Lena Kaufmann

Rural-Urban Migration and Agro-Technological Change in Post-Reform China

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New Mobilities in Asia

In the 21st century, human mobility will increasingly have an Asian face. Migration from, to, and within Asia is not new, but it is undergoing profound transformations. Unskilled labour migration from the Philippines, China, India, Burma, Indonesia, and Central Asia to the West, the Gulf, Russia, Singapore, Malaysia, and Thailand continues apace. Yet industrialization in Bangladesh, Cambodia, and India, the opening of Burma, and urbanization in China is creating massive new flows of internal migration. China is fast becoming a magnet for international migration from Asia and beyond.

Meanwhile, Asian students top study-abroad charts; Chinese and Indian managers and technicians are becoming a new mobile global elite as foreign investment from those countries grows; and Asian tourists are fast becoming the biggest travellers and the biggest spenders, both in their own countries and abroad.

These new mobilities reflect profound transformations of Asian societies and their relationship to the world, impacting national identities and creating new migration policy regimes, modes of transnational politics, consumption practices, and ideas of modernity. This series brings together studies by historians, anthropologists, geographers, and political scientists that systematically explore these changes.

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University
Press

To LFT and the other Chinese rural women
who are in a similar situation

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Chinese Measurements

dan   50 kg
fen   0.1 *mu* (about 66.67 m²)
jin   500 g
li   500 m
luo   25 kg
mu   1/15 ha (about 666.67 m²)

Acknowledgements

十年操出个文秀才，
十年操不出一个田秀才。

Shi nian caochu ge wen xiucai,
shi nian cao bu chu yi ge tian xiucai.
(XT 1988, 206)

'It takes ten years to make a literary scholar, but you cannot make a "field scholar" in ten years'.

This farmers' saying from Hunan acknowledges the rich knowledge and practice that is needed to be a good rice farmer. I fully agree. In writing this book, I have attempted the challenging task of documenting such often-tacit knowledge. I have endeavoured to investigate the transformation of this knowledge held by Chinese rice farmers between home villages and domestic migration. In the course of this journey, moving between Berlin, Shanghai, Beijing, the Chinese countryside, and Zurich, my own knowledge has also grown and been transformed. This is thanks to the numerous people and institutions who have supported my project in one way or another.

I am most grateful to the interlocutors who have contributed to this book, all of whose names I have changed to protect their privacy: my interviewees from Anhui, the villagers from and around Green Water, and the Zhao couple from Shanghai. They have all given me precious insights. I especially thank the Wu siblings, who invited and hosted me in their respective homes in Anhui, and Yuemei and her family who hosted me in Hunan. I am greatly indebted to them for their incredible hospitality and for sharing their knowledge, as well as the joys and sorrows of their translocal lives. Yuemei was particularly helpful in assisting my research, always ready to help me find material and answers to my numerous questions, even after I had left China. She kindly allowed me to use her photos.

My first long-term stay in China in 2006-2008 was made possible through a grant from the German Academic Exchange Service (DAAD) and the Chinese Scholarship Council. Although at that time I was working on a different project on rural migrants' skills in urban China, many of the insights gathered during that time have made their way into this book and inspired this book's topic. For my field research in 2010-2011, I received funding from the Ethnographic Museum of the University of Zurich. In fact, I would never have ended up in Zurich and written this book if it wasn't for my academic mentor Mareile Flitsch, the museum's director, who

encouraged me to do so. Her detailed critical feedback on earlier versions of the manuscript and her belief in my project were invaluable. I took from her how we can attribute individuals and societies with the dignity they deserve only if we pay close attention to their often-overlooked knowledge and skills – a perspective I believe is highly beneficial in terms of mutual understanding and appreciation, way beyond this book.

The Swiss National Science Foundation generously awarded me a two-year Marie Heim-Vögtlin grant, in addition to supporting the publication of this book. I would like to express my gratitude to Gonçalo D. Santos and Francesca Bray for their support with the grant application for that. Gonçalo has offered many useful thoughts and, moreover, convinced me to write in English. Thanks to Helen Rana's professional copy editing, I am confident that it has become readable, although all the mistakes in this book remain, of course, my own. Francesca Bray's thoughtful critique of my proposed research framework was particularly beneficial in helping me to clarify the framework and thread of my argument. More than she may realize, her seminal insights into Asian rice farming economies provided an essential intellectual foundation for me to build upon. Here, I would also like to thank Dagmar Schäfer, who hosted me as a short-term visiting fellow at the Max Planck Institute for the History of Science in Berlin in 2014, supported by the Gender Equality Commission of the University of Zurich. In Berlin, I had the opportunity to benefit greatly from the inspiring discussions in Dagmar's research group, of which Francesca Bray was also a member.

In Zurich, the Ethnographic Museum and the Department of Social Anthropology and Cultural Studies (ISEK) at the University of Zurich have provided the ideal environment to pursue my project. I could not imagine a better working atmosphere and colleagues, many of whom have become friends. I would especially like to thank my second academic mentor Annuska Derks. Her insightful comments on my research and the presentation of my argument were extremely valuable and much appreciated. I am also very grateful to my Writing Group, consisting of Rehema Bavuma, Francesca Rickli, and Maria-Theres Schuler, who closely read and commented on an early draft of this book. In addition, more colleagues at the University of Zurich than I can name here gave me helpful comments on parts of this book. Among these are the late Ingo Nentwig, Esther Leemann, Stefan Leins, and Juliane Neuhaus at the ISEK. In addition, Katharina Woodhouse, Martina Wernsdörfer, Maike Powroznik, Michèle Dick, Rebekka Sutter, Andreas Isler, Alexis Malefakis, and others all shared office life in the Ethnographic Museum with me, and provided inspiration. The expertise of the respective library teams, especially Jörg Schlatter, helped me save a great deal of time

Introduction

Abstract

This introduction introduces the basic predicament being faced by rice farmers in post-reform China: the conflicting pressures to both migrate into cities and yet preserve their family land resources in the country-side. It posits that paddy fields play a crucial role in shaping farmers' migration strategies. More generally, it proposes that socio-technical resources and related skills are key factors in understanding migration flows and migrant-home relations. Furthermore, the chapter proposes a socio-technical approach to investigating this paddy field predicament and explains how this approach contributes to existing literature at the intersection of the literature on agriculture, migration, and skill. Finally, it introduces the main field site, a rice-farming village in southern China, and briefly discusses the data and sources.

Keywords: China, materialities of migration, agriculture-migration nexus, socio-technical knowledge and skills, rural-urban farming community of practice, migrant-home relations

Mr. Wu and his family never mentioned the necessity of maintaining their rice fields. Instead, when speaking about home, they talked about house construction, food, and especially their children, who they had left behind and missed dearly. They called them once a week from a nearby telephone booth, meeting them only once a year during the Spring Festival, the Chinese New Year celebrations. Mr. Wu's small restaurant selling spicy noodle soup first attracted my attention when, in spring 2007, I was looking for a place to eat on the outskirts of the former French Concession in downtown Shanghai. It was located in one of the last blocks of two-storey houses not yet replaced by the high-rise glass facades of shopping malls, hotel restaurants and hospitals. I saw the bustling queue of lunchtime customers, escaped the loud honking of buses and motorcycles, and snuck inside. The crammed and windowless interior, with diners loudly slurping hot soup and wiping sweat from their

brows, made it easy to fall into conversation with the other customers as well as Mr. Wu and his family, who ran the restaurant, and who were all eager to make sense of me, a foreigner: 'Where do you come from? What are you doing in China? How old are you? Are you married? What do you eat at home?'[1] This first encounter led on to numerous regular, longer visits. Gradually I learned that Mr. Wu and his family were originally rice farmers from rural Anhui Province, a day's bus ride from Shanghai. They were part of the one fifth of the entire Chinese population, or more than one third of Chinese farmers who had become migrants since the 1980s (NBSC 2019, sec. 2-3). Eight years ago, having tried out various informal jobs in different provinces, they had followed a group of fellow villagers to run a noodle shop in Shanghai.

When I joined the family on their annual trip home for the Chinese New Year in 2008, it struck me that they were maintaining their rice fields. I followed Mr. Wu's wife Li Cuiping from the main road, where the overland bus had dropped us off, far away from any township or even bus stop. We continued our way on foot, balancing one after another along the narrow ridges between the rice fields. As we approached the village, Li Cuiping pointed at a neatly cultivated and harvested field to her right: 'This is ours'. Rather than simply letting the fields lay fallow during their years away, the family tried to sustain rice cultivation. Obviously, these fields were of central importance. Nevertheless, the necessity of maintaining the fields seemed so self-evident to Mr. Wu and other migrants I met that they hardly ever mentioned it. As Mr. Wu's niece Caixia later explained: 'You don't talk about your bathroom either. There is no need to talk about it'. She went on to explain that fields were something everybody had, similar to a garden, which made it unnecessary to talk about (video conversation, 5 September 2017).

During the course of my research, however, it became clear that rice fields are not a trivial aspect of migration at all. In fact, a lot of strategic efforts are made to maintain this valuable resource, regardless of migration. The fields play a crucial role, not only for those left behind, but also, and perhaps especially, for the migrants. For those staying behind they provide subsistence. For migrants, this farmland is an asset that provides seed capital and an important economic safety net for their often highly precarious city life. Indeed, some of the migrants I interviewed inferred that their fields were so central to their social and economic security that they had specifically left close family members behind to look after them. Preserving wet rice fields is a real challenge, especially where skilled people have migrated,

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1   Unless stated otherwise, all the translations of written and oral Chinese sources, as well as the quotes from French and German secondary literature in this book, are the author's.

so are unavailable to cultivate them. There are certain socio-technical particularities about farming rice fields.

First, each step of wet rice cultivation requires considerable skill, and many cannot be mechanized, making it more labour- and skill-intensive than most other Chinese crops (Bray 1994). Even where it is possible to mechanize certain stages, few farmers can afford to do so. Therefore, it is crucial that a sufficient number of skilled people are around to carry out the necessary tasks to ensure successful rice cultivation. Second, in order to retain their worth and yield, wet rice fields need to be cultivated with rice continuously. In contrast to dry fields, they actually increase in value if they are cultivated regularly over a long time (Bray 1984; 1994). Not cultivating the fields or transforming them into dry fields therefore means significantly decreasing their value. This is tangibly related to the particular soil characteristics and the requirements of wet rice itself.

Wet rice, or paddy fields, have specific soil characteristics, and fallowing or switching crops alters these characteristics in both the short and the long term. Heavy rainfall in south China normally leaches the soil and makes it acidic. The continuous long-term cultivation of wet rice reverses this unwanted process, producing soils that are particularly favourable for wet rice cultivation. These are characterized by an upper layer of fine, grey, low-acid silt, and a lower layer that is hard and impermeable (Bray 2004, 17). Consequently, fallowing fields would expose the soil to leaching, degrading the soil quality needed for wet rice farming.

This also implies that it is not easy for farmers to turn wet fields into dry fields, or to change transformed fields back into wet fields, and there are consequences of doing so. As agronomists and geographers note, the creation of paddy soil is a long-term transformation of the soil. Therefore, it is not feasible to successfully cultivate other crops such as vegetables by simply planting them in drained paddies. Similarly, it is difficult to switch from planting non-rice crops to wet rice. Once non-rice crops such as beans have been cultivated in paddy fields, they deplete the soil's nitrogen fertility, creating a new soil condition which is not tolerated by conventional rice varieties. Changing a wet field into a dry field, or the other way round, therefore takes many years, so it is not a decision that can be taken lightly (Kleinhenz, Schnitzler, and Midmore 1996; McKay 2005).

Weeds that quickly populate fallow fields have a similar effect. According to my interlocutors, weeds are *the* major issue when fallowing fields. They 'eat up all the fertilizer' and nutrients in the soil. In addition, once they are there, weeds such as the tenacious barnyard grass (*Echinochloa crus-galli* Beauv.) are persistent and almost impossible to get rid of. This weed

invasion is precisely what happens, however, if paddy fields lay fallow, in an unwanted condition called *huang* (waste, desolate).[2] If this happens, the fields are 'no longer good to cultivate' (personal interviews, 2011). In short, when confronted with off-farm migration, it might at first sight appear that mechanization, fallowing fields or switching to less labour-intensive crops would be easy ways to compensate for the missing skilled labour. However, the constraints described above show that none of these are actually straightforward possibilities.

This places Chinese rice farmers in a tricky situation, because staying home to ensure constant rice cultivation is not an appealing option either. The pressure to migrate is enormous, as the following two accounts from Green Water Village in Hunan Province demonstrate. According to my interviews with several Green Water villagers, most migrants from the village move to neighbouring Guangdong Province. There, many women work in textile factories, while many men work in mining and become excavator operators.

The two labour migrants Zhou Wenbao and Zhou Wenlu, however, are not among these men. When I met them in 2011 during the Spring Festival, they were in their forties and fifties respectively and had just come home from another year of migrant work. As the first two syllables of their names suggest, they belong to the same lineage and generation. Having turned their backs on rice farming, they were now working in construction, moving to different provinces each year. Their boss was a local man, too, recruiting workers from his immediate surroundings. In the past year, both men had worked in Beijing, whereas in the following year the company was going to operate in Gansu Province. Zhou Wenbao and Zhou Wenlu had both specialized in steel and iron – 'you do what you know' – in contrast to other workers who laid tiles, cement, did plastering or carpentry. As Zhou Wenbao stated, 'it is very hard (*xinku*)'.

When asked why they had migrated, they explained that it was mainly for financial reasons, like the other migrants I interviewed. However, some other factors were also involved. These included gaining higher social standing, attracting potential future spouses by constructing a new house, or financing their children's education. The younger of the two men, Zhou Wenbao, had only ceased rice farming five years earlier. He described his personal family situation:

> My wife, Wu Guizhen, also works (*dagong*) outside the village, in a textile factory in Zhongshan City in Guangdong. Only my parents and

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2   I use the official Chinese system of *pinyin* for phonetic transcriptions.

my paternal grandmother live at home and plant rice. My four siblings have also migrated. My grandmother was born in the 1920s. She is over 87 years old and can hardly walk. I am the oldest son, so I have to take care of her and my parents.

My two daughters, Lanxiang and Lanying, are in their early twenties [born in 1990 and 1991 respectively]. They are studying in Changsha [the provincial capital]. Lanxiang is in the last year of her bachelor studies in automotive insurance. Lanying did not pass the university entrance examination. She attends a vocational college and will become a primary school teacher. Lanxiang has already been recruited to an automotive insurance company in Shenzhen [one of Guangdong's major cities] as soon as she finishes her degree. Lanying will probably become a teacher in one of the primary schools here. I don't think they will ever work as farmers. But [because there are no sons] they will inherit the house and the fields. For us [me and my wife] it is very hard (*xinku*)! We have to send two children to university! And it cost us 200,000 Yuan [about 28,250 USD][3] to build this house – other people even spend 300,000 or 400,000.

Zhou Wenbao continued with the following calculation:

From rice farming alone, you [i.e. a household] can earn about 10,000 Yuan [about 1400 USD] per year by cultivating eight to ten *mu* [just over half a hectare].[4] From this you have to subtract 2000 Yuan of capital input for pesticides, harvesting, and fertilizer. Harvesting alone costs 80 Yuan per field. You cannot send your children to university with these few thousand Yuan per year!

But with a middle school degree, you can earn between 1000 and 2000 [about 140-280 USD] per month, as a construction worker [i.e. up to three times as much as a rice farming household]. (Interview, 28 January 2011, from fieldnotes.)

Zhou Wenbao's fellow villager and colleague Zhou Wenlu had migrated for similar reasons. His family hosted me during my stay. As his elder daughter Yuemei explained:

There are three of us children, two sisters and one younger brother. When I went to primary school [in the late 1980s and early 1990s], school fees were

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3   10 Yuan Renminbi equates to about 1.41 US Dollars (as at 25 June 2020).
4   One *mu* equals one fifteenth of a hectare, i.e. about 0.067 hectares.

still very high. Therefore, ever since then my dad had to work outside the village. Now my siblings and I have also left, only my mother remains. My brother is 22 now and will have to marry soon. But he works in mining, so it is difficult for him to get to know a woman there. He needs a piece of land and to build a house [here], otherwise it will be hard to find a wife. (Interview, 4 February 2011, from fieldnotes.)

Regarding her own decision to go to Beijing, where she had recently graduated from university, she stated: 'I have always liked studying. I studied hard, because I wanted to get out of this cycle [of hardship and of being bound to the countryside]' (ibid.). While most of my interlocutors were absolutely certain that they would return to their ancestral home (*laojia*) once they became too old to work in the city, Yuemei clearly did not see her future in farming. Nevertheless, she was sending money to her mother, which ensured that rice cultivation could continue. As these accounts reveal, the pressure to migrate is strong, not only because rice farming barely provides subsistence-level incomes, but also due to social pressures. Therefore, all of my interlocutors felt it was imperative to migrate, although for some of them leaving was difficult due to their current circumstances. This put them in a difficult situation, which challenged them to find suitable ways to simultaneously migrate, whilst still ensuring the sustained cultivation of their farmland.

I define this situation of conflicting pressures to both migrate into cities and preserve their resources in the countryside as a predicament. Tom Shakespeare in the field of disability studies suggests that, to 'call something a predicament is to understand it as a difficulty, and as a challenge, and as something which we might want to minimize but which we cannot ultimately avoid'. Yet, while such difficulties 'make life harder, […] this hardship can be overcome' (Shakespeare 2006, 63). Notably, Shakespeare's concept evokes an active, problem-solving subject rather than victimhood. Accordingly, I see the farmers I studied not as victims, but as actors who are capable of finding workable solutions despite the complications they are in.

To be more specific, Chinese rice farmers are undoubtedly in a difficult situation, one that constantly requires making new decisions that take into account long-term needs and ambitions, but also short- or mid-term adjustments in line with changing household constellations and potential future circumstances. These include, for instance, the death of a parent, the out-marriage of a daughter, the birth of a baby, youngsters' migration, the return of a sick migrant, or a child starting their formal education. Furthermore, even where a solution is temporarily identified and decided

upon, it might not be an easy or satisfying choice. Migration might be an opportunity, but it is also a burden. For example, migrant worker Xiao Chen felt deeply hurt when her small children in Anhui no longer recognized her upon her return, calling another woman 'mother', because a fellow villager had jokingly told them to do so. Similarly, after Mr. Wu's daughter Guilan got married, she and her husband opened their own noodle restaurant, leaving their little boy behind with her mother-in-law. She was upset: 'When I have a video conversation with him [my son], he does not even care about talking to me. He is close to his grandmother, not to us' (video conversation, 12 November 2017).

Migration-affected households face several pressures at once. There is, for example, the double burden on those who migrate to provide financially for the children and elderly relatives left behind. Alternatively, migrants need to care for children in the city while earning a living for themselves there, as well as looking after the elderly in the village. For the old people, the burden commonly consists of having to tend the fields whilst looking after grandchildren. In addition, they are often left unsupported by the state if they become ill, due to insufficient insurance coverage. Moreover, migrants experience homesickness and miss their family members, even though their decisions are always made in the hope of finding a solution that will lead to a better future. At the core of all these quandaries lies concern for their major asset, land. People are – and remain – paddy field bound, even if they migrate.

Thus, understanding this situation as a predicament means acknowledging that rice farmers are actors struggling to find suitable solutions. To better adapt the concept of predicament to the context of Chinese migration, it is useful to sharpen the term against a related one to underline the agency of rice farmers, within the limits of their predicament. I thus propose the following working definition of 'predicament', which draws upon anthropologist Susan R. Whyte's reflections on 'uncertainty'. Highlighting its social dimension, she defines uncertainty as 'a lack of protection from danger, weakness in the social arrangements that provide some kind of safety net when adversity strikes' (Whyte 2009, 214). Chinese farmers aim to avoid uncertainty by drawing on the large array of possible social arrangements that can provide protection for their paddy land and continue their family line to prevent adversity, and this often comes at the cost of what an individual would consider the good life. The predicament moment of decision making within a migration setting challenges and compels the actors to evaluate and define a solution, thereby accommodating constraints and making multiple concessions. This occurs within social arrangements that

provide some kind of safety net for young and old age, or for future potential hardships. This predicament and farmers' strategic responses to it form the centre of this book.

Arguments and aims of the book

The conflicting pressures on farmers around either migrating into cities to work or staying home to cultivate and preserve their fields as a safety net is a major predicament of contemporary rural China. In this book, I provide a comprehensive analysis of this situation. I describe how this predicament emerged, what it entails, what socio-technical resources farmers have available to cope with it, and how they strategically do so. On a practical, ethnographic level, I explore how Chinese rice farmer households preserve their land resources when confronted with migration pressures. I discuss what land-use and land-arrangement decisions they take, in view of their circumstances and the resources at their disposal. I elaborate on their strategic, social and agrarian land-use decisions, which they take as conscious actors. These include their repertoire of knowledge, labour, social networks, financial resources, and farming technologies. I pursue three main arguments.

First, I argue that paddy fields play a key role in shaping farmers' everyday strategies. Scholars from various disciplines have repeatedly stressed that fields play a crucial role in, and for, migration.[5] Yet, the specific socio-technical challenges in preserving this key asset and the knowledge needed to do so remain largely unexplored. In this book, I scrutinize these challenges in more depth, proposing the need to look at the repertoires of knowledge that both staying and migrating farmers revert to.

Related to this, second, I argue that ostensibly technical farming decisions are always also social decisions that are closely interlinked with migration decisions. In taking seemingly operational decisions, farmers are actually pursuing various long-term and short-term projects that best match their current, fluctuating household situation. What looks like simple technical ability is, in fact, multi-dimensional reasoning for potentially manifold purposes. Applying skills practically and economically always includes simultaneously performing social responsibilities. This means that farming decisions also take into consideration aspects like educational, career, or

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5   For Asian contexts see, e.g., Fan and Wang (2008, 228); van der Ploeg and Ye (2016); Ye (2018); and Rigg (2019).

marriage aspirations, child or elderly care, long-term engagements and future responsibilities and, more generally, the social and economic reproduction of the household and the patriline.

This brings me to my third, more general argument, namely that we need to pay more attention to the material world of migration and the related knowledge and skills. I argue that socio-technical resources are key factors in understanding migration flows and the characteristics of migrant-home relations. Importantly, 'resources' here are understood broadly as being socio-technical, reaching far beyond their mere economic value. Such resources are, I suggest, material interfaces. They are an objectification and materialization of the transformation of migration-affected rural Chinese society. In the case of China, for example, a focus on such resources helps to explain why there are so many divided households, why migration is often circular, why relationships with home remain important, and why most migrants envision returning to rural areas in the future.

In following these arguments, I aim to contribute to the migration literature both empirically and theoretically. On an empirical level, rather than focusing on the well-studied phenomenon of migrants in their places of destination, I provide a rare study of migrants' origins and, in particular, the rural side of Chinese migration. More generally, I aim to provide a qualitative analysis of Chinese internal migration that adds valuable ethnographic insights to standard quantitative analyses. Since the reform policies of the 1980s, Chinese mobility has sharply increased, both domestically and transnationally (Pieke et al. 2004; Oakes and Schein 2005; Chu 2010; Nyíri 2010; and Xiang 2016). In view of this augmented mobility, it is my objective to provide new socio-material insights relevant to understanding the most widespread pattern of migration within contemporary China: rural-urban migration from the inner provinces to the large cities of the east coast, which often results in households whose members reside separately in different locations (Lu and Xia 2016; Chen and Fan 2018). Although China's inner migrants are increasingly migrating westwards, choosing closer destinations or moving with their entire households, to date, the split-household arrangement is still the dominant migration pattern in China (NBSC 2019; Wang and Chen 2019; Fan and Li 2019). Focusing on the role of farmland in migration, this book contributes a new perspective on why this pattern remains so common. This entails comprehensively examining both those who stay and those who migrate, and acknowledging that both are part of a rural-urban farming 'community of practice' (Lave and Wenger 1991). The members of this community of practice are connected through circular migration, embodied farming skills and joint efforts to preserve home

resources. This approach innovatively complements studies arguing for an integrated view of the Asian countryside (van der Ploeg and Ye 2016; Rigg 2019).

Moreover, perceiving migration in this way lets us rethink the implications of China's *hukou* system of household registration, which has strictly divided the population into either rural or urban, agricultural or non-agricultural since the 1950s (Cheng and Selden 1994). This system has long prevented rural Chinese from gaining permanent settlement rights or any entitlement to the welfare, pension and education system available to registered urban-dwellers. The recent reform of China's *hukou* system in 2014 increasingly allows rural people to move and obtain an urban registration. In this regard, the book is part of a new strand of scholarship that discusses not only the obvious constraints, but also the advantages of being registered as 'rural' (Andreas and Zhan 2016; Chen and Fan 2016). Highlighting the central role of land and land entitlement, it contributes to understanding why many rural inhabitants refuse to change their status into 'urban' citizens despite having lived in cities for years, and why the peasant smallholder model remains important, despite massive urbanization.

On a theoretical level, I integrate insights from three distinct bodies of literature – the anthropology of agriculture, migration studies, and the study of skilled practice. My objective is to contribute especially to a recently-established subfield of migration studies, materialities of migration.[6] I contribute to the material turn in migration studies a perspective on things that stay – paddy fields – and the related embodied skills. The latter are important socio-technical aspects of migration that, nevertheless, generally escape our attention because they usually remain tacit. I intend to show the value of a socio-technical perspective for studying migration phenomena, as a way to offer new understandings of migrant-home relations and dynamics.

With these ethnographic and theoretical aims in mind, it is, moreover, my goal to challenge prevailing narratives about backwardness and progress. I wish to contribute to a better understanding of the particularities of Chinese modernity, disputing the notion of linear technological progress. Challenging public discourse which portrays Chinese peasants as passive and backward (Murphy 2006; Day 2013; Schneider 2015), I want to show that farmers are, in fact, forward-looking decision-making agents who are actively shaping China's modernity.

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6   See, particularly, Basu and Coleman (2008) and Wang (2016).

Agriculture and migration

Looking at the rural side of migration and the role of farmers' socio-technical resources in migration requires us to inquire into the practical details of farming in more depth. Preserving paddy fields, whether at home or as a safety net in migration, requires knowledge and skill. So far, the investigation of farmers' knowledge and skill has mostly been overshadowed by two strands of research, however. On the one hand, peasant studies have traditionally been more concerned with peasants' politics and economic decision-making, rather than with related technical details (e.g. Wolf 1966; Scott 1977). On the other hand, the long-standing agricultural intensification debate has extensively discussed the relationship between agricultural technology, the size of the farming population, and the degree of intensification.[7]

For a better understanding of farmers' knowledge and skill, it is therefore more useful to turn to the field of a more technically informed agro-anthropology. Forerunners such as Paul Richards (1985) highlight that farmers' knowledge is not only crucial, but also highly scientific. The French agro-anthropologists, in turn, draw our attention to the importance of studying techniques and the interrelation of technical and socio-cultural aspects.[8] André Leroi-Gourhan (1964) contributed the influential tool of a *chaîne opératoire* or an 'operational sequence' for the systematic analysis of farming processes. This notion is useful for analyzing the technical, organizational, ritual, and various other elements that constitute farmers' techniques. Taking these diverse facets into consideration helps us to understand the complex issue of 'technological choice' (Lemonnier 1993) – a topic that gains new importance at the intersection of technological choices and migration decisions.

The possible choices are very specific in relation to rice farming in China. Rice economies follow their own logics, as rice historian Francesca Bray shows (Bray 1984; 1994; Bray et al. 2015). Her model of Asian wet rice economies is particularly helpful in explaining this, since it shows that rice economies follow their own distinctive trajectory of technological progress and cannot be compared to Western agricultural experiences. Such rice economies are commonly characterized by scarce land, high population density, enduring smallholdings, and high requirements for skilled labour

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7   The debate goes back to Malthus (1798), and has continued throughout the twentieth and twenty-first centuries, e.g. Boserup (1965); Geertz (1963); Stone (2001); and Bray et al. (2015).
8   See, in particular, Haudricourt and Delamarre (1955); Leroi-Gourhan (1964); Sigaut (1994); Lemonnier (1993); and the contributions in van Gijn, Whittaker, and Anderson (2014).

input. This makes them evolve in particular ways that cannot be explained through Western capitalist approaches, which equate progress with the efficiency of economies of scale, mechanization, and the substitution of capital for labour (Bray 1994). As I will show, these particularities have important implications when it comes to interlinkages between rice farming and off-farm migration, and to understanding farmers' choices of particular technologies in this context.

Most of the studies in the field of agro-anthropology have two things in common. First, they mainly deal with non-industrial agriculture. For understanding the complex processes of knowledge transformation and how these translate into a context of off-farm migration, it is therefore useful to explore the effects of new technologies. This includes those that were developed during the Chinese Green Revolution, and genetically modified crops, as well as the issue of agricultural deskilling (Stone 2007; Schmalzer 2016).

Second, the majority of studies, especially the older ones, hardly acknowledge how rural, urban and global worlds are tightly interconnected. It is now widely recognized that migration from farms strongly influences agricultural practice and land use. Economic anthropologists were already considering the effect of off-farm labour on production decisions back in the 1960s and 1970s (e.g. Hanks 1972). Scholars have mainly explained the situation in economic terms and with regard to the availability or lack of household labour resources (see Barlett 1980, 557). Still, anthropology is generally rather hesitant about reviewing the simultaneous pressures of migration and resource preservation, and farmers' strategies to achieve this. Only a few, more nuanced ethnographic and human geographic studies even acknowledge the local complexities at play (Murphy 2002; Linares 2003; Gaibazzi 2015; Wu 2016; Rigg 2019).

With regard to this book's central problem, it is interesting that commentators from various disciplines, including geography, economics, development and area studies, study how off-farm migration affects a range of spheres, such as agrarian transition, rural restructuring, and the rural environment (Kelly 2013; Qin and Liao 2016). Furthermore, particularly large volumes of research exist about the impact of migration on rural development, livelihoods, and agricultural production. The migration-development literature has been discussing the value of migration for development and livelihood diversification for many years.[9] Thanks to these studies, it is now

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9   The body of literature concerned with the migration-development nexus is impressively large. For some recent studies in this field see, e.g., Scoones (2009); Manivong, Cramb, and Newby (2014); and Hickey (2016).

widely recognized that agriculture and migrant work are complementary elements of Asian rural employment, and that land plays an important role in securing these livelihoods.

Meanwhile, studies into the impact of migration on agricultural production include long-standing debates about whether migration leads to an intensification or de-intensification of farming, and whether migrant remittances foster or inhibit the adoption of new technologies.[10] Unsurprisingly, these studies produce varied findings, reflecting the complexity of the issue, but they all show that agricultural technology plays a central role in rural-urban migration. So far, the issue has mainly been studied in terms of labour power and measured in economic terms. I suggest, however, that preserving resources such as paddy fields is first and foremost a socio-material matter. It is a question of soil quality, cultivation, agricultural techniques and technology, knowledge, and skills.

With regard to the nexus of Chinese wet rice farming and migration, the existing research provides information about a range of strategies that left-behind people and, to some extent, migrants, employ to manage their fields. The majority of these studies only investigate particular strategies at a general level (see Chapter 6). Most of them perceive land-use strategies as part of an overall household strategy that effectively combines farm work and migrant work in order to reduce risks to people's livelihoods. Although less formalized and with more differentiated results, this perspective bears some similarity to the New Economics of Labour Migration (NELM) theory, which understands migration as a household strategy that minimizes risks and raises incomes through economic diversification (Stark and Bloom 1985; Stark 1991).

While acknowledging that risk reduction and income generation are certainly important migration motivations for my interviewees, I do not focus on migration strategies or the reasons for migration. Rather, I look at the strategies used to protect land resources *despite* migration. These involve the land-use and land-arrangement strategies of both migrants and those left behind. This approach is much less evident in the literature.[11] Moreover, existing studies do not describe the wider range of strategies employed, because they tend not to perceive these strategies as part of an overall repertoire of knowledge and solutions used to deal with

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10   This body of literature is equally expansive and interdisciplinary. See, e.g., Müller and Sikor (2006); Hull (2007); Gray (2009); and Chen et al. (2014).
11   Exceptions on China are He and Ye (2014); van der Ploeg and Ye (2016); Xie and Jiang (2016); and Xu et al. (2017).

paddy fields. In contrast, this book delves into the strategies utilized in precisely this comprehensive way. On a more abstract level, the book shows that this means we need to understand migration phenomena more comprehensively.

From 'migrant worlds' to 'community of practice' worlds

Anthropological migration studies from the late twentieth century onwards highlight the complexity of migration. They show that migration is not just about individuals, but about households and social networks that span different locations. Moreover, it is also about the interrelated movement of people, capital, technology, information, images, and objects.[12] As Wang (2016) notes, the earlier studies in particular observed an abstract and generalized fluidity of movements, but it has now become widely accepted that movements are more diverse and grounded in everyday life. In line with this, a critical reassessment is currently emerging, which seeks to overcome a whole range of dichotomies, such as between internal and international migration, skilled and non-skilled migrants, mobility and immobility, transnationalism and emplacement, migrant experiences and ideals, and people and things (ibid., 2). My interest in thinking beyond such binary oppositions lies in making visible the intersectional and agentive aspects of migration, and the ways in which it is materialized and objectified.

While this reassessment is relatively recent, the resilience of earlier binary visions seems to have obscured our understanding of the study of four important realms of migration: internal migration, migrants' places of origin, those left behind, and the material aspect of migration. Studying migrants' places of arrival – generally big cities in China – was my own point of departure, when I first set out to explore the experiences of rural migrants in Shanghai in 2007. Nevertheless, I soon recognized that the places of origin and 'nonmovers' in general play a crucial role in migration decisions and processes (Cohen and Sirkeci 2011, 87). It is now widely acknowledged that migrant households in China and elsewhere frequently span different locations (Fan 2016). This also implies, however, that we need to pay more attention to the agency of not only migrants, but also of those who stay behind (Resurreccion and Van Khanh 2007; Jacka 2014; Ye 2018).

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12   For some prominent contributions see, e.g., Glick Schiller, Basch, and Szanton Blanc (1992); Hannerz (1996); Appadurai (1999); Ong (1999); Sheller and Urry (2006); Brettell (2008); Vertovec (2009); Castles, de Haas, and Miller (2014); Hoang and Yeoh (2015); and Salazar (2017).

Regarding the material aspects of migration, as far back as the 1970s and 1980s, groundbreaking works enlightened us about the processes of internalization (Bourdieu 1977) and objectification (Miller 1987).[13] These significantly enhanced our understanding of objects in relation to society and social differentiation, and prompted the material turn in the social sciences (Appadurai 1986b). Nevertheless, despite the fact that migration involves things as well as people, and the realization that these things matter, migration studies are only reluctantly beginning to explore the material element.

Only a few seminal texts, including Basu and Coleman (2008) and Wang (2016), tackle the material side of migration theoretically, making important steps towards conceptualizing the materialities of migration.[14] They show that material culture plays a central role in migration processes and provide a viable conceptual lens for understanding migration in more nuanced ways. Basu and Coleman (2008) propose the notion of 'migrant worlds' rather than 'migration', since this suggests that a 'world' can itself be mobile. Moreover, it captures the materiality of migration itself, the material effects of migration, and the 'inter-relatedness of the movements of people and things' (Basu and Coleman 2008, 313).

Building on these insights, Wang and his colleagues extend the notion of 'migrant worlds', stressing the temporal, embodied, and methodological dimensions of studying interactions between migration and materiality. They do this from a multidisciplinary and philological approach that allows them to resolve a number of dichotomies, notably that between migrant people and things. With regard to the embodiment of migration, they draw on a phenomenological approach to material culture (Ingold 2000). This implies studying 'how people make place and construct identities through situated multidimensional sensuous and corporeal engagement (through sight, sound, touch, smell, taste) with the material world' and drawing attention to the objectification, articulation and extension of migrants' emotions and desires through things (Wang 2016, 5).

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13   'Objectification' is a concept that tries to overcome the dualism between subjects and objects. Instead it acknowledges that '[t]hrough making, using, exchanging, consuming, interacting and living with things people make themselves in the process' (Tilley 2006b, 61).

14   The concept of materiality is, itself, ambiguous and heterogeneous (see Tilley 2006a, 5). I draw on Basu and Coleman who 'use the term "materiality" straightforwardly to refer to physical objects and worlds, but also to evoke more varied – multiple – forms of experience and sensation that are both embodied and constituted through the interactions of subjects and objects' (Basu and Coleman 2008, 317; see also Wang 2016). For me, these latter include migrant and left-behind skills.

I agree with Basu, Coleman and Wang that 'migrant worlds' is a useful concept for approaching the material aspect of migration and its interlinkages with the migration process. In addition, I explicitly include in this notion the world that migrants leave behind, one that shapes and continues to be shaped by migration, as in the example of paddy fields. Recent case studies on the material turn in migration studies conceptualize the material in various promising ways, e.g. in the role of constituting home, belonging, identity, memories, suffering and, more generally, mobility. They highlight the role that objects play in linking migrants and non-migrants, and show how mobility is enabled by transportation technology (e.g. Tolia-Kelly 2004; Frykman 2009; Chu 2010; Burrell 2011; Abranches 2013). Reflecting wider trends in migration research, most of these current studies on the material focus on mobile objects that are taken with, or sent to, the migrant. These include, especially, things related to consumption rather than production, such as food, or monetary and other remittances, which are sent through specific material infrastructures. While this is important, I assert that we definitely also need to pay more attention to how migrants and non-migrants jointly collaborate to preserve resources in their places of origin.

Furthermore, I seek to develop the dimension of the embodiment of migration in relationship with the material world that Wang proposes. I propose to do so by bringing the perspective of knowledge and skill into migration studies. Skills are an integral part of migrants' material culture, and these skills play a role in migration processes. A common-sense notion of skilled migration, whether academic or public, mainly equates skill with formal educational achievements. I suggest, however, integrating the two fields of migration studies and the study of skilled practice to understand migrants' skills as a form of tacit, often embodied knowledge. In this regard, studies in the field of skilled practice have much to offer. They greatly enhance our knowledge about skill, its transmission, formation, and transformation.[15] In particular, they discern the centrality of the whole range of bodily senses and related skills that are needed to engage with our environment, including tactile, visual, or auditory skills (Ingold 2006; Grasseni 2009; Rice 2010). Thus, they draw our attention to the everyday aspects of learning that often remain unspoken and have, therefore, escaped the attention of many academics, including migration scholars. Importantly, a skill perspective opens up a

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15   It is worth noting that, in the field of studying skilled practice, scholars generally elaborate their research around crafts, through what has, for example, become known as the 'apprenticeship debate', spanning between Coy (1989) and Marchand (2010). See Flitsch (2008) and Eyferth (2009) on rural China.

view of migrants and those left behind as being knowledgeable actors. By engaging skilfully with their socio-material surroundings, these actors processually craft 'migrant worlds' through their sensuous involvement with these worlds.

This is essentially a social process. As Lave and Wenger show in their pioneering work in the field of cognitive anthropology, learning is not an activity that takes place exclusively in individual minds, but is primarily social. Accordingly, learning is situated within a 'community of practice' (Lave and Wenger 1991). The concept of a 'community of practice' has implications for how we learn, including how ethnographers learn in the field. It also endorses the fact that learning is intimately connected to an individual's identity and positioning in the social order of a community (Wenger 1998).

In prioritizing the social learning environment, however, Lave and Wenger pay less attention to how skill as a very specific type of knowledge is internalized and embodied in practice. This aspect is tackled by more phenomenologically and technically-informed scholars. From a sentient ecology perspective, Ingold (2000; 2006) sheds light on enskilment as complex learning processes that comprise the intimate interaction of the body with materials and tools, the natural as well as the social environment. This makes a substantial contribution towards resolving major Cartesian dichotomies, e.g. between body and mind, people, and things. In other words, it is 'close to the realities of lived experience' (Ingold 2000, 1).

The agronomist and anthropologist Sigaut's more technical perspective points out that the spheres of social and technical activity cannot be investigated separately from each other when studying skilled practice. One of his many contributions to the field is the explicit differentiation between knowledge and skill, his assertion that skills have to be acquired gradually through a learning process, in which knowledge is turned into skills. This implies that knowledge 'fades' in the process of being embodied or incorporated, since it becomes 'embodied in the very process of action' (Sigaut 1994, 438). Sigaut's assertion that this transition occurs within a 'skill-producing group' is similar to the concept of a 'community of practice'. The former refers to a group which defines its identity through common abilities, which Sigaut sees as the basic social unit in all societies, claiming that social life can only proceed normally when everyone acquires a sufficient number of materially and socially effective practices, as well as skills that support these practices. Importantly, every social group requires a certain number of skilled members to be effective and function well. If a group is too small or too large, skills cannot be transmitted properly (ibid., 447).

Sigaut's reflections on the proper functioning of social life in relation to skill and the optimum group size are very relevant to the migration-affected farming households studied in this book. They point towards the question of what will become of the skill-producing group of Chinese rice farmers as more and more members migrate early and for the long-term, and as post-Green Revolution technologies transform embodied farming skills. Nevertheless, Sigaut's concept does not go into as much detail about the practical social arrangements of learning as Lave and Wenger's (1991). It is therefore useful to integrate Lave and Wenger's community-focused approach with Sigaut's more technically-informed approach to skill, to highlight both the social and the technical sides of skill.

In this sense, I propose that we should rethink 'migrant worlds' as 'community of practice worlds'. In the Chinese context, such worlds comprise both the migrants and the people left behind in a rice farming community of practice. This is reflected in my terminology. I use the term 'farmers' to not only draw attention to the actual practice of farming, but also to refer to both migrant and non-migrant household members. This is because the borders between farm work and migrant work are fluid in practice, with people often fluctuating between the cities and the countryside. Moreover, most migrants grew up in a farming environment. Even the younger ones, who tend to have received more formal schooling and migrated early, have spent most of their first two decades in a farming background. In addition, using the term 'farmers' for migrant workers is closely aligned to Chinese perceptions of rural migrants. Even after migrating, they generally continue to be registered by the state as rural residents with agricultural *hukou*, in addition to being considered by the public – and by themselves – as *nongmin*.[16] Accordingly, rural migrants themselves and the populace more generally use the term *nongmin gong* ('peasant workers').

Even though the binary division between migrants and the people left behind should be discarded in order to better understand Chinese rice farmers as part of a community of practice, sometimes it is still useful to retain the dichotomy for analytical purposes, for example when looking at the strategic actions of individual household members. In such cases, I distinguish between 'migrants' and 'those left behind'. The latter is related

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16   See, e.g., Fan and Wang (2008, 221). As far back as ancient China people were ideologically classified into 'four classes of people' (*simin*), i.e. gentry/scholars (*shimin*), farmers (*nongmin*), artisans (*gongmin*), and merchants (*shangmin*), according to their occupation and perceived contribution to the state (Huang 1995, 26). In the twentieth century, Chinese intellectual debates about modernization have contrasted farmers/peasants (*nongmin*) against citizens (*gongmin* or *shimin*, literally referring to urban citizens) (Day 2013, 50).

to the Chinese term *liushou* ('stay behind', 'stay to take care of'), from *liu* ('remain', 'stay') and *shou* ('guard', 'conserve', 'protect'). In the rural-urban migration context, it is commonly used in composites such as *liushou ertong* ('left-behind children'). In contrast to the English connotation of the word, which implies that people are initially left behind and expected to join the migrants later on, in Chinese the term implies instead that a person is staying to take care of the farm, and that migrants will return to them. As well as this, the term *liushou* also has more general implications. As Xiang argues, 'many rural communities as a whole have been left behind economically and socially' (Xiang 2007, 179).

The categories of migrants and left-behind people infer that these two groups of people belong together. They are not lone individuals, but – below the level of the community of practice – members of a household. It is only through an additional focus on the household that it is possible to take into account the full picture of Chinese internal migration. However, what is meant by a 'household' is not clear-cut, as there are overlaps between local concepts of family (*jia*) and household (*hu*). Moreover, in my case households span different locations, 'incorporating multiple members in diverse places who remain part of the income-pooling unit directly, or who continue to exercise influence over household dynamics' (Lawson 1998, 43, cited in Fan, Sun, and Zheng 2011, 2166).

This is another key point in this book, which does not focus on the household *per se*, but on the strategies that households employ to manage their fields. These field preservation strategies can be seen as part of 'householding', i.e. the ongoing, dynamic social processes through which rural households create and reproduce themselves (Douglass 2006, 423; Jacka 2012, 2). As Tamara Jacka emphasizes, 'householding is not just a matter of maintaining livelihoods, but also of caring for dependants, sustaining household members' health and wellbeing, and maintaining the patriline' (Jacka 2012, 11). In this regard, I emphasize commonly overlooked technical aspects of householding. These are not only deeply intertwined with the social aspects, but also fundamental to the process of householding. I focus mostly on outcomes of household decision-making processes, rather than the decision-making process itself. It is clear that such a perspective obscures power differentials and individual agency below the household level, which is a criticism that has previously been levelled at household strategy approaches (e.g. Wolf 1992, 12-23; Toyota, Yeoh, and Nguyen 2007, 157). Whilst bearing in mind the point that decisions are often the products of complex evaluation processes that may be challenging or even painful, a household approach still makes sense for two reasons.

First, paddy fields and their use rights are *de facto* a resource that belongs to the household, so its preservation usually involves the whole household. Second, when it comes to Chinese internal migration, there are undeniably certain household patterns regarding who migrates and who stays. Migrants are usually young or middle-aged, while children, old and sick people, and women at particular life stages, such as new mothers, typically stay behind. While precise numbers are lacking, it is now widely accepted that left-behind children, women, and elderly people in the Chinese countryside constitute about 61 million, 47 million, and 50 million respectively (Ye 2019, 21). It is common for paternal grandparents to take care of their grandchildren in the absence of their migrated sons and daughters-in-law. These 'left-behind children' currently constitute almost one quarter of all Chinese children and nearly one third of the nation's rural children (ACWF 2013; Santos 2017, 93).

Thus, only through this approach, taking into account all the household members – both those who stay and those that migrate – as part of a wider community of practice world, spanning not only people but also things, can we grasp the Chinese internal migration phenomenon in its full socio-material complexity. The paddy field problem faced by Chinese rice farming households in a migration context is both a social and a material issue. If we want to understand this particular situation, how farmers as agents devise strategies and figure out solutions, we need first of all to understand what knowledge and options they have at their disposal to deal with it. At the core of such a migrant world are two things – knowledge and skill. Chinese migration-affected rice farmer households form a community of practice that is centred on the question of how to preserve paddy fields as a safety net today and a long-term resource for the patrilineal family in future. There is, therefore, much more at stake than just the technical skills needed to preserve this asset. Maintaining their paddy fields, which depends on knowledge and skills, crucially influences the constellations in which people migrate.

A skill turn within 'the material turn of migration studies' is therefore long overdue, to better understand migration phenomena in general, and the relationships and actions between migrants, their places of origin, and the people they leave behind in particular. Viewing it in this way offers resolutions to many of the prevailing dichotomies, not only between migrants and those left behind but, notably, also between people and things. This means, in practice, that we can understand and thus investigate farmers and land as one, shedding light onto the materialization and objectification of the Chinese farmers' predicament. This will not only provide a more complete picture of migration but eventually, will also open up a way to

conceive migrants as active agents rather than victims – as people who, despite immense costs and pressures, are capable of dealing with specific challenges, of planning and finding their own solutions.

Knowledge, repertoire, and agency

This integrated household strategy and community of practice world approach is useful for showing how both staying and migrated household members deal with their home resources. However, with regard to the actual farming strategies employed, we need some fine-tuning in order to render visible the actors, their strategic agency, and their knowledge and skills. In this regard, I propose to follow a knowledge-strategic, socio-material, and actor-centred framework. This approach is holistic, seeing rice farming as a dynamic knowledge system. At the same time, it opens up a view onto how individual migrant and left-behind rice farmers pursue their own endeavours by engaging with their social and material world through their repertoire of knowledge. This framework is achieved by drawing on a triage of three methodological-theoretical approaches: first, Barth's (2002a) model of knowledge transmission, second, Schippers' (2014a; b; c; d) approach to the farmers' repertoire of knowledge in an agro-system and, third, Ortner's (2006) concept of agency, enriched by Farquhar's (2006) reflections on agency, embedded in visions of the good life.

I am inspired by Fredrik Barth's idea of putting knowledge at the centre of investigation. Knowledge, especially as it translates into action, proves a valuable lens for analyzing the socio-technical transformations and dynamics of Chinese rice farming over recent decades, including its intersections with migration processes. In Barth's model, knowledge refers to 'all the ways of understanding that we use to make up our experienced, grasped reality' (Barth 2002a, 1). This includes feelings, attitudes, information, embodied skills, verbal taxonomies and concepts. Knowledge not only structures how people understand the world, but also how they act in it. Importantly, knowledge is distributed in society, rather than diffusely shared (ibid., 3). The key is to focus on (human or social) action (Barth 2002b, 35).

At the core of Barth's model are the three 'faces' or aspects of knowledge: corpus, communicative medium, and social organization. The corpus of knowledge includes 'substantive assertions and ideas about aspects of the world' (Barth 2002a, 3). In my Chinese case, this includes, for instance, knowledge about specific cultivation techniques. According to Barth, the media in which this corpus of knowledge is represented and communicated

comprise words, symbols, gestures, and actions. I see these media of knowledge representation, among others, in Chinese farmers' bodies, rituals, and farm tools. Finally, Barth claims that knowledge is distributed, employed, and transmitted in the aspect of social organization, reflected in specific collective or household divisions of labour (ibid.). In the Chinese case, this is relevant to the issue of labour depleted through migration. These three aspects are closely related, mutually determine each other, and interconnect in specific ways in different traditions of knowledge (ibid.).

By looking at the interplay of these three faces of knowledge, we can see the dynamics of any given knowledge system: how people attribute validity to certain knowledge, how knowledge is transmitted or not transmitted under specific local conditions and constraints, and which trajectory a particular system of knowledge takes under these conditions. In Chapter 2, I trace the interplay of the three faces and model the trajectory and transformation of the local Chinese system of knowledge surrounding paddy fields as a resource, from the strongly regulated collective system of the 1980s to a more diversified and migration-affected household farming system in the 2010s. This was the period when the predicament of migration pressure versus resource protection emerged, so comprises a crucial moment in the realignment of the knowledge system. Here, the model is also useful for highlighting where various aspects of the system no longer seem to fit, and where contradictions and challenges for the people involved have occurred, have had to be dealt with and resolved.

When applied to the socio-material and technical aspects of agriculture, it is useful to think of Barth's model together with the actual agricultural practices and repertoires in which skills play a crucial role. Thomas Schippers' agro-technological approach (2014a; b; c; d) is particularly inspiring here. Three notions are central to his approach: (1) the agro-system, (2) repertoire, and (3) agricultural practice. The first notion, agro-system or agricultural system, finds parallels in the 'socio-technical system' approach outlined by Bryan Pfaffenberger (1992), which views the social and technical aspects of any (agricultural or non-agricultural) system as being closely integrated and inseparable from each other. I adopt this notion in the form of a general lens through which I view the socio-technical world of Chinese rice farming.

Schippers' second concept, which is most central to my own approach, is that of a repertoire (Schippers 2014b). Referring to farmers' repertoires is, first of all, not unique to Schippers. Nevertheless, it is his idea of farmers' capacities to deal with varying, sometimes unforeseen circumstances that I find particularly inspiring, since it transcends a narrow understanding of the notion of technology as merely a technical set of knowledge and skills. Starting from here, I aim to develop the notion of the farmers' repertoire one step further, to

render it more explicit by placing it at the centre of my analysis, alongside a general focus on knowledge systems. The repertoire idea is especially valuable with regard to studying a concrete case of farmers' socio-technical resources. In my field site, Green Water Village, this practical repertoire of knowledge consists of elements including the corpora of knowledge on different aspects of farming such as soil, water, farming technologies, agricultural practices, and embodied techniques. Moreover, it comprises climate and time knowledge, as represented and transmitted in the farmers' calendar and in proverbs. Finally, it also includes the knowledge of how to organize farm work efficiently, for instance, along gendered lines. In fact, much of this knowledge is skill, requiring learning and 'constant renewal in the course of practical action' (Sigaut 1994, 445). The repertoire notion therefore proves particularly useful for grasping the local Chinese rice farmers' resource pool as a basis for understanding the possibilities and capabilities, but also the constraints of their actions (e.g. in terms of available technology).

Schippers' third notion is that of agricultural practice, stimulated by leading figures from French anthropological academia, such as Haudricourt. Agricultural practices are 'specific ensembles of knowledge and skills brought into play to domesticate certain plants and/or animals in order to satisfy human nutritional, material or immaterial needs' (Schippers 2014a, 339). This perspective on agricultural practices is useful for analyzing aspects of change and stability in the local Chinese system, which has undergone significant transformations such as mechanization. It allows us to examine both the socio-technical aspects of knowledge and skill, and the performative aspect of agriculture. I believe that agricultural practices should also be seen as part of the repertoire of farmers in a certain system. Hence, drawing on the notions of the agro-system, the repertoire, and agricultural practices opens up a view onto particular technological choices under specific, changing social or environmental conditions.

In order to extend this perspective to include issues of power and intention, it is useful to draw on the concept of agency. Agency is a highly influential concept that has been conceived in different ways by various disciplines and schools.[17] From a practice theorist's point of view, agency has been broadly defined as 'the capacity to affect things' (see Ortner 2006, 137). At the core of practice theorists' debates about agency is the dialectic relationship between an overlying social structure and (collective or individual) human agency, and the way and the degree to which the two influence each other (Ahearn 2001, 54). Adding this agency perspective

17   For concise overviews, see Farquhar (2006) and Postill (2010).

helps to highlight how farmers still continue to pursue their own projects, despite the unfavourable structural conditions and being located at the lower end of the power continuum in Chinese society.

In a recent theoretical contribution, Ortner (2006) argues that agency is always closely connected to power, and that in agency there is always an intention. She therefore defines agency with regard to two fields of closely related meaning: firstly, as the exercise of or against 'power'; and secondly as the pursuit of 'projects' (Ortner 2006, 134-149). In the case of Chinese rice farmers, I see Ortner's 'agency-as-power' most clearly in the situation of farmers *vis-à-vis* the Chinese government's rural policy complex. Ortner's 'agency-as-projects', in turn, becomes most obvious when looking at actual household decisions around the resource of paddy fields. Even though these are closely interrelated, it is the more subtle issue of intention that informs my analysis, rather than power relations themselves.

For the purpose of this research, however, which centres on paddy fields as an important part of the rural material world, it is helpful to enhance Ortner's concept with a material culture perspective. Here I refer less to leading academics in this field, who have contributed greatly to studying the agency of things (notably Latour 1988; 1999; Gell 1998). Rather, I find Farquhar's (2006) reflections on agency useful, because she focuses on the interaction of people's bodies and things as a form of craftwork. Farquhar proposes the notion of 'the crafting of a good life' – which I understand as being similar to Ortner's concept of 'projects'. I view the 'imagination' (Appadurai 1999) of the good life as part of the modernity that farmers individually strive for and which drives their actions. In post-reform China, this takes the form of an imagined ideal of middle-class standards of wellbeing and material prosperity, often associated with urban life (e.g. Chen 2001, 167; Zavoretti 2017, 5). Focusing on how the good life is crafted, Farquhar bases her notion of agency on the example of food practices in everyday life, suggesting that 'agency in everyday life is a form of craftwork involving intimate collaborations among embodied humans and material objects like food'. Moreover, she shows that 'the crafting of a good life is an improvisational project in which a great deal goes without saying' (Farquhar 2006, 146). Here, the notion of Ortner's agency-as-project gains momentum from an embodiment and material culture perspective, because it draws attention to a much more subtle and unspoken agency. This agency, I suggest, also becomes visible when farmers engage with their fields, for instance, in the everyday practice of planting a certain crop, or applying a specific type of manure, while striving towards the ideal of the good life.

Taken together, this triage of concepts – comprising the knowledge system, the repertoire and the concept of agency that is driven by projects informed

by the idealized imagination of a good life – is extremely productive. It allows for an analysis of the Chinese migrant world as a community of practice world, thereby taking into consideration the distributed knowledge and skills that underlie the actions of both staying and migrating farmers. This lets us explore how farmers as agents cope with their specific socio-material situation of being paddy field bound.

Accessing the rural-urban community of practice

My methodological approach to the rural-urban community of practice is through ethnographic fieldwork, proverbs and written qualitative and historical sources. The ethnographic fieldwork for this research was conducted during nineteen months' research in the People's Republic of China (PRC) in 2007-2008 and 2010-2011, as well as through follow-up correspondence and video conversations conducted between 2012 and 2017. The book focuses on rural Hunan Province in the 2010s. Additional data were collected from Anhui migrants in urban Shanghai and rural Anhui Province (see Figure 1).

I chose these sites for practical reasons, but also as part of my theoretical-methodological approach of studying a migrant world as a community of practice that comprises migrants' places of origin as well as their destinations. Paddy fields are assets – or artefacts – that remain in their location, in contrast to mobile objects that migrants can take with them. Therefore, my methodological aim is not to 'follow the things' (Appadurai 1986a, 5). Instead, the general emphasis within the migrant world discussed here is on the rural side of migration, because that is where the paddy fields are located. I look at how both the people who stay and those who move away manage this artefact that stays behind. Accordingly, data were obtained mainly through direct and participant observation, as well as semi-structured, open interviews, and informal conversations in standard Chinese (*putong hua*). My interlocutors were both rural-to-urban migrants and those who had stayed in the countryside. I met some of the migrants, both in their villages and in the city where they worked as migrants. Throughout my time in China I talked to numerous people who are relevant for this research, the most central of which were twelve households interviewed in Hunan, and five in Shanghai. Only one household was from Shanghai and of urban origin, and I included them because of their experience of being sent to the countryside during the 1960s and 1970s to engage in rice farming.

Regarding the origin of most of my interlocutors, when it comes to farming and migration, Anhui and Hunan have some similarities. Both are

Figure 1   Map of mainland China
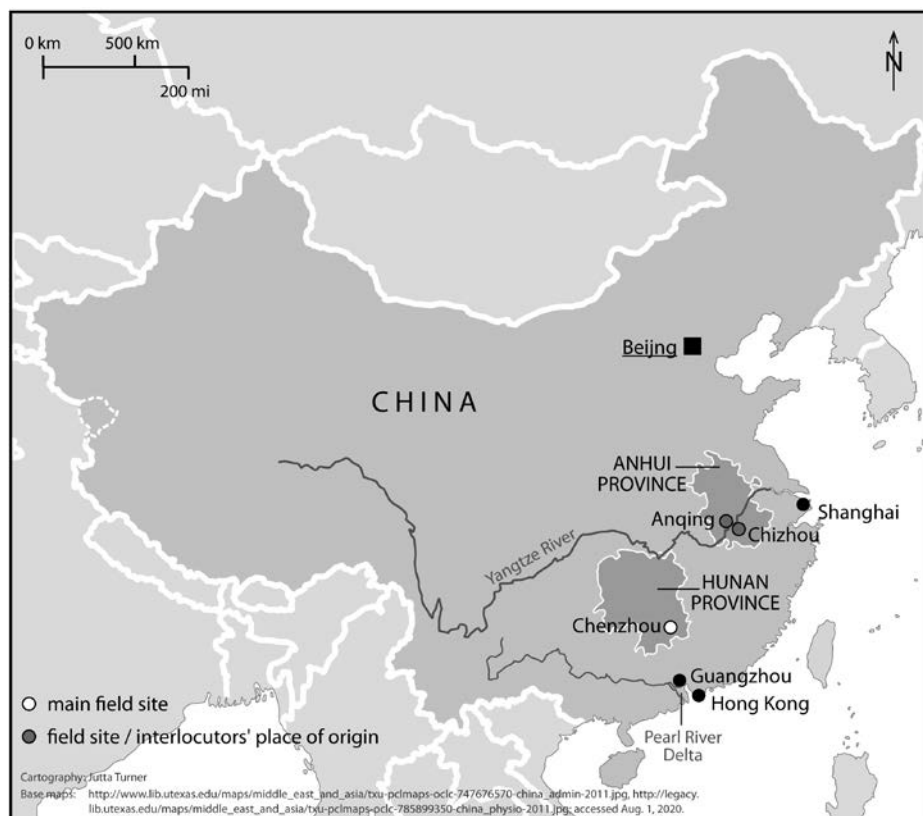
Cartography by Jutta Turner

among China's main rice-producing provinces. Moreover, both are densely populated, land-locked provinces near the Yangtze River, rather remote from China's big coastal cities and mainly inhabited by Han Chinese. They are the country's second and third major sending areas respectively for internal migrants after Sichuan (Lu and Xia 2016, 593). This has been attributed to economic regional disparities and inequalities (Naughton 2007, 26; Fan 2008). Similar to Anhui Province, but in contrast to the coastal provinces of southern China such as Guangdong, Hunan does not have a marked history of overseas migration. This implies a lack of investment into the province by overseas Chinese (Wang 2003, 319). This, in turn, gives Hunan a regional disadvantage compared to other provinces which earn significant income from abroad. This situation contributes to confining Hunan to the group of migrant-sending provinces, and favours domestic migration in the light of a lack of overseas networks.

Despite these broad similarities, however, there are also differences in the farming conditions between the two provinces. Hunan's agricultural economy, which is located in the Middle Yangtze region, is specialized and primarily based on rice production. In contrast, the Lower Yangtze region has a more diversified economy (Naughton 2007, 26). My Anhui interlocutors came from villages under the administration of the two neighbouring cities Anqing and Chizhou, located in central south Anhui. There, farmers planted one crop of rice, followed by a crop of cotton and one of rape seed. Moreover, despite being located near the Yangtze River and several lakes, the land is flatter and water resources are scarcer there, compared to my field site in Hunan. Farmers needed to use pumps to irrigate their fields, and in wintertime it was difficult to find enough water to fill up our hot-water bottles.

Nevertheless, in view of the more general constraints outlined above, the key challenge that rice farming households from Anhui and Hunan faced – the problem of protecting their field resources at home while simultaneously feeling prompted to migrate – was the same. As a result, although their specific crops and farming implements differed slightly, the way my interlocutors from both provinces dealt with the problem was still similar. This is still the main predicament faced by many people migrating from farms to cities in many parts of China today, who attempt to earn income from their urban jobs, yet retain some security in the form of their paddy fields back home. Nevertheless, this book focuses mainly on Hunan Province because of the more suitable research conditions I encountered there: being able to move around independently, in addition to accessing the local written sources described below.

Hunan Province (see Figure 2) is particularly apt for investigating questions at the nexus of agriculture and migration. On the one hand, parts of its topography make it especially suitable for wet rice cultivation. While most of the province is mountainous and hilly, it lies south of the middle reaches of the Yangtze River and south of Dongting Lake, which gives the province its name, literally 'south of the lake'. Rice cultivation benefits from the lake and river crossings, as well as the subtropical climate. Accordingly, the province holds one of the world's longest histories of rice production and still maintains a local economy that is based mainly on rice. Today, Hunan produces more than 12 percent of the PRC's entire rice output on only 3 percent of the country's area of cultivated land (NBSC 2019, secs. 8-21, 12-10).[18] This facilitates surplus grain production

18   All national rankings and statistics in this book refer to mainland China, including its 31 provinces, autonomous regions and municipalities, but excluding Hong Kong, Macao, Taiwan, and overseas Chinese areas. I use 'China' to denote this administrative unit of mainland China.

Figure 2   Map of Hunan Province
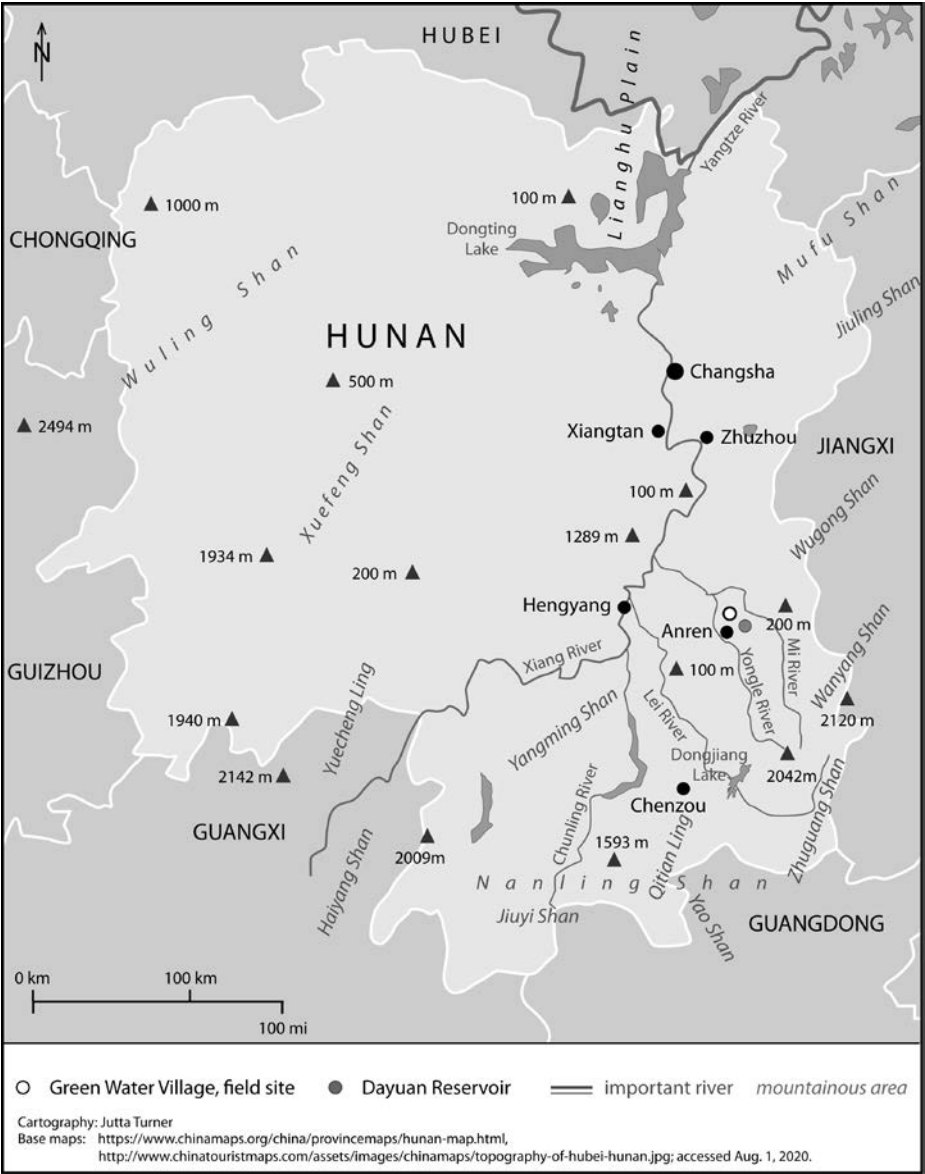
Cartography by Jutta Turner

and export to other provinces. On the other hand, as mentioned above, Hunan Province is among China's major sending provinces of internal migrants. Although Hunan's population structure is close to the national average, it is more densely populated than the national average (HPBS

2014, sec. 1-2). This population pressure adds to migration pressure. In fact, about 5 percent of China's population lives in Hunan, which only comprises about 2 percent of the country's land mass (Hunan Government 2015). In 2011, 65.96 million people lived in Hunan (HPBS 2012b), similar to the entire land area and population of the United Kingdom, but this had grown to 73 million inhabitants by 2018 (HPBS 2019, sec. 1-2). Much of the land is mountainous and not suitable for farming, however. The closest major metropolis is Guangzhou in the Pearl River Delta, about 500 km away. Most of Hunan's migrants move to this area in nearby Guangdong Province.

The area of my field site in the province is fairly representative of the provincial average. The prefectural-level city of Chenzhou, which is located in the far southeast of the province, is neither a very poor and remote mountain area, nor does it belong to the rich urban areas in the northeast. Apart from rice, the major agricultural products are tubers, tobacco, bamboo shoots, mutton, and pigs (HPBS 2014, secs. 19-30, 19-33). Moreover, the prefecture produces some mining products, energy, and building materials (Hunan Government 2015). At the county level, in 2019 my field site, Anren County, had a resident population of 464,800 people, and a total area sown to grain (mainly rice) of 44,100 hectares (ACBS 2020).

In Chenzhou I focused on six villages in Longshi Township in Anren County and, among these, in particular a rice farming village I call Green Water, one of ten administrative villages in Longshi Township. The township is reported to have originated in the Song Dynasty (about 960-1279). At that time it was famous for producing oil and paper, as well as being the location of an imperial academy. According to the township gazetteer, each of the ten administrative villages has around eight natural villages, subdivided into 13 village groups. In 2010, there were an average of 1,470 registered inhabitants per village, arranged into 370 households (Wu 2010, 4, 278).[19] Temporary migrants are included in these figures.

I mainly collected data in two adjacent village groups, which comprise about 230 people in total and constitute one natural village.[20] People here see themselves as belonging to the same patrilineage, which is the customary form of Han Chinese social organization (Santos and Harrell 2017). Virilocal marriage practices mean that brothers and agnates are usually neighbours as well as parties of mutual aid with regard to the organization of agricultural

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19   For reasons of privacy, the exact village data are not provided here.
20   Often, several natural villages constitute one administrative village. See Wu (2016) for the differences and dynamics between natural and administrative villages in China.

labour. Similar to other Han Chinese lineages, in their seven-volume family record (*jiapu*) the lineage constructs a millennia-old family history, linking itself genealogically to the legendary Yan Emperor. The family record also contains a village map which depicts geomantically significant 'dragon lines' (*longxian*) and documents the position of hills, houses, tombs, fields, and irrigation ponds, reflecting the centrality of wet rice farming to the local economy.

Land suitable for house construction or farming is perceived as scarce. Therefore, houses – whether the old flat clay houses, or the new multi-storey brick and concrete ones – often have no courtyards, as is common in North China. Instead, the walls of a house are commonly shared with those of the neighbouring houses. There is also insufficient space to build every house with its entrance facing south, as is geomantically preferable (see Feuchtwang 2002). Generally, the area is so densely populated that villages are located in close walking distance from one another, sometimes only divided by a short stretch of paddy fields. The area counts as hilly land and there are many mountains and few fields. Mountain forest makes up almost 87 percent of Longshi Township's land resources, compared to only about 13 percent of farmland (Wu 2010, 4). Moreover, not all of the farmland is good quality or suitable for rice farming.

It only became possible to access all the villages in the township by car in 2001, when paved roads were constructed with governmental support (Wu 2010, 245). From Longshi Township it takes about half an hour on the bus to reach the county seat, and from there it is about a four-hour bus ride on the highway to the provincial capital, Changsha. Hence, Green Water Village is quite remote from major cities, which also has implications in terms of migration distances and duration. This affects the strategies of field resource protection, since commuting is not a common option.

My research in Hunan in 2011 was the final part of almost four years that I spent in the People's Republic of China between 2006 and 2011. During that time, I was mainly based in Shanghai, first as a language student, and later as an M.A. and then a PhD researcher. My stay also included one year working in Beijing for a Sino-German development organization. In addition, I visited the countryside of most of China's rice-growing provinces, as well as the major coastal cities and common destinations for rural migrants, for instance, in the Pearl River Delta. My repeated casual conversations with migrant and non-migrant farmers and the observations I made, both in the cities and in the countryside, have provided valuable additional insights.

During everyday life in cities such as Shanghai or Beijing, rural-urban migrants are encountered virtually everywhere, as street vendors, cleaners,

rubbish clearers, security guards or construction workers, as well as employees in shops, restaurants, canteens, massage parlours, hairdressers, and hospitals. Being a foreigner and speaking Chinese generally made it easy to strike up conversations with people in cities and villages, as they were eager to satisfy their curiosity about Western people. In this way, I also had the chance to practise more in-depth participant observation of migrants' everyday working lives, for example in cleaning, street vending and restaurant work, which are typical occupational fields for Chinese internal migrants, but also academic and office work.

Some of these contacts, with whom I established deeper and more regular relationships during my initial research into the urban side of migration (Kaufmann 2011; 2016), later became the main interlocutors for this ethnographic inquiry into rice farming and migration. Among these, are, notably, two extended families that I mentioned in the Introduction. One is the Wu family from Anhui, who I met in Shanghai and accompanied home in 2008; the other is Yuemei's family from Green Water, Hunan. My account from Hunan is strongly influenced by the perspectives of Yuemei's family, their relatives, neighbours, and friends. I first met Yuemei as a colleague in Beijing in 2009-2010, where we shared not only a desk, but many aspects of everyday life. Gradually, we also became close friends. When Yuemei heard about my plans to engage in a research project focusing on rice farming and migration, she immediately offered to take me home to stay with her parents. Shortly thereafter Yuemei and I met in Changsha, the provincial capital, and she took me to her rural home. Yuemei turned out to be a highly dedicated research assistant. She also helped me to acquire some rare written sources, and assisted me in collecting additional data during subsequent visits. Apart from sleeping and eating with Yuemei's family, I took part in a whole range of everyday life activities and agricultural tasks, from watering the fields to milling and eating the harvested rice. I also had the opportunity to pay overnight visits to members of their extended family in various nearby villages, and to participate in special occasions such as engagement, wedding, and funeral ceremonies, as well as the Chinese New Year. We began our research journey to Hunan just before the New Year celebrations. This period around the New Year was unique, as it offered the rare opportunity to meet 'complete' households, being the time when migrants return home to congregate with their left-behind family members.

Having arrived in Green Water Village before the wave of incoming migrant workers, I was able to witness the amazing differences in local population structure that ensued. It was enlightening to experience how the de-populated villages filled up step by step with more and more returning

villagers, to share the waiting and anxieties during a time when smartphones did not yet exist and landline phone communication was expensive for many rural inhabitants. I also participated in the emotional reunions between family members who had missed each other and had not met for months or even years, especially those of migrant mothers and their left-behind children. It was remarkable to see how, in the wake of the celebrations, people changed their appearances by dressing themselves in new clothes and fashions that were perceived as urban and modern, especially the returnees.

Ethnographic field research made it possible to closely observe and participate in such situations. It provided in-depth insights into the ways farmers between farming and migration did things, and how they made sense out of this. Moreover, I also accessed the rural-urban community of practice through a range of written qualitative and historical sources. Some of these provide insights into farmers' knowledge and its transformation, while others help to understand the historical transformation as well as the official constraints that contemporary Chinese farmers face. The former include two anthologies of Chinese oral vernacular literature, the *minjian wenxue* (CZ 1988; XT 1988). These stem from a state-supported mass movement of oral literature collection in the 1980s, described in Chapter 3. My interest in this medium of knowledge representation was sparked by a proverb I saw painted on a farmer's house in Green Water Village (see Figure 4). The definite ethnographic value of oral literature has previously been discussed and demonstrated by scholars such as Chard (1990) and Flitsch (1994; 2004), who have suggested that the 1980s' mass attempt to collect such heritage does, indeed, deserve fresh attention. To access this particular medium, I drew on several established methods of folk literature analysis. Inspired by Ruth Finnegan (1992), these included stylistical analysis, textual analysis, the construction of typologies, and contextual analysis. I touched upon several of these to provide an exemplary kind of material way to frame questions of rice knowledge transmission, the transformation, and negotiation of knowledge. As most of the proverbs were not studied in interaction, however, there are clearly limitations in my scrutiny, from the lack of their performative aspect.

With regard to understanding the official perspective of the state and the related structural constraints that farmers face, I drew on local gazetteers (*difangzhi*), complemented by yearbooks and agricultural reports.[21] The

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21   For some problems with Chinese agricultural statistics see OECD (2005, 51-52). While I have no way to judge the accuracy of statistics gleaned from these sources, my triangulation of available national, provincial, county and township statistics with the qualitative data obtained from my

gazeteers were county, township, and industrial gazetteers from my field site (ACIGCC 1993; ACGCC 1996; 2011; Wu 2010). Taken together, they covered the period between the 1840s and the early 2000s, with the main focus on PRC history. Similar PRC gazetteers have been evaluated in detail by various China scholars discussing their official nature and constraints, as well as their value for studying local history and contemporary China (Thøgersen and Clausen 1992; Vermeer 1992; Looney 2008). As sources for this book, the local gazetteers provided important insights into the official perspective of the state, which relates to the structural constraints that farmers face. Moreover, they not only provided ample overview data at the county and township levels that helped to contextualize the setting in which the paddy field predicament emerged, but also local historic details of periods that lack contemporary witnesses and where sources are difficult to obtain. Importantly, since agriculture is a key topic in Chinese gazetteers and fits well into the overarching narrative of development and progress constructed by their editors, rice farming practices are thoroughly described in great detail. Throughout this book, however, I aim to deconstruct the narrative of almost-linear progress and social and technological development that pervades the agricultural sections of the gazetteers, as well as much of our common-sense understanding of technology more generally.[22]

Structure of the book

This book aims to show the value of adopting a socio-technical perspective to understand migration processes, through the example of rice farming and migration in China. The book sets out from analyzing the important policy and knowledge transformations since the 1950s that have given rise to the particular situation that farmers currently face, before describing farmers' contemporary responses to these transformations.

   This chapter has introduced the basic predicament being faced by rice farmers in post-reform China, i.e. the conflicting pressures to both migrate into cities and yet preserve their family resources in the countryside. It posits that paddy fields play a crucial role in shaping farmers' migration strategies.

interlocutors, local gazetteers and proverb collections shows that the data are fundamentally consistent. Besides, the overall trends, e.g. regarding the spread of agricultural mechanization, are so obvious that minor mistakes would not alter them.

22   For valuable critiques of this common-sense notion, see Pfaffenberger (1992) and Edgerton (2007) in general, as well as Bray (1994) and Sigaut (1994) on farming technology in particular.

More generally, it proposes that socio-technical resources and related skills are key factors in understanding migration flows and the characteristics of migrant-home relations. Furthermore, this introduction has proposed a socio-technical approach to investigating this paddy field predicament and explained how this approach contributes to existing literature at the intersection of the literature on migration, agriculture, and skilled practice. Finally, it has introduced the main field site of Green Water, a rice-farming village in southern China, and briefly discussed my study's data and sources.

Chapter 1 describes the political setting since the 1950s in which the paddy field predicament has emerged. It shows that the Chinese state has been a major driver of the current situation through its rural policies, which provide both constraints and opportunities with regard to possible household strategies at the nexus of farming and migration. In unfolding this argument, special attention is paid to the widespread adoption of modern farming technologies that have set free agricultural labour. These policy-based transformations in agricultural technology are further placed into the context of de-collectivization and marketization, the abolition of the collective welfare system, the new urban economy, and loosened migration restrictions – all of which have pushed farmers to migrate and enhanced their precarity, which in turn makes them want to protect their fields as a safety net.

Chapters 2 to 5 constitute the qualitative-ethnographic body of the book. In order to better understand the problems farmers face, and the options they can call on to deal with their situation, Chapter 2 considers how paddy field knowledge is transmitted and how this has changed over recent decades. The chapter shows that there has been a complex reconfiguration of the repertoire of rice knowledge. On the one hand, this has created challenges for the future preservation of the paddy fields, such as deskilling in the young migrant generation. On the other hand, it has provided farmers with an extended repertoire of knowledge they can use to handle their paddy field predicament.

Chapter 3 describes one specific verbal medium of paddy field knowledge transmission, farming proverbs, discussing the role these proverbs play in the context of the paddy field-migration predicament. The chapter asserts that these agricultural maxims not only provide additional evidence for the transformations described in Chapter 3. It also explains that, first, the strength of these sayings lies precisely in their flexibility, which has made them a platform for knowledge negotiation between farmers and the state; and, second, that these proverbs have the potential to serve as a back-up resource for retaining paddy field knowledge.

Based on my ethnographic field research, Chapters 4 and 5 both analyse the socio-technical strategies that rice farmers use to manage their farmland. Chapter 4 focuses specifically on the strategic decisions made in farming technology. It does so mainly through the example of one left-behind woman, Mrs. Luo, and her choice of harvesting technologies. This sheds light on the diverse factors behind decision-making. It argues against a linear perspective of technological development, showing why it makes sense for farmers to simultaneously draw on a repertoire of old and new technologies, rather than simply opting for mechanization in order to compensate for the migrated labour. This also provides additional insights into the complex relationship between farming technology and migration, the causality of which has been much debated.

Examining several cases of both migrant and left-behind household members, Chapter 5 provides a rare, comprehensive overview of twelve land-use and land-arrangement strategies. These include social strategies such as leaving behind close family members to take care of the paddy fields, as in the case of Mrs. Luo. They also comprise more technical options, as in the case of Granny Li, who has switched from cultivating rice to growing a particular type of cash crop that is easier to manage, in view of her household situation and available labour and skills. Furthermore, it includes a brief analysis of the response of the Chinese central and local state to each of the twelve strategies. Overall, it demonstrates how farmers draw on a wide repertoire of available resources to handle their complex situation. Shedding new light on the logics behind land-use decisions, it shows that, in taking seemingly technical farming decisions, farmers are in fact pursuing various long-term and short-term projects that best match their fluctuating current and anticipated future household situation.

The Conclusion discusses four general advantages of investigating migration settings from a socio-technical skill perspective. First, it provides an understanding of a particular form of peasant agency that is commonly overlooked, because it is rooted in often-tacit everyday material practices. Second, focusing on skill allows us to better understand the reasons behind farmers' decision-making. Third, a skill perspective provides new insights into technology and Chinese modernity. Finally, the chapter argues that taking such a skill perspective contributes to understanding migration beyond the common dichotomies such as between migrant people and things, or migrants and left-behind family members. It concludes that even those who move to the cities remain part of their village communities of practice, sustaining relationships with their families and friends through visits and interactions. Moreover, they maintain their ties to the land through

the ongoing management of their paddy fields – whether hands-on in person or at a distance using other household farming strategies.

The Conclusion is followed by an Appendix which comprises: (I.) A Glossary including Chinese characters, (II.) a list of the names and dates of the solar terms that structure farming activities throughout the agricultural year, (III.) the 'Song of the 24 Solar Terms', which is used to memorize this calendrical structure and, (IV.) annotated examples of about 150 local rice farming proverbs and encoded knowledge, to provide a clearer illustration of the points made in Chapter 3.

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