



UvA-DARE (Digital Academic Repository)

Inclusive business models

Empowering women in urban agriculture in Burkina Faso

Kini, J.

Publication date

2022

[Link to publication](#)

Citation for published version (APA):

Kini, J. (2022). *Inclusive business models: Empowering women in urban agriculture in Burkina Faso*.

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Chapter 6

**WSEs/WFEs, Collective Capabilities
and Business Strategies in the Urban
Food Chains of Ouagadougou**

6.1 Introduction

This chapter answers the research sub-questions 2 and 3: What do urban food value chains look like and what position do BoP women take therein? And how do current business strategies of WSEs/WFEs contribute to building their capabilities collectively? It first explores the collective capabilities (resources and agency) of women food entrepreneur groups in Ouagadougou (see 6.3). It contributes to testing the hypothesis (H1) (see 3.1.1). This section describes the business strategies women implement together and how they interact with their capabilities at the collective level. Particularly, it presents each women's group and the governance in each of them as a framework for the collective agency and the chapter also maps out their collective resources that support their business in the urban food value chains. In so doing, this research acknowledges the viewpoint of Fischer, Bavinck & Amsalu (2018) that "collective action is a powerful driver of transformation (change) that recognises the livelihood needs and human rights of poor and marginalized people" (p.3). Second, the chapter examines how women's participation in urban food value chains generates their functioning (see 6.4). Prior to all these points, the chapter presents the selected women food entrepreneur groups within the city and their position in the urban food value chain (see 6.2).

6.2 Presentation of the studied women groups and their position in the urban food value chain

This section presents the formation of the women's groups (see 6.1.1); their business activities (see 6.2.3); their dynamics over the years in terms of membership flow (see 6.1.3); and women's position in the urban food value chain (see 6.1.4).

6.2.1 Group formation

All the groups of women are legally registered as they all have a constitution that guides and regulates the functioning of their organisation. The youngest organisation is the group of Kossodo (12 years old), whereas the oldest organisation is the group of Tanghin (with 36 years old). The group of Tampouy had legally settled 17 years ago, but it was created 2 years before without the official documents to prove its legality (Table 6.1).

Table 6.1. Group creation, registration and constitution

Group	Kossodo	Tanghin	Tampouy
Date of creation	2007	1982	2001
Registration date	2007	1982	2001
Constitution	Yes	Yes	Yes

Source: The author based on field data (2017)

6.2.2 Group production activities

The production in Kossodo includes cucumber, radish, lettuce, amaranth, sugar beet, cabbage, parsley, celery, mint, turnip and green beans. In Tampouy, they produce basil, lettuce, amaranth, bouldvoanka (*Corchorus olitorius/tridens*), green beans, parsley, mint, spinach, kinebdo (*Cleome Leaves*), cabbage and celery. However, the on-going activities (during the fieldwork) included the production of lettuce, cabbage, tomato, sugar beet, carrot and green beans in Kossodo; carrot, onion, salad and cabbage in Tanghin; and basil, lettuce, amaranth, bouldvoanka, green beans, parsley, mint, spinach, kinebdo, cabbage and celery in Tampouy. Table 6.2 presents the set of activities carried out by these women's groups.

Table 6.2: Group production activities

Groups' main activities	Kossodo	Tanghin	Tampouy
Fresh food (vegetable) production	Lettuce, cabbage, tomato, sugar beet, carrot, green beans	Carrot, onion, lettuce, cabbage, amaranth, tomato, carrot	Basil, lettuce, amaranth, bouldvoanka, green beans, persil, menth, spinach, kinebdo, cabbage, celery
Local goods processing	Soumbala, local soap (liquid and solid)	None	Local Soap (liquid and solid), Soumbala, mustard- Soumbala based, chili (powder mixing with moringa oleifera)

Source: The author based on Focus Group Discussion data (2017)

6.2.3 Group dynamics

All the groups have experienced movement in memberships over the years (Table 6.3). At its creation, the group in Kossodo counted 50 women as registered members, out of which 45 were young (21-30 years old). In Tanghin, only 22 members were registered at the creation of the group, out of which 10 were women and 12 were men. In addition, 7 out of the 22 were young (21-30 years old). At the creation of the group in Tampouy, all 25 members were women, six of them were young (21-30 years old).

In 2017, the group in Kossodo recorded only 30 active members (women) out of which 5 are young. This is different from the group in Tanghin that counted more than 100 members, which comprise at least 30 men and more than 70 women. In Tampouy, the group counted 30 women in 2017, and seven among them are young.

In regard to this change, only the group in Kossodo has experienced a decrease (of 40%) in its membership (from 50 to 30). In contrast, the group in Tanghin recorded a large increase of more than 300% in its memberships. The group in Tampouy has also recorded an increase of 20% of its active members. These changes indicate that groups are dynamic; members join and leave over the course of time. Reasons for leaving vary from death to disagreements⁴¹ between groups leader and certain members. Reason for joining the group is its attractiveness and interest for people from outside the group.

Table 6.3: Group membership over the decades

Active members	Kossodo		Tanghin		Tampouy	
	2007	2017	1982	2017	2001	2017
Male	0	0	12	20+	0	0
Female	50	30	10	70	25	30
Youth	45	5	7	-	06	7
Members registered at the creation	50	30	22	100+	25	30

Source: The author based on field data (2017)

6.2.4 Women's position in the urban food value chain

Three main types of value chains are identified in Ouagadougou: (i) the direct linkage between producers and consumers; (ii) producers, processors and consumers; (iii) producers, vendors and consumers. In the first type, consumers directly buy food products from producers. This is the case of the women in Kossodo and Tampouy. There, women are positioned in the value chain as producers of fresh vegetables and are the main drivers of this business. The consumers also play an important role in terms of revealing their acceptance of the quality and price of these vegetables. The second type is related to producers who process their own products themselves, which are directly sold to consumers without any intermediary. This is the case of women in Tampouy who process certain foods, such as mustard or chili, using some of their produced vegetable as inputs and sell them at the place. Thus, these women are both producers and processors in the food value chain. In the third type, food producers are also marketers as they bring their product to the market place. This is the case of women and men in Tanghin,

41 This happened in the group of Kossodo after our fieldwork. A woman left the group because it became hard for her to collaborate with the president of the group.

who are positioned as producers and intermediaries (buy their colleagues' food in addition to their own production) who sell at the marketplace. Thus, they capture value at two nodes of the food value chain.

6.3 Group collective capabilities: agency and resources

This section addresses the capabilities of WSEs/WFEs at the collective level. It focuses on identifying the collective resources (see 2.7) or capacities of these groups and analyses their collective agency.

6.3.1 Group governance and functioning

Organisational structures in the group

First, leadership within the three groups varies. All the groups have an executive committee that comprises a president, secretary-general, treasurer and communication representative. The executive committee has 4 members in Kossodo⁴² (3 women, 1 man) and in Tanghin (4 men), and 6 members in Tampouy (6 women). Only the group in Tanghin has no women in the executive committee, whereas there are 3 women in Kossodo and 6 in Tampouy. In addition, the president of the group in Kossodo holds a university degree, whereas the one in Tampouy is literate, but has no degree in formal education. In Tanghin, the president has completed secondary education.

Second, all groups, except Tanghin, have a production committee and a marketing committee in charge of planning food production and selling the food respectively. However, the committees are more efficient in Kossodo than in Tampouy. The efficiency is related to the fact that women in Kossodo are able to get the premium price with the sales, probably because of the number of members constituting the marketing committee (10 women), against only 1 woman in Tampouy.

In Kossodo, sales of crops are organised following the 'take turns' principle, involving each woman producer. Thus, when a buyer/consumer comes at the site, the ordered crops are determined by three things: (i) the entry gate, (ii) the number of women whose crops are ready for sale, and (iii) the turnover of the seller. Therefore, if the buyer has entered by gate one, he/she is directed towards the sales committee on that side and goes to women who have such crops ready for sale. If one woman among them has already benefited from a previous purchase

⁴² In fact, the executive committee is represented by only the President. The other members work as the programme manager, financial manager and one of two women facilitators in the literacy project.

by another buyer, the committee members send the new buyer to the next woman who also has crops ready for sale. None of the groups has a man in the production or marketing committees.

Importantly, all three groups regularly hold their ordinary and annual general meetings. First, the 'Saisonnrière' holds ordinary meetings on the site twice a month throughout the whole year.⁴³ This is similar to the group in Tanghin where two ordinary meetings happen each month throughout the whole year. In Tampouy, this happens once per month throughout the whole year. However, two special general meetings happen in Kossodo and three in Tampouy. Second, annual general meetings take place irregularly, and the most regular one is once every two years in Kossodo and Tampouy. Consequently, only in Tampouy women have organised elections three times to renew the committee members: this has never happened in Kossodo and Tanghin, which implies that the governance within the groups might not be democratic.

Attendance to the meetings

Almost all the groups' members attend the meetings in accordance with their constitution: they all attend the ordinary, annual general and special general meetings to review their group's activity outcomes as well as internal organisation challenges to overcome. However, it is possible that certain members do not attend these meetings, in case of a social constraint or a voluntary decision not to come. This gives information about the availability and willingness of group members to contribute to its good governance, but also on members' personal restrictions of time and mobility.

With regard to gender, only one male attends the meetings in Kossodo, against 30 men (and 70 women) in Tanghin. It also appears that 5 attendants in Kossodo are youth against 7 young women in Tampouy. No information is available on youth participation in Tanghin. This may show that gender or age probably do not play a role in the attendance of group meetings, particularly in Tanghin.

Hence, the governance quality within these groups is not clear. They have legal structures constituting them; however, these groups are likely to be unbalanced in terms of power relations between members and the executive committees, and the renewal of these committees. For example, the election of the group's president

43 They used to work 11 months per year except in August because of the rainy season; but since 2018, with their new site at IPD-AOS, they can even work during August.

has happened 3 times in Tampouy and never in Kossodo and Tanghin since their creation. It is therefore worthwhile to collect the individual views of these women as well as other stakeholders that interact with them, particularly the buyers (see chapter 7). This may help to better assess the governance that shapes the collective and individual behaviour (as part of their functioning) of women producers within their group.

6.3.2 Conflict resolution and management

The occurrence of conflicts (defined as the frequency of disputes among group members over the past two years) can be indicative of the degree of cohesion within the group. There have been a few conflicts, especially in Kossodo and Tanghin. Few conflicts have only occurred in Tampouy. This can be due to the nature of each group. Kossodo's group leader (most educated) acts as the manager of a private company and directs the others. They are therefore less exposed to conflictual situations. In Tanghin, conflict has not occurred, possibly because all the producers on this site are independent from each other both in production and marketing activities. Lastly, conflict occurred in Tampouy, probably because women in this group collectively own the right to the site and they apply the same production techniques. However, they are selling their food independently. This may bring about some conflictual behaviour, because of the potential competition between them. As their leader is not acting as a private manager, she is not able to influence them all. Whenever a potential conflict occurs in the group, they strive for consensus and satisfactory resolutions through meetings and discussions. In other words, they have all adopted a peaceful approach to solving conflicts, without the need for external assistance.

Hence, the way conflicts are managed within the groups sheds light on intrinsic characteristics of the group and on the influence that the leaders of the groups exert on others. It reveals how the collective agency of the groups depends on the influence/power of their leader or the intrinsic characteristics of the group. Still, the extent to which this is really the case needs to be verified through individual interviews both with producers and buyers (see Chapters 7 & 9).

6.3.3 Financial capacities or resources

Group level capitalisation

There is a poor level of capitalisation (i.e., capital in cash) of the studied women's groups (Table 6.4). The group in Tanghin has no financial capital, and the other groups have little financial capital, based on the savings: XOF 25,000 (EUR 38) for Kossodo and XOF 200,000 (EUR 305) for Tampouy. This indicates that the groups

are weak in fund-raising by and for their members. This also shows the low propensity of saving in the groups, particularly in Tanghin and Tampouy. This may also explain why no microfinance or formal financial institution partners up with them, since these commonly require a certain minimum capital base.

Table 6.4: Group's level of capitalisation

Capitalisation	Kossodo	Tanghin	Tampouy
Registration	0	0	0
Shares	0	0	0
Saving	25,000	0	200,000
Partners	0	0	0
Total capitalisation	25,000	0	200,000

Source: The author based on Focus Group Discussion data (2017)

Second, each group has an acceptable endowment level of assets. Table 6.5 shows the assets and their related value for each group. Only the Tanghin group has no common asset, not even the land that they exploit. In contrast, in Kossodo, all assets together are valued beyond XOF 10,375,000 (EUR 15,840), comprising buildings and equipment (except the land). This is almost identical for the women's group in Tampouy as their assets are valued beyond XOF 7,400,000 (EUR 11,300) comprising buildings and equipment. Thus, the group of Tanghin seems to be the poorest as it has no common assets, even though it accounts for a large number of members. The group of Tanghin is the less unified group in the sense that its members usually do not undertake common initiatives that can increase their common performance. In other groups, members seem to have a common perspective on their activities. They diversify their activities by including other local food processing such as soap, soumbala, mustard soumbala-based and chili as well as literacy training activities, which requires them to have some common assets (school building, the solar panel, construction of water tables and organising water management on their plots through other means, such as burying vessels).

Table 6.5: Group's assets and their value (in XOF⁴⁴)

Assets and value	Kossodo	Tanghin	Tampouy
Land (non-valued)	Yes	No	Yes
Office/bureau	3,000,000	0	0
Other buildings	5,000,000	0	7.000,000
Equipment	2,375,000	0	400,000
Other assets	0	0	0
Total value	10.375.000	0	7.400.000

Source: The author based on Focus Group Discussion data (2017)

Financial services

All the groups have a weak financial situation with low savings mobilisation capacity. Loans offered to members are almost non-existent; there is no savings mobilisation system in Tanghin, but it exists in Kossodo and Tampouy, whereas 32 and 30 members respectively can mobilise savings (Table 9b, annex 1). The total amount of savings during this assessment for the period (November 2017) was XOF 48,000 (EUR 74) for Kossodo and XOF 96,000 (EUR 148) for Tampouy. These savings include a monthly contribution of XOF 500 per plot. In addition, they sell water to their neighbourhood during periods of water shortages (for 4 months) and can earn up to XOF 15.000 (EUR 23) per month. They usually use this money to pay for electricity bills, maintenance of the water supply system, payment of security-guards for their site, and for small loans to their members. Once in Kossodo, two members each received XOF 8000 (EUR 12.2) as a loan from their group's collective savings (Table 10b, Annex 1). It is worth noting that the three women's groups benefit from the efficiency of scale in using their collective equipment and infrastructure. This reduces the costs and risks related to their food production.

Financial products

A financial product managed by the group is, for example, the interest received by saving money in a formal financial institution. Individually considered, only producers in Tanghin receive no financial products such as saving products (from financial and microfinance institutions). In Kossodo, only one saving product is used by the three women, which is essentially a deposit with interest from microfinance institutions. In Tampouy, three saving products are used by 24 members; 20 members use deposits at the national postal institution.

⁴⁴ EUR 1 = XOF 655.95

6.3.4 Group business strategies

WSEs/WFEs develop collective business strategies over time including activity planning, crop diversification or collective selling systems. Of the three groups studied, Tanghin has no business plan, whereas Kossodo and Tampouy have an annual business plan. Both groups have planned activities related to vegetable production. In so doing, they try to avoid producing the same crops at the same time and are efficient when selling their products (in order to get a better price). This is the opposite of what the producers in Tanghin do, where everyone produces at their own convenience. Moreover, the three groups adapt their production to annual festivities, such as Christmas and New Year celebrations, by diversifying and producing the crops that people consume the most in this period.

Aside from members in a group producing their own crops, there are also some other common activities in Kossodo and Tampouy. For example, in Kossodo, women collectively own a number of plots, and they used to process local food such as Soumbala (*Parkia biglobosa*, nut-based) and local soap. In Tampouy, collective activities include the processing of local soap, chilli powder mixed with *Moringa Oleifera*, Soumbala and soumbala-based mustard.

Furthermore, all the studied groups resort to outsourcing certain goods and services, such as the production of seeds. They buy some seeds that they cannot produce themselves from resellers and they hire workers for certain services. Table 6.6 shows the seasonal needs for seeds and expenses related to outsourcing for each group. These seeds are related to all produced crops at each site (lettuce seed is produced by women themselves in Kossodo): amaranth, carrot, cabbage, parsley⁴⁵. For the groups' common activities in Kossodo and Tampouy, they purchase inputs for soap and soumbala processing on the market.

Table 6.6: Value of seeds per year (in XOF)

Crops variety/acreage	Kossodo	Tanghin	Tampouy
Lettuce (1)	160.000	12.000.000	150.000
Amaranth (2)	0	1.560.000	90.000
Carrot (3)	0	350.000	0
Kinebdo (Cleome Leaves) (4)	-	-	105.000
Total	160.000	13.910.000	345.000

Source: The author based on Focus Group Discussion data (2017)

⁴⁵ We were only given information on the five crops in the table

Hence, all groups have interesting business strategies in regard to their diversified production capacity. In addition, the collective business strategies aim to focus on vegetables that are adaptable to the availability of water and periods of festivities such as Christmas and New Year. All groups try to diversify their crops (particularly in Kossodo). The other groups mainly focus on lettuce production, small tomatoes and cucumbers to respond to the high demand for salad across Ouagadougou. In other words, women producers' collective business strategies intrinsically align to the seasonal demand and availability of water, particularly for the sites of Tampouy and Tanghin which experience much more water shortages than Kossodo. In addition, their business strategies are to cooperate within a group and not act individually. Even the group in Tanghin is organised, even though this group maintains a high level of individual freedom

6.3.5 Technical capacities for vegetable production

The capacity for vegetable production and marketing is expressed in terms of access to training (capacity building), and production and marketing capacities. As such, all the studied groups have a strong production capacity, good training provided by their partners and different marketing strategies.

Trainings

On the training side, the Ministry of Agriculture is the main provider of these services. In the field of vegetable production, each group has been trained at least twice in production techniques (three times for Kossodo and Tampouy, four times for Tanghin) since its creation. However, at the start of Kossodo's group activities, its members have been trained by those of Tampouy in vegetable production techniques. Interestingly, the group in Tanghin has received two trainings related to the techniques of organic vegetable production and the consequences of using chemicals, pesticides, their dosages and adequate equipment; and on pollution and its effects on health and environmental sustainability. Despite these trainings, the group of Tanghin still uses chemicals, pesticides and polluted water in their production. The group in Tanghin has never received a training related to value addition (and/or diversification). Trainings on value addition included processing techniques of soap and soubala, vegetable drying, as well as Alpha (literacy training) and making sandwiches (only by women in Kossodo). Only the group in Tampouy reports having had a training course in marketing. Although the content of these trainings is important in increasing the quality, yields and diversity of food products, some highlighted weaknesses are (a) the content of trainings was often quite theoretical as there was no adaptation with the reality on the ground; and (b) they did not include the online promotion of their products (particularly, for women in Tampouy).

Attendance at trainings

When looking at the number of attendants to the various training sessions that all the groups were beneficiaries of, there is a great disproportionality to highlight: only 2 out of 30 members (6% around) in Kossodo were selected (by the President) to attend these trainings (including the President herself and another woman facilitator) and they later shared the knowledge with the other members of the group (Table 6.8) All the group's members (100%) in Tampouy attended the trainings, and 75 out of 100 members (75.76%) attended in Tanghin, among whom 25 men attended the trainings. When looking at these data, there is a stark contrast between the so-called "well organised" group (Kossodo) and the two other groups. This is a good reason to further investigate this group.

Table 6.8: Attendants to training sessions

Number of attendants to sessions	Kossodo	Tanghin	Tampouy
Male	0	25	0
Female	2	50	30
Total	2	75	30

Source: The author based on Focus Group Discussion data (2017)

Participation in events aimed at promoting food production

Two out of three groups participated in at least two events that were promoting food value addition such as fairs and expositions. Annually, Kossodo and Tampouy participate in these events to present the outputs of their common activities. The group in Tanghin never participated in such events probably because they certainly do not have any collective marketing strategies.

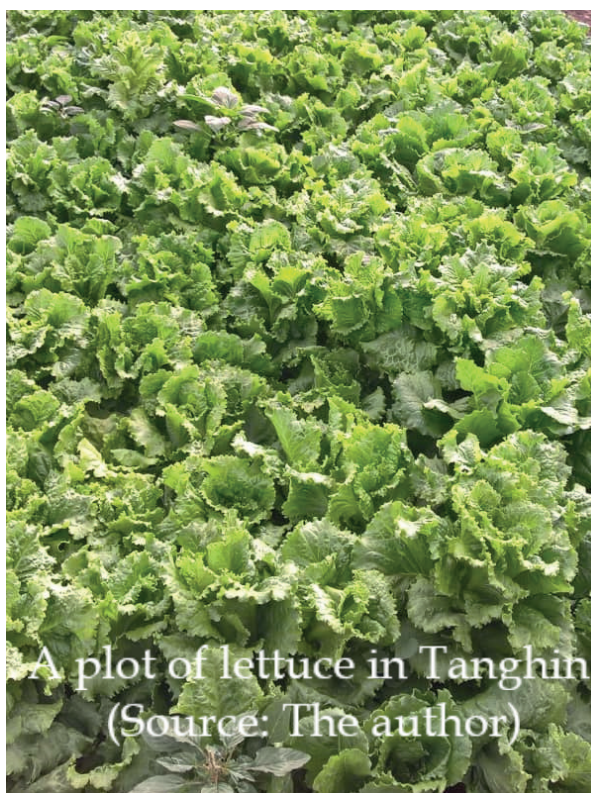
Land size for food production per season

All the studied groups work on a certain land size, which is divided into plots (see Photo 1). First, the group of Kossodo has 0.75 hectares of land divided into 224 plots: each plot is estimated to be 6m². On average, every woman in this group exploits 7 plots per season and per year. Interestingly, the group has got an additional new place in Ouagadougou where every woman has access to 7 additional plots of land of the same size. The new place is located within the Pan African Institute for Development in West Africa and the Sahel Region (IPD-AOS),

which Director and the women's group president have networked. Because of this networking relationship, an informal request from the group's president has led to obtaining the space.

Photo 1: Picture of a plot of lettuce in Tanghin

Second, the group of Tanghin, the biggest one, exploits 10 hectares of land around the barrage divided into plots: each plot accounts for around 10m², with an average of 25 plots per producer on the site (Table 6.9). However, women have on average of 10 plots depending on the land size that their husbands have access to. For example, there are men who hold 35 to 50 plots on the site.



Third, the group of Tampouy exploits 3 hectares for both tree and vegetable production. The part for vegetable production is divided into 200 plots: each plot is estimated to be 7m² on average, and each woman has an average of 6 plots per season and per year. Reality shows that some women, particularly the oldest among them, have around 2 to 3 plots, because they acknowledge their inability to exploit more plots due to their age (and lack force).

Table 6.9: Acreage for vegetable production (hectare)

Planned/acre	Kossodo	Tanghin	Tampouy
Group level (ha)	0.75	10	3
Group level (plots)	224	1000	200
Individual level (plots)	7	25	6

Source: The author based on Focus Group Discussion data (2017)

Quantity and value of produced crops

The recorded quantity of the (main) crops produced is determined by the crops that were being cultivated during the group capacity assessment and focus group discussions (end of November 2017). In Tanghin, the number of (harvest) seasons per year varies depending on the crop. For example, there are 12 for lettuce and 6 for *Amaranthus*. However, only the quantity of lettuce has been estimated⁴⁶ at 120,000 kg (120 tons) per harvest, and 1,440 tons per year for the whole group. In addition, the estimated value of their production is around XOF 15,000,000 (EUR 22,867.60) per harvest, given that the price of a plot of lettuce is around XOF 15000 (EUR 22.86).

In Tampouy, the number of harvests for the crops being cultivated during the assessment period was as follows: 4 for lettuce, 2 for *Amaranthus*, 24 for *Kinebdo*, and 4 for *Corchorus olitorius/tridens*. The estimated quantities are as follows: the total quantity of lettuce for 150 plots is around 9,000 kg (9 tons) and 6,000 kg (6 tons) for the 50 big plots. Thus, a total of 15 tons per harvest of lettuce is being produced in Tampouy, and 60 tons for a full year. In addition, as the price of a plot is around XOF 10,000, the total value of lettuce is XOF 2,000,000 (EUR 3,049) per harvest.

In Kossodo, the estimate of their production is also based on the lettuce. There are 3 harvests on average per year, and for the current one, the price of a plot was around XOF 11,000 (EUR 16.76), whereas the quantity of the production was 7,465.92 kg (7.4659 tons). Therefore, the total value was XOF 2,016,000 (EUR 3,073).

⁴⁶ It is what women participants could give us as information as it is the most produced crop.

This subsection shows that all the groups have great capacities for food production despite the constraints they face: they annually provide the population of Ouagadougou with substantial quantities of fresh vegetables, and thus contribute to the city's food and nutrition security and productive economy through the added value they create.

6.3.6 Group external partnerships

A group's ability to mobilise external partners around their activities is an important asset towards the reinforcement of their capacities. Data from the group capacities assessment show that women's groups have built relationships with other national and international organisations. The latter collaborate with the groups in various ways.

In Kossodo two partners were active during the fieldwork (in 2017) and comprise the Ministry of Agriculture (since the group's creation) and the National Council for organic Agriculture (CNABio) (since 2016). Also, since 2018, the Pan African Institute for Development in West Africa and the Sahel Region (IPD-AOS) has become another important partner that offered the group a space to carry out their production activities. In Tanghin, only the Ministry of Agriculture supports this group with trainings on production techniques.

In Tampouy, many partners supported this women's group. These include: (a) United Nations Development Programme (UNDP) in 1999; (b) Global Environment Fund (GEF) in 1999; (c) Agency for the Promotion of Non-timber product (APFNL) in 2011; (d) Central municipality of Ouagadougou since 2003; (e) Ministry of Agriculture and (f) United Nations of International Children's Emergency Fund (UNICEF) in 2003. UNDP constructed the fence for the site; GEF provided the watering system and study-trips to all the women; the Ministry helped in trainings on production techniques; APFNL intervened in non-timber forest product processing techniques; UNICEF provided the building hosting their meeting and trainings sessions at the site.

6.4 Participation in value chains

6.4.1 Determinants of the rewards for value chain participation

The women on all three sites assert that they work for themselves or that they do their own business within the different groups. If necessary, and that is often the case, they individually hire temporary manpower (usually men) to help them dig their plots of land. Women also benefit from the help of their children after school as family labour.

The focus group discussions show that men gain more rewards than women because they have more access to land, are stronger than women and have more time to seize business opportunities in value chains. Several arguments provided by women themselves support this statement. First, for women in Tanghin, the space they work on (culturally) belongs to men (their husbands). Hence, men gain more than women in value chains, because they usually give small-sized plots to women. Second, women (in all the groups) highlight that men have more physical strength which enables them to exploit more space and hence greater productivity. Third, women mention that climate variability and change (drought and flood impacts) accelerate soil degradation so that they constantly need to use manure in their production. They also mention the high temperature, particularly in the dry season, which makes it difficult to produce certain crops (e.g., lettuce) during this season (in April). Interestingly, women recognise that these climate extremes do not differently affect men (case of Tanghin). Fourth, men are more independent, have more time and freedom to invest in their business activities (they do not do domestic work) and are more likely to seize opportunities in value chains. The following quote shows how women perceive their difference with men: *“for example, if men were authorised on our site i.e., to work with us here at AMIFOB, they would occupy all the space and deprive women from having a large space”* (FGD3).

Social beliefs and norms are also perceived by women as crucial factors that create unequal asset endowments or distribution, affecting the behaviour and attitudes of men and women in value chains. To support this statement, women in Tanghin state that:

“socially a woman belongs to a man (her husband) and for this reason, a man does have more power than a woman, and he works more than woman as well. Consequently, it is the right for a man to distribute the assets in the household as he wants” (FGD2).

To the group of Tampouy, there is a difference between men and women regarding social beliefs:

“Since the beginning, men are superior to women in our cultures/traditions. Thus, women are not free to move where they want: everything is imposed to woman and she must work on the family farm before going to her own farm, which is of a smaller size and given to her by her husband” (FGD3).

Consequently, social or cultural beliefs stand to significantly reduce business opportunities for women as they have limited access to the main important assets, such as land (depending on their husbands), to carry out their activities.

For the group in Kossodo, having access to the asset related to their activities positively affects their lives and households. But in regard to society (socially), men and women are not equal; the man is perceived as being superior to the woman, and there is a great difference between them. For example,

“at farm level, the man’s part of land is necessarily larger than the woman’s part. From the perspective of our culture, when a woman starts to work, she starts to be self-sufficient or even behave badly, so that her husband does prefer her to stay at home. To men, a woman with money is a woman with power” (FGD1).

Another example supporting this statement by women themselves is:

“at the beginning of our group activities, it was about literacy, i.e. local language learning, and many husbands were against this idea, since they considered it as a form of libertinage... In fact, men’s will is to see their wives suffering while requesting/ begging them for money every time” (FGD1).

The last quote sheds light on women’s beliefs that their work in groups brought about husbands thinking that their wives were becoming too independent. Consequently, these men’s considerations may negatively affect women in seizing a business opportunity.

Hence, it becomes clear from these focus group discussions that men and women involved in the same value chain do not have the same rewards from their participation. Fundamentally, the social or cultural norms still weigh on women, thus reducing their chances to seize opportunities in the value chain compared to men. Social norms negatively affect the performance of women in food value chains by depriving them of certain key assets (land and time), and particularly when spouses (a man and his wife) have to meet again in the same business arena as in the case of Tanghin; they bring their household’s characteristics to the site (attitudes, behaviour, social and cultural mind-sets), which puts women backwards or in a disadvantageous position in businesses as she has to follow up on the decisions of her husband. The case of Tanghin also shows how unbalanced the power relations are between men and women, due to socio-cultural norms, since men are acknowledged to be physically stronger, which is somehow a source of their dominance over women.

6.4.2 Upgrading sources of improvement of women performance/rewards in a value chain

To upgrade their business activities, women think that the best way is to access productive resources or assets such as materials, equipment and land. To the women in Tanghin, if they had more production materials and became owners⁴⁷ of the land they exploit, they would produce much more than men. In addition, if one could help them increase/improve their equipment for work (e.g., watering cans, watering machines) and their plot size, they could increase their productive performance. To the women in Tampouy, more material resources (like in Tanghin), better water resources available at any time, access to loans/credits or subsidies to buy organic products or pesticides to treat their crops, as well as improved crop seeds, are necessary to improve their performance. To the women in Kossodo, their performance would be upgraded if they could have better material equipment such as watering cans, improved seeds, improvement in water availability/accessibility, increase in their plots of land, facilitation to access credit (funding), training in fresh vegetable drying and preservation techniques; and diversification towards other types of activities.

Besides the material assets, other sources of desired upgrading were identified depending on the group of women. The women's group of Tanghin believes that obtaining more fertilisers (chemicals), training on production techniques (right use of pesticides) as well as more access to information, would enhance their productive performance. For women in Tampouy, communication issues are important to upgrade their activities such as the use of internet for publicity of their products and communication about the quality of their products: "promoting our products on the internet or spray out information on our products through social networks will definitely improve our business" (FGD3). In addition, getting more training on how to treat insects and soil diseases, and on production techniques, on fallow management for soil restoration, soil conservation and improvement, could increase their production output and performance. To the group in Kossodo,

"we think that commercials (publicity) on the television, radio and sensitisation of the population on our activities and products could bring more visibility to our site". In addition, "we gain more as a group or association (in terms of training, advice, income) than individually (those who do not belong to any group/association)" (FGD1). Finally, "getting financial partners that can support our activities" (FGD1).

47 The land the women exploit currently belongs to their husbands; they have no rights to the land.

Hence, upgrading women's businesses within the value chain is doable at two main levels: at the resource level and at the services/inputs level. First, at the level of resources, women could upgrade their activities if they would have more (secure) access to land, continuous access to water resources (using underground water for example), production materials and equipment. This sort of middle or long term investment is not easy for them to achieve. This is particularly the case for land, where they are still vulnerable as they are dependent on the municipalities (political authorities) who can decide to withdraw the land at any time, due to urban development (particularly the case of Tanghin). Second, at the level of services/inputs, such as financial services, knowledge and information acquisition, communication services (commercials, sensitisation) and inputs acquisition (improved seeds, fertilisers and so on), women truly think that these are very important to boost their performance and to get more rewards from their activities. Interestingly, the advantage of using the internet (social media) and conventional media such as television and radio seems to be of much importance (impactful on the performance) to groups like Tampouy and Kossodo because of their production brand or label: organic vegetables. Therefore, the communication aspect of the value chain significantly improves their performance.

6.4.3 Gender dynamics, access to benefits from participating in value chains

Overall, all women's groups assert that being a woman or man does not determine whether or not a man producer or reseller will earn more benefit than a women producer or reseller. For example, "on our site (Tanghin), women or men who come to buy and resell at marketplaces gain more than us in regard to the effort that we furnish" (FGD2). Women in Tanghin also think that women who work in groups gain more than those working individually, as they can exchange ideas, which is much more beneficial than working alone. To women in the group of Tampouy, intermediaries (retailers) in the value chain earn much more than the other actors, whatever the gender. To them, women who produce have few direct buyers⁴⁸ (final consumers who buy the products from the site). They are often obliged to sell to resellers whose purchasing prices are lower than the ones for final consumers:

48 In fact, the quantity usually purchased by the final consumers is lower than the one of the retailers.

“These retailers have the advantage of receiving more buyers on vegetable markets, and consequently, they get more benefits than us. We do not have enough time to produce and go to markets to sell our products ourselves. We know less people on markets who can buy our food as we are not used to selling at the market nor do we know how it works there” (FGD3).

In contrast, women from the group in Kossodo, stated:

“Our group is much more beneficial to us than if we were working individually. It is the person who sells the products she cultivates herself that gains most compared to the other actors in the value chain, and this is not linked to being a woman or a man, but rather to the fact that we are the departure point of all (land, production). If we do not work, none of us (all the actors of the chain) can gain anything” (FGD1).

With regard to the power relations at multiple levels of the value chain, and the way these power relations affect access to rewards, women find that it is not linked to the culturally embedded power imbalance between men and women. For example, women in Tanghin state:

“Here, we do think that the person who comes to buy our products and resells them on the markets is the one who gains much more, because the latter can have benefits in one selling-day; Whereas for us, we can work for months before getting benefits” (FGD2).

Thus, the intermediaries (male or female) are the ones who gain more, because they can set the price, and thus their own profit margin. In contrast, according to the women in the group of Tampouy, power relations do affect the rewards they gain from participating in the value chains. For them (12 women in the FGD), “we earn more with male buyers than female buyers, because men do not negotiate the prices. When men arrive, they buy the crops without asking to diminish the price. In contrast, female buyers often negotiate the prices” (FGD3). In other words, when selling to men, women producers earn more than when they sell to women.

Women in Tampouy also think that equitable access and distribution of rewards between men and women is doable if women could have the same farm size as men: “Men need to understand that women also contribute to family expenditures, thus, there is a need for men to collaborate with women for food production” (FGD3). This is shared by the women of Kossodo who emphasise the collaboration between men and women: “If men reach out to understand women, that would have a constructive effect on the household” (FGD1).

Hence, gender dynamics (in terms of power relations) do not merely affect the rewards women and men earn from their activities. Instead, independently from gender, two groups (Tampouy and Tanghin) recognise that retailers are the actors in the value chains who capture most of the benefits, more than producers themselves; they purchase food from the women's groups at a lower price than end-consumers would do. Certainly, this is due to their selling model which is clearly individual. This is not the case in Kossodo, where the collective marketing or selling model is much more profitable for all of them. Besides this, women producers recognize an advantage related to gender: they earn more profit (they get a better price) when their buyers are men, because they do not like negotiating the prices with women. However, female buyers tend to negotiate the prices or quantities, thus reducing the gains for the women producers.

6.4.4 Infrastructures, equipment and accessibility to the sites

This subsection describes the infrastructures owned or accessed by the groups. First, the group in Tanghin does not have infrastructures apart some wells on their site as stated by women: *"We only have the following at our disposal: picks (XOF 1000 to 1250), watering cans (XOF 2500), picks (XOF 1000) and dippers (XOF 1000), which have been funded by FAO 12 years ago (including fertilisers). Moreover, our site is easy to locate due to the livestock market just in front, and also because it borders the Tanghin barrage."* (FGD2). Their equipment mainly comprises water cans and motor-pumps.

Second, the group in Tampouy owns some infrastructures, consisting of a meeting room, toilets, a container for storage (magasin), dry leaves (vegetables), an office, a preservation room for dry leaves, a solar panel, two pumps out of which one works with solar energy, and two wells, water vessels and vegetables tables. Their equipment comprises picks, hoes, wheelbarrows, gloves, boots, and a cart. Their partners funded these infrastructures and equipment (see 6.3.6). In addition, the access to the site is easy whatever the period over the year.

Third, the group in Kossodo has infrastructures such as meeting rooms, a training room, sewage rooms, toilets, three offices, wheelbarrows, space, a drinking water supply system, and equipment such as watering cans (more than 30), picks, hoes, organic manure (compost holes) and bio-pesticides. They have the following partners who have supported them: Oral-D and Foundation Nicolas Depreux, which have supported the group with financial aid for girls and women literacy and training in sewing); European Union, which has supported the group with wheelbarrows, and picks; and the municipality, which has helped the group with the land space and drinking water supply system. The site is easily accessible

during the dry season and very challenging to access during the wet season. The reason is that the site is located in a vulnerable area to flooding, and there is not good roads towards the place.

Hence, the difference in infrastructure, such as a building for an office, meetings and other value chain activities, allows an understanding of their position in the value chain: they are obliged to sell all their food to resellers, because they have no common place to dry or process any crop (in Tanghin). This can also explain why Tanghin is the most vulnerable group since the municipality authorities intend to withdraw their space⁴⁹. Infrastructure is an important component of the assets owned by the actors that are involved in a value chain, but also generates more business opportunities in terms of diversification and brand making, as is the case of Tampouy and Kossodo. Indeed, due to the water supply and building infrastructures, they are able to innovate and diversify their activities by processing other food on the site (dry vegetable, chilli, and so on). Therefore, their business and position in the value chain are less vulnerable than in the case of Tanghin.

6.4.5 Storage, preservation and processing

This subsection looks at the storage, preservation and processing patterns and sustainability matters in the groups. In Tanghin, women do not have any place to store their products. Therefore, they cannot store their crops, which would allow them more time to sell their products. The group does not process any food products either. The group of Kossodo is similar to Tanghin as the women cannot preserve and store their vegetables: *“Our main constraint is preserving and storing our food, as we do not have the knowledge on how to do so. To our knowledge and technology, we cannot preserve such products”* (FGD1). However, if this group could acquire knowledge on processing vegetables, the situation could be improved: *“If we get some training on the preservation of fresh vegetables, that could improve our storage/preservation capacities”* (FGD1).

In contrast, the group of Tampouy is an interesting case. There, women do store their dried leaves. Their technique of processing consists of spanning the leaves⁵⁰ in the air in order to block the sunshine, which can cause some negative damage. The dried leaves can be stored for over 6 months with the same nutritional content as

49 It worth noting that this space culturally belongs to some of the people that work on it. They have been exploiting the space since the construction of the barrage by the government to supply the city with drinking water. However, today, with the land pressure and some important infrastructure project (roads), the municipality of Ouagadougou wants to withdraw this place, as all the city land legally belongs to it.

50 Bouloumboulou, moringa, boulvoaka, creole, oseille, menth, persil, celery.

fresh ones. These dried products are often sold during fair-markets and expositions across the country, and mainly used in kitchen when there is no more fresh leaves of these crops. However, these women still face some constraints, as they said:

“We face many constraints in the preservation/storage of our products. For the preservation, there is a lack of big containers to store our products in order to wait for expositions or fair markets. The lack of storing material is due to insufficient financial means; and the space is too small to store the leaves” (FGD3).

Besides this, these women also process several other products using some inputs from their vegetable or leave production: the chili is combined to soumbala⁵¹ and moringa as raw materials, a mustard of soumbala (mostly processed under ordering).

In terms of profitability, women in Tampouy are categorical: *“Non-processed products are more profitable than the processed ones because there is no further effort to make after the harvest to sell them. In contrast, processed products require more energy (endeavour), more time and they are less profitable” (FGD3).* Interestingly, the buyers who are the most interested in the processed food are state workers: *“They are interested in both (dried and fresh products), but fresh products are more interesting to resellers or retailers and the other consumers (family and social events: weddings, festivities at the end of the year, baptism), restaurants and schools” (FGD3).* Finally, the buyers find that processed products are more expensive and less available, but fresh products are cheaper and more available because their production is continuous, and their demand is regular. Even if both types of products have the same taste, the only challenge is the availability of dry products.

Regarding the sustainability/durability of the groups' production and processing patterns, there is unanimity among them, including the group of Tanghin which uses pesticides and chemical fertilisers. In Tanghin, women state: *“Yes, we think that our production process is sustainable because we use organic manure and chemical fertilisers that allow us to maintain the fertility of the soil. We have water available to irrigate our soil” (FGD2).* However, the main constraint to this sustainability is linked to the political authorities: *“The municipal authorities are threatening to take back the place we produce on, because they have already withdrawn a certain part (portion) to construct a garbage bin” (FGD2).* Furthermore, the group's activities on sustainability are threatened by the barrage itself—the water could potentially submerge their parcels, because the water level is increasing due to silting.

51 Soumbala is a local ingredient used in the kitchen.

In Tampouy, women production and processing patterns are sustainable as well: *“Our patterns are durable because we utilise natural fertilisers (organic manure) and no chemical products. Also, with the alternation of our crops on different plots, the durability is guaranteed”* (FGD3). However, the main potential constraint threatening this sustainability is political: *“The government can decide to withdraw the space from us”* (FGD3)

Finally, in Kossodo, women also assert that they have sustainable production processes: *“We do think that our production process is sustainable, because we take care of the soil by covering it with dried grass, we use organic products (manure and bio-protect products for soil) and thus, our soil is fertile”* (FGD1). However, the main potential constraint or threat to its sustainability is related to extreme rainfall: *“If we get the accompaniment of the authorities (political leaders), this could improve our activities, assuming no occurrence of climate extremes (flood or drought)”* (FGD1).

Hence, it is quite difficult for all the groups to process, preserve or store their crops under the current conditions; there is a lack of infrastructure (Tanghin), space for storing the dried vegetables (Tampouy), and knowledge on processing techniques (Tanghin and Kossodo). However, the case of Tampouy shows that local demand for processed vegetables exists and mostly comprises literate people. Interestingly, because of the processed food, women in Tampouy sometimes have business opportunities when attending fair markets and expositions that connect them to other businesses and people. This contributes to enlarging their network among their peers (food producers and processors) and consumers (new potential demand). Thus, such activities contribute to building the women’s relational resources (social network) within the population and with the political authorities, who get to know them better. It stands out that making the effort to diversify their production by vertically integrating some nodes of the value chain can enhance the visibility of the group and foster the acknowledgement from the authorities who see their contribution to social wellbeing. Therefore, these authorities may change their intention to make decisions that damage the durability of these activities. Despite the contribution of all the groups to the urban wellbeing through their supplied products, their visibility to the public seems to be more important for their durability. In addition, as climate change is beyond the force of anyone, two groups are most threatened by floods and drought which negatively impacts their yield/production.

6.4.6 Market demand

This subsection describes the demand or the markets that women supply their various products to, and their interactions with buyers. Regarding the demand, women in Tanghin claim that their food is highly demanded because it is of high quality and great quantity. Their buyers comprise of state workers, individual buyers (households and restaurants) and resellers (intermediaries) from Ouagadougou. This high demand is also due to the easily accessible location and the visibility of the site (bordering the road and in front of the city livestock market) for people that pass by. In Tampouy, there is a strong demand for the women's food because there are plenty of buyers who only consume their products, which are organic. Many buyers from Ouagadougou uniquely consume products from AMIFOB, particularly lettuce: *"In fact everyone consumes our products"* (FGD3). Usually, the buyers are informed about products of the site by word of mouth and recommendation. In Kossodo the demand is similar to Tampouy as the food is also of high quality (because it is organic) and very much appreciated by the end-consumers and even by the other buyers (state workers, retailers, individual buyers). All these buyers reside in Ouagadougou, and have heard about the site by word of mouth (or recommendation) and phone calls from the women's groups themselves.

The women and their buyers all attest to having very good relationships and friendly interactions with one another. First, in Tanghin:

"We do have a good relationship with our buyers. Before coming, certain buyers call us. There are also producers who call the buyers to give them information on the availability of their products. We are in touch with our buyers and this is mainly through phone calls" (FGD2).

In such a good relationship, buyers sometimes suggest or recommend things to women food producers:

"We receive suggestions from our buyers. There are buyers who request us to take more care of products when harvesting, as they call us after and complain that the purchased products damaged. Other buyers recommend us to produce potatoes, which we used to do in the past" (FGD2).

For the intensity of interactions between women and their buyers, women in Tanghin positively estimate it at 8 out of 10. This means that their products are very attractive to buyers, and that the site is very much frequented.

In Tampouy, women have warm relationships with their buyers as well. They say: *“We are on very good terms with them, and we call each other very regularly; We frequently communicate with them”* (FGD3). Because of the warmth of their relations, women in Tampouy also receive suggestions and recommendations from their buyers:

“We receive suggestions from our buyers, who request us to assure a permanent production of certain products, to assure their continuous availability (particularly of lettuce). Buyers also recommend us to change our techniques of watering: instead of using watering cans, they suggest us to use a drip watering system, which is less tiring for us (e.g. the eldest women). Finally, our buyers recommend us to produce more of different crops varieties” (FGD3).

In regard to the good relationships among producers and buyers, women in Tampouy estimate at 9 out of 10 the attachment of their buyers to their business activities.

Finally, the women in Kossodo also claim to have good relationships with their buyers:

“We regularly call each other during the month, either retailers (big buyers) or smaller buyers. Our buyers sometimes compliment the quality of our products or our production techniques: they say that our products are of good quality, because we use clean water. And that is why they continue to come. Our buyers also make suggestions or recommendations on their preferences related to our products, some request more diversification” (FGD1).

These good relationships allow women in Kossodo to positively estimate at 8 to 9 out of 10 the attachment of their buyers to their business.

Hence, all women’s groups have the same types of buyers, such as end-consumers (composed of state workers, individual buyers and other consumers), retailers and social-event related consumers. The only difference at this level lies in the type of buyers women value the most, in terms of the purchasing amount. It stands out that women like buyers who buy significant quantities of their food. Only retailers can do so, but for a discounted price. In contrast, as end-consumers usually do not purchase significant quantities, but pay a higher price (e.g. sales to men), the women’s groups tend to open their food supply channels to retailers, even if they lose their food identity; on vegetable markets, the brand of organic food disappears as retailers use to combine organic and conventional products, resulting in non-traceability of the products at the production sites of our study. The good thing

is that all women's groups seem to be familiar with most of their buyers and they have built an interesting relationship with them. It is not only the products and their price that count the most, but also the social-relational aspects related to their activities.

6.4.7 Other actors in the value chain

This subsection identifies the other actors in the women's groups' food value chains. All the groups currently collaborate with the Ministry of Agriculture, which advises and trains them in production techniques of conventional and/or organic food. They also interact with other businesses such as (semi) wholesalers mostly in the group of Tanghin; they interact with restaurants (particularly Tampouy and Kossodo); and with seeds or certain organic pesticides dealers. In addition, the group in Tampouy receives advice on the processing of leaves, the drip irrigation system (goutte-à-goutte) and how to treat the leaves. These women attest to having good relationships with people from this Ministry: *"we do have good relationships with people from this Ministry so that when they have foreign guests and want to visit some successful cases, they bring them to visit our site"* (FGD3). The group in Kossodo also works with other organisations in addition to the Ministry of Agriculture, such as CNA-Bio (or Bio-Protect), Slow Food and FAO and they help them with training, advice and certification of organic food production.

Hence, the institutional authorities in charge of agriculture know the studied groups well, and even support them by sharing knowledge with them for better outcomes. This can be an important asset in reducing the vulnerability of all the sites in the case of a change in policy towards urban agriculture.

6.4.8 Group access to information and knowledge sharing

The studied groups have various ways to get access to information or knowledge from outside their group in addition to their own local knowledge on food production, processing and marketing. In Tanghin, as the Ministry of Agriculture is currently their technical support, they directly contact the group leaders to set a day for a meeting or training. Afterwards, group leaders share the information with the other members of the group. However, such information sharing is not very frequent: *"This year, we have not gotten any information yet"* (FGD2). Finally, getting information or knowledge is usually done via informal and formal channels (written letters or phone calls), but always free of charge.

In Tampouy, information and knowledge sharing is done through meetings, interviews and group structures. Indeed, certain buyers sometimes sensitise the women on new techniques of irrigation. With partners, information is usually shared via phone calls from the Ministry or meetings between the group and the Ministry's agents. In addition, during expositions, women get access to information on marketing techniques as well as processing techniques. Women in Tampouy attest to having permanent access to information or new knowledge from the technical services of the Ministry; the frequency of this access is about 2 to 3 times per year, and it is free of charge. Finally, two channels through which they can obtain information are identified: the informal channel of word of mouth; and the formal channel comprising written letters of invitation from the authorities, or phone calls.

In Kossodo, women get access to information or knowledge from other actors in the value chain during training sessions; knowledge/information is usually about production practices or techniques, advice in terms of fighting against caterpillars devastating the crops and organic agricultural practices. The women also get information on new technologies of production, processing or marketing either through electronic mailing (email) or phone calls (from partners inviting them to a training). Afterwards, the women share this information with the other members of their group. In addition, women state that they regularly obtain new information or knowledge related to their activities: over a year, they can receive such information or knowledge about 5 times, via both formal and informal channels. Normally, receiving this information does not cost any money, or at a maximum the internet connection fees.

Hence, women's groups get 'free access' to information or new knowledge from outside, which aims at improving their business outcomes, particularly from their partners and some of their buyers who have relevant knowledge for them.

6.4.9 Speed in product or information flows (from the site to home/final consumption)

This subsection describes the speed of the flow of products and/or information on those food products from the producers to consumers and vice versa. All three women's groups reported a quick turnover of their products, the flow is very speedy. Indeed, for Tanghin: *"Our products flow very quickly. There is high demand for them, and buyers buy a lot; so, our products leave our sites very quickly to markets. This speed is due to the fact that our products are of good quality"* (FGD2). In addition, as previously stated, their buyers (retailers) give them some feedback or suggestions

one day later, or on the spot. The only weakness these women highlight is that their products are not traceable, meaning that there is no unique tag attached to their products that contains specific product information.

The situation in Tampouy is similar to the situation in Tanghin in terms of the rapidity of the stock-flow of their products: *“We think that our products circulate quickly. The rapidity in the flow of our products is due to the good quality of our organic products”* (FGD3). In addition, buyers or other actors in the chain give feedback on the spot, at the moment of selling. The contrast with the group of Tanghin is that certain products in Tampouy are traceable and unique, particularly the chili (piment), soumbala and chili mustard: *“There is a mark (trademark) glued on the boxes with the name of AMIFOB and our phone numbers. The name of the association AMIFOB and our contact are on the packaging, which makes our products unique on the market”* (FGD3).

In Kossodo, women state that their products flow quickly, because they are highly demanded and purchased: *“the explanation for this speed in the turnover is that our products are organic”* (FGD1). In addition, women from the site get feedback from their buyers/consumers and other actors in the chain on the spot. Similarly, for the group of Tampouy, the products on this site are traceable and unique: *“Our products are traceable for the buyer/consumer to easily find the origin of the product, and the brand Bio SPG makes our products unique”* (FGD1).

Hence, all the groups attest that the stock of their products flows quickly from the production site to end-consumers, or at least they leave the farms quickly because their buyers (intermediaries or end-consumers) come to the production site. This also reveals the level of interaction women producers have with their buyers. However, only the products of Tanghin are not traceable and unique in kind because they lack key information that proves the origin. Kossodo is doing better in this area with their organic brand that they got certified in 2017. This is not the case of Tampouy, where the name of AMIFOB itself is already a quality reference for many buyers.

6.4.10 Competitive value chains

This subsection aims at addressing the competitive nature of the value chains related to each women’s group. The women in Tanghin do not collaborate at all with the other groups (Tampouy and Kossodo). However, they attend the training sessions, organised by the Ministry of Agriculture. There is no consultation framework between Tanghin and the other groups: *“there is no dialogue with these groups, and we do not know why. Each group works for itself”* (FGD2). Consequently,

women in Tanghin do not see the others as competitors: *“there is no competition between us and those groups because we do not have the same buyers, and not the same markets”* (FGD2). These statements are also shared by the other groups towards the group of Tanghin.

“We have been at the Tanghin site once to purchase their crop and resell it on our site (we were lacking lettuce). Once we have seen a producer using chemical products over there and he was spreading it on the lettuce. We just deleted this order and we stopped the collaboration we were about to build up” (FGD3).

This statement clarifies why the other groups do not want to collaborate with the Tanghin site: they use chemicals (pesticides and fertilisers).

In contrast, the groups in Kossodo and Tampouy have a good relationship; AMIFOB has trained the women of Kossodo in organic food production techniques when the latter had just started their activities. The group that knows a production technique can train the other. Besides this, both groups are somehow complementary in sales: *“We help each other in the sense that the products of a group can be sold on the site of another group. When AMIFOB lacks crops, they can complement their sales with the products from Kossodo and vice-versa”* (FGD3). This statement has also been confirmed by the group of Kossodo during the focus group discussions.

However, there is no unanimity between the group of Tampouy and Kossodo regarding their close relationships. Indeed, while women in Tampouy claim that they have a common consultation framework, which is organised once a year, women in Kossodo say that such a framework does not exist. Also, while women in Tampouy assert that they are competing with the group of Kossodo, women from the latter do not see the women in Tampouy as competitors. The reasons advanced by women in Tampouy are as follows:

“There is competition between us and the other groups. We compete on the quality and the variety of the products. There is also competition when it comes to the promotion of products (marketing techniques). There is competition between groups, as each group wants to be more visible than the others” (FGD3).

In contrast, women in Kossodo stated:

“We do not see ourselves (our group) as competitors of AMIFOB. Instead, we are complementary as we recommend our buyers to go to AMIFOB for products we do not have, because they do the same as we do (organic vegetable production)” (FGD1).

Hence, not all groups see themselves as competitors; each group has its own value chain and stakeholders. Indeed, it is surprising that women in Tampouy consider the group in Kossodo as their competitors, especially as they highlight a certain complementarity between the two groups. A possible explanation is that women in Tampouy realise that the activities in Kossodo are more visible than their own products—the latter uses Facebook to promote their products. Another possible explanation is that the groups of Tampouy would like to have the same level of organisation (particularly the selling system) of the Kossodo group.

6.4.11 Climate change and adaption

First, data show a great exposure of Ouagadougou to the effects of climate change, which includes climate variability. Over the period 1956-2015, climate dynamics has shortened the wet duration by 25% and decreased by 59% (from 102 to 48 days) the active vegetation period (Bambara et al., 2019, p.1). This is mainly due to climate change whose effects will reduce water infiltration, increase evapotranspiration, increase runoff, and water quality degradation (Zougmore et al., 2019). As such, Ouagadougou (Burkina Faso in general) is prone to drought, floods, temperature variability, wind storms and disease outbreaks, all affecting agricultural activities through soils erosion, vegetation cover degradation, deficiency in ground water replenishment, and surface water evaporation (Humblot, 2018). The direct effects of climate variability on agricultural activities include the growing irregularity of seasons, the increase of risk of crops losses, the destruction of infrastructure, the decline in yield and income (Humblot, 2018).

Second, as water resources dependent, the agricultural areas in Ouagadougou are concentrated on the borders of barrages, but also in wet areas, or around canals or other water points. However, due to the poor quality of soils and high cost of chemical fertilisers, food growers resort to organic substrates (OS) [e.g. urban solid wastes], which stand to be an interesting alternative to chemical fertilizers (Kaboré et al., 2011). However, this direct use of OS is unsightly and has serious health and environmental risks (Kaboré et al., 2011). In addition, the poor management and use of pesticides at the production sites threaten the city's biodiversity, productivity of natural ecosystems and health of producers and consumers. For example, in Tanghin, 67.5% of prohibited pesticides are used in food production (Tarnagda et al., 2017, p.11659). Consequently, most water used in agricultural production are polluted except those using underground water. This supports the argument that urban agriculture uses unsustainable practice causing pollution and soil degradation (Jonkman & Jansen, 2019).

Last, facing this climate change effects, three main adaptation strategies have been developed by the studied women's groups (Humblot, 2018). First, the groups succeed in organising more effectively to make their voices heard and legitimising messages than individual female farmers. Second, the groups are supported by local and international organisations and the state (see 6.3.6)), through funding and trainings. The trainings provide knowledge in climate change, urban agricultural techniques and adaptation strategies. These trainings also lead to an acknowledgment of the need to adapt to climate variability. Third, the groups build relationships based on solidarity, empathy, pride, trust and joint responsibility which enable female farmers to rely on each other.

Overall, these climate conditions lead women's groups to adopt certain agricultural practices as follows: 1) organic food production in Tampouy as they use compost (organic manure), goutte à goutte (drip irrigation systems) as irrigation technique, adapted seed and (some) seed production, off-ground cultivations (also called hydroponic cultural techniques because they use less water), and biological pesticides; 2) organic food production in Kossodo as they use compost, butte Sandwich (Sandwich Mound) to avoid flooding, goutte à goutte, adapted seed and (some) seed production, off-ground (on-table) cultivations, drills and solar panels, agroforestry, biological pesticides; and 3) conventional food production in Tanghin using chemicals and chemical fertilisers and pesticides. These agricultural practices are sound and can be considered as 'gender-sensitive' (see Zwarteveen, 1994), particularly the irrigation systems deployed and operating in Kossodo and Tampouy.

6.5 Conclusion

This Chapter has analysed the interaction between women's collective agency and capabilities and their functioning (rewards) from participating in urban food value chains from a gender lens. It has also described the urban food value chains and the position of women in them. Two main types of value chains exist in the urban food chain: short value chains and long value chain; and women food producers merely evolve in short value chains. The short value chains directly link women food producers to the final consumers of their products: a) at their production site where the final consumers buy the products; and b) at the marketplace where women-producers bring themselves the food products. In the second case, women have two positions (producers and vendors). In their position of producers who drive the business they set up the prices of the production. The long value chains link women food producers to final consumers via intermediaries who can be the

producers themselves, or other business (food marketeers who are not members of the women's group). In this case, it is difficult for women food producers to set up the price of their products.

The chapter has also shown that the current collective business strategies of WSEs/WFEs include their production planning to avoid them all producing the same crop at the same time; production of the most demanded crops during annual festivities; growing adapted crops to the hot/water stress period; and joint selling system. Each of these strategies directly builds up women's collective capabilities (opportunities generated by their business activities, common resources or capacities), functioning (social relations, profit), agency (group governance and conflict management as drivers of women's behaviour). For example: a) existence of infrastructures accessible or belonging to women's groups plays an important role in creating new business opportunities both for women and men. In turn, this contributes to increasing the profit, social network and self-esteem functioning.

Hence, the hypothesis **H1** is confirmed, as the collective business strategies contribute to shape women's business models. Also, in regard to the dynamics of the value chains (see 6.4), the horizontal and vertical linkages analysed show that **H3** is confirmed. Indeed, the infrastructures, level of vertical integration and level of horizontal coordination in the value chains shape the capabilities, agency and strategies of WSEs/WFEs.