

1 From food crop to food shop. Agricultural commercialization, food security, and gender relations in Cambodia

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Introduction

Over the last two decades, the highlands of Cambodia have experienced an unprecedented territorial expansion and intensification of commercial agriculture driven by large-scale land acquisitions and significant migration from the lowlands. Rural livelihoods have changed radically in terms of access to natural resources, land tenure, economic activities, and the way people procure their food. Non-edible cash crops and wage labour have become the pillars of the household economy. Borrowing money has become crucial for the purchase of farming inputs and equipment, consumption goods, housing, and motorbikes, as well as for buying food.

Overall, the food security situation in Cambodia has improved over the last 20 years, in the sense that the country has not experienced ‘drastic food insecurity’ (Culas and Tekreo, 2016). However, the Food and Agriculture Organization (FAO) considers that Cambodia is characterized by ‘serious hunger’ (FAO, 2019) given that undernourishment is lying between 15% and 31%. Moreover, undernutrition as well as insufficient dietary diversity and quality to meet nutrient needs remain high (McDonald et al., 2015; Talukder et al., 2010). Lastly, there is a growing concern about food safety and nutrition. Food availability remains vulnerable to climate and natural disasters, and price fluctuations have a serious impact on the poor in terms of access to food.

New livelihood systems have also induced changes in gender relations, with regard to the organization of labour, decision-making, and responsibilities. These changes in turn contribute to reshape gender orders and hierarchies (Gironde et al., 2021). This chapter addresses the outcomes of this process with regard to gender relations and food security. It aims at answering two main questions. The first one is what have been the major changes induced by the reorganization of livelihoods with regard to food security, including procurement, availability, access, and diversity of food? And to what extent do these outcomes differ in terms of gender? The

second main question is what strategies do households deploy to adapt to the new environment and to what extent are these strategies gendered? Our analysis covers a period of around seven years (2013–2020), based on field research carried out in the two provinces of Ratanakiri and Kampong Thom in 2011–2013 and between 2016 and 2020.

The first section after this one recalls the discussions around the expansion of commercial agriculture, its consequences on food security, and how gender relations may be implicated in food security. The second section presents the analytical framework, the data, and the methods used. Then, we introduce the research areas and the major socio-economic changes that have affected them. Research findings are presented in the next two sections, which include an analysis of food security and household strategies with a systematic gender consideration. The final section discusses our findings and their contribution to the broader understanding of the interrelations between agricultural commercialization, gender relations, and food security.

Agricultural commercialization, food security, and gender

The global land rush and the expansion of large-scale farming units is predominantly seen as a threat to the food security of impacted communities, as many lose lands that were previously used for food production. The situation may be aggravated as most of the land acquisitions are turned into plantation farming of non-edible crops and/or food crops that are exported (Titche, 2017; Rulli and D’Odorico, 2014).

Over the last 20 years, Cambodia has experienced such a process, including a strong development of rubber, cassava for animal feed, sugarcane, and cashew. The shift to cash crops has accelerated with the set-up of economic land concessions (ELCs) measuring thousands of hectares (Peeters, 2015; Oldenburg and Neef, 2014) and other landholdings of dozens to hundreds of hectares (Gironde et al., 2015). As a consequence, the majority of rural populations have seen their access to land eroded (Diepart and Sem, 2016; Un and So, 2011). Traditional ways of life, including free access to natural resources from forest, grazing, and water areas that were crucial to subsistence and swidden farming have been undermined (Frieson, 2010; Bourdier, 2009). Small landholders have no choice but to reorganize their cropping systems according to crop booms (Mahanty and Milne, 2016; Bourdier, 2012). This process is found overall to have negative consequences on impacted communities (Hak et al., 2018; Bühler et al., 2015; Jiao et al., 2015). Cash-crop price volatility has exposed small producers to severe consequences that are best illustrated by the fall of cassava prices (Hought et al., 2012). In addition, cash-crop incomes have turned out not to be up to the levels of investments, making many producers indebted (Gironde and Ramirez, 2019; Mahanty and Milne, 2016; Bylander, 2015).

The reconfiguration of agriculture and food procurement systems must take gender relations into account, considering the different and disproportionate impacts on women when compared to men (Levien, 2016; Joshi, 2015; Behrman et al., 2014) and the significant contribution of women to food production and family food management (Agarwal, 2011). There has been a broad consensus that the transformation of rural livelihoods in Cambodia has resulted in a loss of status and increased vulnerability of women when compared to the socio-economic organization that prevailed before the development of the market economy as depicted by Ebihara and Mertha (1965), White (1996), and Bourdier (2009). Frieson (2001) dates this back to the Democratic Kampuchea era and the war, including a culture of violence and inequality in access to land that did not exist before. The status of rural women is deemed to have further eroded, as the importance of subsistence agriculture, in which women were key, has been shrinking (Park and Maffii, 2017). Gender inequality is considered to increase also since men have taken new and predominant roles in commercial transactions, wage labour, and interactions with outsiders, while women have tended to remain confined to the domestic sphere (Joshi, 2020; Kusakabe, 2015; Paramita, 2013). However, several authors have drawn attention to the uneven situations of women who should not be considered as a homogeneous group (Frewer, 2017; Levien, 2017).

Our research addresses more particularly the consequences of gender relations for food security. First, food security is deemed correlated with the proportion of land controlled by women (Scanlan, 2004). In this regard, it has been argued about land grabs that women overall lose access to more land compared to men (Julia and White, 2012). Second, women who are considered to put more emphasis on food crops than their husbands may lose their traditional role in providing food because of the growing importance of cash crops (Holden and Ghebru, 2016). Third, the increasing workload of women leaves them insufficient time to devote to preparing food for the family (Komatsu et al., 2018; Johnston et al., 2015). Four, women are considered to better prioritize spending on food items and health over non-essential items (Seymour et al., 2019; Fan and Pandya-Lorch, 2012).

Analytical framework and data

Our approach to food security builds on the FAO definition of ‘food and nutrition security’, which includes availability, access, stability, and quality of food for all people in all seasons (FAO, 2012). Availability of food is approached through the way people procure their food. Access is documented throughout dietary diversity, food shortages, and food shocks. Stability is addressed throughout the duration and seasonality of food shortage and by crossing shortage with income from wage labour along the year.

We build on the livelihood system framework (Scoones, 2015) to address the change in food procurement. Among the various productive resources,

we analyse in particular households' access to natural capital, i.e., land for farming and natural resources from the wild, and access to financial capital, which is key for the purchase of agricultural inputs. Access to financial capital, including borrowing from other households, credit purchases in shops, and bank loans, is also of growing importance for the purchase of food items. We examine households' strategies, in this case their capability to adapt crop choices according to market demand and the respective prices of farming inputs, outputs, and food items. This allows us to highlight how producers make trade-offs between subsistence and cash crops as well as own-produced and purchased food. To avoid a productive resources-production determinism, we use the concept of 'assets' of Bebbington (1999) according to whom resources such as land are not only 'a means to make a living' (1999: 2022) but also 'the basis of agent's power to act' (*idem*). This is combined with Bylander's concept of 'negotiated decision-making', which allows to highlight the respective agency of household members, economic constraints, and gender norms (Bylander, 2014:13).

Gender differences are approached through the lenses of access to and control over productive resources, i.e., outputs in kind from farming and cash income from wage labour. Women may have the same access as men to productive resources but not the same control over them, i.e., the power to decide how these resources are used. These powers reflect historically constructed attributes and identities, codes of conduct, and expected behaviours (Brickell, 2011; Frierson, 2010; Ledgerwood, 1996). We analyse how these translate and are adapted into everyday life practices and their evolution induced by the reorganization of livelihoods. Throughout access and control, we highlight changes in food procurement and food security and the extent to which they are influenced by men and women's respective workload and responsibilities, as well as women's position relative to men (March et al., 2005). Our gender analysis is combined with the livelihood framework to analyse how access to productive resources is subject to change (Peluso and Ribot, 2020) in the context of deforestation, land-use change, new technologies, migration, the increasing need for cash, and the development of market, which all contribute to reshaping productive strategies and social norms.

The field research used both quantitative and qualitative methods. Two questionnaire-based surveys were carried out, including 200 randomly selected households in each of the two provinces of Kampong Thom and Ratanakiri in 2016 and 700 and 459 households respectively in 2019. The design of questionnaires and semi-structured interview guidelines were adapted to address intra-household gender relations, including specific questions to be answered by women. The surveys were programmed on KoBoToolbox and were implemented through mobile phones with the use of the KoBoCollect app. This allowed us to save time and prevent mistakes at the time of implementation. The dataset was later processed and analysed with Stata.

In parallel, a series of 430 semi-structured interviews with household members and around 50 with local political authority representatives were

conducted between 2016 and 2019. In addition, many unplanned interviews were conducted with people we met by chance in the villages and in marketplaces in the neighbourhood of the selected sites. We coded the transcripts of the interviews in NVivo; a node-list based on the topics included in the questionnaire was developed with the aim that quantitative findings would be compared, substantiated, and illustrated by the findings from semi-structured interviews. Interviewees were anonymized, and statements are not credited to any specific individual or public authority. Quotes in the chapter are translations of original ones made in Khmer or in the language of indigenous communities (mostly Tampuan and Jarai). We also used data and information from previous research carried out between 2011 and 2013 in the same sites.

The changing landscape of Kampong Thom and Ratanakiri

In Kampong Thom, the four selected communes, Bong Lvea, Kraya, Prasat, and Thnoat Chum used to rely primarily on wet rice in the lower lands and on cassava in the upper lands. Farming was complemented by fishing, buffalo raising, the sale of various resources from the forest (bamboo, rattan, resin), and logging. Livelihoods changed radically with the development of ELCs in the second half of the 2000s, which attracted newcomers who settled along the roads and cleared lands. Cashew and cassava developed, as transportation infrastructure improved and traders became more numerous. Logging reduced as rubber companies occupied forest areas. Casual wage labour also developed as the newcomers and households who managed to accumulate lands were in need of labour force.

In Ratanakiri, the two studied communes, Loum Char and Malik, were up until the mid-1990s characterized by the relative abundance of land for swidden farming, mostly rain-fed rice and vegetables in a rotating system including 10–15 years of fallow land after 2–3 years of use of the same plot. Populations also used to rely on free access to forests and rivers that were rich in game, food, and medicinal plants. Cash crops, such as soybeans and cashews, were introduced during the 1990s. Rubber developed later with the sharp increase of its price in 2005.

The development of ELCs and other medium-sized landholdings has consequently impacted the five selected communes in terms of loss of access to resources from the wild and land for farming. Overall, the losses were more severe in Kampong Thom, including cases of forced displacement and relocation 12 km away on sites where families received only residential land plots with poor soil quality (Paramita, 2013). In comparison, in Ratanakiri, the development of ELCs was less severe given the abundance of land. Land losses were however very uneven between villages from the same commune depending on the proximity to ELCs. On the other side, the availability of land and the rubber boom have attracted far more numerous migrants to

Ratanakiri. The non-native population represents about one third of the total population; the majority of them acquired lands and some of them developed small- and medium-sized rubber plantations ranging from two to five hectares to several dozen hectares.

The change in landscape in the two studied areas is characterized first by the reduction of the forest and other areas for fishing and grazing once they were acquired by ELCs and others. In 2016, 92% of our sampled population reported that free access to forest areas had reduced over the previous five years; 87% for access to water areas for fishing and 86% in the case of grazing areas. The percentages are similar in 2019, slightly more severe in the case of Kampong Thom, slightly less in Ratanakiri where some of the ELCs have not developed as planned. Furthermore, natural resources in the wild have been seriously depleted.

A second major change is the reduction of households' land for farming, from 2.9 ha in 2016 to 2.5 ha in 2019 in Kampong Thom and from 4.5 to 4.2 ha in the case of Ratanakiri. The share of households with less than two ha and less than one ha has markedly increased in Kampong Thom. The trend is the same but is at a slower pace in Ratanakiri (Table 1.1).

Differences in landholding are significant across generations. In 2019, the mean land area of households with the head being below 25 years of age is 2.1 ha compared to 3.2 ha for the whole sample. When compared to 2016, the gap across generations has been on the rise. We did not find evidence that women lost more access to land than men when looking at landholding: lands are jointly held and farmed by wife and husband. There also is no evidence of more control of the use of land by the man versus by the woman. Joint decision and working together are predominant and even slightly on the rise. With the change in natural environment and land use, men-specific tasks, such as slashing trees and hunting, have reduced and been eased, thanks to chainsaws and hand-tractors. The tasks that were women-specific have also changed, thanks to new technologies such as brush-cutters, weedicides, and fertilizers. Some gender division of labour persists, such as ploughing by men, but most of the farming tasks can now be carried out by women as well as men (Gironde et al., 2021).

Another major change is the development of wage labour, mostly farm work on a daily basis for other households and medium-sized plantations.

Table 1.1 Percentage of households with less than 1 ha and 2 ha

	<i>Kampong Thom</i>		<i>Ratanakiri</i>	
	2016 (%)	2019 (%)	2016 (%)	2019 (%)
Less than 2 ha	44	56	23	27
Less than 1 ha	27	38	12	13

Source: Demeter Surveys (2016, 2019)

Both men and women have increasingly engaged in wage labour, with a higher participation of men who are often preferred over women. This preference from employers relates to physical strength and the search for hired workers with tools and machines, such as chainsaws and hand-driven tractors, which are used more by men than women (Gironde et al., 2021). Additionally, women's lower participation in wage labour is due to the fact that they are occupied with reproductive activities.

Lastly, the studied communes are characterized by their increasing interconnection with the outside, including the development of commercial activities and people movement. Trade and service activities have also developed in administrative, provincial, and district towns, including commercial banks that have become a major player in the transformation of the rural economy. The two studied areas have enjoyed a growing number of marketplaces and shops selling food in district centres, along the roads and even in the smallest and most remote villages. Trade has developed with the tarring of some roads and the opening of new ones. Nowadays, every household either has a motorbike or can borrow one from a relative, and enjoy more options with regard to where to buy food. Food purchases have also developed, thanks to the possibility of buying on credit from the shops.

Shopping has become by far the main way people procure their food (Figure 1.1). The importance of food purchase is particularly significant in Kampong Thom where, in 2016, 84% of our sample reported that purchase was the main source for procuring their rice; they were 91% and 98% reporting the same respectively for fish and fruits.

Overall, the importance of food purchases is lower in Ratanakiri where the reduction of access to natural resources was less severe. However, in these areas that had forests rich in game and where there was plenty of space for grazing, it is noticeable that 90% of the households responded that purchase was the main way they procured their meat. The same applies for fish with 72% of the sample reporting that the main source of procurement is purchased whereas people used to fish in surrounding water streams.

Food security

When interviewing people on the issue of food and change over time, the large majority states first that 'now there is more', 'it's better than before', and 'now food is available all year round'. However, any discussion around food rapidly moves to food price, inflation, and the inability to afford such and such items, or the need to borrow. In 2019, like in 2016, the most reported shock in the two provinces was the *increase in the price of major food items consumed*.

Access, stability, and diversity

While availability has increased, access to food remains a serious challenge as shown by the evolution and duration of food shortages. The two studied

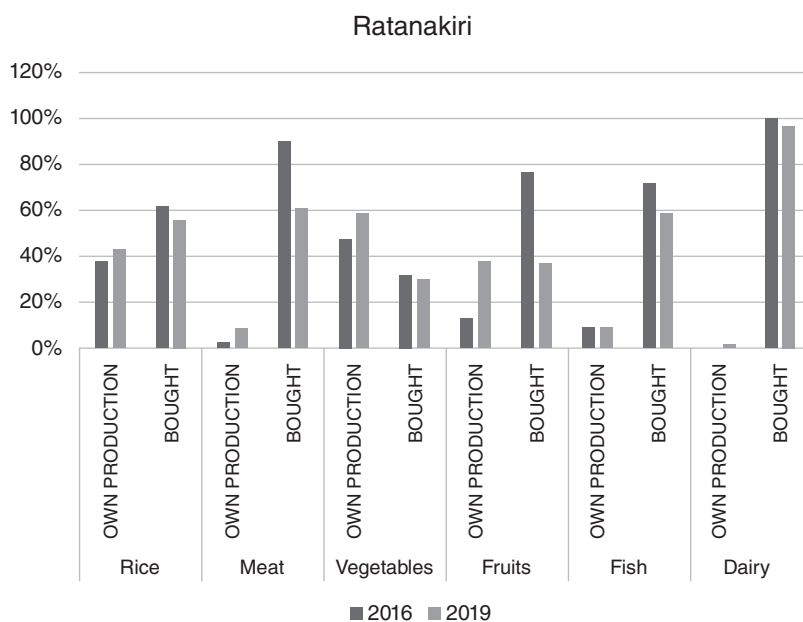
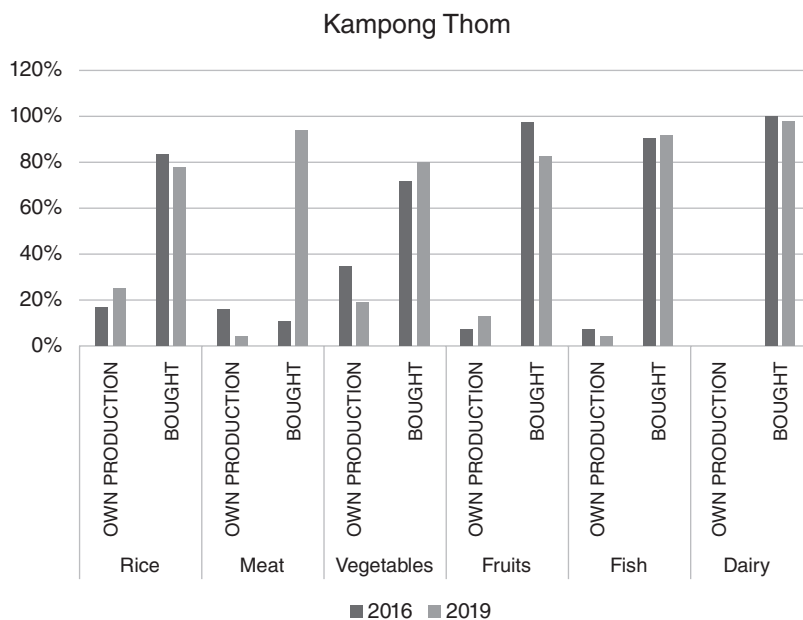


Figure 1.1 Main source of food procurement
Source: Demeter Surveys (2016, 2019).

areas present opposite trends with regard to food shortages (see Table 1.2). In Kampong Thom, the percentage of households affected by food shortage over the last 12 months fell from 57% in 2016 to 26% in 2019, and the mean duration of the shortage reduced from two-and-a-half months to one month. In contrast, in Ratanakiri, this percentage increased from 38% to 63%, and the duration of food shortage doubled. The trends are the same for extreme food shortage, which has reduced by half in Kampong Thom down to 7% but has increased substantially up to 30% in Ratanakiri.

A major reason for these differences between the studied areas is the access to wage labour and non-farm self-employment. In 2019, 86% of households in Kampong Thom have income from wage labour and/or non-farm-self-employment whereas there are only 45% in the case of Ratanakiri. This correlation between food shortages and income from wage employment in particular can be observed across seasons. Figure 1.2 shows that food shortage

Table 1.2 Food shortage and duration over the last 12 months

	<i>Kampong Thom</i>		<i>Ratanakiri</i>	
	2016	2019	2016	2019
Percentage of HH who reported food shortage	57%	26%	38%	63%
Average number of months of food shortage	2.5	1.1	1.28	2.5
Percentage of HH who reported extreme food shortage	15%	7%	17%	30%
Average number of months of extreme food shortage	0.6	0.3	0.4	1

Source: Demeter Surveys (2016, 2019)

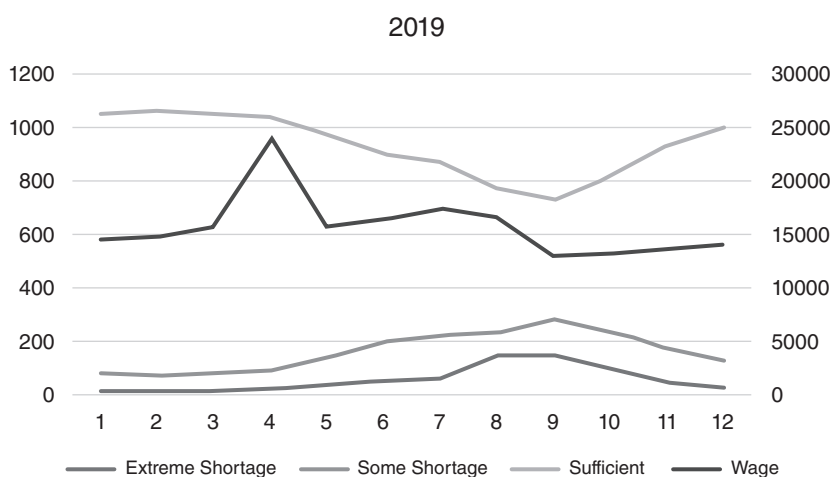


Figure 1.2 Food shortage and wages over time

Source: Demeter Surveys (2016, 2019)

Table 1.3 Percentage of households with ‘poor’ and ‘borderline’ food consumption scores by land size

	0.5–2 ha (%)	2–5 ha (%)	5–7 ha (%)
Kampong Thom	6	4	2
Ratanakiri	42	30	19

Source: Demeter Surveys (2016, 2019)

reaches its peak in the month of September whereas the number of days in waged employment reaches its lowest point. Conversely, in the months of December through March, wage employment is at its highest point and food shortages are at their lowest, and since wage employment in the local market is predominantly in agriculture, cash and food shortages are closely linked to the agricultural cycle.

Lastly, we assessed access to food through food diversity. We found in 2019 that 22% of the sample in Ratanakiri had a *borderline* food consumption score (FCS) – seven days before the survey – and 3% had a *poor* FCS, against 5% and 1% respectively in Kampong Thom. The two provinces differ also with regard to food dietary diversity measured by the household dietary diversity score (HDDS). It is also interesting to note that overall dietary diversity as measured by the HDDS for the last 24 hours has not changed between 2016 and 2019 in either of the two provinces. In order to understand the dynamics behind food security, we analysed the relationship between FCS and land size. We found that households with less land are more prone to being food insecure as shown in Table 1.3. This relationship appears to be stronger in Ratanakiri, where 42% of households with 0.5–2 ha reported having an FCS level of poor or borderline compared to 19% of those with 5 ha or more. In Kampong Thom, we find a similar but less pronounced trend, which could be due to a more widespread access to alternative economic activities, including wage employment, and thus less reliance on land.

Coping, cooking, and shopping: women’s affair

The common general statements that there are more diverse food products available must be put into perspective: food supply is undoubtedly more diversified, but that does not mean that food diet is. We did not find significant gender differences in terms of the types of food consumed (during the last 24 hours) except for alcohol and tobacco, which were consumed 2.5 times more by men than women. Also, men eat outside far more often than women do. For the rest, during our interviews addressing the organization of meals, food intake, and types, interviewees repeatedly explained that ‘everyone eating together eats the same’. However, dietary diversity indicators conceal actual intra-household dynamics. Hence, we analysed gender differences in coping strategies in case of food shortages and found significant differences. Adult

Table 1.4 Household members' adaptation in case of food shortage

	<i>Adult female only (%)</i>	<i>Adult male only (%)</i>	<i>Both adults (%)</i>	<i>All members (%)</i>
<i>Who reduced the number of meals eaten per day?</i>				
Kampong Thom	43	0	30	27
Ratanakiri	23	14	45	18
<i>Who reduced the portion size of meals?</i>				
Kampong Thom	43	0	33	24
Ratanakiri	16	8	59	18
<i>Who relied on less preferred, less expensive food?</i>				
Kampong Thom	26	3	41	29
Ratanakiri	9	8	44	35

Source: Demeter Surveys (2016, 2019)

women bear a heavier burden than men with regard to the responsibility of finding coping mechanisms to face these challenges (Table 1.4). The gender gap is particularly striking in the case of Kampong Thom, where 43% of households reported that it is only women who reduced the number of meals eaten per day in situations of lack of food, whereas the percentage is zero for men only. The situation is similar for the reduction of portion size and when it comes to who relies on less preferred and less expensive food. In Ratanakiri, the gender differences are much lower, revealing that coping mechanisms are shared in a more equal manner.

Our interviews reveal that the rationale for, and legitimization of, these adaptations is the energy needed to go to work: 'household members who go to the field need three meals per day and those that stay home, two meals per day'. This conception benefits men more than women, especially in Kampong Thom where women tend to dedicate significantly less time to paid work compared to men (4.5 h vs. 7 h) and more hours to unpaid domestic work (4.2 h vs. 1.3 h). The difference is even higher (6.3 h vs. 1.6 h) when taking into account the time spent caring for children. These differences are lower in Ratanakiri, where the gap is only 0.8 h on average. The difference in unpaid work is 2 h and 3.5 h when including care work. This has important ethnic implications. When looking at ethnicity and time-use, we find that the gap in terms of time spent working is smaller for indigenous households and larger for non-indigenous households. In indigenous households, women play an important role in paid work, particularly in agriculture, which in turn has implications in terms of food intake as women exhibit a 'need of energy' similar to that of men. However, we still find that even though they spend more time than men working overall (paid and unpaid labour), they are still the main contributors to food security and are responsible for facing food shortages.

Table 1.5 Time spent on meal preparation (in hours and minute)

	<i>Kampong Thom</i>		<i>Ratanakiri</i>	
	2016	2019	2016	2019
Both	1 h 49 m	1 h 31 m	1 h 58 m	1 h 31 m
Male	31 m	7 m	46 m	13 m
Female	1 h 17 m	1 h 23 m	1 h 13 m	1 h 17 m

Source: Demeter Surveys (2016, 2019)

When discussing change in food diet and food preparation, a common statement from many interviewees is that there is less time to prepare food, leading to a lower-quality diet. This is exemplified by the purchase of dried noodles instead of eating self-produced rice, and the consumption of biscuits, soda, and ice-cream by the children. Our surveys support the time reduction statement when we consider both adults (Table 1.5). However, this reduction is noticed in the case of men, while the time women spent on meal preparation has slightly increased.

Interviewees explain that when they work for someone else, at the end of the day, they cannot bring any vegetables back home as they do when they work on their own land, nor can they bring fish caught in traps in surrounding water streams. Furthermore, hired workers return later than when they work on their farm. They may lack the time to then go to buy food along the main roads and markets that are outside the villages. Even if the food market is a few kilometres from home, a motorbike makes a big difference in time compared to a bicycle. And although every household owns a motorbike, for the many owning only one, it happens that the woman cannot ride to the market in case the man is using it. Another factor often evoked is the fatigue from the working day: ‘buying food is easier’, meaning it is not as tiring as preparing fresh products. In such situations, some resort to ready-made food from peddlers or grocery shops inside the village. However, if village shops are highly convenient, there is less choice and more industrial products, and they are a bit more expensive than bigger shops or rural markets outside the villages. In any case, purchasing food reduces a bit of the effort but does not make a big difference in the time needed to prepare meals. Meat or fish is bought already cooked, but rice must be cooked at home. Also, buying dried noodles or ready-made soups has not become a regular way of eating. It is rather occasional and often to feed one member rather than the whole household. All these accommodations help out occasionally, but do not fundamentally change the time spent cooking.

The increasing consumption of purchased food is also a matter of agenda. With the diversification of productive activities, activities outside and more circulation, household members have different schedules. So, families tend to eat less together as they do when they all return together at the end of the day spent on their farm. Some return later, and some eat outside. This is an

additional challenge for feeding the whole family, and women can count less on men to address it.

When it comes to decision-making about spending, our data indicates that men remain predominant in decision-making for the biggest expenses and loans, typically buying motorbike and farming equipment. Meanwhile, women hold more decision-making power for everyday expenses including food as illustrated by the answers from this 45-year-old man interviewed in Ratanakiri:

QUESTION: Who makes the decision to buy food from outside?

ANSWER: My wife does.

Q: What are the three things for which you are the main decision-maker?

A: Selling and buying crops, constructing houses, and buying motorbikes.

Q: For what things can your wife make decisions without having to consult with you?

A: She can buy food and provide paddy rice or milled rice to relatives.

In the 2019 survey, 62% of women responded that they single-handedly manage food expenditures and 56% responded that they single-handedly decide the amount spent on food. When adding the decisions made ‘mostly by woman but in consultation with someone else’, the proportions reach up to 80%. There is a broad consensus, among women as among men, that it is better that it is the women who manage food purchases. Men recognize that, overall, women pay more attention to food: ‘They buy only food and face less temptation to spend money for other things. Men can spend part of the money for coffee or a drink’. This recognition also reflects codes of conduct: it is expected from women not to waste money, whereas there is tolerance for men. Thus, discussions around deciding what food to buy and how much to spend indicate that women enjoy agency rather than power, as purchase options are limited by financial resources anyway.

Food procurement strategies

Shifting back to food crops

Our data reveals a shift in cropping systems from a rise in cash crops towards a renewed interest in food crops. This is particularly significant in Kampong Thom where the share of food crops in the total area increased from 13% in 2016 to 34% in 2019, alongside a reduction in the share of cash crops from 87% to 66%. The share of rice in farmed areas has almost tripled from 11% to 29%, whereas the share of cassava reduced from 57% to 35%. Farmers explained this change by the constant fall in the price of cassava since 2016; some reported that they did not even get the means for paying contracted hired labour. They then reconsidered their cassava-for-cash strategy and opted to some extent for the production of rice for self-consumption, or cashew as its price is more stable. Our data on food procurement confirms

this trend, showing that the share of rice that was consumed from own-production increased from 17% in 2016 to 25% in 2019.

In Ratanakiri, we do not see a return to food crops of the same magnitude. The share of food crops increased only slightly from 14% to 16% and the one of cash crops reduced from 86% to 84%. However, it must be recalled that, prior to 2016, the share of rice had fallen to 10% of the total farmed area. In 2016, none of the respondents in Ratanakiri reported growing rain-fed rice. Rice was grown only in the low-wetland (*srey*) where no other crop can be grown. Since then, farmers have reconsidered their crop choice for the same reasons as in Kampong Thom, which is the falling price of cassava. They opted for cashew, as new varieties that grow faster were disseminated. The renewed interest in rice is found among those farmers who hold low wetlands. They also explained they started growing paddy rice again for their own consumption as they are concerned about the health and safety of purchased rice, in particular rice imported from Vietnam, which is suspected to be ‘full of chemicals’. Even so, these households are the better-off, as they hold low wetlands and have enough income not to be obliged to buy the cheapest priced lowest-quality imported rice. For many households, the rice harvest is not enough to meet their needs.

The reorientation of farming towards more food crops raises the question of whether it has a gender drive, based on the argument that women put more emphasis on food crops than their husbands. When looking at who is the main decision-maker for what to grow on each farmed plot, we found a slight increase in man–woman joint decision-making between 2016 and 2019 (from 68% to 73% of the total farmed area, see Table 1.6). However, when disaggregating by type of crop, this number broke down to 66% when the crops grown were food crops and 79% when they were cash crops. In turn, 20% of households reported that women alone decided what to grow in the case of food crops compared to only 7% in the case of cash crops. We can conclude that, in general women, have a higher participation in decisions regarding what crops to grow, especially when it comes to food crops.

Similarly, women stand out as the main decision-makers for vegetables, where they decide on 31% of the plots against 14% for men. Moreover, women also hold more power for selling vegetables, being the main decision-makers in 48% of the cases against 12% for men, whereas for other crops, joint decision-making prevails for more than 70% of the cases.

Table 1.6 Decision-making by crops and gender

	All crops (%)	Food crops (%)	Cash crops (%)
Both	73	66	79
Female only	13	20	7
Male only	14	14	14

Source: Demeter Survey (2019)

Borrowing for food

Our surveys show that between 2016 and 2019, the amount borrowed for food increased 5.7-fold. At both extremes, big amounts (e.g. 300 kg of rice) can be paid in several instalments in big shops in town, and small amounts (for daily intake) can be bought on credit in small village shops. The two provinces present different patterns of change (see Table 1.7). In Kampong Thom, the percentage of households who reported borrowing for food in the last 12 months slightly decreased from 12% in 2016 to 10% in 2019 but the mean amount of loans for food increased three-fold, from US\$678 in 2016 to US\$2,083 in 2019. In Ratanakiri, the percentage of households who reported borrowing for food in the last 12 months increased from 26% in 2016 to 32% in 2019, and the mean amount of loans was multiplied by 1.6, from US\$1,228 in 2016 to US\$2,165 in 2019.

The difference in trends between the two study sites can be paralleled to the respective change in cropping system, i.e. an increase in food crops and corollary reduction of food purchases in Kampong Thom, which did not occur in Ratanakiri. The increase in the amounts borrowed for the purpose of buying food may also be linked to the increase of the price of food that people have to purchase. Furthermore, borrowing money has become a coping mechanism in case of food shortage. In Ratanakiri, 65% of the households who suffered food shortage in 2019 revealed that they borrowed money to cope with this situation. The percentage is 43% in the case of Kampong Thom. In Kampong Thom, we find that the percentage of households who reported borrowing for food in the last 12 months remains the same between the two time periods (around 10%). However, when asking about food shortages and coping mechanisms, we find that 21% of respondents faced a lack of food or water, and out of this subsample, 43% reported borrowing money as a response.

Women play a far more important role than men when it comes to borrowing to cope with lack of food, as shown in Table 1.8.

Table 1.7 Loans for the purpose of buying food

	<i>Kampong Thom</i>		<i>Ratanakiri</i>	
	2016	2019	2016	2019
Percentage of head of household who borrowed for food	12%	10%	26%	32%
Mean amount of loan in US\$ for food/household	678	2,083	1,228	2,165
Mean amount of loan in US\$ for all items/household	2,005	5,922	2,254	5,894
Mean share of food in total amount of loans	16%	10%	29%	32%

Source: Demeter Surveys (2016, 2019)

Table 1.8 Coping strategies and gender

	Adult female only (%)	Adult male only (%)	Both adults (%)
<i>Who borrowed food or relied on help from friends or relatives?</i>			
Kampong Thom	78	8	14
Ratanakiri	42	16	42
<i>Who purchased food on credit or borrowed money to purchase food?</i>			
Kampong Thom	80	2	18
Ratanakiri	42	16	42

Source: Demeter Survey (2019)

Back to the forest

Historically, natural resources played a key role in food procurement and, in particular, in case of a bad rice harvest. Access to the forest, water, and grazing areas has drastically reduced with the appropriation of those areas. And natural resources have been largely depleted. However, our research shows that they remain important for the most vulnerable population groups. The situation and the trend differ significantly between the two provinces when it comes to the practice of collecting food items from the wild and fishing. In Kampong Thom, the percentage of respondents who reported going to the forest to collect food products for consumption was 10% in 2016 and even reduced to 6% in 2019. A similar trend is found with regard to fishing: in 2016, 64% of respondents said they had gone fishing in the past 12 months; in 2019, only 32% did. There is simply not much left of natural resources in these areas.

Conversely, in Ratanakiri, there is not only a higher percentage, but above all, a strong increase in the number of people who report collecting food products from the forest: from 49% in 2016 up to 70% in 2019. This might be surprising when considering the reduced access to forests, but illustrates the fact that a fraction of the population who do not produce enough food and cannot afford to buy enough food resort to natural resources. They explain that they go to the forest when they have no other option to get food, typically when they do not find the opportunity to sell their labour. Figures show clearly that the purpose of food products collection is almost exclusively consumption and not sale. The percentage of respondents who sold in 2019 is 6% for food items from the forest and 8% in the case of fish. Actually, our qualitative interviews indicate that people resort to going to the forest or to going fishing although they do not get a lot. The territorial expansion of rubber tree plantations and the increasing presence and circulation of people have contributed to a reduction in game and fish.

As for gendered differences in terms of forestry and fishing, Table 1.9 shows that most of these activities are pursued predominantly by men, except for collecting food for consumption where women also play an important

Table 1.9 Use of forest resources and fishing by gender

	<i>Cut trees for sale or home consumption (%)</i>	<i>Collected food products for consumption (%)</i>	<i>Collected products for medicinal care (%)</i>	<i>Fished for family consumption (%)</i>	<i>Fished for commercial purposes (%)</i>
Male only	67	30	70	80	71
Female only	5	18	10	3	18
Both	28	52	20	17	11

Source: Demeter Survey (2019)

role. This goes in line with our previous findings that the responsibilities of procuring food and coping strategies lie with the women.

Discussion and conclusion

The argument that the increasing commercialization of agriculture is a threat to food security is overall supported by our findings. The territorial expansion of large-scale farming and non-edible cash crops, first, has largely deprived populations of the food they could procure from the wild, which was important in terms of diversity and stability as well as in the event of insufficient harvests. Second, for most producers, cash crops provide income that is not up to the investments and expenses and more so because households' landholdings have diminished in size. Those who do not manage to compensate by selling their labour force suffer increasing food shortages and for longer periods. As a result, purchasing enough food of good quality remains out of reach for many. Borrowing has become crucial, not only for productive activities, but also for consumption. Thus, the analysis of the impact of agricultural commercialization on food security must be refined, in this case by taking into account non-farm income that has become crucial (Do et al., 2019), as demonstrated by the difference between the studied areas.

The outcomes of this broader process of agrarian change in terms of food security differ according to gender. The proportion of women experiencing smaller and fewer meals as well as going to bed hungry is higher than that of men. If the types of food consumed are overall the same for men and women, gender differences are remarkable in case of food shortage. Women reduce food consumption far more than men, and this occurs even in cases where they work more than men. The role of women must thus also be assessed through their greater effort/sacrifice compared to men, as also shown by Reysoo and Suon (2017).

We find that the argument according to which women's status was eroded must be rethought. First, the comparison over time is not simple, given the magnitude of change in livelihoods since the expansion of the market economy. Subsistence agriculture has diminished, but this has not reduced the importance of women. They play a major role and have decision-making power

in food production but also in the everyday tasks of cooking, especially as men contribute less than before. It is also women's daily duty to buy food and eventually borrow money for feeding the family. Discussions around deciding what food to buy and how much to spend indicate that women enjoy agency rather than power (Bylander, 2014), as purchase options are limited by financial resources. Moreover, women often lack time to prepare food and have to resort to purchased food items because of their increasing workload. Time spent for making income competes with time dedicated to care work. In sum, the major role they play is synonymous with responsibility and stress rather than power or status. Yet, in any case, they prioritize expenditures on food better than men, who are unanimous to acknowledge that.

This chapter shows that the reconfiguration of gender relations induced by the commercialization of agriculture and its respective outcomes for women and men are complex, and vary according to various dimensions and not just land and cropping system. The same is true of the consequences for food security. New vulnerabilities have developed, including price volatility, stability of income, and food quality. They are undeniably gendered as it is the women who bear the responsibility for feeding the family. However, in a context of increasing socio-economic differentiation, gender relations and food security must be further analysed across class as well as ethnicity and social norms (Clement et al., 2019; Frewer, 2017).

Contrary to the view of agricultural commercialization as an irreversible process, our research shows that small landholders attempt to revert to more self-produced food. For the well-off, this trend also reflects a growing concern about the quality of purchased food. However, this is not possible for everyone and overall, self-produced food is far below food needs. Given the state of depletion of foodstuffs that people could freely access and the pressure to continue cash crops, food stores have a bright future. The fact that it is the women who are responsible for borrowing raises the question as to whether they may bear more or specific responsibility, stress, and pressure to maintain good social relations and the reputation of the household.

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