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Households' livelihood and adaptive capacity in peri-urban interfaces: A case study on the city of Khon Kaen, Thailand

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Households' Livelihood and Adaptive Capacity in Peri- Urban Interfaces

A Case Study on the City of Khon Kaen, Thailand

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Master 2 Urbanisme, Habitat et Coopération Internationale

Soutenu en 2016

Sous la direction de Mme Céline Lutoff



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Résumé

Cette recherche, menée sur une zone péri-urbaine de Khon Kaen, une ville thaïlandaise en plein développement démographique, examine les conséquences de l'urbanisation sur les modes de subsistance et les capacités d'adaptation aux pertes agricoles de familles d'agriculteurs déjà présentes avant l'extension de la ville. Une méthode qualitative a été choisie afin de mieux rendre compte des évolutions dans l'activité économique. La recherche a révélé que la diversification des revenus dans des activités non-agricoles constituait pour ces ménages leur principale stratégie économique, qui va avec une importante amélioration des conditions de vie. Mais aussi que les activités agricoles ont conservé une place cruciale du fait de nouvelles difficultés économiques, avec au premier plan le besoin grandissant de ressources financières pour la consommation de biens et de services. La sécheresse a été identifiée comme le désastre climatique ayant les impacts les plus importants, la perte de ressources alimentaires conduisant à un investissement plus important sur l'achat, en dépit d'une situation financière fragile. Enfin, l'enquête a mis en avant le fait qu'il y avait peu de stratégies d'adaptation mobilisées en réponse à ce désastre naturel, et qu'elles étaient majoritairement dirigées sur une accumulation de ressources financières à court-terme.

This study, which focuses on a peri-urban interface of Khon Kaen, one of the fastest developing urban areas in Thailand, examines the outputs of the urbanization phenomenon on livelihoods and on the capacity to manage risks of farming loss. Qualitative data have been preferred to understand the evolution in the livelihood assets. The study found that income diversification in non-farming activity was the first strategy adopted by the households, with an enhancement of living conditions, but also that farming activity kept an important place due to the increased cost of goods and services. Drought has been identified as having negative impacts on households' livelihoods, the loss of food resources leading to a higher investment in markets and shops, despite the weakness of the financial situation. Finally, the study identified that coping strategies were poorly used in response to drought, and mostly directed on the growth of financial assets on a short term.

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Le stage

Réalisé dans le cadre du programme de recherche UCRSEA (Urban Climate Resilience in South-East Asia), par le biais de l'organisation Thailand Environment Institute, ce travail est présenté sous la forme d'un article scientifique destiné à la publication, rédigé en anglais. Son élaboration s'est faite en coopération avec les chercheurs du programme ainsi qu'avec ceux du groupe de recherche WeSD (Wellbeing and Sustainable Development) de l'université de Khon Kaen.

Le but du programme UCRSEA est de développer la connaissance sur les vulnérabilités des espaces urbains face au changement climatique dans la région du Mékong, en promouvant des recherches sur huit villes de taille moyenne, deux dans chaque pays concerné : le Myanmar, le Cambodge, le Viêt Nam et la Thaïlande. Les pays de la région du Mékong sont parmi les pays les plus ruraux de la planète et connaissent des taux d'urbanisation très importants et des changements profonds qui y sont directement liés. Dans le même temps, le nombre de phénomènes climatiques extrêmes ne cessent de se multiplier et des inondations et des sécheresses record ont récemment affectées la population rurale et urbaine. C'est pour tenter de mieux cerner le rôle des dynamiques d'urbanisation dans la façon dont les individus, les communautés et les gouvernements locaux peuvent répondre à ces menaces que le programme accueille des étudiants et des jeunes chercheurs, qu'ils viennent des pays impliqués ou d'ailleurs.

Mon rôle était donc de produire une recherche sur une des deux villes thaïlandaises du programme : Khon Kaen et Mukdahan. J'ai choisi la première, qui me semblait plus intéressante parce que particulièrement dynamique. Je suis arrivé mi-mars dans la structure, située dans le nord de Bangkok, dans laquelle j'ai passé deux mois et demi à construire le projet de recherche et développer une revue de littérature, avant de m'installer pour deux mois sur Khon Kaen pour réaliser la recherche. Un dernier mois à Bangkok a été nécessaire pour analyser les données et rédiger l'article. Je suis reparti début septembre.

La construction de la problématique de recherche

Un long processus de questionnement préalable m'a été nécessaire pour faire émerger les questions qui ont dirigé ma recherche. L'Asie, et à plus forte mesure les pays du Mékong, connaît des phénomènes d'urbanisation très distincts de ceux qui ont formé les villes d'Europe. L'extension et démographique et physique des centres urbains vient se heurter à une dense population rurale qui constitue la majorité du continent, et change durablement le quotidien et le fonctionnement des communautés agricoles alentour. Cette dimension de l'urbanisation me paraissait particulièrement pertinente à explorer, en premier lieu parce que le nombre d'études qui croisent caractéristiques péri-urbaines et vulnérabilité aux risques naturels apparaît assez pauvre en comparaison du nombre de familles concernées.

Mes premières hypothèses étaient axées sur l'idée que l'urbanisation venait perturber l'économie des villages alentours en rendant plus difficile l'activité agricole, alors même que leurs habitants n'était pas capable dans la mesure, de par leur faible niveau scolaire, d'obtenir un travail suffisant pour remplacer la perte en revenu. C'est donc vers les conditions de subsistance que je me suis initialement dirigé, avec l'idée de l'étudier à un niveau micro-social, celui des ménages directement concernés par le changement.

Une revue de littérature plus poussée m'a dirigé vers les concepts de diversification de l'activité d'économie rurale non-agricole, des phénomènes qui peuvent participer de la réduction de la pauvreté et de de la vulnérabilité aux risques naturels. J'ai donc retournée ma question initiale pour interroger en quoi l'urbanisation pouvait représenter de nouvelles opportunités économiques, dans l'optique de valider de précédentes recherches sur le sujet.

C'est une fois sur place que j'ai fixé le terrain à étudier. Plusieurs villages étaient au cœur des recherches de WeSD sur l'urbanisation et l'un d'eux, Ban Samran, encore peu étudié, me semblait correspondre à ce que je cherchais. L'un des étudiants travaillait précisément sur l'urbanisation des espaces péri-urbains de Khon Kaen, et c'est en passant par lui que j'ai pu prendre contact avec les acteurs locaux. Ce village, au nord de la ville de Khon Kaen, avait été fortement affecté par l'urbanisation dans les 30 dernières années mais conserve une grande part de terres agricoles. Si peu d'inondations l'avaient affecté, il souffrait très régulièrement de sécheresse, et c'est sur ce phénomène que j'ai réduit mon étude, afin de comprendre quelles étaient les moyens et les stratégies dont disposaient les agriculteurs du village pour y répondre.

La construction de la méthode

Mon intention était à l'origine dirigée sur une méthode quantitative d'évaluation de la vulnérabilité à l'aide d'un questionnaire complet, basée sur l'exemple de plusieurs cas d'études. Cette méthode, d'ailleurs utilisée dans un des travaux des chercheurs du groupe de recherche WeSD sur une municipalité péri-urbaine qui avait souffert des inondations, s'est vite révélé trop ambitieuse de par le peu de temps que je disposais. Malgré des tentatives successives d'adapter et de réduire le questionnaire, j'ai dû finalement me résoudre à obtenir suffisamment de données et me focaliser sur des entretiens qualitatifs avec un nombre plus réduit d'individus.

Les entretiens successifs que j'ai eu avec le chef de la communauté, les acteurs locaux et des habitants m'ont permis de préciser ma recherche, avant de proposer une grille d'entretien destinée à ceux pratiquant l'agriculture. Cette grille était en partie nourrie par le questionnaire, en partie par des questions ouvertes.

Les difficultés du stage

Connaissant peu le contexte et n'ayant pas accès à suffisamment de données secondaires pour le saisir à distance, je n'ai pu véritablement cerner mon sujet qu'une fois sur place. Un nombre limité de documents en anglais était disponible, l'essentiel étant rédigé en thaï, une langue qui a son propre alphabet ; sur la durée de mon stage, une autre stagiaire a été embauchée afin de traduire en anglais les documents de TEI. De plus, peu de cartes sur le terrain concerné ont été réalisées, et le plan d'urbanisme de la ville de Khon Kaen n'ayant même pas été renouvelé depuis les années 1970.

La construction de la problématique s'est donc faite à l'aveugle, à l'aide d'une vaste entreprise de prise de connaissance de la littérature. Elle s'est précisée avec la rencontre de chercheurs locaux et l'obtention de nouveaux documents, dont certains que j'ai dû faire traduire partiellement. Toutefois, pour des problèmes d'emploi du temps et par la perte d'une semaine dédiée intégralement à l'extension de mon droit de séjour, je n'ai pu commencer véritablement ma recherche qu'après un mois de présence sur le terrain.

La langue s'est évidemment révélée être un gros problème. Ceux qui n'ont pas atteint les études supérieures ne parlent généralement pas anglais, en particulier dans la région du pays où je me trouvais, où une faible présence touristique n'en rend pas nécessaire l'apprentissage. Ma recherche nécessitait donc un interprète. S'il était possible d'embaucher pour une durée déterminée des étudiants en anglais, j'ai préféré en trouver un moi-même par les relations que je m'étais fait sur place afin de pallier leurs emplois du temps qui ne me convenait pas. Tous mes entretiens se sont donc réalisés entre un anglais parfois approximatif, autant de ma part que de celle de l'interprète, et un thaï que je ne pouvais pas comprendre. Sans surprise, la méthode a retiré beaucoup de sens et beaucoup de fluidité dans ma collecte, et m'a en outre empêché d'intervenir, ce qui a fortement limité mon travail de terrain.

Enfin, la faiblesse des données disponibles sur le village au centre de ma recherche, qui n'a fait pour l'instant l'objet que d'une seule étude, ainsi que la difficulté à prendre contact avec les acteurs institutionnels locaux ont fait que peu d'éléments n'étayaient ma recherche si ce n'est les entretiens que j'avais réalisés.

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Abstract

This study, which focuses on a peri-urban interface of Khon Kaen, one of the fastest developing urban areas in Thailand, examines the outputs of the urbanization phenomenon on livelihoods and on the capacity to manage risks of farming loss. Qualitative data have been preferred to understand the evolution in the livelihood assets. The study found that income diversification in non-farming activity was the first strategy adopted by the households, with an enhancement of living conditions, but also that farming activity kept an important place due to the increased cost of goods and services. Drought has been identified as having negative impacts on households' livelihoods, the loss of food resources leading to a higher investment in markets and shops, despite the weakness of the financial situation. Finally, the study identified that coping strategies were poorly used in response to drought, and mostly directed on the growth of financial assets on a short term.

Key words: peri-urban interfaces, farming and non-farming activities, livelihood diversification, drought, coping strategy, Thailand, Khon Kaen, Ban Samran.

1. Introduction

One of the main outputs of the fast urbanization of Southeast Asia countries has been, in the recent decades, the profound alteration of the livelihood of many families and communities. For these countries, which have an important part of their population still dependent on farming activities, the physical and non-physical extension of cities not only attracts permanent migrants, but also shifts the socio-economic organization of the closest villages, with positive and negative results. The cohabitation of farmlands and urban infrastructures and the increasing circulation of goods, information and population between the core and the peripheries of the city create areas where urban and rural characteristics interweave, places of transition between the inside and the outside of the city where the traditional conception of a dichotomy between the both become irrelevant (Jones & Visaria, 1997). If this phenomenon is not specific to Southeast Asia, it has become very significant in this particular region due to the density of the rural population.

For the households of these peri-urban areas, formerly involved in solely agricultural activity, a livelihood based on a diversified set of activities has become the norm (Rigg, 1998), for some evident reasons. In comparison to a livelihood dependent only on farming products, a "portfolio of activities and social support capabilities" (Ellis, 1998) is more likely to enhance standards of living, with provision of new resources, moderation of seasonal influence and also reduction of risks. With an economy not solely based on one unstable source of income, dealing with shock becomes easier, which therefore constitutes an entry for adaptive strategies with natural risks. Because peri-urban areas bring more labor market opportunities in the same way that it put more pressure on natural resources (Rakodi, 1998), their inhabitants are grandly prone to combines farming and non-farming income, with some consequences for their livelihood and their adaptive capacity.

In the last decades, many studies highlighted the transformations occurring in the peri-urban interfaces of cities in Asia and Africa, underlining the positive and negative outputs on farming communities and the strategies taken individually to adapt to the new context. With their works on Southeast Asian context, McGee (1991) and Ginsburg (1991) highlighted the specific territorial patterns emerging in the peripheries of developing countries' metropolitan regions and stimulated the reflection on rural-urban linkages effects on livelihoods. The combination

of activities, assets and capabilities that constitutes the individual economy of peri-urban households gained a real recognition in social sciences (Rigg, 1998; Tacoli, 1999), while its role in poverty reduction has been admitted (Haggblade, Hazel & Reardon, 2007; Christiaensen & Todo, 2013). Some case studies have focused on specific strategies that emerge in peri-urban interfaces, specifically in Africa (e.g. Nicodemus & Ness, 2010; Oduro, Adamtey & Ocloo, 2015).

However, while climate change is year after year a more present issue in this part of the world, with an important part of the population being dependent of exposed natural resources, it appears that a small amount of work have been dedicated to the adaptive capacity of peri-urban residents to this new context. Several works were realized on the adaptation to climate change in rural areas (e.g. Morton, 2007; Smit & Skinner, 2002) and urban areas (e.g. Satterthwaite, 2007; Leichenko, 2011), but the specificity of peri-urban livelihoods impose new questions about vulnerability, strategies and adaptation. The conceptual work of Pelling & Mustafa (2010) on the relations between desakota and disaster management highlighted new elements to understand what rural-urban linkages implies in terms of vulnerability and adaptive capacity. They nonetheless argue that the research on this matter is still quite limited. Peri-urban resilience, as a specific process, still calls for more case studies and conceptual constructions for strengthening projects and policies, especially for the small-sized and middle-sized cities which are relatively forgotten by the urban risk literature, while more than 50% of the urban population lives in settlements of less than 500 000 inhabitants (UN HABITAT, 2007).

This paper goes in this direction by investigating the case of Ban Samran, a peri-urban village critically impacted by the fast development of the close urban core of Khon Kaen, in Thailand. The purpose is to observe and analyze how the process affected the livelihood of farmers and how it shaped their capacity to respond to increasing drought. The expected outputs are to identify the strength and the weaknesses of a mixed livelihood in order to enhance reflection for planners and searchers.

2. Description of the case study

2.1. Khon Kaen

Situated in one of the most populated province of Thailand, Khon Kaen has experienced one the fastest development of the recent decades, and is still growing at an elusive pace. Being one of the four important cities of Isan, the Northeastern region of Thailand, Khon Kaen is a center of industries, services and institutions in a part of the country known for its poverty and important subsistence farming sector (Grandstaff, 1980). Its favorable position on the crossroad of two major way for the Mekong countries (notably the East-West Economic Corridor), its central activities for the Northeastern region and the institutional support from the government – it was defined as a growth pole in the 1960's (Nattapon, 2012) – have been the drivers of its development, which lead to important physical extension on the outskirts, purchased by private investors for their cheapness, with the emergence of residential estates, warehouses and distribution centers. This creates an important sprawl: population of the core municipality has decreased – 130 528 in 2002 and 112 329 in 2013 (Khon Kaen municipality, 2013) – while the suburbs population has risen. The consequences of such an evolution are that the city forms a fragmented territory, composed of scattered neighborhood linked by a large transportation network, and cohabitation of urban infrastructures with farmlands.

Khon Kaen area hasn't been spared by climatic events. The flooding of 2011, which greatly damaged Thailand, had critical outputs on the Southeast of the urban area, with population displacements, destructions and health problems (Promphaking and al., 2016). Floods as well as drought have become more regular and critical events year after year. Moreover, the pressure of drought has become more critical and has already been the preoccupation of local policies – in 2014, severe events led to a financial compensation for the affected province farmers. Situated in highlands, Ban Samran is mostly concerned by drought, even if some localized floods occur. According to inhabitants, the area has always had to deal with these weather conditions; it is representative of the situation of agriculture in Isan, considered as the most difficult region to farm in Southeast Asia, both for the infertile soil and the erratic distribution of rainfall (KKU Ford Cropping Systems Project, 1982; Rigg, 1991). If the degradation is not as evident as in some others part of Thailand, the drought problems have aggravated in the most recent years; Thailand has known three successive years of depletion of water supply due to poor rainfall, reaching its peak in 2016 with the worst drought in 30 years.

2.2. Ban Samran

Ban Samran is a village at the heart of Samran, a suburb situated at the north of Khon Kaen, approximately 12 kilometers from downtown, past the ring road, which counted, in 2008, a population of 9637 inhabitants (Department of Provincial Administration, Khon Kaen, 2008). According to the community leader, Ban Samran is composed of 293 households. Formerly a relatively isolated village, Ban Samran knew in the past fifty years a development which turned it from a rural space into a peri-urban interface. The first step in its peri-urbanization process occurred in 1964, with the construction of the Mithraphap road, a highway which crosses Isan from North to South. Domestic electricity came in 1975, followed by the first factories in 1976 and the first housing estate in 1979. Access to tap water only became possible in 2005.

Although these urban features, Ban Samran seems to have kept an important rural dimension. According to the community leader, agriculture is still having an important place in the community, and many households were presents before Khon Kaen growth affected the village. It represents a particular instance of peri-urban interface: a dynamic zone of mixed land use, where rapid economic and structural changes happened (Rakodi, 1998). Localized on highlands, it is mostly concerned by the phenomena of droughts, possibly floods, and more rarely storms and cold waves. Droughts are worsen by problems in the water distribution caused by urban infrastructures and, despite the efforts of the community leaders and the province government, are presumed to affect an important number of households which still depends on farming.

3. Methodology

A case study approach was privileged for this research, in order to explore the issue with a concrete example, through an “empirical inquiry that investigates a contemporary phenomenon within its real life context” (Yin, 2003). Ban Samran municipality was selected because of its relevant situation in terms of peri-urban interfaces: linked for many years to the urban core of Khon Kaen, it has kept evident rural characteristics, such as the important presence of farmlands. One village community, which was the subject of a previous research, was chosen to conduct the present research; this village community, situated in the center of Ban Samran municipality was at the heart, in the recent years, of the deep changes of local organizations and individual livelihoods that affected all the area.

Like many countries in Asia, the role of the village community in the local governance in Thailand is particularly strong, and still has a critical influence in some urban and peri-urban areas, despite the increasing power of *changwat* (provinces), *amphoe* (district) and *tambon* (sub-district) with successive constitutional changes. The *muban*, or village, constitutes the lowest level of local governance, administrated by a village leader elected by the population. It functions essentially on a consultative basis, with regular meetings with the population.

The data collection was carried out on an exclusive qualitative basis. Several interviews have been conducted on the field of the survey, first with the village council to guide the next step of our work, then with inhabitants. The first interviews were mostly informal, with the purpose of a better understanding of the context; inhabitants and members of the council were questioned about the global situation of the area, about the major changes in the recent years and about the community organization. The collected results allowed us to build an interview guide and to select the population to survey.

Twenty-four households were interviewed in a more detailed fashion with the interview guide, directly at their home. They are considered as representative of the evolution of Ban Samran selected on the criteria that they have been living in the Ban Samran area for more than 20 years and that they have, at the time of the survey, an agricultural activity on their own farmlands. The interviews were divided in two parts: a precise questionnaire and a semi-structured interview. The purpose of the questionnaire was to assess the economic situation of the households, in order to provide a basis for the further questions.

The questionnaire concerned:

- The composition of the household (number of members, number of working members)
- The economic activities (sources of income, number of members working in the city, number of members working outside the province)

- The characteristic of farming activity (type of production, surface exploited, surface rented, use of chemical products)
- The financial situation (farming activity monthly income, non-farming activity monthly income, capacity to spare money, debt, amount of debt, reason of debt, expenditure per month)
- The food supply (source of food supply, monthly money for food, importance of farming)
- The occurrence of climatic events on farming activity in the past five years

The semi structured interviews were focused on two elements:

- The evolution of the household economy with the extension of Khon Kaen area
- The impacts of natural disasters and the strategies used to cope with them; the case of drought were particularly underlined, revealed as the most occurring natural disaster

4. Results and discussion

4.1. Changes in the livelihood system

4.1.1. Diversification in non-farming activities

The strong change in livelihood assets has been many times declared as the main outputs of Khon Kaen growth, with the multiplication of non-farming activity in the village. And indeed, through the survey, mixed households' economy appeared to be the standard in the village, and no case of a livelihood exclusively based on farming was found. The main reasons that motivated this diversification were, according to the interviews, the willingness to enhance the living conditions of the family and to escape from the dependence to seasonality. Increasing opportunities of employment in the city are perceived as a possibility for accumulation of financial assets and access to new services, and not only as constraints on farming activities. Education level, for instance, is higher for the youngest generation firstly because cash income allows supporting universities fees. In other terms, Ban Samran farmers have been "pulled" by the urban development more than they have been "pushed" out of their former activity (Barrett, Reardon & Webb, 2001).

Yet, the process that affected the village is not a transition from agricultural subsistence to manufacturing production, as it could have been argued for several cases (Hudala et al., 2008). A large scope of non-farming activities is represented amongst the interviewed, and ranges from manufacturing in local food industries to services and includes construction jobs and business. The geographic proximity of the city clearly plays a central role in this variety, most of the paid employment taking place in the Khon Kaen municipality, with important employment sectors like, for instance, the universities; a visible commuting between both the municipalities occurs every day. On the other hand, local employment has been developed by the development of industries, shops and needs in construction. This coincides with the vision, promoted by Aberra and King's (2005), of an urbanization leading to the development of multiple livelihood types, due to increase access to services and trading.

Moreover, the diversification of activity, due to the proximity of a fast-evolving urban area, is not accompanied by a strategy of migration, identified by Scoones (1998) and Swift (1998) as being part of rural livelihood strategies. No case of economic migration out of the province has been relieved, Khon Kaen growth is sufficient to absorb the local labor force. Getting a new source of non-farm income is perceived as quite easy and has allowed access to new assets for many households (See Box 1).

Box 1. Diversification for access to new services

A male household's head began to look for job in the city when his daughters became sufficiently old to go to the university. He multiplied short-term jobs in order to provide their universities fees. As his daughters finished their school years and began to work for the family, he came back to an exclusive farming activity.

4.1.2. The transformation of farm activities

Even if the growth of urban infrastructures is correlated with the decreasing place occupied by farming in the total activity of the households, the survey revealed that it keeps in Ban Samran an important role, if not central, in the

livelihoods of farmers. It was noticed that, for all of them, it constitutes a source of food supply, often considered as significant for food security. The production is essentially focused on white rice, used firstly for consumption. Only four interviewed households farm fruits and vegetables, four others practice cattle rearing and one fish farming. Five cases of land sale in the past ten years were noticed and the surfaces owned are between 3 rai and 29 rai – the rai being a Thai equivalent for one sixth of hectare.

The commodification that affected Ban Samran happens to be the main reason of this conservation, both because agricultural production became a more valuable source of income and because food buying became a growing constraint on livelihood. Because peri-urbanization is associated with better information exchange and relations to the trading system (Pelling & Mustafa, 2010), it enhances the possibilities to earn money from agriculture. According to the interviews, peri-urbanization gave an easier access to intermediaries in the city. Most of the trading are in destination of companies, but the community market, established in 2006, became a useful support for the commercialization of local production of fruits, vegetables and cattle (see Box 2.). This income stays, for the majority, stable in the past 10 years.

Box 2. A livelihood based on agriculture commercialization

A family, which have farmed for decades a surface of 18 rai, saw their profits grow with the local market, through which they can sell their vegetables adding to the trade with a wholesaler in the city. They earn around 20 000 baht per month by commercialization, while non-farming activity, a waged occupation in Khon Kaen, only provide 10 000 baht; this occupation was obtained when the income appeared to be insufficient. They consider their situation to be good, they get profit every month, but they are concerned by the drought.

But commodification, as a phenomenon that leads goods and services to be quantified in monetary terms (Cohen & Garret, 2009), can be the source of new vulnerabilities and new inequalities (Pelling & Mustafa, 2010). Through the interviews, it appears that the increasing cost of many goods and services is a major concern for the inhabitants, and particularly the cost of food, which is perceived as increasing fast. This coincides with the survey of Thongyoo and al. (2014) on some peripheral villages of the Khon Kaen area, where higher cost of life have been identified as one of the most negative outputs of peri-urbanization.

These conclusions are worsened with the fact that the capacity of saving money is low in Ban Samran. Only four of the interviewed farmers declared earning more than they expend, while eleven admitted that they are in constant deficit. Moreover, twelve cases of debts have been found, with monthly expenses from 2500 baht to 25 000 baht.

To deal with this situation, the conservation of an agricultural activity is considered, for most economically weak households, as an essential support for their basic supplies. To strengthen this activity, nine households have adopted, in the last ten years, the use of chemical products as a strategy of intensification, available with their diffusion by agro-industrial companies. It has effectively enhanced the production, and it is considered now as a problem by the village council, because of some negative impacts on health. On the other hand, a strategy of agricultural extensification has been noticed: the survey showed two cases of land renting, perceived as cost-effective because of the low cost of monthly rent (see Box 3.).

Box 3. Intensification and extensification of farming activity

One household, which get a small income (around 5 000 baht per month) from farming, had to find a new occupation in the city to complete it. Its new source of income allowed it to invest on chemical products but also to rent some rai of land – 6 rai added to the 9 it already owns – the price being considered as sufficiently low (100 baht/month for each rai) to be an interesting investment.

4.2. Resilience of livelihood system to drought

4.2.1. Adaptive strategies

The survey revealed that drought was one of the main preoccupations of the community, as it is for the majority of interviewed the most recurrent risk. Twenty-one households have seen in the past years their farming production affected by it, twelve of them considering it had an important impact on their livelihood. According to the community leader, it has been the subject of many meetings organized in the village and of measures taken by the

province government. The management of water, considered as problematic, called for many interventions to extend the irrigation system or to reduce wasting in drought period. However, the village council estimates that there is a lack of education about these issues in the community, and that raising awareness for a better preparation was not effective.

Indeed, climate change is not perceived by many as a major threat, and drought are considered to be a normal event, which has always affected the community. Ban Samran farmers actually appear to be poorly involved in the adaptation of their agricultural income. Only five households declared to use adaptive strategies for their farming activity, the others telling that they only “wait for the rain”. Adaptive strategies concern the management of water: three of them declared being involved in the extension of the irrigation system and to regularly dig holes to conserve water. A strategy of crop displacement, from drought affected to non-drought affected farmland, has been found in the discourse of two interviewed. Intensification of the use of chemical products has also been identified in two interviews, with households that already use it.

The essential feature that emerges from the survey is that, comparing to what could be seen in rural communities, diversification of agricultural activities does not take place in the set of strategies. For farming communities, using different types of crops and invest in animal breeding is a way to mitigate natural risks and seasonality. These strategies can be identified, for instance, in the studies of Barnaud, Trébuil, Dufulier & Suphanchaimart (2006) and Kanno (2006), both on rural communities in the province of Khon Kaen; the use of rice crops, less demanding in terms of water, is here particularly underlined. No occurrence of this strategy was noted through the interviews, but it was identified through some interviews as an abandoned practice. A woman summarized the evolution of agricultural activities in these terms:

“Before, we used to sell cattle and to farm different crops of rice to prevent drought. We don’t do it anymore.”

4.2.2. Non-farming economy as the driver of resilience

Considering the evolution of Ban Samran farmers’ livelihoods, strategies of risk mitigation appears to have been preferred to risk reduction (Alwang & Siegel, 1999): individual strategies focus more on the financial assets that on the natural resources to manage the shock caused by the drought. Comparing to specialized livelihoods, diversified livelihood are more likely to reduce the impacts of environmental disaster and to lead to a fast recovery of the local economy (Pelling & Mustafa, 2010). This is translated in Ban Samran by the fact that no case of reduction in the quantity or the quality of alimentation has been found. When the rice – or others type of natural products – begin to become scarce and when the storage is not sufficient to provide enough for the month, more investment is made on food buying and, for households which trade natural resources, the amount of sale products is reduced in order to keep enough for themselves. This resilience is based on a strategy of accumulation: financial assets are used here as an adjustment variable (see Box 4.).

Box 4. Sale Suspension

A family in the eastern part of the village made some improvements to the irrigation system, but is still affected by drought. They are three people, all involved in small jobs in the community and, despite their low income (around 7000 per month, from non-farming activity and 1200 from rice production selling), they can save a small amount of money each month. They own 13 rai of lands and do not use chemical products. In 2015, their farm were deeply affected by drought. They stopped to sell their rice and experienced a short period of deficit until they recovered their usual income.

4.2.3. Financial assets and coping strategies

But that does not mean that a drought has no negative impacts. In the interviews, droughts are associated with loss of money. All households appeared to be unequal in terms of livelihood flexibility, due to their different capacity to get financial assets, and some experienced stressful periods of important economic deficit. In 2014, financial aid was given by the province government to farmers affected by drought, with a compensation of 1000 baht per rai affected; the farmers had to officially request it if they wanted to benefit from it. Despite the evident support it provided, it has been considered as insufficient to compensate the lack of income.

On the twelve cases of debts found in the interviews, eight were declared as due to loans for livelihood's purpose, when the economic situation was critically fragile due to natural disaster (see Box 5.). Among them, four revealed they regularly use short-term credit, for a one month period, with an amount between 2500 baht and 5000 baht. These households affirm that loans allow them to get sufficient assets to fill their basic needs. For three of them, the importance of loan is growing, and they have sometimes to get some to repaid former ones (see Box 6.).

Box 5. Long-term debt

A family of six people, with five of them working in waged and non-waged activities, in 2004 borrowed money for escaping the problems due to regular droughts and to buy a car and a television. The amount of debt, in the time of the interview, was 200 000 baht, and 10 000 baht are due per month. Even if they multiplied the sources of income, the debt keeps increasing and they affirm to lose money every month.

Box 6. Short-term debt

A household head of a family of six people confessed having problems to fill the basic needs every month. She got a construction job in the village, as her husband. She estimates that they earn around 7000 baht per month from this activity. Even if they own 18 rai of farmlands, which are critical to their food supply, they have to get regularly debts of 5 000 baht to supply only their food needs, particularly in period of drought. Even if they get more and more money from construction, they are constantly in deficit and they can't get off borrowing.

5. Conclusion

5.1. Findings

Even if the small size of the sample makes the generalization of the results difficult, the survey highlights some elements that echo other studies results on income diversification (e.g. Tacoli, 1999; Ellis, 1998). Through peri-urbanization, a massive transformation happened in the way Ban Samran's households manage their assets, with a transition from natural resources based strategies to non-natural resources based strategies (see Figure 1.). Income diversification in urban jobs gave more possibilities to cope with drought, by allowing an accumulation of assets that cannot be impacted by disaster risks. Getting new sources of income is largely considered as the most viable way to secure livelihood but also to enhance well-being, and former agricultural practices, which focused above all on the reduction of risks, left their place to mitigation and coping strategies.

Yet, it seems that diversification has provoked in the same way a relative indifference to the impacts of drought, which is a source of concern for the village council. The passive behavior of many inhabitants facing risks shows their confidence in the capacity of financial assets to absorb the shocks. Here, a critical risk occurs for Ban Samran inhabitants because, if food scarcity seems like a distant memory to them, economic difficulties, debts and deficits are a reality that affects many of them. The increasing cost of goods and services constitutes a major threat for livelihoods in a fragile balance, which multiplies short-term strategies and unstable income, without amelioration on the long term. The commodification of economy seems to have shaped new inequalities, based on the unequal capacity to get financial assets, and new dependencies to cash income and external economy.

Moreover, it has justified keeping the share of agriculture in the food supply, and also has made it a more economically viable activity through the enhancement of trading opportunities. Peri-urban agriculture positive influence on poverty reduction has already been underlined in some studies, like those of Ellis & Sumberg (1998) and Zezza & Tasciotti (2010), and its role is to consider with attention, even if it is minor comparing to the non-farming activities. Ban Samran's livelihoods are prone to be more and more urban focused, but droughts still to be drivers of poverty and, until an equal access to stable economic situation.

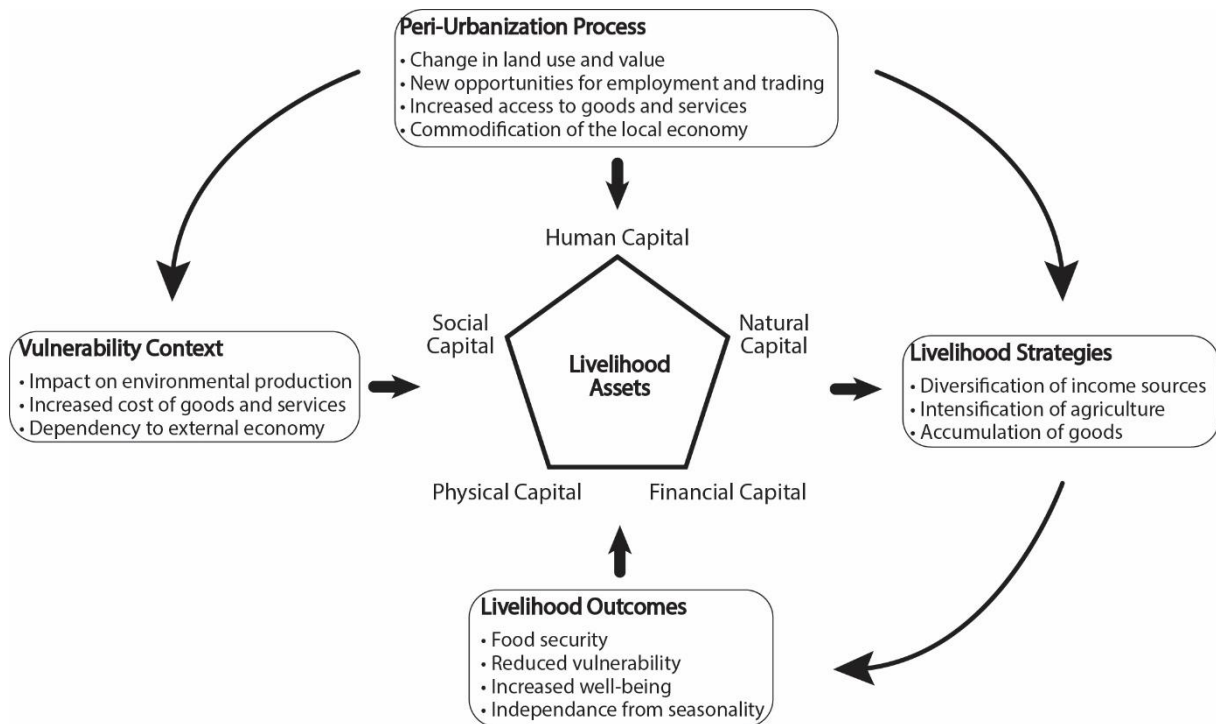


Figure 1. Peri-urbanization influence on livelihoods

Adapted from DFID (1999)

5.2. Future directions

Due to the limits of the method, some elements need to be explored in more depth to really understand the processes that occur in Ban Samran, with new tools and different perspectives. New researches with quantitative methods could be conducted on the village, but also on other peri-urban areas, to get solid data for an estimation of the socio-economic evolutions, the use of land or the vulnerability. The role of institutions and community needs also to be surveyed, as studies on the environmental outputs of infrastructures growth could be led.

Moreover, through the results, new questions for research emerged. Identifying the factors that lead a household to not take a sufficient profit from the economic opportunities seems to be a relevant pathway to reveal what creates inequalities and what the new vulnerabilities are. Comparatives studies could also be lead in others peri-urban areas of Khon Kaen to highlight links between local features and strategies, and to assess different types of situation.

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ANNEXES

Annexe 1 : Questionnaire utilisé pour les entretiens

จำนวนสมาชิกในครอบครัว / Number of people in the household: คน

จำนวนสมาชิกในครอบครัวที่ประกอบอาชีพ / Number of working members of household: คน

แหล่งรายได้ / Source of income:

- | | |
|--|--|
| <input type="checkbox"/> เงินเดือนประจำค่าจ้างบ้านาน / Salary/Wage/Pension | <input type="checkbox"/> รับจ้างทั่วไป / "Small jobs" |
| <input type="checkbox"/> ค้าขาย / Business | <input type="checkbox"/> การแปรรูปผลผลิต / Food transformation |
| <input type="checkbox"/> รับจ้างในภาคเกษตร / Agriculture employee | <input type="checkbox"/> การเกษตรทุกประเภท / Agriculture |
| <input type="checkbox"/> ขายปศุสัตว์ / Cattle | <input type="checkbox"/> เลี้ยงปลาขาย / Fish farming |
| <input type="checkbox"/> จับปลาจากแหล่งธรรมชาติ / Fishing | <input type="checkbox"/> อื่นๆโปรดระบุ / Other: |

จำนวนไร่ที่ทำนทำทำการเกษตรอยู่ / Rai of land for farming: ไร่

จำนวนไร่ที่ทำนเช่าทำการเกษตร / Rai of rented land: ไร่ค่าเช่าต่อเดือน/ Price of renting/month: บาท

การทำนเกษตรสร้างรายได้ให้ทำนเป็นจำนวนกี่เดือน / Number of month of farming income: เดือน

รายได้ต่อเดือนจากการเกษตร / Agricultural activity monthly income: บาท/เดือน ไม่ทราบ / Doesn't know

การเปลี่ยนแปลงหนี้สินของทำนในรอบ 5 ปีที่ผ่านมา / Evolution in the past 5 years:

- ลดลง / Down เท่าเดิม / Stable เพิ่มขึ้น / Up

รายได้ที่ไม่ใช่จากการเกษตร / Non-agricultural activity monthly income: บาท ไม่ทราบ / Doesn't know

การเปลี่ยนแปลงของหนี้สินในรอบ 5 ปีที่ผ่านมา / Evolution in the past 5 years:

- ลดลง / Down เท่าเดิม / Stable เพิ่มขึ้น / Up

มีสมาชิกในครอบครัวทำงานในเมือง / Number of household member working in the city: คน

มีสมาชิกในครอบครัวที่ทำงานต่างประเทศ / Number of household member working abroad: คน

ระดับความยาก-ง่ายในการเข้าถึงแหล่งรายได้ใหม่ของท่าน / Ease of access to new source of income:

- น้อย / Low ปานกลาง / Medium มาก / High ไม่มี / None

ระดับความไม่มั่นคงของรายได้ของท่าน / Instability of income:

- น้อย / Low ปานกลาง / Medium มาก / High ไม่มี / None

สัดส่วนของรายได้ต่อรายจ่ายของท่าน / Expenditures/income: ขาดทุน / Loss เท่าตัว / Balance กำไร / Profit

หนี้สินของท่าน / Debt: มี / Yes ไม่มี / No จำนวน / Amount: บาท

สาเหตุของหนี้สิน / Reason of debt: ใช้เพื่ออุปโภคบริโภคในชีวิตประจำวัน / Livelihood ภัยพิบัติจากวิกฤติทางธรรมชาติ / Disaster

ปรับปรุงที่อยู่อาศัย (ไม่เกี่ยวกับภัยธรรมชาติ) / Rebuilding การศึกษา / Education สุขภาพ / Health

อื่นๆโปรดระบุ / Other:

รายจ่ายหนี้สินต่อเดือน / Debt expenditures/month: บาท

การเปลี่ยนแปลงของหนี้สินในรอบ 5 ปีที่ผ่านมา / Evolution in the past 5 years: ลดลง / Down เท่าเดิม / Stable เพิ่มขึ้น / Up

แหล่งอาหารของท่าน / Source of food supply:

- การเกษตรทุกประเภท / Agriculture ปศุสัตว์ / Cattle เลี้ยงปลา / Fish farming
- จับปลาจากแหล่งธรรมชาติ / Fishing แบ่งปันจากญาติพี่น้องและสมาชิกชุมชน / Shared food from relatives/cousins/neighborhood
- ซื้อ / Buy อื่นๆโปรดระบุ / Other:

ค่าใช้จ่ายในการซื้ออาหารต่อเดือนของท่าน / **Monthly money for food:** บาท/เดือน

การเกษตรเป็นแหล่งอาหารของท่านมากน้อยเพียงใด / Importance of farming in food supply:

- น้อย / Low ปานกลาง / Medium มาก / High ไม่มี / None

ท่านประสบภาวะขาดแคลนอาหารเป็นเวลากี่เดือน / **Month of food insufficiency:** เดือน