

# Vegetable Production among Suburban Dwellers in Ulaanbaatar

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In Western countries, the family garden is a means of improving marginalized people's nutritional status and their quality of life, by encouraging mutual assistance within the neighborhood. For the same purpose, we conducted a project to promote vegetable gardens in Ger districts in the Mongolian capital, Ulaanbaatar, from 2010 to 2014. The paper examines the manner in which the residents adopted vegetable gardens, and specifies the reasons for this adoption, through statistical analysis of data from household surveys carried out in September 2011, 2012, and 2013. Results indicate that while better-off people are enthusiastic about vegetable consumption and are actively involved in vegetable gardens, worse-off people are less enthusiastic about vegetable consumption and are less interested in maintaining vegetable gardens. This finding suggests that urban middle-class people are more aware of and more motivated by the need for vegetables in their lives than urban low-income people.

**Key-words:** Ger districts, Vegetable gardens, Income level

## 1. Introduction <sup>(1)</sup>

Rapid economic development has radically changed dietary conditions in developing countries in recent decades. The nutritional situation of low-income people is degrading, because they are forced to purchase inexpensive nutritionally invaluable foods. The result is an increase in the incidence of diabetes and obesity. To improve this situation, it is desirable to promote vegetable consumption among these people. Family or community gardens for vegetable production are one approach to increasing vegetable consumption.

In Ulaanbaatar, the capital of Mongolia, such a situation is observed. Originally pastoral people, Mongolians consumed mainly animal products such as meat and dairy products for hundreds of years. Although they have also eaten potatoes and flour products since the beginning of the 20<sup>th</sup> century, animal products have remained the principal food source. However, this situation has changed in recent decades, with the introduction of industrially produced animal products.

In Western countries, the community garden has become a means of improving marginalized people's nutritional status as well as their quality of life, by encouraging mutual assistance within the neighborhood. Our study focuses on marginalized people who live in Ger districts in the outskirts of Ulaanbaatar.

Ger districts are suburban areas of the capital with lower living conditions. Under the socialist regime, the government constructed housing complexes in the center of the capital city. However, when the socialist regime fell in 1992, the transition was marked with a serious economic crisis; people in rural areas came to the capital to seek job opportunities and illegally settled in the outskirts of the capital. These unlawfully occupied areas are known as Ger districts, where the people set up traditional tents (gers) or built their own houses. The area had no sufficient infrastructure and thus was sometimes polluted with illegal waste. Even after the economic recovery, rural people came and settled in the suburbs when many of them had lost their livestock as a result of a *dzud* (winter climate disaster with extraordinary snow). Although many in the Ger districts suffer from poverty (United Nations Development Programme, 2007),

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they are not extremely poor. The report of participatory poverty assessment published by the National Statistic Office categorized Mongolian poor people as “moderately poor,” “very poor,” and “destitute.” This report indicated that Ger districts are inhabited mainly by moderately poor people (National Statistic Office of Mongolia, 2006). These areas are also inhabited by middle-class people with regular incomes, such as office workers, military officers, and professors.

We also noted economic change during our project. When we conducted our first survey in the Ger district in 2008, there was no efficient water supply system, and only a few water stations existed in the area. We often saw women and children who lived far from a water station transporting several heavy plastic containers of water on their bicycles or carts. However, by the end of our project in 2014, multiple water stations were available, and many buses transported people on the hilly roads leading to remote areas. In 2014, we met more middle-class people in these areas than before. Their rights to house lots have also been regulated.

A group from Saitama University (Japan) and University of the Humanities (Mongolia) sought to promote vegetable gardens among the residents of a Ger district in Ulaanbaatar from 2011 to 2014, with financial support from the Japan International Cooperation Agency (JICA) and technical assistance from Prof. Gonbosuren Enkhtaivan of the Mongolian University of Science and Technology and Lecturer Dashtseren Gambold of the First Hospital in Ulaanbaatar. In this paper, we discuss the manner in which the residents adopted vegetable gardens, and we specify the reasons for this adoption.

## **2. Outline of the Project**

The project focused on improving the living conditions of residents in a Ger district in the 5<sup>th</sup>, the 12<sup>th</sup>, the 13<sup>th</sup>, the 19<sup>th</sup>, and the 24<sup>th</sup> Khorooos (neighborhoods) of Bayanzurkh district in the eastern suburbs of the city of Ulaanbaatar. We expected that vegetable production for self-consumption would contribute both to improving their dietary balance and to economizing on expenses for daily consumption.

One of the highlights of this project was that we tried Japanese vegetables and seedlings, as well as the main types of potatoes, vegetables and fruits we use for Mongolian food needs. With social change in the democratic revolution of the 1990s, Suburbs of Ulaanbaatar became disorganized, and transformed from rural areas into living areas for low-income migrants. Therefore, there is a need for green areas and green spaces to improve environment of Ger areas and reduce dust. The project, in view of the above situation, organized suburban people to plant vegetables in their courtyards, and sell their surplus food to supplement their household budget.

In this project, we distributed seeds of several vegetables to residents interested in vegetable gardening in March and gave them technical advice on cultivation and vegetable cooking during the agricultural season (from April to September).

In order to check the effects of our project, we conducted a survey of all households who had participated in our project at the end of the agricultural season during September 19–22, 2011, during September 17–20, 2012, and during October 23–25, 2013. The survey consisted of a questionnaire about personal information and family members, household income, and the production and consumption of vegetables.

The number of households participating was 56 in 2011, 44 in 2012, and 55 in 2013. Some individuals participated for three years, but most of them participated for only one or two years.

## **3. Findings**

### **3-1. Regular income**

Initially, we targeted lower-income families in the Ger district. Indeed, most of the participating households are characterized by an income under 700,000 MGT per week. However, compared with households participating in 2012 and 2013, those in 2011 are characterized by relatively low average regular income with low standard deviation. This indicates that, during the second and third years, our project interested households whose incomes were higher than those of our initial target.

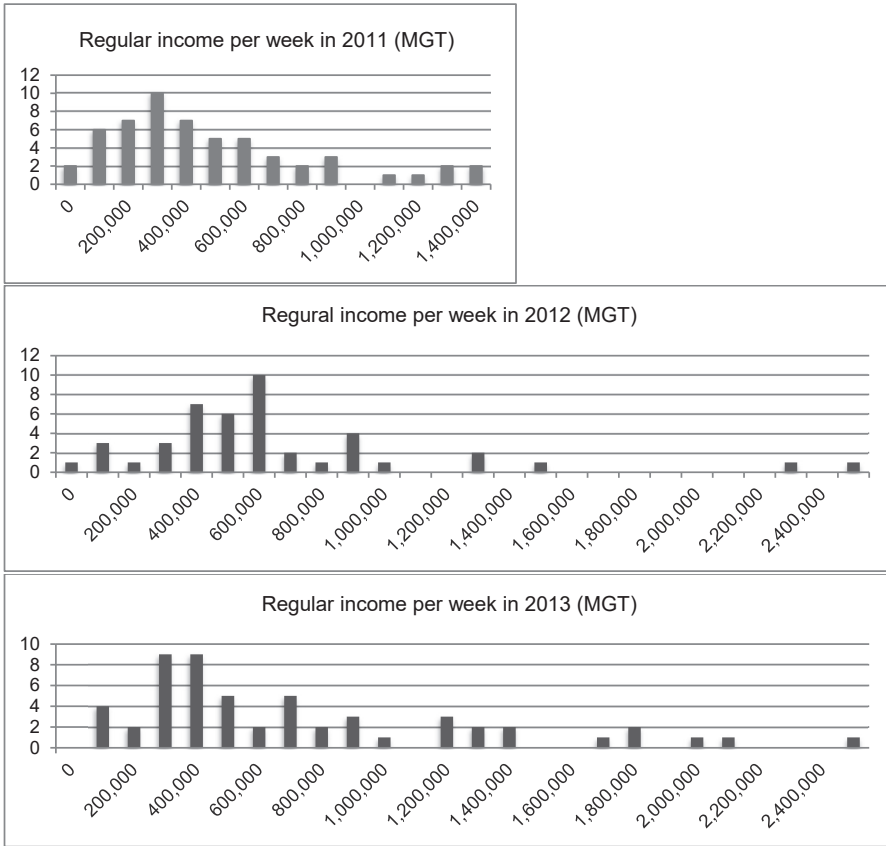


Figure 1. Regular Income per Week

Among the participating households, the income level clearly correlates with educational attainment; the higher the educational attainment of family members, the higher the regular income of the family (correlation coefficients are: 0.364 in 2011, 0.717 in 2012, and 0.628 in 2013, with a significance level of 1%).

A close look at the data reveals slight differences between low-income households and middle-income households. For households with incomes less than 600,000 MGT, there was no correlation between vegetable production and personal characteristics. Instead, for those with regular income above 600,000 MGT per week, a positive correlation was found between income and educational attainment.

### 3-2. Expense for foods and vegetable production

Most families spend less than 80,000 MGT per week on food, regardless of the survey year. No correlation was found with regular income in any of the three years: the expense for food is always fixed regardless of income level.

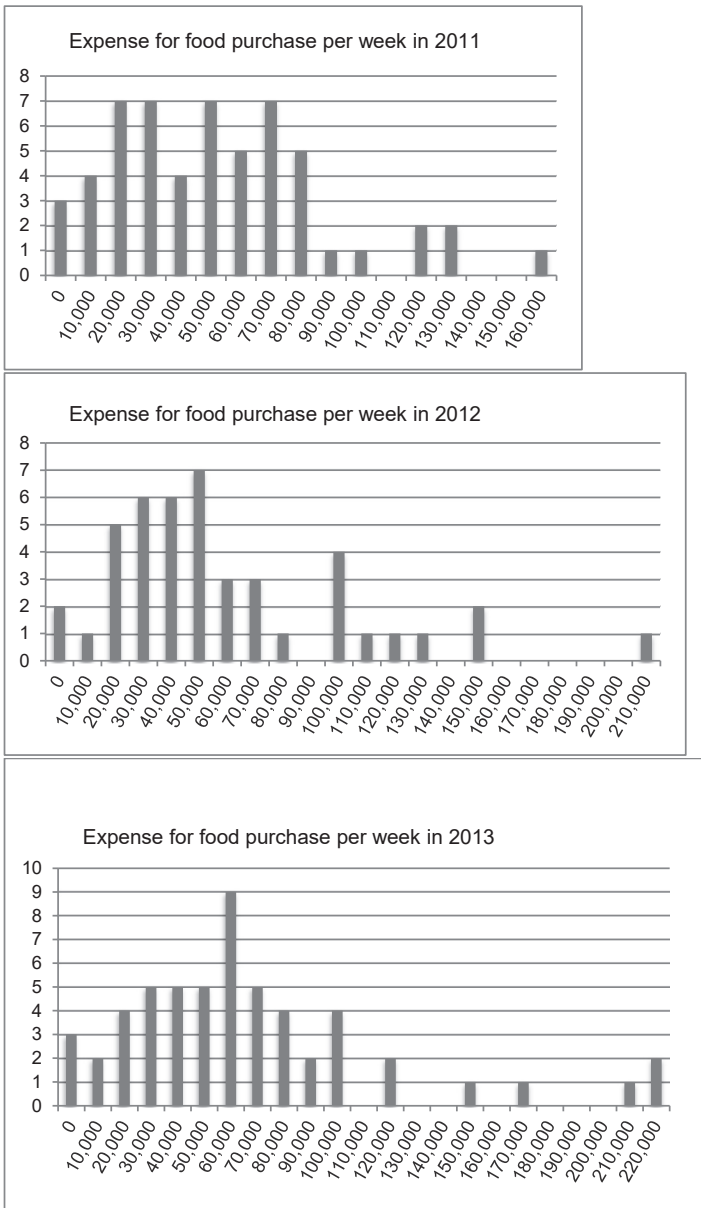


Figure 2. Expense for Food Purchase per Week

Most of the participating households planted four to six types of vegetables. The number of types of vegetables varied less in 2012 and 2013 than in 2011, indicating that participants changed their strategy from planting multiple vegetables in 2011 to concentration on selected vegetables in 2012 and 2013. Indeed, while beginners will be interested in various vegetables, it is more practical to grow a limited number of vegetable species. The change of strategy was also brought about by our technical advice.

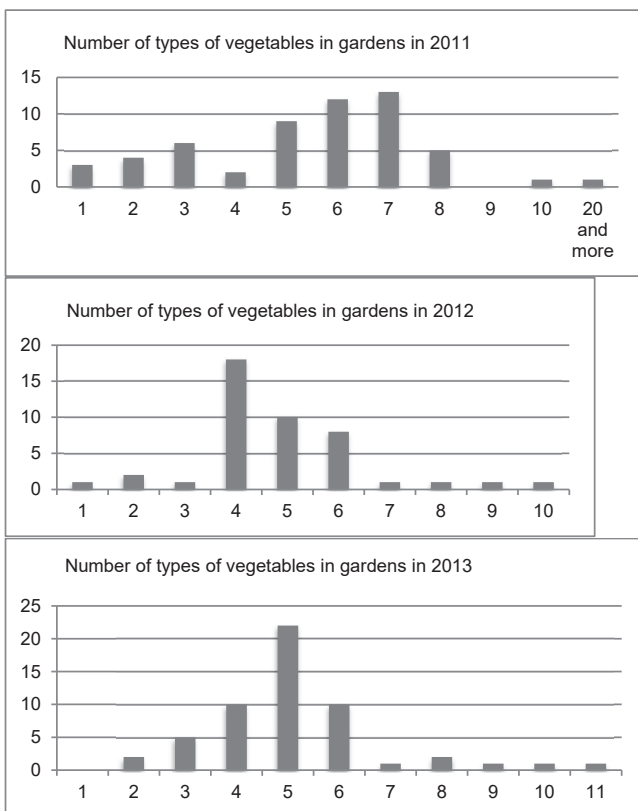


Figure 3. Number of Types of Vegetables in Gardens

In most cases, they obtained meat by purchasing it, though some of them received mutton as a gift from relatives. In contrast, they obtained vegetables through gardening. However, the varieties they grow have no correlation with any of their personal characteristics such as income, educational attainment, number of family members, or expense for daily food. The only exception to this observation is potato production in 2013, which has a weak negative correlation with income (correlation coefficient of -0.356 with a significance level of 1%).

We found a slight difference in attitude between low-income households and middle-income households. Better-off households grow more different types of vegetables and give the product to their relatives (correlation coefficient of 0.499 with a significance level of 1%) and neighbors (correlation coefficient of 0.536 with a significance level of 1%) more often than worse-off people. However, even for these middle-income households, we found no correlation between personal characteristics and vegetable production.

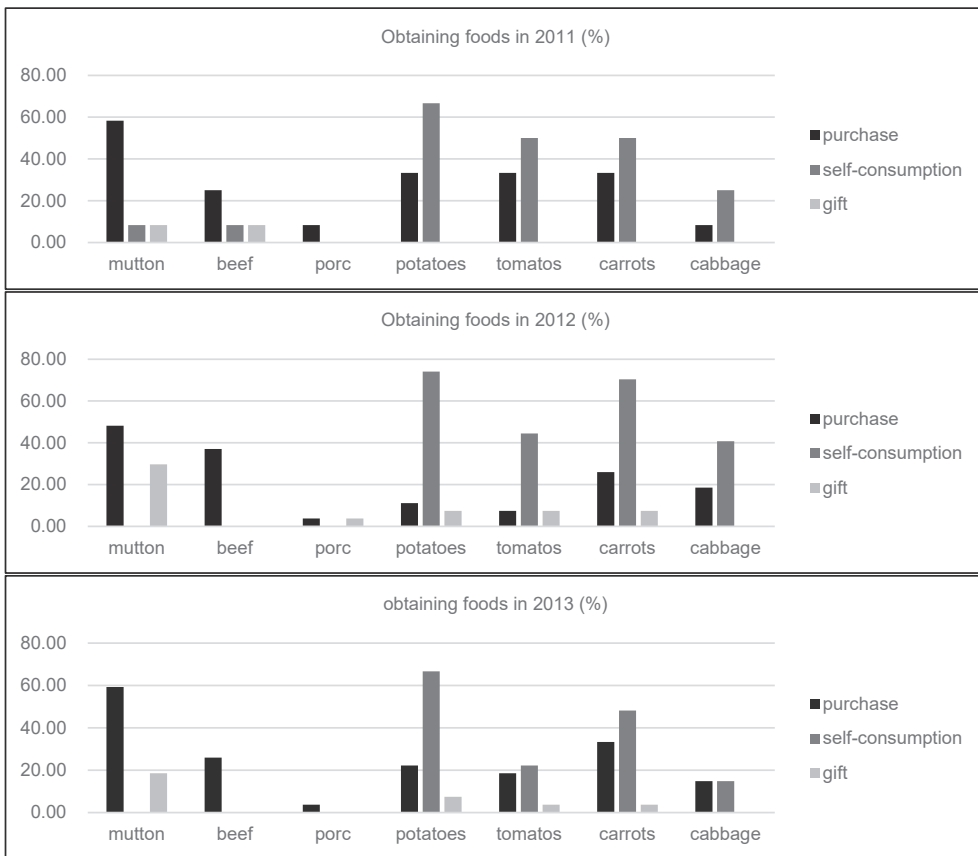


Figure 4. Ways for Obtaining Foods

### 3-3. Income Levels and Vegetable Production

The data reveals difficulty with continuing the gardening. Among the 56 households we supported in 2011, only 12 continued the vegetable garden in 2012. However, among 44 participants in 2012, 27 continued gardening, 10 of which were also present in 2011. What was the difference between participants in 2011 and those in 2012?

There is a significant difference in income level between continuing participants in 2011 (hereafter the 2011 group) and those in 2012 (hereafter the 2012 group). The 2011 group earned an average of 537,250 MGT per week while the 2012 group earned an average of 972,533 MGT per week. Besides indicating the positive effects of our continuing technical support for the participants, this fact means that vegetable production appealed more to middle-income class residents than low-income class residents, that the former had a stronger motivation for vegetable production than the latter, and that it was easier for the former to continue gardening than the latter.

The two groups also exhibit different attitudes towards vegetable production. In 2013, fewer households grew vegetables (potato, tomato, carrot, cabbage, and leek) for self-consumption compared with 2012. While inclement weather in 2013 reduced vegetable production, it impacted the 2011 group more seriously than the 2012 group. This suggests that vegetable production interested and attracted low-income participants less.

As for the spending on vegetables, there was no difference between the groups in 2012 while the two groups showed different attitudes in 2013: the 2011 group reduced their spending while the 2012 group increased it. Interestingly, the 2011 group reduced their expense ratio for vegetables while the 2012 group augmented it. Due to the lack of other detailed data, we cannot conclude that this difference between the groups was caused directly by vegetable gardening. However, if the project did influence them, we can assume that the vegetable garden contributed to reducing food expenses for low-income families, and that

it stimulated vegetable consumption among middle-income families.

Now we look at the social aspects of vegetable gardening. According to the survey, many households gave vegetables they produced to their relatives, showing the importance of kinship ties in daily life. In contrast, regarding neighborhood relations, the 2011 group gave gifts when they had a good harvest, while the 2012 group is not interested in giving gifts to neighbors regardless of the harvest. The fact suggests that low-income residents are anxious about maintaining and stabilizing neighborhood relations, while middle-income residents exhibit more of an individualistic attitude towards neighbors.

#### 4. Discussion

The survey results indicate a difference in attitude between low-income residents and middle-income residents. The middle-income residents, who are increasing domestic spending for consumption, are very much interested in vegetable gardening, while the low-income residents are not as active as their middle-income neighbors, and find it difficult to continue vegetable gardening. This is the difficult situation of low-income households in Ger districts.

The Ger districts historically began as squatter areas around the expanding city of Ulaanbaatar. In early days, most of the inhabitants were worse-off people incapable of obtaining residence in the central city. However, with the expansion of the city, middle-class people also have come to live in these areas. Our project sought to support the domestic economy of the urban poor through encouragement of mutual support within the neighborhood. In fact, in European countries, one of the purposes of the urban garden (or family garden) projects, which have more than a century of history, is to improve living conditions through the encouragement of sociability among the urban poor (Fortier, 2003: 85-86).

However, through our project, the development of sociability was revealed to be difficult for these urban dwellers. A family garden was harder work for them than we expected.

Table 1. Average Income of Two Groups (MGT/month)

survey year	2011	2012	2013
Average-total	519,167	754,074	678,604
Average 2011 group	542,000	537,250	530,130
Average 2012 group	-	927,533	778,067

Table 2. Ways for Obtaining Foods in Two Groups (% of households)

		2011 group		2012 group	
		2012	2013	2012	2013
Potatoes	Purchase	8	20	13	27
	Self-consumption	83	70	67	67
Tomatoes	Purchase	17	10	0	27
	Self-consumption	50	20	40	20
Leeks	Purchase	17	10	20	53
	Self-consumption	83	70	93	47
Carrots	Purchase	25	50	27	27
	Self-consumption	75	40	67	53
Cabbage	Purchase	25	30	13	7
	Self-consumption	50	0	33	20

What prevents them from continuing vegetable gardens? The participants often encountered problems with water. It is evident that gardening requires continual watering. However, in Ulaanbaatar, at the time of our project, people were forced to get buckets of water from the public well and bring them back full of water. It is painful work indeed to transport buckets full of water in the hilly areas in the outskirts of Ulaanbaatar. The task is sometimes assigned to children, and sometimes to women. However, the situation will be improved, because the City of Ulaanbaatar is trying to increase the number of public wells in Ger districts.

Table 3. Average Food Expense (MGT/week)

survey year	2011	2012	2013
Average total	66,250	66,533	73,763
Average 2011 group	66,500	63,633	50,460
Average 2012 group	-	68,853	91,133

Table 4. Average Expense for Foods per Income (%)

surveyed year	2011	2012	2013
Average total	12.8	8.8	10.9
Average 2011 group	12.3	11.8	9.5
Average 2012 group	-	7.4	11.7

Other problems for gardening are the cost of seeds and insufficient technological knowledge of gardening among the people. To learn how to grow vegetables, they should spend a certain amount of time on lessons. But the opportunity costs cannot be neglected.

Table 5. How Harvested Vegetables are Used in Households (%)

		2011	2012	2013
Self-consumption	2011-group	100	100	90
	2012-group	-	100	100
Gift to relatives	2011-group	80	75	90
	2012-group	-	53	80
Gift to neighbors	2011-group	60	25	70
	2012-group	-	33	53

When we look back at the history of the civil garden movement in Europe and America, we notice that many projects were aimed at improving the social condition of the urban poor, and that these have been part of the overall project of supporting neglected people. Furthermore, already well-furnished urban infrastructure made such projects less costly than in Ulaanbaatar. Social life in the Ger districts in Mongolia exists under different social conditions. Therefore, it is not easy to replicate projects that have been successful in Western settings. Originally, the Mongolian people lived in pastoral areas with their families. Therefore, one may assume that it is not easy for them to maintain urban social networks. However, this assumption is doubtful because most of the people in the 2011 group have lived in Ulaanbaatar longer than most of the people in the 2012 group. The cause of difficult sociability may stem from other factors.

## 5. Concluding Remarks

Our project tried to promote urban residents' own initiative to continue vegetable gardening through the development of sociability among the urban poor. However, the results were unexpected, although they do indicate some realities of the social life of residents of Ger districts.

While better-off people are eager to develop vegetable consumption and are actively involved in vegetable gardens, it is harder for worse-off people who are less motivated towards vegetable consumption to maintain vegetable gardens. This suggests that middle-class people are more aware of, and probably more attracted by, the need for vegetables in their urban lives than low-income people. It is also evident that a Western model of civil gardens is not always feasible in the Mongolian setting, where the development of social networks in urban neighborhoods is more difficult than in Western societies. The difficulty probably stems from Mongolians' ancestral way of life, which is based on families rather than neighbors.

Overall, the project showed the citizens's ability to solve their economic and health problems by transforming their land in order to get clean, organic, and therefore secured vegetables. However, people in Ger areas were not well experienced and knowledgeable in the field of gardening, planting and growing trees, coupled with shortage of water supplies. These people had difficulty in providing time for soil improvement and daily field care.

However, through the gardening, middle-income citizens exhibit the change of daily practice: they changed daily intake, nomenclature and frequency of meals, especially through the potato planting. This change of daily practice made them conscious of the opportunity to change their life through realizing a little more creativity in cultivating vegetables, shrubs and fruit trees in the courtyard, and in making their



own greenhouses. In sum, the project let them feel that they could improve their habitat by their own initiative. It means that the project achievement was brought by the landscaping of new ideas. It is noteworthy that the project encouraged a citizens' engagement system to improve the living environment, though our project was not perfect in this sense. Therefore, we need to carry out extensive research to identify, in Ger areas, living standards, food security and nutrition, in order to continue to improve inhabitants' living conditions.

As we stated in the introduction, the nutritional status among the urban poor is now degrading elsewhere in the world. Our study suggests that to improve their nutritional condition, it is necessary to combine a nutritional project with a participatory income-raising project.

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