in promoting changes in farming practices. According to him, baby corn was helpful for two reasons: firstly, it provided a reasonable price in the market since there were limited sellers and higher demand, and secondly, the leftover grass was helpful in feeding livestock and in increasing milk production. He said, “indiscreet use of chemicals in wheat and rice have spoilt the land. Alternate crops like baby corn and seasonal vegetables will help in natural replacement of soil nutrients and manure” (village A2, 09-02-2021). He informed me that many other farmers switched to high-value crops after his family’s experience and success with baby corn production. According to him, many other small-scale and women farmers were employed in his factories, creating substantial employment opportunities in the village.

Although these farmers were rich and had large-scale land holdings, they switched to polyhouse farming on small land (generally from 1-2 acres). They informed me that it took a lot of work to
build a polyhouse structure on a vast scale due to its mechanism and the risks involved. In order to increase production, they preferred to construct multiple polyhouses on their land rather than one large structure. They told me that they could only switch to polyhouse farming gradually once they were sure of its productivity and sustainability in terms of infrastructure and profits. In the previous chapter, I talked about how some large-scale farmers were in a better position to manage transitions due to the existing economic resources and social network. The polyhouse owners may have an advantage of these factors, however, they informed me that they could invest in only a small piece initially.

**Market strategies:** All these farmers informed me that they began by marketing their produce within and near their villages. They told me that, during the early transition phase, they could find customers and demand for their produce closer to their village as crops like baby corn, sweetcorn and bell peppers were limited to a few farmers. This helped them to make quick profits in the initial period. These farmers also took advantage of governmental subsidies for investing in polyhouse and later in processing units, that led to increased production and improved the sale and distribution of products. After increased production, two farmers also tried to do contract farming with a company. Sharing that experience, Dinesh told me that he did contract farming of bell peppers with a private company once; however, he stopped his contract after going through some mismanagements with the company and payment delays. He told me that since then, he mostly sold his produce to *mandis* (markets) or customers who reached out to him through some family contact and other networks. Two other farmers, Kanwal and Rahul, did large-scale farming and sold their produce in high-end urban markets and wholesalers across the country. Rahul also shared his plans to look for an international market to export canned baby corn products.

**Understanding on sustainability:** Although these farmers talked about crop diversification as an ‘alternative’ method of farming, they did not mention conventional farming approaches as a limiting factor to sustainability:

I believe that a progressive farmer is one who is experimenting with his farming practices and improving his lifestyle accordingly. Even if a farmer is doing something different and not following other farmers blindly, he is doing his part in ‘sustainability’ (Dinesh, 46, M, large-scale, DC, village M, 05-02-2021).

I am using fertilisers in a controlled way, but unable to stop using them. Moving to different crops is one way, but I wanted to change the farming practices by reducing chemical inputs. Polyhouse farming gave me an option to do both, as I was able to diversify my crops and remove fertiliser input by 60% (Arun, 45, M, large-scale, DC, village M, 21-01-2021).

I grew mustard in a polyhouse with natural farming methods but suffered from low production and a lack of knowledge to handle pest attacks. I then added some pesticides. But, I still believe my farming method is revolutionary and challenging conventional practices as I moved to different crops and tried to adopt sustainable farming practices (Arvind, 40, M, Large-scale, DC, village M, 23-06-2021).

We [referring to his father and himself] grow crops like baby corn, mushrooms and bell peppers and try to use sustainable practices. Although we are still dependent on chemical
fertilisers, but at least trying to move away from traditional wheat and rice, which are now more environmentally damaging and low-income crops (Rahul, 41, M, Large-scale, DC, village A2, 09-02-2021).

These farmers defined ‘alternative agriculture' through crop diversification methods and practices in the interviews. Although they believed that changing farming practices from conventional to natural may be more 'sustainable', they claimed that in the current situation in agriculture, moving away from growing wheat and paddy cultivation to high-value crops and vegetables was in itself a better alternative. According to them, shifting from traditional crops to vegetables could be useful in better income opportunities and productivity and could possibly lead to a move towards sustainable practices. Furthermore, polyhouse farming proved a better alternative method for these farmers to adopt crop diversification and look for methods to adopt sustainable farming (or chemical-free) methods in future.

Moreover, their understanding on sustainability was not limited to the choice of farming practices, but they also talked about how crop diversification had inspired other farmers in the village to adopt alternative practices and generated employment opportunities in the villages. Rahul and Dinesh told me that they employed many local farmers and women labourers in the fields and factories and prioritised the workers from their villages. They said: “I employ more women labourers than men as they were more hard-working” (05-02-2021) and “I encourage other farmers to grow baby corn and sell it to us. If they get a better price outside the village, they can sell their too” (09-02-2021). Overall, these farmers believed in experimentation and gradual transition to alternative practices and simultaneously looked for better marketing channels for their produce. They claimed that by transitioning to crops other than wheat and rice, experimenting with alternative farming practices (which may not necessarily be non-chemical based) and creating employment opportunities in the villages, they were making efforts towards sustainable agriculture.

II. Natural farming method

I interviewed ten established farmers who transitioned to natural farming practices and worked independently on their farms. They called themselves a ‘natural farmer’ as they did chemical-free farming, used on-farm biomass recycling, cow dung and urine to make local manure, and excluded all synthetic chemical inputs from their farming practices.

**Farming practices of natural farmers:** In my visits to five natural farming fields in Ganaur Block of Sonipat district, I interviewed farmers adopting multi-cropping farming method on small landholdings (around 1 - 3 acres) and using naturally produced fertilisers. According to my interviews with these farmers, this method was helpful for growing 15 different vegetables in a year, both on the ground and eucalyptus sticks, with the possibility of growing seasonal fruits (see Fig 7.5). They rose turmeric and ginger at the base of the ground, which, according to them, helped rejuvenate the soil and protect it from pest attacks. Meanwhile, they used vegetable leaf waste and worms to feed the animals, saving on animal feed costs. The production of organic fertiliser was done using all natural inputs. These farmers usually used two big containers to prepare organic soil and waste decomposers. The organic compost was made from all locally available input in the villages, such as, cow dung, cow urine, buttermilk, jaggery, weeds from other crops, and ten
different leaves. They prepared this mixture in 40 days, sprayed on the fields during the chances of pest attack, and used it to improve soil fertility (see Fig 7.5).

**Fig 7.6: Images of multicropping farm method and the making of organic spray**

![Image of multicropping farm method and the making of organic spray](image)

*Source: Author’s*

**Fig 7.7: Image of a vermicompost plant installed by a farmer inside home**

![Image of a vermicompost plant installed by a farmer inside home](image)

*Source: Author’s*

Five other farmers in different villages in the Panipat district followed similar natural farming practices on medium-scale farms. Out of them, three farmers did natural farming of fruits and vegetables by preparing soil through vermicompost. Two farmers installed vermicompost and biogas plants in their homes, which helped them prepare organic soil in their backyard, and biogas
was used at home for cooking and other purposes (see Fig 7.6). One of them, a 70-year-old farmer, not only grew food grains and vegetables but also herbs and medicinal plants together on seven acres of land. His farm included wheat, bottle gourd, capsicum, spinach, beetroots, onion, tomatoes, ladyfinger, and other herbs and medicines such as aloe vera, amla, ashwagandha and many more. He talked extensively about the importance of *kheechua* (worms) in natural farming as an excellent source of organic fertiliser and having nitrogen-fixating capacities:

The truth is that only the worms within the field are the real workers in natural farming. We think farmers do a lot of work, but it is these worms that provide important elements like nitrogen (Manveer, 60, M, DC, medium-scale, village J, 23-06-2021).

Another farmer, Ranjit (83, M, medium-scale, DC) said:

These worms are like best friends of natural farmers. Charles Darwin was the first scientist who noted the activity of this animal and called it an important source for the betterment of soil fertility. Second was Aristotle, who called it *zameen ki aant* (intestine of the earth) (village N, 06-04-2021).

Similar knowledge was shared by two other farmers who mentioned worms and bacteria within the soil as the real workers in natural farming and followed integrated pest management. Overall, all these farmers demonstrated strong ecological thinking and agroecological practices by minimising unnecessary costs for artificial or outside inputs while maximising the use of naturally available resources and inputs and revitalising nutrient cycling on farms. These practices reflect their knowledge of sustainable practices, and the use of local resources marks a key component in the transition to alternative agriculture. Although these farmers shared their knowledge and practices, most of them worked independently and separately managed their farms and marketing networks.

**Market strategies:** Products of these farms, except for self-consumption, were mainly sold through their networks to both rural and urban consumers. Five multi-cropping farms made their own customers who used to visit their farms to collect fresh vegetables. They used to publicise their produce through friends and relatives across villages and nearby urban areas, who then travelled to them on weekends or called them for home deliveries. Owners of the three other farms were invited to a one-day farmers’ market in an urban residential community, through which they met several consumers who were willing to purchase fruits and vegetables as long as they were grown naturally and chemical-free. I was told that most of these customers were willing to pay higher prices for natural produce as they were aware of its health benefits and gradually became environmentally conscious. Some of them also told me that during the Covid-19 related lockdown, many more customers got connected to them, and these farmers started home delivery of their products, which turned out to be economically beneficial. However, none of them travelled to far off places like Delhi and Gurugram to sell their produce in organic markets or made private customers located in long distances.

Overall, after some research on markets and customers, these farmers could find a suitable network willing to buy their produce. The price premium offered by the consumers built more confidence for these farmers to adopt natural farming methods and shaped their ecological practices. Finally,
these farmers managed their farms independently with some support and a network of other farmers or their friends and relatives.

**Understanding of sustainability:** As discussed in the Introduction chapter, the term ‘natural’ (‘praakritik’) and ‘organic’ (‘jaivik’) was used interchangeably by these farmers, yet most of them were able to define what they meant by ‘sustainability’ or ‘sustainable agriculture’ by differentiating between natural and organic farming methods and chemically/non-chemically grown food:

Natural farming means whatever the farmer has in his fields, such as cow dung, urine, green manure, and other wastages, must be utilised by the farmer by making compost and using it in the fields. (38, M, 26-01-2021, village Nr)

I am doing natural and not organic farming as the latter requires a lot of input that must be added from outside and follows a certain pattern of farming. However, in natural farming, all inputs are produced locally and reused in the farm. I also make my farming sustainable by recycling the waste products from the farm and home into waste decomposers and using water harvesting methods. This is how sustainable farming should be understood. (45, M, 29-11-2020, village N)

Desi (local) and praakritik kheti (natural farming) is important for a healthy body and sustainable living. For sustainable farming, one needs to stop using chemicals completely, and try to improve their land and soil conditions by using local, natural inputs. (37, M, 03-04-2021, Village K)

I believe sustainable agriculture is eating healthy food and keeping our land fertile, but above all it a choice of a healthy lifestyle. (42, M, 03-02-2021, village K)

These farmers defined sustainable agriculture as a method of following natural farming practices and emphasised producing chemical-free food, using naturally occurring resources and making their natural soil with organic matter. For them, the meaning of sustainability included ecological farming practices but also had positive implications on human health. A few of them mentioned the effects of eating naturally produced food on the human body, mind and overall lifestyle: “sustainable farming is not only about using natural inputs but also developing healthy eating habits and lifestyle” (37, M, 03-04-2021), “the quality of life is defined by the quality of food we eat, and that is what sustainable farming should lead to” (31, M, 06-04-2021), and “non-vegetarian food develops negative thoughts in your brain but eating and producing organic food will give satisfaction to your body and mind” (70, M, 23-06-2021). These narratives reflect that these farmers understood sustainability as not just an ecological practice but a lifestyle that substantially changes human health and well-being.

**III. Farmers’ Cooperatives**

An agricultural cooperative, also known as a farmers’ co-op, is a type of cooperative in which farmers pool their resources in certain areas of activity, either as agricultural producers or market suppliers. Usually, farmers in this association work together by pooling their resources (land,
machinery, etc.) based on either shared economic responsibility or in proportion to the input supplied. Farmer Producer Organisations (FPO) is one such cooperative encouraged through various schemes since 2014 by the Government of India. FPO is an organisation where the members are farmers themselves. It provides end-to-end support and services to the farmers and covers technical services, marketing, processing and other aspects of cultivation inputs. The goal is to enhance the farmers’ competitiveness and to increase their advantage in the emerging market opportunities. It is based on the rationale that small and marginal producers do not have the capacity to get the benefit of economies of scale, and so, as a group of ‘farmers’ producers’ they could have better bargaining power in the form of bulk buyers of produce and bulk suppliers of inputs.

Farming practices: I interviewed ten established farmers from two different FPOs, one at Panipat district (registered as a horticulture FPO) and the other at Jind district (Jind Vegetables Farmers Produce Company Limited) in Haryana. These FPOs were registered as horticulture clusters and produced seasonal fruits and vegetables. These farmers claimed that working in FPOs, they were supposed to focus on a singular or a few product types and a monocropping model such that one village/block could be registered with one product. The rationale was that agricultural production could be based on geographical conditions, focussing on creating a competitive advantage by mass-producing one kind of product. However, these farmers talked about the disadvantages of monocropping agriculture on land and rural incomes, and therefore, got registered under the vegetable and horticulture clusters to diversify their crop production and have better opportunities to market their produce together. Like established natural farmers (mentioned above), these farmers too followed similar practices of chemical-free natural farming by using locally available resources and knowledge. However, they transitioned to sustainable agriculture through group farming rather than individual efforts by independent farmers in the villages. Finally, on the farming scale, all of them were either small or medium-scale farmers, a factor that motivated them to group for cooperative farming.

Understanding on sustainability: My interviews with these farmers reveal how they got connected to each other and understood sustainable practices:

I was introduced to Jind FPO during a seminar on sustainable farming in my district. These members talked about the harmful effects of spraying chemicals on my health and the fields. I also learnt about different worms, naturally occurring soil bacteria, and how my methods killed them and degraded the environment. I then joined this group and became a motivator of sustainable farming practices in my village (37, M, OBC, small-scale, Village J, 23-06-2021).

I was afraid to leave conventional practices because I feared low production and economic risks. Farmers in Jind FPO reached out to me and explained how I could improve the quality of land and food production without much financial loss (33, M, OBC, small-scale, village J, 23-06-2021).

Panipat FPO had already developed a market in Delhi and Gurugram and was selling their organic produce at a good rate. Looking at these benefits, I decided to join their group. Had I not met and connected to this group, I may not have left conventional farming practices (40, M, DC, small-scale, village Nr, Panipat, 8-04-2021).
Although these farmers explained sustainable farming in terms of non-chemical or natural farming practices, for them, adopting sustainable farming practices meant working together in a group so that more farmers could convert to alternative approaches. These farmers talked about the benefits of working in a group and sharing information and experience to make a substantial difference in the ecological conditions and economic opportunities of different farmers. Some farmers, however, went beyond these benefits of collective organisation and saw how it contributed to bargaining power and community strength:

After joining Jind FPO, I was motivated to do something different. I learnt that sustainable farming is about changing a farm practice and adopting a lifestyle that benefits the community. It involves working for the village community and bringing together a change in land and surrounding environment (35, M, OBC, village J, 23-06-2021).

The Jind organic group is very open-minded and liberal. It allows hard-working farmers, irrespective of their scale of farming and caste background, to join them and grow together (36, M, medium-scale, OBC, village J, 23-06-2021).

The Panipat FPO is a good initiative to motivate small-scale farmer like me to adopt natural farming. I can now jointly work and market my produce and do not have to deal with middlemen alone. (40, M, OBC, village Nr, 08-04-2021).

Although I was aware of organic practices, the Jind group encouraged us to adopt sustainable farming, and we decided to switch our practices. After a couple of seasons, I was able to observe changes on the land. Now, I can easily make my own organic manure and bio spray and can identify the difference in soil texture and colour (45, F, small-scale, OBC, Village J, 23-06-2021).

We don’t dictate our terms to anyone but request interested farmers to join us. Those farmers who cannot handle all work alone - such as farming, marketing, and learning new practices - we help them to work together regardless of their class, caste, and gender (a senior member of Jind group, 60, M, medium-scale, 06-04-2021).

These narratives point out two things: first, their understanding of sustainable agriculture was not limited to ecological and economic gains on individual farms but talked about its importance in village agriculture and the community as a whole. According to them, moving to sustainable agriculture also meant working together for the progress of the village both in terms of social community and improving the ecological landscape. Second, these farmers understood social sustainability through collective farming, which builds bargaining power for the marginalised and strengthens the community. The above interviews by lower caste and class and women farmers indicate their willingness to participate in these groups and contribute to social and ecological change. These farmers claimed that they gained more knowledge and confidence in adopting sustainable practices after joining farmers’ cooperatives. Other studies (Sugden, 2016b; Agrawal, 2018; Leder et al., 2019) have also reported how farmers’ collectives have worked to empower marginal farmers, particularly women, by reducing labour and easing social inequalities in agriculture by increasing their collective bargaining power with landlords, governments and markets. Overall, for these farmers, association with farmers’ organisation in sustainable practices
meant a possible revival of their farms and farming techniques, a social network and integration with the wider rural community, making way for a potential contribution to sustainable rural development.

**Market strategies:** Both FPOs followed sustainable farming practices but had distinctive marketing strategies. Farmers in Panipat FPO had newly transitioned to sustainable farming and were trying to find marketing opportunities in the urban markets of Panipat and Gurugram and with corporate bodies. These farmers travelled long distances to find appropriate markets and premium prices for their produce. They told me that they initially tried to enter the urban market by setting their stall in an organic market inside a Gurugram mall. However, later, they quit due to unfavourable terms and conditions and low payment opportunities. They then tried to make private customers in Delhi and Gurugram through social and family networks:

We produce mostly those vegetables which are in demand. Simultaneously, we developed our network of customers who wanted our produce fortnightly. Networking is crucial for marketing. We started using social media platforms like Facebook and WhatsApp groups to connect with both farmers and customers (Praveen, farmer member of Panipat group).

Three other farmers talked about similar strategies and did home deliveries of their produce both near and far-off places. During my interviews, they spoke of the benefits of marketing together, such as exchanging knowledge and information, coordinating with one another during an increase in demand or shortage of supply and better price negotiation with the customers. Two farmers talked about the benefits they may receive from the government in the form of loans and subsidies for machinery like irrigation pumps, solar cells, etc., as a part of FPO formation.

Contrary to the Panipat group, the Jind group of farmers had a different understanding of market dynamics. They claimed that their main objective behind forming an FPO was to improve the ecological conditions in the village rather than any financial motive. All agreed that they believed in performing “farming in unity”, that is, collaborating to adopt sustainable farming practices and learn together and disseminate knowledge of natural farming methods. For them, managing and marketing their produce was only a secondary objective to improving the socio-economic conditions of marginalised farmers in the village. Most group members were entirely against selling their produce to big companies or urban organic markets. Believing in sustainable production and rural development, these farmers claimed that their produce was for the local community first instead of an urban market.

Overall, these narratives reflect diverse opinions of farmers on marketing strategies. Members of Panipat FPO seemed more inclined towards adopting different marketing options and channels and emphasised that marketing together as a group helped them sustain their farming practices economically. For them, cooperative farming enabled them to benefit from economies of scale and motivated them to pursue sustainable agriculture. On the contrary, Jind FPO claimed to be pursuing sustainable farming to improve the village's socio-ecological conditions rather than focusing on economic sustainability. The market interaction for these farmers is usually meant for selling leftover products (after self-consumption) only in local markets at a reasonable price and not for profit making.
IV. Organic farming method by new farmers/ reverse migrants

New farmers were primarily operators of certified organic or newly developed organic farms either on their fields or leased land but usually had large landholdings. In my sample, these farmers were mainly reverse migrants or those who moved out of their villages for jobs or educational purposes but now wish to return to their villages to start sustainable agriculture in Haryana. I met three such farmers and visited their farms: i) Kisan Welfare Club (KWC) village A2; ii) Elle farms at village GT; and iii) Sanjay Kumar Antil farm at Village An. These three farms were developed over an area of more than 25 acres of land in their respective villages and could be considered as commercial enterprises, unlike traditional peasant farms which had transitioned to natural farming. While the main agricultural activities (such as organic food production and processing) were carried out on these farms, two farmers (owner of KWC and Elle farms) owned other farmlands in their villages and had future plans to purchase adjoining landholdings to expand their agricultural activities.

Farming practices by new farmers or reverse migrants: The farming practices of these farmers offer diverse models of sustainable farming that include organic farms, compost making, dairy farming, water conservation techniques and sometimes the use of solar panels with all ends connected. During my visits to their organic farms, I saw different kinds of farms models. Two of these (KWC and Elle farms) sold certified organic products and claimed to be ‘agro-entrepreneurs’.

KWC was a 25-acre farm unit traditionally owned by Ramesh Singh Dagar but currently operated by his grandson, Ujjawal (27, M), an engineer in a company in Gurugram but returned to his village to work on his agricultural farms. KWC cultivated almost all seasonal vegetables, fruits, paddy, wheat, mushroom, and flowers, along with the latest additions of exotic vegetables and fruits, such as lettuce, baby corn and strawberry, for export. Ujjawal learned most of the organic farming practices from his grandfather and talked extensively about them:

My grandfather started doing organic farming when everyone around us was using chemicals. He began making organic manure by using cow dung and vermicompost. The initial production was less but he was not disheartened. We use paddy hay and paddy discards for vermicompost, also called pawal [local name]. Pawal is also used as a substrate for growing mushrooms. We produce almost 300 tons of vermicompost annually for farm use (29-10-2020).

I was informed that KWC produced 600 tonnes of organic manure, kept 50 buffaloes, had dairy, biogas, water harvesting pods and composting units. Ujjawal told me that biogas was used for personal kitchen work and to run the fodder-cutting machine. He also said to me that they used energy-efficient solar power plants for running pumps and recharging household inverter batteries. When I met him, he was also experimenting with exotic fruits, vegetables, and flowers in his courtyard, all using organic farming principles.

In another case, Elle farms was owned and operated by a 58-year-old woman, Seema, who returned to her village after completing her doctorate in Australia when she was 32. Spread over 18 acres of farmland, this farm comprised of organic fruits and vegetable farms, flower nurseries and a mushroom processing unit. Seema told me that she practised organic farming practices using local
resources, cow dung inputs, organic seeds and vermicompost and fixated on a complete ban on synthetic chemicals and pesticides. Talking about mushroom cultivation at her farm, she said:

We grow button mushrooms in world-class facilities powered by solar energy. This means you get the highest quality through sustainable production. Our mushrooms are naturally rich in vitamins and minerals – they’re an excellent source of Vitamin B, Riboflavin, Niacin, Vitamin D and Pantothenic acid. This is all because we grow it with organic manure, use local seeds, fresh water and provide the best storage facilities. (28-04-2021)

Besides producing and selling seasonal organic fruits and vegetables, Seema promoted and trained many other farmers in cordyceps cultivation of mushrooms and other products. Seema told me that she often reaches out to farmers through workshops and seminars and educates them about sustainable farming. According to her, every farmer could make biofertilisers themselves once they were given proper training and education. Overall, Seema defined her practices as ‘organic’ as they involved knowledge, a proper work schedule, time for experimentations, a fixed location, and the use of local, non-chemical inputs.

The third farmer, Sanjeev (32, M), worked as a government schoolteacher in the Sonipat district, however, in 2013, he quit his job and started converting his 20 acres ancestral land (which was then fallow) into diverse farm units. His farmland comprises organic farms, water conservation and dairy farming activities. Apart from organic farms and conservation units, his farm design also included recreational resort activities like facilities for bed and breakfast and sometimes served the space for many seminars, workshops and other activities, generating interest and exchanging information about sustainable farming. Sanjeev told me that since his agricultural land was closer to the industrial areas in Delhi-Haryana, it was quite infertile and unsuitable for organic farming. He also said to me that it was impossible to convert his land to organic farming without purchasing cows and making organic manure from cow dung. In 2013, he began his transition journey by purchasing cows and setting up a dairy farm on his farmland. He talked extensively about how he made the mixture of organic compost for spraying in the fields:

I use animal inputs derived from livestock, such as cow dung and cow urine and mix it with vegetable matter, jaggery and buttermilk for at least fifteen days. This mixture helps refine the soil texture and the ratio between carbon and nitrogen. Kheechua is made naturally, which works as an organic decomposer and is helpful in soil nourishment. Full compost is ready in two months and sprayed in the field accordingly. (04-02-2021)

In the interview, Sanjeev described his farm as the most ‘peaceful place’ for a nature lover. He, however, told me that none of his neighbouring landowners were interested in doing natural farming. And so, even if he used non-chemical inputs, the soil and water conditions in the nearby land remained polluted, creating issues in achieving certification for his products. He claimed his land was ‘healthier’ than his neighbouring fields and educated other farmers who wished to leave chemical farming methods and experiment with other, more sustainable techniques.

**Market Strategies:** The strong entrepreneurship ability of these farmers was reflected through their consistent marketing strategy of selling to supermarkets, big corporations and private consumers. Two of them (KWC and Elle farms) made certified organic products and sold them to
private customers and high-end supermarkets. They told me that getting ‘certification’ was necessary to increase their production and marketing as it was easy to make customers and access to national and international markets with certified organic products. Sanjeev did not apply for certification but planned to do so soon and currently sold his produce to some close network of private customers. All these farmers shared a similar sentiment regarding the market opportunities for organic enterprises: “It is difficult to survive economically in the organic sector for a couple of years in the beginning”. Some of the primary reasons mentioned by these farmers were that the profits obtained from selling organic products could hardly cover the high price to rent land, certification fees, organic inputs, costs to hire labour, and sunk costs during the conversion period. However, they claimed that after a substantial conversion period was over, they got a better price for organic produce in the market.

The entrepreneurship abilities of these farmers were related to their previous job experiences, education and work location in various fields. It is worth noting that such experience may have shaped their initial selection of the organic farm model and focus on commercialised food production without much worry of appropriate consumer market or social network. These farmers often referred to their previous work experience in terms of shaping their ambition to operate and run organic farms and production units smoothly:

My knowledge to run this farm is a collaboration of a lot of things - global exposure, bachelor’s in science, master’s in medical education, doctorate in education from Australia, experience and training at the National Cold Chain Development Institute, affiliation with local bodies like Horticulture Department and government support through subsidy on the mushroom project by Haryana government. Now, I have an experience of 35 to 40 years in this work and know a lot of people who could help me in technological advancement and marketing (owner of Elle farms, 58, F, DC, village GT, 28-04-2021).

I was studying for my graduation in Gurugram and started looking for an appropriate market for my organic food products. I developed contacts at Gurugram and then South Delhi so that once I switch entirely to organic farming, I do not have to worry about marketing the produce. Now I can handle both farms and marketing work alone (owner of KWC, 27, M, DC, Village A1, 29-10-2020).

I learned most of the techniques from different organic farmers across Haryana, travelled to South India to learn organic farming techniques and then experimented in my fields. These farmers have traditional knowledge of organic production, which was very useful. My urban exposure helped me to learn and adopt alternate practices and explore diverse marketing channels (Sanjeev, 32, M, DC, village A, 04-02-2021).

These interviews suggest that urban and global exposure, better educational and work experiences and opportunities to develop social networks may have contributed to their success in transition and smooth adoption of organic farming models for some of these farmers. These farmers also mentioned that they started working on their own land in the villages, saving costs for lease-in or renting the agricultural land. Furthermore, these farmers claimed that the existing local knowledge of sustainable farming methods among other farmers in their personal network was crucial for them to learn and understand the opportunities and costs involved in setting up organic farm units once
they returned to their villages. More so, their social network through family ties and rich relatives helped some of them secure either ‘certification’ or government subsidies for some of the farm equipment they installed. Thus, factors like education, work experience outside their villages, urban life exposure, availability of economic resources and social network in and outside their own village are some of the major determinants for starting these organic farm units.

Understanding of sustainability: Throughout the interviews, these farmers talked about leaving the urban/city lifestyle to move to traditional rural settings and reviving agricultural opportunities through sustainable farming practices. They shared food anxieties experienced in the cities by calling chemically grown food as *zeher* (poison), *vishaakt* (toxic), cancerous and unsustainable. They talked about their lack of willingness to live in ‘stressful’ and ‘polluted cities’ and wanting to return to the scenic environment of their villages:

I am very traditional and want to maintain a simple, stress-free, healthy lifestyle. I believe adopting sustainable farming helps improve the quality of food we can produce and eat and contributes to a sustainable environment and a pollution-free atmosphere (Sanjeev, 04-02-2021).

I was disappointed by the work culture in Australia. I returned to my village because I wanted some oxygen [emphasising a hassle-free life]. I wanted to do something for my rural community. I wanted to be around plants, trees, and farms. Now I have a good work and life balance here. I do not work beyond my scope or capacity. I do not want to stress about my work (Seema, 28-04-2021).

Today, everything is poisoned and polluted in Delhi. Organic farming was a way to live a healthy lifestyle away from pollution and city life (Ujjawal, 29-10-2020).

These farmers talked about the benefits of sustainable agriculture not only in the production of quality food but also in leading to better environmental conditions by improving the land, water and natural surroundings in the villages. However, their definitions of sustainable agriculture reflected not just a nostalgia for a rural lifestyle and the oriental wisdom of traditional farming techniques but also to change and adopt farming practices that were sustainable in the long run, not just for themselves but for other farmers in the village and across social groups:

Organic farming has all to do with knowledge, perfect schedule, time for experimentations, proper land and location and involving a wider rural community to bring change in the farming practices and overall environment. For me, sustainability is important in not just growing healthy food but also making it accessible to people irrespective of class, gender, and social position. (Seema, 58, W, Elle farms, 28-04-2021)

For me, sustainable farming is providing healthy, chemical-free food, using locally available resources in our villages, educating other farmers about these methods and providing healthy food. One must think about the growth of the entire community rather than one individual (Ujjawal, 27, M, 29-10-2020).
Organic farming is not a different kind of farming but a different way of farming. If I want to define organic farming, I will say if we remove zeher (poison) from conventional farming, it becomes ‘organic’ (jaivik). However, it will not be successful until other farmers follow similar practices as adopting organic farmers by an individual farmer in one village may not improve the land and water degraded by overuse of chemicals. That is why I want other farmers in the village to adopt sustainable practices (Sanjeev, 32, M, 04-02-21).

These farmers talked about sustainable agriculture in terms of ‘chemical-free’ farming practices and the use of local/natural resources, however, their idea of sustainability went beyond the ecological aspects of farming. According to them, sustainable farming was not just to adopt ecological practices to rejuvenate degrading land and soil fertility but also create equal opportunities for other farmers to learn and adopt these practices. Furthermore, these farmers pointed out that sustainable farming may be an individual farmer’s struggle, but a collective effort is required to bring a substantive change in society and among the rural farming communities. Unlike the farmer’s cooperatives, the collaborative effort does not mean farmers’ collaboration in the production and distribution of their produce but signifies a transition that must involve the participation of a wider socio-economic community. The statements like ‘involving wider community’, ‘making food accessible across different groups’, and ‘educating other farmers’ reflect the idea that sustainability should not be simply about the transition to sustainable practices but also about assessing its implications on the other marginalised rural communities. Overall, while the lack of economic incentives in agriculture has been forcing youth to move out of the villages in India (Bisht, 2019), my research exemplifies how some younger populations are trying to find alternative pathways to improve food-systems and in the process redefining sustainability.

7.2 Discussion and Conclusion

In this chapter, I developed the spectrum of weak to strong versions of MFA into an analytical framework of three aspects (farming practices, marketing practices and understanding on sustainability). This framework was useful in studying agricultural transitions by examining what farm methods different farmers adopt in their processes to transition and how diverse farm operators (new farmers or established farmers) affect farming methods, farm knowledge and meanings of sustainability in the given social-economic and political settings. Based on these two factors, I classified four types of alternative agricultural methods, as shown in Fig 7.2.

Four conclusions are worth mentioning here: First, farmers following the crop diversification method focused on the diversity of food products and marketing strategies but did not completely switch to non-chemical farming practices, unlike the other three. Second, most established farmers adopted natural farming practices, working either independently or through farmers’ cooperatives, and focussed on non-chemical food production, exhibiting a strong focus on achieving biodiversity but seldom went through the marketing of produce to far-off places or certification of their produce. Third, new farmers mostly adopted agriculture based on the principles of organic farming with a focus on biodiversity and conservation and usually went for the sale of certified organic products to local areas and high-end supermarkets. Fourth, while most natural and organic farmers defined sustainability as growing and eating chemical-free food, living a healthy lifestyle, and improving
Based on Wilson’s (2008) conceptualisation to understand transitions at a farm-level, this chapter depicts various transitioning pathways towards alternative agricultural initiatives. It sheds light on the complexity of farm operations and farming practices beyond existing conventional practices and processes of agricultural change. Different farmers follow diverse farming practices and management strategies at the farm-level. These farming practices range from the use of chemical inputs in polyhouse farming to a strict organic farming method following a complete ban on chemical inputs. The marketing strategies vary from short distance sales of produce or growing for self-consumption to marketing at wholesale and high-end supermarkets with a transition to food-processing industries within villages. Studying these diverse pathways to transition helps conceptualise agricultural transitions as a range of dynamic practices and processes of change in a given socio-economic context.

The ideal sets of practices (e.g., rich biodiversity, high environmental sustainability, social embedded relations, value-adding to farmers) are hard to be achieved simultaneously due to the varied attributes of farmers in all the cases. Only in case 4 can one see some sense of achievement of a typical strong multifunctional agriculture, with farmers changing to complete chemical-free farming, making customer relations with both local and outside the village and contributing to the empowerment of local farmers and overall sustainable rural development. However, there are two limitations in this claim: first, my research does not provide any direct, independent data on the ecological changes in the village that may have occurred due to the contribution of these farmers, except their perceptions of possible ecological changes on their land and surrounding regions. Second, although these farmers claimed that they employed and trained many small-scale and marginalised farmers in the village, I could not personally interview most of these farmers to know how their training and employment opportunities may have impact on their social position within a household and community level. Thus, all these four cases represent deviations from the ‘ideal’ strong multifunctionality model, wherein these farmers adopted what is suited best to them in terms of alternative agricultural practices and defined sustainability through these changing practices.

However, my research argues for studying an additional element while researching agricultural transitions in India: farmers’ understandings on sustainability. My interviews reveal that although farmers adopt alternative farming practices and farm management strategies, the element of sustainability remains a critical element while defining these practices. There understandings on sustainability varies from the range of outcomes it generates on human health, income, ecological to social sustainability and empowerment of local farmers and rural development. Also, they do not attach strict definitions to what sustainability should mean. For instance, in case 1, farmers adopting crop diversification do not switch to non-chemical farming but claim to contribute to sustainability by not blindly following conventional production of wheat and rice. In other cases (case 2, 3, 4), the transition to alternative farming methods involves a definitive change to chemical-free farming, with a possible improvement in ecological landscape and social change. They mention how their practices improve their land, soil and water and how previous class and gender relations are changing with more cooperative strategies in agriculture.
Lastly, farmers’ attributes shaped by their specific experiences are of central significance to elucidate the underlying complexities further. In the previous chapter, I discussed how different social groups transitioned to alternative agriculture due to various reasons and with diverse enabling resources and socio-economic conditions. In this chapter, I showed how these farmers transitioned and the subsequent farming practices they adopted. Adding on to these factors, my research reveals:

1. Correlating to some previous studies in India (Riar et al., 2017; Pradhan et al., 2017; Prashanth et al., 2012) my findings suggest that when a higher level of sustainability (e.g., a holistic and strong version of MFA) is sought, and chemical usage is to be reduced, increasing farm size might be unwanted for achieving sustainability. In other words, small and medium-scale farmholders might be more likely to practice alternative approaches to agriculture, such as moving towards natural or non-chemical-based farming, practising diverse farm management strategies and innovating value-adding ways. For example, in Cases 2 and 3, most farmers belonging to small and medium-scale landholding chose to transition. In Cases 1 and 4, although most farmers were large-scale farm holders, they transitioned to alternative practices only on a small-scale and gradually expanded it when they could see some positive results and potential growth. Although some large-scale farmers may have benefitted due to their existing social network and economic resources required to maintain income stability during the transition (see Chapter 6), none of these respondents told me they transitioned to alternative farming practices on a large-scale farm straightaway. Moreover, it has also been argued by those concerned with the global food sovereignty movement that it is the small-scale farmers that actually have control of the food system, of information, and of food culture as against the social perception that the large food chains feed society (Patel, 2009). Hence, in India, a strong policy engagement may be necessary to encourage small farmholders to take up alternative agricultural practices and the current agricultural policy must draw on linking natural and organic farming with localised marketing interventions instead of rebuilding large-scale food supply chains and contract farming agreements.

2. Previous studies on new farmers in Asia have revealed how they re-conceptualise ecological farming as a moral and collective obligation (Cody, 2014) and redefined their farming practices as different from conventional farmers (Xie, 2020). In the context of Nepal, Sugden (2022) reported that the income-generating opportunities in rudrakhsya agroforestry provided an incentive for migrants, who were disillusioned with wages and hardship overseas, to return home and invest in ecological farming. My study corresponds to these findings and adds a new category of young ‘reverse migrants’ who try to re-conceptualised agriculture by strongly linking farm operations to their individual pursuits. Attributed to the specific growing backgrounds and capacity sets (in terms of urban exposure and experiences), these new farmers or reverse migrants develop multiple attributes such as entrepreneurship, craftsmanship, and nostalgia that shape their farming practices and farm operations. They were found to be slightly different from established farmers who were comparatively middle-aged, lived in the countryside throughout their lives and believed in rejuvenating farming knowledge, most likely, through previous learning and farmer-to-farmer knowledge exchange, that rebuild their confidence in alternative transitions.

3. Though considerable research at the farm-level about agricultural transitions has been carried out globally (Robinson et al., 2015; Bui et al., 2016), these studies produced limited knowledge about different aspects of agricultural transitions at the regional and farm-level perspectives,
especially encompassing the social aspects and related changes in India (Kuchimanchi, 2022). By incorporating farm-level perspectives on social and ecological processes and outcomes of transitions, my research contributes to the existing dearth of literature in this area. More importantly, farmers’ specific processes of change and their emerging meanings on sustainability reveal how agricultural transitions must be understood in diverse socio-cultural contexts in India, specifically related to different class, caste, and gender groups. I explore this conclusion further in the next chapter, where I discuss elaborately on the social outcomes of transitions and how they addressed the existing social inequalities and power hierarchies in the process of agricultural transitions.

Finally, the chapter raises several questions around how different farmers perceive these transitions, such as how farmers perceive the impact of transitions to alternative farming practices on income and other opportunities? How do these vary between various farming groups (gender, caste, and class) in the villages? How does farmers’ choice to transitioning impact the social power dynamics within the household? Does the diversified role also lead to shifts in gendered decision making within household or farming choices? And how far sustainable farming practices have been significant in changing several aspects of a farmer’s self-identity? In the next chapter, I discuss these questions and examine farmers’ perspectives on the social implications of these transitions in more detail. The chapter is followed by an overall discussion and conclusion of the thesis.
Chapter 8: Should real farmers eat pizza? Studying transition outcomes and their social implications at the household and community level

When I look at the pictures of a farmer, he is mostly seen as a person with torn clothes, loose hair and a low-quality lifestyle. This is the picture of an Indian farmer presented in front of everyone - national and international media. Why can’t a farmer be well-suited, speak a foreign language or eat pizza? My dream is to change the image of an Indian farmer, how a farmer is perceived or should behave.

– Dinesh (46, M, polyhouse farmer, 05-02-2021)

The year 2020-21 saw massive farmers’ protest that began in the north-western part of India but soon spread to different parts of the country and was joined by diverse farmers’ groups and unions across the nation. The protest took place against the three farm laws passed by the Indian government that aimed to liberalise agricultural markets and encourage contract farming, indicating a move towards the corporatisation of Indian agriculture (Baviskar & Levien, 2021). During these protests, a group of anti-protestors caught sight of a group of farmers sitting on the roads of the Delhi-Haryana border, eating pizza. These anti-protestors claimed the protests as fake and politically motivated and asserted: “real farmers don’t eat pizza. They eat simple wheat bread, rice and pulses along with a tall glass of buttermilk” (The Indian Express, 17-12-2020). The statement indicates how the public perceives a stereotypical image of a farmer and how specific attributes should define a farmer. The incident generated one pertinent question for social science researchers: “Why shouldn’t farmers eat pizza?”

Fig 8.1: Images showing pizza langar (distribution of food) at the protest site

Source: Outlook magazine (19-11-2020)
A recent study of India’s contemporary farmers’ agitations by Suthar (2022) observed that the current nature of issues and strategies of mobilisation also manifests how these protests are efforts by farmers to assert the ‘identity of the rural’. Suthar argues that the prevailing public policies, political ideologies, and diverse models of development are being criticised for pushing the questions and concerns of rural areas and especially farmers to the margins, thus creating a feeling of farmers not being essential players in the development politics of the country.

In my study, while most farmers believed that the current protest was a genuine anger of these farmers who were struggling with low productivity and agrarian distress, some of them mentioned how transitions in agricultural practices had helped them look beyond the neo-liberal forms of agriculture and conceptualise an alternate image of themselves and the rural community altogether. The change in their identity as a farmer and the realisation of self-worth also affected how they perceived the recent farmer’s protest, as two farmers claimed: “Although farmers are genuinely helpless, there is a need to look beyond chemical farming of wheat and rice and think about transitions” (members of Panipat FPO, 06-04-2021).

In this chapter, I discuss the outcomes of agricultural transitions and their social implications at both household and community levels in the villages. This would help me answer my research questions: how farmers understand the impact of transitions on the human health, environment, rural incomes, and other opportunities in the village? How do these vary between various farming groups (age, gender, caste, and class) in the villages? Do transitions have any impact on existing social and gender inequalities or on reshaping rural and farmers’ identities? What are the underlying factors that shape their perceived identity? Finally, I show how agricultural transitions impacted farmers’ identity and, specifically in challenging the stereotypical image of a farmer. I argue that, in the process of transitioning to alternative agriculture, these farmers not only restructure existing farming culture and practices but also redefine their own identities as important players in the changing village agriculture and rural sustainability.

In Chapter 2, I discussed several benefits of agricultural transitions reported in various studies, such as shifting consumption patterns, improving food security, increasing income, generating employment opportunities, alleviating poverty, improving the productivity of scarce resources like water, promoting export, and improving environmentally sustainable farming systems through conservation and enhancement of natural resources (Delgado & Siamwalla, 2018; and Ryan and Spencer, 2001; Jha, 1996; Chand, 1996; Vyas, 1996). These short-run benefits may have implications for the long-term growth in agriculture, regional equity, and sustainable farming systems (Joshi et al., 2004). However, these studies remain silent on how transitions impact the existing social inequalities and how they generate viable social outcomes in the form of transforming farmers’ self-identities.

In this chapter, I discuss accounts where farmers mentioned how transitions to alternative agriculture helped shape new forms of identity as a farmer and redefine an individual’s sense of self-worth. Specifically, my research reveals four transition outcomes in the form of: i) redefining healthy lifestyle and rural sustainability through a multi-dimensional farmer identity; ii) developing identities of a ‘progressive farmer’ and the implications of economic success and ecological sustainability; iii) reforming gendered identities and their implications for social power relations
and women’s role in agriculture; and iv) reshaping masculine identities in an ongoing crisis. In the following sections, I elaborate on these outcomes.

8.1 Redefining healthy lifestyle and rural sustainability through a multi-dimensional farmer identity

In Chapter 6, I outlined some farmers’ motivations to transition to alternative farming out of health concerns, ranging from rising cancer cases in the villages to personal health issues like diabetes, respiratory problems, arthritis, and reproduction difficulties. Four farmers argued that the transition to non-chemical and eating naturally grown food had resolved some of these problems. Sunil, for example, said, “My wife’s problem of cyst has been resolved since we switched to eating non-chemical food. Now she has a healthy reproductive system” (29-11-2020). Likewise, Sanjeev said, “I have not been infected with flu from past two years, all due to eating healthy, chemical-free fruits and vegetables” (04-02-2021). Vicky said, “I could cure my mother’s diabetes since I switched to naturally grown food, especially vegetables” (23-06-2021). These accounts reflect how these farmers perceived eating non-chemically grown food as a healthy alternative and that they considered this to be an important outcome of transitions. They mentioned that once these after-effects on their health were visible, it further motivated them to keep continuing these practices in the future. Nevertheless, these were not the only accounts that talked about how non-chemical farming positively affected their health and their family’s lives. In many other accounts, farmers not just talked about improvements in their health but also how these changes developed their perceptions of what a healthy lifestyle should be and how living in the villages and doing non-chemical farming made them believe that they were fulfilling the duties of a farmer by producing ‘healthy and sustainable’ food in a better way as opposed to other conventional farmers. In the three cases below, I show how different farmers perceived this change and how it transformed their identities.

I. When asked about the type of farmer they consider themselves to be, many interviewees declared that they were ‘sustainable’ farmers or, in a few cases, ‘jaivik kisaan’. As mentioned in Chapter 1, these farmers used the terms organic and natural farming interchangeably. However, they identified their individual farming activities having long-term health benefits and understood them as a ‘healthy alternative for their mind and body’. Some farmers who had experienced both city and village life described their farming as a “holistic occupation and lifestyle” that gave them a sense of fulfilment which could not be achieved in a demanding urban life:

I was able to cure my stomach infection after eating organic food grown at my farm. I like the peaceful, stress-free atmosphere of the villages and would never return to my city-life. In cities, we talk about work-life balance. But while farming I do not feel strained at all. This is now my occupation and the source of peace. My family says I was born to live around trees and farms (Ujjawal, 29-10-2020).

Similarly, another farmer talked about improvement in his health conditions once he started living around his natural farm in the village. He said, “I feel mentally and physically active and peaceful from inside since I began living around natural plants at my farm. I even like the smell of cow dung now” (Sanjay, 06-04-2021). These farmers also told me that they were able to spend more time working outside on their farms in the villages as they found the air and natural surroundings less
polluted as compared to their previous stay in cities like Delhi and Gurugram, where they mostly stayed indoors and worked from home due to rising pollution and communicable diseases. Although the changes in weather and air conditions, both in rural and urban areas, may vary for different reasons, these accounts throw light on how these farmers perceived their choice of farming and rural lifestyle as a better alternative to urban living.

Moreover, during my conversations with two elderly respondents (Ranjit and Manveer), they described how, in their view, the natural surroundings in and around their village changed after the adoption of natural farming. Ranjit said, “The aura [referring to the natural air] around my fields is different. I can work here all day and never feel tired” (06-04-2021). Similarly, characterising urban life as ‘toxic and polluted’, Manveer said, “Cities have an unhealthy lifestyle. We believe in natural farming to keep our village environment clean and eat healthy food” (23-06-2021). These farmers claimed their farming practices to be better and more sustainable than the growing pollution and unhealthy lifestyle imported to their villages with increasing urbanisation and migration. They talked about how agricultural transitions helped them to deal with the growing health concerns in the villages. Through the process of adopting alternative practices, these farmers not only experienced improvements in their health conditions but also understood non-chemical farming as a ‘healthy way of life’ and redefined the duties of a farmer as a food provider and conserver.

II. In the second case, a group of farmers from Jind FPO talked about how ‘farming in unity’ helped redefine village agriculture beyond market aspirations. They asserted their identity as ‘small-scale’ farmers involved in sustainable agricultural practices, as opposed to ‘large-scale conventional farmers’ who believed in profit-making agricultural activities. They made this distinction based on not only the size of their farm, but also the type of production practices they employed. These farmers commented that even visually, they could be set apart from other farmers in their areas in terms of the quality of their land and crops, which often looked different from the crops grown at the neighbouring large-scale farmland. Pointing to his farmland, one farmer said, “Look at my paddy fields and the neighbouring farm. The soil in my field is more blackish, and so the paddy grows pure and healthier” (Vikas, 36, M, medium-scale, 23-06-21). These farmers acknowledged each other’s motivation to transition to natural farming and identified themselves as a ‘natural farmers’ group instead of individual farmers working for economic gain. They also told me that they did not form this FPO for any market aspiration or economic benefits but as a social motive to improve village agriculture by introducing and propagating sustainable practices. While criticising market dynamics involving corporate companies and high-end supermarkets, one farmer remarked, “ek kisaan ki puri izzat mandi mei khatam ho jati hai” (A farmer loses his self-respect in the agricultural market) (23-06-2021). Similarly, another farmer said, “We put our heart and soul into doing natural farming and setting a cost on these products is demeaning for us” (55, M, Jind, 23-06-2021). These farmers gave priority to sustainable practices over profit-making intentions.

Three farmers claimed that “natural farming was a way for improving their village ecology, land and soil fertility and changing the food culture in the villages” (23-06-2021). In their attempt to reject the local marketing practices and mandis, these farmers tried to assert their identity as ‘food producers and distributors’. Regarding this region’s ecological advancement, Manveer said, “our biggest achievement of transition is to inculcate the practice of compost making among small farmers in the village” (23-06-2021). Asserting a small-scale farmer identity, Manveer’s narrative highlights how group farming by small farmers could contribute to some positive environmental
outcomes for ecological and social sustainability of the village. Agroecological transitions, thus, helped them in reconceptualising alternative agriculture by putting the aspirations and needs of those who produce, distribute, and consume food at the heart of food systems rather than the demands of markets and corporations (Patel, 2009).

III. Finally, the accounts of three reverse migrants show how these farmers were willing to return to their villages and redefine village lifestyle as a more ‘peaceful, purposeful and tension-free life.’ Although they were large-scale organic farmers and made huge incomes and profits by selling organic products, they identified themselves as farmers rather than entrepreneurs. They wanted to contribute to the social and ecological development of the villages. They shared the importance of a spiritual, or a more intangible sense of fulfilment, that comes from working on the land, being in nature, and interacting and serving communities (Trauger et al., 2010). These farmers insisted on doing agriculture, not for financial motives but for the social development of the village and rural farming community:

I believe I am an organic farmer not because I want to earn money but because I want to live peacefully (35, M, Sonipat, 04-02-2021).

I do not earn our family income from organic farming. I invest my money in other farmers who wish to transition to sustainable farming. I want to bring back the culture of healthy and communal living (27, M, Sonipat, 29-10-2020).

Agriculture is my lifeline; in fact, agriculture is everybody’s lifeline. I want to live around plants and trees. Our village signifies freshness. By improving village ecology, I want to contribute to village development, especially women empowerment (58, W, Elle farms, 28-04-2021).

These farmers focussed on improving rural farming practices and promoting sustainable agriculture in their villages. By reclaiming the idea of the village’s ‘peaceful, tension-free life’, they tried to recover the lost socio-cultural community that signifies village lifestyle and well-being. They talked about healthy and sustainable living for themselves and the village community as a whole. These farmers said they voluntarily provided their land on lease for some small-scale and Dalit farmers who wished to do sustainable farming. They also encouraged many other farmers in the villages by organising regular seminars and workshops. Seema and Ujjawal, for example, told me that they not only preferred women labourers at their farm but also trained and educated them about organic farming practices so that they could spread knowledge of similar practices around the village. During a conversation with a Dalit woman labourer at Ujjawal’s farm, she told me she was ‘happy and satisfied’ to work on Ujjawal’s farm as she was paid well and did not have to use chemical sprays. She said, “They use hybrid seeds and do not add chemicals. We have seen harmful effects of chemicals on our body using sprays and other fertilisers” (29-10-2020). Another labourer said, “I am happy working here. I enjoy my time with people and sometimes take vegetables from the farm. I cannot do that in a factory” (29-10-2020). Furthermore, both Ujjawal and Sanjeev talked about how transitions to sustainable agriculture promoted employment opportunities for Dalit labourers due to the increased workload of transition, which cannot be handled by a single farmer alone. Sanjeev believed that most people would be willing to transition to organic farming in future, which, according to him, would improve the conditions of Dalits:
Over time, people may convert to organic farming. This will increase the demand for labour, and Dalit employment will increase. If a Dalit labourer works on an organic farm, he would also eat healthy food and live around healthy surroundings (04-02-2021).

Although the interviews remain short on understanding the deeper implications of agricultural transitions by these farmers on small, women and Dalit farmers, nor do I suggest that these transitions were able to change the hierarchy of manual labour prevalent in the agricultural sector. However, my research suggests that these accounts partially indicate how these farmers perceived farming as a profession through which one can contribute to the social-ecological development of the villages. By rejecting the modern urban lifestyle (as discussed in Chapter 7) and emphasising living in harmony with nature, they reimagined their role and duty as a farmer in promoting a healthy and sustainable lifestyle, involving a wider rural community across caste and class barriers.

In all these cases, there is prevalence of the idea of a healthy lifestyle, a vision of a desirable village agriculture and rural sustainability, and how different farmers contributed to achieving it. In unpacking these narratives, we can see how these farmers wish to not only transition to alternative agriculture but also to redefine agricultural activities beyond food and fibre production and catering to different socio-economic needs. These farmers described farming as a specific kind of ‘way of life’ that underscores their farming identity and rural community. For them, this way of life has significant implications for not only the farmers themselves but also for the broader society and the environment. Their sense of a healthy lifestyle goes beyond an individual’s or family’s health and encompasses a relationship between people and the environment, including economic and social ties with the rural community. Finally, these narratives reveal that in the process of agricultural transitions, there is also a shift of understanding what farmers should do, how they could contribute to these changing needs and, finally how they identify themselves as major actors in healthy food production, environmental conservation, and as performers of sustainable agriculture.

8.2 Developing identities of a ‘progressive farmer’: Implications of economic success and ecological sustainability

Chapter 6 discussed some farmers who were motivated to transition to alternative farming out of economic incentives and emerging market prospects in naturally produced food. In this section, I study the economic implications of transitions on different farmers and how these farmers identified themselves as they went through economically successful and ecologically sustainable transitions.

During a conversation with an agricultural departmental head at Sonipat district, I was informed that the horticulture department of the Government of Haryana identified a progressive farmer as one who “brings positive and sustainable transformation in the agriculture sector besides increasing the farmers’ income” (29-10-2020). However, in my interviews, a ‘progressive farmer’ was defined through multiple meanings, ranging from economic earnings to their contributions to ecological sustainability. Therefore, in the following paragraphs, I examine two cases of how different farmers identified themselves as ‘progressive’ farmers, especially after adopting crop diversification and ecological farming, how they compared themselves to other farmers in the vicinity and the varied social outcomes it generated.
I. Being a diversified farmer was core to many interviewees’ farming identities. For them, diversity meant multiple meanings: some distinguished their farming techniques from those practising just chemical farming and others emphasised their ability to employ diverse farming approaches and to produce variety of products to address diverse needs of customers. Moreover, these farmers expressed a sense of pride in diversifying and earning better income opportunities. For instance, five polyhouse farmers told me that they were able to increase their household income through crop diversification. Dinesh said,

After three years of my investment in polyhouse farming, I have started making a good income. I make a profit of around Rs. 6 lakhs (£6000) annually from one acre of land. No farmer in my village was able to earn so much just by crop diversification (05-02-2021).

Similarly, Arun said there was a substantial increase in his income once he started growing vegetables in a polyhouse. He told me that there was a huge difference in the profits he made with different crops polyhouse farming than he used to make while growing wheat and rice. Three other farmers (Arvind, Rahul, Kanwal) informed me that after switching to horticulture, they found a massive income increase as there were fewer contenders in the market. Arvind said, “If you sell any vegetable which is not commonly produced in the vicinity, then you have fewer competitors in the market and also get a better price without much negotiation” (08-02-2021). Two other farmers (Rahul and Kanwal Singh) told me that investment in baby corn was no less than a ‘revolution’ in the village in terms of an increase in household income. Rahul said, “When we started baby corn, there was no seller except us, so we made a huge profit than other wheat and rice growers. Other farmers wanted to visit our farms and learn our farming practices” (09-02-2021). These farmers talked about how their farming practice through crop diversification was appreciated by everyone in their neighbourhood, and the growing economic incentives developed a sense of accomplishment after they were considered successful farmers as compared to other chemical farmers who were still involved in wheat and rice cultivation.

Moreover, the agricultural department of Sonipat district identified two of them (Rahul and Kanwal Singh) as ‘progressive’ farmers as they were not only economically successful but also contributed to their village development by generating employment opportunities in the agro-based industries that further advanced their claim of being successful farmers in the village. These farmers informed me that many small and marginal farmers switched to producing crops like baby corn, sweet corn, and mushrooms once they saw them earning well from crop diversification. Some of these small farmers told me that they were influenced by the growth of food-processing industries in their village, which allowed them to sell their produce within a short distance. For example, Vicky said, “after the growth of agro-based industries in the village, there is definitely an increase in employment opportunities for people in and nearby areas” (05-02-2021). Similarly, Raghu talked about how agriculture-related industries in the village had saved many people, especially youth, from abrasive drug use and alcoholism. He said,

By the 1990’s, wheat and rice cultivation had become stagnant and did not pay much as it used to before. This caused men, especially youth, to drift away from farming, which often resulted in excessive alcohol drinking and drug intake. However, the growth of industries in village A2 created huge employment for most people in the region. (05-02-2021)
According to Raghu, the growth of agro-based industries in these villages encouraged many small and medium farmers like him to switch to alternate agriculture, whereby they could have better sources of income in the wake of growing agrarian distress. Raghu’s narrative was conceded by Rahul, owner of food-processing industries in village A2, who also talked about how agro-based industries became an essential source of livelihood for many farmers in the villages. He informed me that his industries employed many people from within and nearby villages and trained and educated them to adopt alternate farming practices. Talking about their contribution to village development, he claimed:

My father ensured that when he set up these industries, he would employ most of the people from the villages only. He always thought of village development as a whole and wanted everyone to progress together, not just his family (09-02-2021).

These farmers claimed that by investing in crop diversification and agro-based industries, they were able to improve the socio-economic conditions not only of themselves but also of the village as a whole and thereby presented themselves as successful farmers in their villages.

Although these interviews suggest that economic benefits and employment opportunities were extended towards many small and marginalized farmers in the villages, some of these small-scale farmers had mixed responses on the employment opportunities created by agricultural diversification. Out of four small-scale male farmers interviewed in this region, two farmers shared their positive views on the growing employment opportunities and told me that they preferred working in the factories rather than their own fields. For example, Sunny said, “I choose to work in the factory than on my fields, as I have a small landholding and limited resources to feed a family of five” (11-02-2021). Similarly, Vivek said, “It is better to work in the factory as I know I can at least make some money every month here. Agriculture has now become stagnant and non-profitable for us” (11-02-2021). The other two farmers pointed out the problems associated with low bargaining power when they approached large agri-business industries to sell their produce. One of them told me that the industrial manager often graded and rejected his produce if it did not follow certain ‘shape, size and colour requirements’. Another farmer pointed at the low negotiation power while deciding the selling price, which often made him run from market to industry to find a suitable price for his produce. Other studies have reported challenges such as contractual working conditions in the unorganized sector, education, and informational constraints, lack of infrastructure, financial accountability and training for workers were common among the male rural population engaged in the non-farm sector (FAO, 2017; Rais et al., 2013).

To sum up, these interviews underline the implications of transitioning to agro-based industries in these villages. While some of my interviews and other studies suggest that agricultural diversification into agro-based industries helped generate employment opportunities and poverty alleviation in the villages, one must consider the nature of employment conditions and their impact on different socio-economic groups within the villages. As it appears, these progressive farmers were able to generate income and employment opportunities in the villages. However, they were not equally distributed among all the sections, nor were they helpful in promoting transitions on a large scale, indicating that the previous social hierarchy and power still existed among these farming communities. Nevertheless, compared to other farmers in the vicinity, these polyhouse farmers projected themselves as progressive and successful farmers and identified themselves as
‘diversified’ farmers as they were economically and socially well placed to undertake agricultural transitions.

II. Unlike these progressive farmers, some natural and organic farmers perceived their farming practice as both economically viable and ecologically sustainable and thereby claimed to be progressing by contributing to income generation and ecological farming. In Chapter 6, I showed how some farmers were motivated to transition to natural and organic farming practices due to market prospects and economic benefits. Most of these farmers told me that although their income declined in the initial few months, it was, however, a temporary phase where they were learning and experimenting with the transitioning process. They told me that once the transition phase was over, they could earn more income than conventional farming and realised a sense of duty as a farmer to produce healthier (non-chemical) food. Two farmers (Rajeev and Ranjit) said, “Initial input costs are higher, but after a few years, profits and sustainability were much higher” (06-04-2021; 26-01-2021). Another farmer, Sandeep, said:

People believe that if they have less production, then it is a loss for them. I do not think in the same way. The process to transition involves less input cost, so, you save money from chemical inputs and grow much healthier food (03-04-2021).

According to Sandeep, initial input costs were higher in chemical farming and therefore, he could save some money for a better transition. Once he established himself as a natural farmer, he not only recovered the transition costs but also switched to a ‘healthier and sustainable’ alternative to food production. He claimed that after his successful transition, his family and friends appreciated his efforts and acknowledged his choice of natural farming practices as better than his previous conventional farming.

Moreover, this sense of appreciation and acknowledgement of being a progressive farmer was developed in them by not only their family and friends but also within their close customer/consumer network. Three farmers claimed that their customers were the most meaningful and fulfilling community of people with whom they had developed strong relationships over time:

I started home deliveries during covid-19. It was then that my work was personally appreciated by many consumers who started ordering jaivik sabziya (organic vegetables) from me every week (Rana, 03-04-21).

By making customers in top urban markets like Gurugram, I am able to sell most of my produce and increase my income up to double. These customers trust me and my efforts and never object to the quality of my food production (Parveen, 06-04-2021).

I sold packaged mushroom products in supermarkets, did contract farming with private industries and collaborated with governmental projects. In all these areas, I made personal contacts with consumers willing to use or promote my products. I often got appreciation and feedback on my products, which motivated me to work hard and improve the quality of production. I would say my consumers made me who I am today (Seema, 28-04-21).
These farmers claimed that a more robust customer network not only provided them with economic support, but they gradually became an important part of their community bonds. Their ability to contribute to their customers’ needs and wellbeing and the appreciation received in return was an important part of their identity as successful farmers.

Furthermore, their contribution to ecological sustainability along with economic stability was an important part of their identification as progressive farmers. They claimed that by adopting natural or organic farming methods, they were not only able to gain economic incentives but also restored degrading land, soil and water sustainability. For example, six farmers who had transitioned for a longer time (more than five years) identified more visible changes in their land and ecology than farmers who had recently transitioned. These farmers told me they could observe massive differences on their farmland compared to those practising industrial agriculture. Rana said, “I am able to earn better income along with eating healthy food and keeping the environment cleaner. This is my biggest achievement” (03-04-2021). Ranjit claimed, “My land is so natural and pure now. It is almost like anything produced here is gold [referring to a higher quality of natural food production]” (06-04-2021). He also told me that after positive results, he grew many medicinal plants, such as amla and ashwagandha, which were possible to grow only through natural farming practices. Two other farmers (Sunil and Seema) talked about changes to their land and soil colour as the significant ecological outcomes of the transition to non-chemical farming practices. They claimed: “Our land has become rich and black and we get our vermicompost naturally. Our fields have much potential to bring improvement in the land, unlike chemical farms” (29-11-2020; 28-04-2021). According to these farmers, there were visible changes on their land and soil conditions after adopting non-chemical farming. They claimed that they could easily differentiate their farms from a chemical farmland. This also generated a feeling of achievement among these farmers, who then projected themselves as superior to those who could not adopt non-chemical farming methods:

My land was unable to soak water before. Today, after five years of organic farming, even if I don’t give water for 4 or 5 days, it does not dry out. Mere kheet dusre kheeto se zyada upjaaye hai (My fields are quite fertile as compared to the neighbouring fields) (Sanjeev, 04-02-2021).

They also said that these ecological changes helped and motivated them to continue doing non-chemical farming practices. Overall, the accounts reflect how these farmers identified ecological changes on their land as significant outcomes of transitions and perceived themselves as superior to others in bringing this change.

To sum up, these farmers shared multiple developing identities around who could possibly be a progressive or successful farmer. While some projected themselves as successful by being a ‘diversified farmer’ and contributing to the socio-economic development of the village, others identified themselves as progressive by performing both economic and ecological farming. In both cases, these farmers projected themselves as successful in comparison to other farmers who were either involved in chemical farming or simply used conventional methods to cultivate wheat and rice to be sold in the markets. They claimed their farming practices to be superior as they increased income and contributed to the village’s social or ecological sustainability, which made them different from other conventional farmers. This sense of achievement generated a feeling of elation.
that made them identify or represent themselves as ‘progressive’ farmers who were able to cope with the changing social and political ecology of the villages.

### 8.3 Reforming gendered identities: Implications on social power structure and women’s role in agriculture

In Chapter 5, I discussed how some women farmers, previously involved in industrial agriculture in the villages in Rai Block, were drifting away from farming culture and practices and many young children, including girls, preferred to either study or work outside villages. I argued that these women had lost interest in doing agricultural work in general, especially dung work, due to various reasons such as emerging farm diversification, decline in cattle ownership, alternate sources of family income and a general lack of recognition of female family labour in agriculture. However, my interactions with some women farmers involved in natural and organic farming practices in other parts of the district reported a few differences in their understandings of agriculture and farm practices. Specifically, the impact of transitions on these women has been significant in recognition of their work in sustainable agriculture and provided them with some financial and social standing at home. These transitions, thereby, had implications for understanding women’s roles in changing rural agriculture and challenging the gendered power structures at the household level. Previous studies have also raised questions about how increasing participation among rural women in agriculture affects women’s power and autonomy at home and how agricultural work activities are managed concerning traditional household duties (Pattnaik et al., 2018; Shah & Pattnaik, 2015; Agrawal, 2012; Srivastava et al., 2010).

In this section, I use narratives on changing women’s role in agriculture, specifically after transitions, to answer the question: how far do transitions to alternative or sustainable agriculture diversify the role of women members within households? And does a diversified role also lead to gendered decision-making shifts within household or farming choices? Finally, I show how these transitions have an impact on existing gender inequalities and rebuild new forms of identities which are more gender-sensitive in nature.

Three women farmers belonging to the villages in Ganaur Block told me that their husbands recognised the importance of their work in agriculture after they transitioned to natural farming practices:

- My husband is a part-time farmer. I do most of the agricultural and dung work. So, he knows my importance and understands my worth (Sarita, 45, Village J, 23-06-2021).


- I feel more respected since I started working with him in agriculture. I do more work than my husband, and he recognises my importance (Roop, 38, Village J, 23-06-2021).

According to these women farmers, they felt more valued by their husbands when they started contributing to agricultural work, specifically related to dung work and making organic matter. They also told me that marital family members appreciated their engagement in agriculture since
they were able to manage equal responsibilities in agriculture by producing healthy food and contributing to better income opportunities for the family. However, these narratives cannot be read to imply that no self-worth or dignity exists unless these women did dung work or other agricultural activities and were validated by their husbands. Instead, what these accounts aim to show is that these women experienced a feeling of being valued through their contribution to agricultural transitions and their work was acknowledged beyond the mere task of family labour (as mentioned in Chapter 5).

Two women (Sarita and Anita) handled both agricultural work and marketing responsibilities as their husbands were only part-time farmers. They claimed to be recognised as active contributors to natural farming practices and remarked, “We do most of the work in making organic manure, without us, they will not be able to do sustainable farming at all” (23-06-2021). Two other women talked about being consulted in decision-making processes related to time and choice of crop production. They said that they decided together (with their husband) which crop should be grown in a particular season based on its health importance, preference for self-consumption within the family and best-selling value in the market. They shared their interests and knowledge of crop production and market value:

In the early phase of the transition, the growth of bajra was 7-8 kg per acre, but then it increased to 15-20 kg per acre. Our organic bajra has better value as compared to chemical one (Sarita, 23-06-2021).

We produce mustard, then process it into oil and sell it in the nearby market only. We can earn better income without travelling to far places (Neeta, 23-06-2021).

Throughout the interviews, these women shared extensive knowledge of agricultural practices, their contribution to sustainable farming and how they managed agricultural work and marketing responsibilities. Although most of them were involved in animal and dung work, these women often travelled to the fields, made and used bio-spray in the fields during pest attacks, and were sometimes consulted in the marketing activities by other family members. In their conversations, these women used phrases like ‘our production’ and ‘our income’, emphasising their contribution to the farm production and involvement in the production processes. Overall, these women participated in both agricultural and marketing work, and their efforts were equally acknowledged and respected by their husbands and other family members. This feeling of being recognised and appreciated for their work, especially after their changing role in transitions, could possibly have helped in reshaping their individual identities based on a sense of self-worth and pride.

Some male farmers also shared a positive outlook towards the role of women in changing agricultural practices and acknowledged their wife’s part and support in the transition. For example, Sunil said, “My wife supported me in this transition and was involved in the decision-making of both household work and agricultural responsibilities” (03-04-2021). Similarly, Sanjeev talked about women’s active role in agricultural decision-making and marketing: “Women can perform both agricultural dung and field work very well. And if they are going for marketing, I am sure they would succeed there too” (04-02-2021). Parveen said, “When I am busy on fields and marketing work, my wife takes care of animal work at home. She is also involved in packaging and marketing of produce” (06-04-2021).
These narratives highlight that, for these farmers, women’s work in agriculture was not limited to mere involvement in dung work (as found in traditional rural settings) but were also recognised as active supporters and possible contributors in managing both agricultural field work and market responsibilities. Sunil’s and Sanjeev’s interview highlight a possible social transition, wherein women’s role in sustainable agriculture may be regarded more than an extended family labour and could be recognised as major financial contributors once they were involved in agriculture marketing and decision-making at home. Moreover, on two occasions during my fieldwork, I was informed about men’s involvement in dung-making and animal work. Both farmers remarked: “Why should we rely on women members for doing dung work when we can do it ourselves?” (26-01-2021). According to them, a transition to sustainable farming demands huge labour work in all agricultural activities, and a farmer must be able to do all the work independently instead of relying on someone else. Overall, these narratives indicate how these agricultural transitions problematised previous divisions of labour (mainly in conventional farming that classified women’s work as low-skilled or sometimes unpaid labour) and tried to build new forms of gender identities based on the dignity of labour. However, it is important to see if this transition led to any difference in their financial stability and social standing, leading to a possible transformation in the gendered power structures at home.

A few women respondents claimed partial financial security and social standing at home, especially after transitioning to sustainable farming practices. Two women respondents told me that they were consulted about financial distribution and responsibilities by their husbands, but ultimately, it was their husbands who took the responsibility for income in cash and decided where to spend. Having bank accounts for every adult member of a family was still uncommon in these villages, and therefore, most of the income was deposited in their husband’s account or other male head of the family. Three other women farmers told me that since they switched to sustainable farming, the household income had increased, and they were able to spend well on their family needs, ranging from children’s education to developing a healthy eating habit. Although social barriers, such as lack of access to land ownership and awareness of general rights, did not allow these women to claim their economic share in the household income, these women did not mention financial difficulties in deciding where and how to spend the income. They also told me that with transitions to sustainable agriculture, their contribution to family income and stability had increased, which provided some space to consult them in other household matters as well. Sarita said, “My husband gives priority to me and the family, so there is no disagreement” (23-06-2021). Anita said, “Children’s education and family’s health is a priority for us, so we spend most of our income on that only” (23-06-2021). These women asserted that they would continue doing sustainable farming as it was a healthier alternative to agriculture and that they were happy and satisfied with their contribution and acknowledgement. These perceptions, thus, suggest a possible transformation in the existing gendered power relations with an increasingly critical awareness towards existing gender roles by both men and women, which allowed women to imagine new possibilities and their roles in agriculture (Leder et al., 2019).

Finally, in one case (refer to Box 8.1a), I found how transitions in agriculture, also encouraged transformations in gender identities that challenged the social power hierarchy and male dominance prevalent in the Haryana villages.
Overall, these accounts reveal how the agricultural transition had some positive implications on women’s role in agriculture, specifically in reshaping their social position and identities at both household and community levels. The narratives indicate that transitions helped some women in rebuilding individual self-worth based on a sense of their contribution in agricultural practices and family income. Being recognised as active contributors to agricultural work and other managerial responsibilities, these women claimed some financial security and social standing at home.
Moreover, Seema’s case reflects how transitions in agriculture may promote transformations in an individual’s social identity that further challenge the prevalent social norms around women’s contribution to agriculture, gendered power hierarchy at home and existing patriarchy in rural Haryana villages. However, more research is required on this topic to analyse how sustainable transitions could challenge the gendered structure at play and study how far women’s role in agriculture may be perceived as more than mere contributors to equal participants and achievers of sustainable transitions.

8.4 Reshaping masculine identities in crisis

During my research, I found that a masculine crisis visible in the rural areas was largely related to men feeling a sense of loss of family and community. In rural Indian society, men are generally considered as the ‘bread-earner’ of the family. In villages, it is a common saying that if a man earns well, he will get a good wife and live happily. Since agriculture has been the primary source of livelihood and has led to a massive increase in rural incomes after GR in Haryana, most families were happy to get their daughters married to a farmer. However, the gradual declining incomes in agriculture and overall changing perceptions of the rural Indian economy impacted the image of a farmer. During my interviews, two farmers talked about how this changing image of a male farmer had affected their private social life:

I got rejected in many marriage proposals as most people believed kissan ke gher nahi bhejna (don’t marry into a farmer’s house). I thought, ‘why does everyone despise a farmer? kissan pure desh ka paet bharta hai, kya vo apni biwi bacho ka paet nahi bhar sakta’? (A farmer fulfils the needs of the nation; can he not fulfil the needs of his family?) (Rajeev, 26-01-2021).

Just by learning that I am a farmer, no girl would want to marry me or even talk to me (Montu, 06-04-2021).

In their interviews, Rajeev and Montu shared their feelings of distress and humiliation among friends and family when they were rejected in marriage proposals only because they were mere farmers. They told me continuous rejection made them rethink their identity as a farmer. In Chapter 6, I talked about how these farmers were ridiculed and called pagal aadmi (mad man) for adopting natural farming practices. However, these farmers told me that once they successfully switched to sustainable agriculture, many other farmers saw them as their role models in succeeding transitions, and families were happy to develop marital and social connections with them. These farmers told me that their family members appreciated their work as a ‘natural farmer’ and someone who was growing healthy food and contributing to the rural ecology and sustainability. Talking about the changing perceptions of their in-laws, Rajeev said: “Now they love and respect my work, and my wife supports me in doing natural farming only” (26-01-2021). Montu said, “I am happy to call myself a farmer now. My wife supports me in my work and feels happy with my contribution to quality food and healthy environment” (06-04-2021). Although the sense of being a ‘happy’ farmer developed through and relies upon an external validation, these narratives reflect how transitions to alternative agriculture helped them reclaim their identity as a farmer and, in turn, reconceptualise transitions as essential elements of rural farming communities.
In another case, a polyhouse farmer, Dinesh, talked about how cultural differences emerging with the growing Western idea of modernity had created a stereotypical image of a male farmer. The quote at the beginning of this chapter indicates Dinesh’s concerns over the stereotypical image of farmers where they are assumed as someone who would ‘wear torn clothes, keep shabby hair and live a low-quality rural lifestyle’. Calling this image problematic, Dinesh shared his intentions to alter these perceptions of Indian farmers:

When the President of India awarded me a medal for my transformative agricultural practices, I wore a proper suit on stage. Even the President commented on my dressing sense. I told him that it was my dream to change the image of an Indian farmer. We need to change this thinking of how a farmer looks and should behave (05-02-2021).

According to Dinesh, the general perception based on an image of a male farmer as a ‘poor, piteous man’ was problematic as he believed a farmer to be the most genuine and hard-working person who was desperately trying to improve his financial and social condition. Dinesh mentioned his provocation to transition after being rejected in marriage proposals by many families who thought of him as a mere farmer and someone who would not be able to provide a good and healthy life to the family. His decision to transition by crop diversification and polyhouse farming seems an attempt to change this pitiable image and reclaim ‘farmers’ identity’ as ‘a self-made meticulous individual’. He told me that once he started doing well as a polyhouse farmer with diverse crop production, he was able to change the common thinking that a farmer could be successful only by growing wheat and paddy through chemical farming. He also told me that many people who earlier despised him for being a mere farmer began to respect him for finding alternatives and learned new farming techniques from him.

Post GR, some large-scale farmers in Punjab and adjoining districts, who benefitted from the industrial farming practices, were often referred to as ‘suitcase farmers’ (an idea borrowed from the US which is meant to describe those farmers who preferred to live in the cities, hired labourers to do farm work and visited their farms occasionally, usually at sowing and harvest times) (Yadav et al., 2022). By living and adopting an urban lifestyle, they distinguished themselves from other farmers who still lived in the villages and earned menial incomes. Dinesh, however, did not approve of the idea of leaving the village completely but tried to reimagine a life within a village, where a farmer could earn self-respect and dignity in what he/she does and be identified as an important part of the development politics of the country. His wearing western attire also signifies a defiance of the regressive cultural outlook attached to a farmers’ identity and symbolises a new rural identity aiming to bridge the rural-urban divide.

8.5 Discussion and Conclusion

To sum up, these four sections reflect how these farmers went through a process of transforming identities parallel to their transitions in agricultural practice. The narratives indicate how agricultural transitions helped reshape farming culture and practices, in the villages and in the process, redefined farmers’ identities as essential actors in rural sustainability. These farmers questioned the stereotypical image of a farmer and claimed themselves as the food producers and
equal contributors to the country’s development. Moreover, the narratives indicate the assertion of an alternate identity that differentiates them from conventional (chemical-using) farmers, rejects neo-liberal forms of agriculture and reconstructs emerging identities based on alternative agricultural methods and rural sustainability.

Chapter 2 argues that, although ecological outcomes of sustainable transitions are being addressed in some studies, the social implications of transitions are not fully documented or studied. The chapter also argued that agricultural transition is a process where most farmers are at different stages, making it difficult to study the social implications of transitions at the macro or village level. Therefore, a study at the household or community level was imperative to understand the nuances at a micro level, especially the extent to which different members of the household are involved in farming activities and how agroecological transitions, if any, have an impact on gender inequalities, out-migration, and other decision-making processes, within a household or community.

With this chapter, I address this research gap by empirically investigating the outcomes of the agricultural transitions and, specifically their social implications at the household and community levels. In this chapter, I show both social and ecological outcomes of transition processes and their impact on farmers across different groups like gender, caste, and class in Haryana villages. By conducting a detailed analysis of transition outcomes at individual, household and community levels, my research reveals four conclusions of transitioning to alternative agriculture that led to improvements in human health and ecology, generated economic incentives and employment opportunities in the villages and had some positive implications on gendered power structure at home and in reshaping masculine identity crisis in the rural areas. However, if we unpack what farmers are saying, we can see that there is evidence of a shift in their understanding of what farmers should be doing after transitions and how they could achieve transitioning goals. In particular, I argued that these narratives signify an assertion of a rural identity that rejects the stereotypical image of a farmer and neo-liberal forms of agriculture while simultaneously building an identity based on alternative agriculture and rural sustainability.

Overall, while the chapter reflects a change in farmers’ identities as they adopt alternative farming practices, the whole idea is open for further research as to how such transitions may involve changes in the developing identities of farmers across caste, class, and gender groups, and what impact does it make in a diverse socio-economic and cultural context in India or other South Asian countries. In the next and concluding chapter, I elaborate on this point further and talk more about the contribution of my thesis in this field and other areas of research, and finally delve into some limitations of my research and ways forward.
Chapter 9: Conclusion

In this chapter, I reflect on the overall arguments that I have made in this thesis and discuss the implications of my findings and the different kinds of contribution that my research makes. I also outline some future lines of enquiry that can be pursued in researching agricultural transitions and alternative approaches to farming in India. This chapter has three sections. In section 9.1, I revisit the major arguments that I have made in this thesis, discuss the implications of my findings in the context of the broader literature, and analyse various research contributions. Specifically, the section discusses my research contribution in examining farmers’ perspectives on alternative agricultural approaches and the social implications they generated on diverse farming communities. In section 9.2, I discuss the relevance of having used qualitative approaches in my fieldwork, especially interviews and group discussions, the challenges caused due to the Covid-19 related restrictions and farmers’ protests in India and the overall limitations of this thesis. Finally, in section 9.3, I discuss some ways forward and the relevance of my research, especially for academicians and governmental bodies.

9.1 Revisiting major arguments and research contribution

This thesis examined farmers’ perspectives and experiences of moving towards alternative approaches to agriculture in Haryana villages. It focused on the changing character of farming in Haryana, specifically the transition to diverse methods in farming practices and the social implications it generated. Though some research on agricultural transitions has been carried out globally (Robinson et al., 2015; Bui et al., 2016), these studies produced limited knowledge about different aspects of agricultural transitions at the regional and farm-level perspectives, especially encompassing the social-ecological aspects in India (Kuchimanchi 2022). By incorporating farm-level perspectives on social and ecological processes of transitions, my research helps mitigate the existing dearth of literature in this area.

In Chapter 1, I discussed why using the term ‘alternative’ instead of ‘agroecological’ or ‘sustainable’ was better for this thesis to explore the ongoing process of transitions that farmers undertook and how it shaped their current farming practices. More broadly, the use of the term was explained in Chapter 7, wherein I discussed how individual farmers talked about the way they managed transitions from conventional farming of wheat and rice to other crops or different farming practices. These farmers described their alternatives in the form of crop diversification, polyhouse method of farming, natural farming methods, farmers’ cooperatives, agro-entrepreneurship, and organic farming methods. They explained their individual journeys to transition through a range of farming practices, management strategies, how they learned new forms of techniques and approaches to transition. Chapter 6, in particular, highlighted why these farmers were motivated to transition in the first place, what initial challenges they faced and how they confronted them throughout the transitioning processes. While most farmers decided to transition at an individual level, others preferred to do group farming through cooperatives and found it much easier to do ‘farming in unity’. Many other factors such as existing economic resources, social network, their social and gender position within a rural community had an impact on who was able to transition more smoothly than others, yet these transitions were not limited to any particular class, caste, gender or age group. Overall, the thesis argued that although diverse
farming practices were adopted with an aim to transition to alternative agriculture, their pathways to transition differ in terms of the strategies adopted and the socio-ecological outcomes it generates on different group of farmers. Studying these models by recognising different pathways to transition is important in developing an alternative framework to understand sustainable transitions that acknowledge place-based differences and knowledge of farming practices that are crucial at a given time and may be suitable in the current socio-economic context in India.

While existing literature on agricultural transitions in India takes into account the ecological aspect of transition outcomes (Chebrolu and Sen 2017; Khadse and Rosset 2019), limited attention has been given to the social implications of transitions. My thesis addressed this research gap by empirically investigating the outcomes of the agricultural transitions, especially their social impacts at the household and community levels. What these farmers were able to achieve with agricultural transitions reflects why they chose to transition in the first place and what social impact their transitions generated. Specifically, in Chapter 8, I discussed accounts wherein these farmers talked about their experiences on improving human health and ecological conditions of the villages, the increase in their income and economic conditions, and the impact on gendered relationships and social inequalities in the household and among rural farming communities. More importantly, my research reveals how these farmers not only moved from one farming practice to other but, in the process, also claimed themselves to be different from those following previous practices of conventional farming. As argued in Chapter 8, these farmers identified themselves as ‘jaivik’ ‘sustainable’ ‘progressive’ ‘diversified’ ‘agro-entrepreneur’, which, according to them, represented an identity of a ‘good’ farmer who was fulfilling his duty of producing healthy and sustainable food, and at the same time contributing to the betterment of village agriculture and rural sustainability. This newfound identity that they gained after transitioning to alternative practices developed a sense of achievement in what they were doing as farmers, which kept them motivated to pursue agriculture and encouraged others to adopt similar practices.

Previously developed frameworks of farmer identity, such as the P/PP/MF model (productivist/post-productivist/multifunctional model; see section 2.3.3 on Burton and Wilson, 2006), can be a useful starting point for conceptualising transition outcomes, yet in the context of India, it will not be sufficient “to attend to the many different ways in which people constitute themselves, arrive at new conceptions of what is in their interest, and do so differently over time” (Agrawal, 2005, p. 6; Groth et al., 2014). Although my research falls into the category of multi-functionalism, however, the narratives in my research reveal that studying transformations in farmers’ identity is much more complex than being solely multi-functionalist producers and that their identity contains multiple meanings (i.e., “sustainable,” “small,” “diversified,” “gendered”) in a given socio-economic context. My study highlights the importance of recognizing the multidimensional aspect of farmers’ identities as they develop through their individual engagements with nature and within the rural farming community.

Although some scholars have questioned the role of community in agrarian transitions, particularly related to changing agrarian politics, vulnerabilities of communities induced due to climate change, and market demands (Kuchimanchi et al., 2019; Sugden et al., 2014; Pole and Gray, 2013; Lerche, 2011; Agrawal, 2000), my study demonstrates that socio-cultural bonds associated with ‘natural farming practices’ sometimes help in creating a ‘feeling of unity’ for some farmers (particularly small and marginalised). Yet, this bond not only exists between farmers but also between farmer
and consumer or farmer and other cooperatives. Moreover, my research shows that farmers’
identities are mostly perceived or articulated through their interactions within the community,
either by ‘othering’ (mostly large-scale chemical farmers or neighbouring chemical farmlands) or
how their friends and family respond to the change in their farming practices.

Finally, though this thesis indicates towards a change in farmers’ identities with the change in
agricultural forms and practices, this is open to further research as to how agricultural transitions
may or may not involve a change in the identities of different farmers in diverse socio-economic
contexts. Specifically, more research is needed to address the socio-demographic differences in the
villages, as gender, caste, class, and age are all undoubtedly important facets of the social and
working lives of farmers in India.

9.2 Opportunities and challenges of qualitative methods in fieldwork

I carried out my fieldwork using qualitative approaches because other research methods would not
have allowed me to explore the lives, livelihoods, experiences, and perspectives of farmers -- who
could adopt or could not adopt alternative approaches in agriculture -- in great detail. Spending
time with these farmers in their fields and other village settings and discussing their agricultural
practices and daily routines at their farms helped me understand their day-to-day experiences and
the challenges they faced in their current farming practices and agriculture-related work. My
interaction with agricultural labourers, factory workers, and other stakeholders, such as agricultural
market and departmental offices, also helped me to cross-examine the nature of these transitions,
who adopted which farming practices and what implications they may generate across small,
marginal and women farmers in the villages. Given that limited literature is available on farmers’
experiences of transitions and their social implications in Haryana, my qualitative fieldwork
research makes the existing literature richer and more grounded and adds new empirical details to
it. However, these methods were not free from limitations, especially during the time of pandemic
when I conducted my fieldwork.

As noted in Chapter 3, a qualitative interview for me required a good introductory round of
questions and an initial rapport building with the participants. Although being a researcher from a
similar linguistic and cultural background helped me through the initial process of ‘getting to know’
my participants, negotiating my positionality with my respondents became an ongoing task
throughout the fieldwork. In particular, my status as a married woman and the presence of my
relatives in the field made a huge difference in the quality of my interviews, especially while
discussing topics related to women’s role in decision-making at home. Being aware of my position
as an urban educated woman, I constantly tried to shed any power hierarchy that may exist,
especially among women participants, by engaging in conversations with them over tea and snacks,
discussing topics they were comfortable with, and cross-checking if they felt comfortable talking
to me about more personal topics. I often made additional efforts to conduct private conversations
or group discussions with them to avoid any power influence by other family members or people
at their workplace. This helped me to capture daily insights of everyday experiences of farming
and farm culture in Haryana and how some marginalised communities faced and overcame their
day-to-day challenges in agriculture and related transition.
Most existing studies in India have used random sample surveys, quantitative and mixed-method approaches to study decisional factors driving farmers to adopt alternative or sustainable farming practices. This results in a large amount of quantifiable data that offers a generalised overview of farmers adopting sustainable farming or factors leading to barriers in transition. Findings developed through these methods go beyond the participant group to the overall demography being looked at and help identify the core subjects, needs, or wants of the participants (Martin & Bridgmon, 2012). Nevertheless, these quantitative techniques and survey methods are criticised for: a) using too few variables and being context neutral, that is, they do not take into account the specific socio-cultural context (Barr, 2004; Gall et al., 2003); b) being focused on similarities between groups and practices and ignoring the differences among them, while most social researchers have often found that differences between them are as important as the similarities (Barney, 1991; Wernerfelt, 1984); and c) being grounded in a positivist framework and disregarding the individual and collective biases of the researchers as well as the subjects (Onwuegbuzie and Leech, 2005).

Qualitative research, on the other hand, is concerned with aspects of reality that cannot be easily quantified and focuses on the understanding and explanation of the dynamics of social relations (Mukhopadhyay & Gupta, 2014). Framing research strategies for rural areas often differ in terms of land use (conflicts), the development of agriculture, food issues, the role of the rural community, existing power relationships, historical developments, long memories, and relative policy independence (Strijker, Bosworth, & Bouter, 2020). Just as with statistical data in quantitative research, these characteristics of rural communities can also lead to ethical issues associated with anonymity, confidentiality and small sample groups when qualitative methods are used.

In this research, I used in-depth interviews and small group discussions as principal research methods, which helped me to understand the decision-making process among farmers, their experiences and perceptions on adopting alternative farming practices in different socio-ecological contexts in the villages. Conducting in-depth interviews with farmers allowed me to have deeper conversations and answers to questions beyond the basic facts of common agricultural practices in the villages. More importantly, by drawing on Sugden’s (2022, 2019) approach to assessing the perceptions and experiences of people in the changing agricultural context, this research informs the significance of farmers’ perceptions and behaviours to study agricultural transitions and decision-making processes at the farm and household levels. Specifically, understanding social perceptions in qualitative research helped me to explore detailed accounts and rich explanations of participants’ feelings and emotions and contemplate their experiences during the transition from one form of farming practice to another. However, my study encourages further research in terms of exploring farmers’ perspectives to identify various elements involved while conceptualising transitions, and specifically how power, representation and farmers’ perception of problems in the larger food systems impact farm success and failure.

### 9.3 Policy recommendations and ways forward

Overall, the findings of this thesis may be useful to academics and government bodies who are involved in studying alternative approaches to intensive agriculture or creating policies related to sustainable agriculture in India. While environmental awareness is growing among the broader Indian society (with climate change becoming a global issue), more efforts are needed to develop
policies that are socially inclusive and just. How are sustainable agriculture and diverse food systems incorporated into the existing policy framework? Do national-level government policies support local agrarian livelihood concerns for diverse farming communities, migrants, and reverse migrants? Answering these questions would require research inputs on successful initiatives from India or elsewhere by focussing on ground-level decision-making processes of change. Some major shortcomings of agricultural policies in India are reported as: i) greater emphasis placed on increasing yield per hectare rather than improving the productivity of other factors of production, i.e., labour or animal power; ii) comparatively little effort on ensuring stability and sustainability of food production; iii) limited work done on small farmers’ cropping practices concerning diverse crops like coarse cereals, pulses, or on other subsectors of agriculture, such as, animal husbandry, floriculture, sericulture, forestry and fisheries; iv) importance of agroecological factors and farming practices to ensure sustainability not been fully recognised; and v) more emphasise on the widening of the agricultural market, removing middlemen and increasing market competitiveness rather than recognising the importance of the minimum support price (MSP) for small and middle class farmers and overall underestimation of farming costs and the low rate of increase in the MSP (Singh & Bhogal, 2021, 2021a; Das, 2019; Tripathi, 2012; Vyas, 1994).

Although my research does not analyse any governmental policy in particular, except a recent programme, Paramparagat Krishi Vikas Yojana (PKVY), implemented under the National Mission for Sustainable Agriculture (NMSA), it argues for an approach that studies farmers’ experiences in agricultural transition in the diverse rural settings of the country. While the current cluster-based approach of the PKVY policy may be suitable for some farmers to adopt sustainable practices, the thesis reveals how individual farmers’ motivations and understandings of transitions differ and why those differences become important while deciding who adopts and does not adopt alternative approaches in agriculture. Moreover, when it comes to implementing new programmes and governmental initiatives, it is equally important to know who benefits from these programmes and how far marginal and deprived populations are included in the policies as contributors to change and beneficiaries of new initiatives. In this thesis, I attempted to show how class, caste, gender and age are important variables to study how far diverse farming communities and populations are affected by the socio-ecological changes in agriculture. In particular, I analysed that caste and gender played a crucial role in understanding how farmers perceived who gained from the institutionally sponsored programmes, their dependency on large-scale farmers, the importance of social networks in accessing bureaucratic procedures and the existing gendered dynamics creating limitations on independent decision-making at home. Overall, my thesis recommends five major changes required in the policy frameworks for sustainable agriculture (see Fig 9.1).
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<thead>
<tr>
<th><strong>Fig. 9.1</strong> Major recommendations for policy frameworks</th>
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<tr>
<td><strong>Ecologically Sustainable Agricultural Practices</strong></td>
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<tr>
<td>1. Encourage natural farming under NMSA using locally available resources (such as compost formation using cow dung, buttermilk, jaggery, organic waste, etc.) based on farmers’ perceptions and experiences.</td>
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<tr>
<td>2. National policy on developing agricultural technology must incorporate both science based and traditional knowledge of farmers pursuing alternative agriculture. Change-tolerant varieties of crops and seeds may be developed through local farm-based techniques, research and development.</td>
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<td>3. NMSA to include adoption of diverse farming techniques that includes zero tillage practices, crop diversification through polyhouse farming, and multicropping methods, and fund investment in sustainable crop and pest management.</td>
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<tr>
<td>4. Sound Land Utilisation Policy aiming for efficient land use planning that supports improvement in the soil health, groundwater depletion, recovering water quality, and resource management.</td>
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<tr>
<td><strong>Economic and Market</strong></td>
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<tr>
<td>1. Regulation of local agricultural markets for better incentives for non-chemically produced food</td>
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<td>2. Develop market linkages and partnerships with firms for the sale of diverse crops and vegetables (other than wheat and rice), especially produced through natural farming methods</td>
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<td>3. Regulation of organic certification processes to make it clearer, flexible, and less bureaucratic that shall encourage farmers belonging to the lower socio-economic groups to adopt organic farming</td>
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<td>4. Increase incentives to individual farmers adopting sustainable methods to compensate income loss (especially for small farm holders) in the initial phase of transition</td>
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<tr>
<td>5. Target farmers’ groups for cooperative farming based on their skills and understanding of crop production instead of promoting monocropping and providing governmental support through cluster-based farming only</td>
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<td><strong>Education and training for Sustainable Agriculture</strong></td>
</tr>
<tr>
<td>1. Provide regular training and workshops on adopting sustainable practices</td>
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<tr>
<td>2. Incorporate local organic farmers in extending training &amp; support to farmers’ group and promoting natural farming practices within their villages</td>
</tr>
<tr>
<td>3. Create platforms for knowledge exchange between farmers in transition/organic farmers and governmental bodies to fulfil important informational gaps</td>
</tr>
<tr>
<td>4. Regular meetups with farmers in transition and sharing latest updates on research and development in the region</td>
</tr>
<tr>
<td><strong>Farmer Welfare &amp; empowerment</strong></td>
</tr>
<tr>
<td>1. Provide incentives on farms for incorporating sustainable practices in farming</td>
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<tr>
<td>2. Enhance partnerships with farmer organisations incorporating small farm holders and those from non-dominant caste groups</td>
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</table>
3. Increase participation of women in agriculture related activities through formation of women Self Help Groups
4. Extend land rights to women and girl child

<table>
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<tr>
<th>Attracting Youth in agriculture</th>
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<tr>
<td>1. For reverse migrants: Make institutional framework smoother by limiting bureaucratic hurdles and creating ease of business. Including the category of young reverse migrants under National Mission on Youth in Agriculture (NMYA)</td>
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<tr>
<td>2. Provide incentives to young professionals who wishes to develop, innovate, and invest in sustainable agriculture in India.</td>
</tr>
<tr>
<td>3. Develop more agricultural centres or universities nearby rural areas; and innovative course curriculums to attract youth by providing knowledge and training to younger generation who wish to pursue their careers in agricultural sector.</td>
</tr>
<tr>
<td>4. Provide other ground level initiatives for collaborations with local farmers and NGOs to keep track of recent research and developments in agriculture and employing local youth in incentive-based agricultural activities to keep them motivated in this field.</td>
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*Source: Author*

The kind of qualitative approaches I described in this thesis are helpful in uncovering various intricacies and complexities of rural farming communities. Adoption and implementation of a policy related to sustainable agriculture involves understanding those intricacies regarding who are the real beneficiaries of these policies and how far it impacts both social and ecological concerns of the rural community. Whilst it is not necessary that by adopting such a method, any programme on sustainability will automatically become socially inclusive and just, it can at least lead to a better incorporation of communities, especially the weaker members of these communities, in agroecological projects. Some evidence provided in this thesis suggests that, as of now, agricultural policymakers and departmental officers have little understanding of how individual farmers understand and adopt alternative practices in agriculture and how far existing policies acknowledge the differential needs and requirements of the small, marginal, women and agricultural labourers in the villages. However, more research is required at the grassroots level to identify the gaps between peoples’ approaches at the farm-level and policymaking at the central level and to suggest possible solutions to the discrepancies involved.

Finally, many reasons attracted me to undertake this topic of research -- learning about some younger farmers who resigned from their high-end jobs to adopt organic farming practices, the diverse pathways for transitions to agricultural sustainability, the emerging forms of farmers' identities along with the transformation in agriculture -- were some elements that were part of the changing socio-culture in Haryana villages but remained empirically and theoretically unexplored. The entire research process made me more reflexive and cautious of my understanding of agricultural transitions and definitions of sustainability. For instance, I initially thought that most farmers in Haryana might be willing to adopt sustainable technologies or work in partnership with extension workers and other corporations to gain more ecological and economic benefits from their farms. To my surprise, the social element of sustainability was found to be equally dominant among
the narratives of these farmers than economic or ecological aspects. A deeper analysis of farmers' perceptions helped me to rethink sustainability in Haryana agriculture from a critical lens and to learn how, sometimes, an individual's pursuit of sustainable transition went beyond the immediate socio-economic needs of the family to the betterment of the village economy and rural sustainability.
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### Appendix 1: Interviews with different types of farmers

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**Appendix 2: Interviews with Dalit labourers**

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### Appendix 3: Interviews with women farmers

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### Appendix 4: Group Discussions

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**Appendix 5: A General Interview Guide**

I. Basic Information

Name:

Age:

Sex:

Education:

Caste:

Land ownership (class status):

Village name:

Type of farming practice:

II. Farming practices and production processes

Q1. What are your current farming practices?
Q2. How far do you follow industrial (or GR) techniques in agriculture? How are your techniques similar or different from other farmers in the village?
Q3. Who decides what should be grown, where, and what farming practices should be followed?
Q4. How are small and marginal farmers involved in agriculture? What is the role of women farmers – what activities do they perform in agriculture?
Q5. Why are you motivated to do sustainable farming?
Q6. How did you learn about these alternative practices?
Q7. What were the initial challenges in transition to alternative or sustainable farming?
Q8. How supportive were your family members, or other farmers about your decision?
Q9. Why do you think others do not want to adopt sustainable farming?
Q10. How do you perform alternative (natural, organic, polyhouse, crop diversification) farming?
Q11. Do you market your produce? If yes, how? Are there any challenges in marketing your produce?
Q12. What are other challenges in continuing sustainable farming practices?

III. Understanding on sustainability

Q1. What do you understand by sustainability?
Q2. How do you differentiate between organic and natural farming?
Q3. How do they make sustainability choices about what to adopt in the changing social and ecological conditions?

IV. Understanding social impact and outcomes of farming practices

Q1. What part does agriculture (in comparison to other activities) play in everyday activities and as a source of income?
Q2. In what ways are different members of the family involved in farming activities and decision-making processes?
Q3. How does industrial farming practices impact village agriculture, land, soil, water, and overall food production?
Q4. How does the transition to sustainable farming practices impact land, ecology, income, and other opportunities?
Q5. To what extent does the transition to sustainable agriculture involve the role of different members (men, women, children, elderly) within your household?
Q6. What impact sustainable farming have on women, small and marginal farmers in the villages?
Q7. Does transitions have any impact on the existing caste and gender inequalities?