
**Empowering Urban Poor Communities through
Integrated Vegetable Production
in Allotment Gardens:
The Case of Cagayan de Oro City, Philippines**

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ABSTRACT

Five allotment gardens have been established in Cagayan de Oro City, Philippines, by converting idle lots to facilitate the legal access of 55 urban poor families to land for vegetable production. Surveys show that 25 % of the allotment gardeners' produce is consumed by themselves, 7 % is given away to relatives and friends while 68 % is sold to walk-in clients from the neighborhood. The available income of the gardeners has thus been increased by about 20 %. Among the non-monetary benefits of the allotment gardens are the strengthening of social values since they have become places where people can meet, discuss issues and enjoy spending quality time with their families and friends in a clean and natural environment. The allotment gardens contribute also to the reduction of solid waste by converting biodegradable household wastes into compost. Ecological sanitation toilets in the garden further contribute to close the loop in the waste cycle. GIS-based community mapping was done in all areas to include the views and opinions of the community into the database of the city government to enable a more participatory approach in city planning. Presently, a city ordinance is being prepared to give tax incentives to land owners who will make their land available for allotment gardens.

Key words: food security, urban horticulture, poverty alleviation, ecological sanitation

CHALLENGES OF URBANIZATION

According to the Worldbank (2003), the Philippines are classified among the world's fastest urbanizing countries. Urban areas grew by five percent annually between 1980 and 2000. If this trend continues, an estimated 65 percent of the total population will be living in urban areas by year 2020. Important factors that propel urban-ward migration are poverty and an unstable peace and order situation in the rural areas. Cagayan de Oro, the capital city of Northern Mindanao in the Southern Philippines, has at present a population of about 600,000 which grows annually by 4.4 % compared to 2.3 % nationwide. It is considered Mindanao's gateway to the Central and Northern Philippines and serves as the regional trade and commercial center to the eight cities and five provinces of the region. Northern Mindanao's economy grew from 5.1% in 2003 to 6.0% in 2004 contributing 27.2% to Mindanao's total production with the highest share of the island's gross domestic product. Besides having the highest gross regional domestic product (GRDP) in Mindanao, its per capita GRDP is the third highest in the country, indicating a growing middle class and a general improvement in the standard of living (Banos, 2006). De Vera (2000) cites Cagayan de Oro as the best positioned for future growth and investments among 23 leading urban regional cities of the Philippines.

Although cities strongly contribute to the country's economic growth, such growth is being achieved at a high social and environmental cost. Slum and squatter settlements, traffic congestion, water and air pollution, sanitation problems, and proper disposal of an abundance of solid waste are urban specific issues. The sheer volumes of solid and liquid wastes produced in the fast growing urban agglomerations, their hazards to the environment and human health, as well as the costs associated with appropriate disposal and treatment systems make innovative, participatory and more cost effective strategies an increasingly pressing concern.

Food security is defined by FAO as year-round availability, accessibility and affordability to safe and nutritious food. The Philippine Association of Nutrition (1997) estimates that the poorest sector of the Philippines, which comprises almost 40 % of all households, spends about 60 % of its available income on food alone. Newer data described by Dulle (2005), citing survey data furnished by Gladys De Veyra, AC Nielsen Executive Director for Retail Measurement Services, are in a similar range. The urban poor are especially vulnerable to food price increases as encountered in the later part of 2005 with an increasing number of Filipinos experiencing hunger as reported in newspapers and TV news. The Health Report of the Department of Education 2002 revealed that 25 % of elementary school children are underweight, 30% are suffering from iron deficiency anemia and 38% have deficient and low vitamin A levels. Further, more than half of the public school children suffer from parasitism such as lice and intestinal worms, and more than 40% suffer from skin diseases such as infected mosquito bites and scabies.

All these diseases are known as "poverty related diseases". Crowded living conditions in the families, overcrowded classrooms, lack of water and appropriate sanitation facilities at home as well as in the schools, lack of awareness concerning the importance of hygiene as well as unhealthy and insufficient food intake are the root causes. Public health resources cannot cope with the huge treatment need since treatment is cost intensive. New strategies based on prevention and health promotion within the WHO frameworks "Healthy Cities" and "Health Promoting Schools" have

been introduced to five urban poor communities and two elementary schools in Cagayan de Oro to address these challenges in an appropriate way. This approach is based on the principle that the community and the schools have to become healthy places where healthy lifestyle is not just taught, but practiced under active participation of non-health professionals such as teachers, parents, local government officials and community members.

CHARACTERISTICS AND HISTORICAL BACKGROUND OF ALLOTMENT GARDENS IN GERMANY

Allotment gardens are characterized by a concentration in one place of a few or up to several hundreds of land parcels that are assigned to individual families. In allotment gardens, the parcels are cultivated individually, contrary to other community garden types where the entire area is tended collectively by a group of people (MACNAIR, 2002). The individual size of a parcel ranges between 200 and 400 m², and often the plots include a shed for tools and shelter. The individual gardeners are organized in an allotment association which leases the land from the owner who may be a public, private or ecclesiastical entity, provided that it is only used for gardening (i.e. growing vegetables, fruits and flowers), but not for residential purposes. The gardeners have to pay a small membership fee to the association, and have to abide with the corresponding constitution and by-laws. On the other hand, the membership entitles them to certain democratic rights (Drescher, 2001; Drescher et al., 2006).

The history of the allotment gardens in Germany is closely connected with the period of industrialization and urbanization in Europe during the 19th century when a large number of people migrated from the rural areas to the cities to find employment and a better life. Very often, these families were living under extremely poor conditions suffering from inappropriate housing, malnutrition and other forms of social neglect. To improve their overall situation and to allow them to grow their own food, the city administrations, the churches or their employers provided open spaces for garden purposes. These were initially called the “gardens of the poor” and were later termed as “allotment gardens”.

The idea of organized allotment gardening reached a first peak after 1864, when the so-called “Schreber Movement” started in the city of Leipzig in Saxony. A public initiative decided to lease areas within the city, with the purpose to make it possible for children to play in a healthy environment, and in harmony with nature. Later on, these areas included actual gardens for children, but soon adults tended towards taking over and cultivating these gardens. This kind of gardening type rapidly gained popularity not only in Germany, but also in many other European countries (Crouch, 2000; Sidblad, 2000).

The aspect of food security provided by allotment gardens became particularly evident during World Wars I and II. The socio-economic situation was very miserable, particularly as regards the nutritional status of urban residents. Many cities were isolated from their rural hinterlands and agricultural products did not reach the city markets anymore or were sold at very high prices at the black markets. Consequently, food production within the city, especially fruit and vegetable production in home gardens and allotment gardens, became essential for survival. The importance of allotment gardens for food security was so obvious that in 1919, one

year after the end of World War I, the first legislation for allotment gardening in Germany was passed. The so-called “Small Garden and Small-Rent Land Law”, provided security in land tenure and fixed leasing fees. In 1983, this law was amended by the “Federal Allotment Gardens Act”. Today, there are still about 1.4 million allotment gardens in Germany covering an area of 47,000 ha (Gröning & Wolschke-Bulmahn, 1995).

Nevertheless, the importance of allotment gardening in Germany has shifted over the years. While in times of crisis and widespread poverty (from 1850 to 1950), allotment gardening was a part time job, and its main importance was to enhance food security and improve food supply, its present functions have to be seen under a different point of view. In times of busy working days and the hectic urban atmosphere, allotment gardens have turned into recreational areas and locations for social gatherings. As green oases within oceans of asphalt and cement, they are substantially contributing to the conservation of nature within cities. What was previously a part time job is nowadays considered as a hobby where the hectic schedule of the day becomes a distant memory, while digging the flowerbeds and getting a little soil under the fingernails. However, in situations of weak economy and high unemployment rates, gardens become increasingly important for food production again.

THE ALLOTMENT GARDENS OF CAGAYAN DE ORO

In 2003, the first allotment garden of the Philippines was established in Cagayan de Oro as part of a European Union funded project (Holmer et al., 2003). Meanwhile, with the assistance of the German Embassy in Manila and several private donors from Germany, this number has grown to five self-sustaining gardens located in different urban areas of the city, enabling a total of 55 urban poor families the legal access to land for food production (Holmer & Drescher, 2005). Further four allotment gardens, two of them within the premises of public elementary schools are presently being set up for additional 36 families.

Some of the gardeners belong to the socially most disadvantaged group in the city, the garbage pickers of the city’s controlled landfill site (Gerold et al., 2005). Aside of different vegetables, the gardeners grow also herbs and tropical fruits. In some gardens, small animals are kept and fish ponds are maintained to avail the gardeners of additional protein sources for the daily dietary needs. Each allotment garden has a compost heap where biodegradable wastes from the garden as well as from the neighbouring households are converted into organic fertilizer, thus contributing to the integrated solid waste management program of the city.

Further, all gardens are equipped with so-called urine-diverting ecological sanitation toilets similar to practices in Danish allotment gardens described by Bregnhøj et al. (2003). According to the GTZ Water and Sanitation Program, more than 90% of the sewage in the Philippines is not disposed or treated in an environmental friendly manner. Ecological sanitation is an alternative to the linear approaches to carry waste (excreta, soapy water, etc.) to rivers, ponds, underground waters and seas that cause serious problems of pollution and public health. It is a three-step process dealing with human excreta. Urine and faeces are contained, sanitized and recycled, thus protecting human health and the environment. The use of water is limited for hand-washing only and by using the sanitized urine and faeces for

crop production, the need for artificial fertilizers is reduced. Prior to the establishment of the ecosan toilets in the allotment gardens, a survey was conducted among gardeners and their non-gardening neighbours as regards their perception towards this new technology. 92% of the gardeners responded that they would not have a problem consuming vegetables fertilized with treated urine or faeces since they considered them as an organic manure similar to chicken or cow manure. However, only about 60 % of the non-gardeners were of the same opinion (Urbina, 2005). In order not to lessen the market opportunities of the gardeners and to minimize possible health risks, human faeces is not used for vegetable production but for (fruit) tree production only. Urine is used as fertilizer for vegetables that are not consumed raw (such as sweet corn, okra, etc.) and is applied diluted with water (5:1) the latest one month before harvest. Foliar fertilization of urine is not recommended. This follows the guidelines for use of urine and faeces in crop production published by the Stockholm Environment Institute¹.

THE ASSET-BASED COMMUNITY DEVELOPMENT APPROACH

The allotment gardens were established following the so-called Asset-Based Community Development (ABCD) approach. This methodology seeks to uncover and highlight the strengths within communities as a means for sustainable development. The basic tenet is that, although there are both capacities and deficiencies in every community, a capacities-focused approach is more likely to empower the community and therefore mobilize citizens to create positive and meaningful change from within (Kretzmann & McKnight, 1993). In short, the ABCD approach does not focus primarily on the problems, but on the assets of the community.

The internal and external resources of the pilot communities in Cagayan de Oro were defined as follows: (1) the skills of the people, which however could not be fully harnessed due to lack of access to resources such as land, appropriate technologies and initial capital requirements necessary for allotment gardening; (2) privately owned vacant lots within the community; (3) knowledge on integrated crop management practices, composting and ecological sanitation; (4) organic matter from household and human wastes, however presently misplaced resources causing environmental and health hazards; (5) existing networks between the academe, local government units and urban poor communities.

As a first step in establishing an allotment garden, the chairmen of the pilot barangays (= city district) approached private landowners and asked if poor residents could use their vacant land for food production only. General provisions were that the area should suit basic agronomic requirements (leveled, access to water and transportation), consisting of a minimum of 3000 m² to accommodate at least eight individual family parcels of 300 m² each as well as additional space for a tool shed, nursery, compost heap and the ecosan toilet. The conditions for the land use were then formalized into a memorandum of agreement jointly signed by all stakeholders: the landowner, the local government unit, the academe and the community members. The urban poor families committed themselves to use the land for food production only but will not construct residential structures. They also agreed to form an allotment gardening association in which every family head is represented and, as

¹ http://www.ecosanres.org/PDF%20files/Fact_sheets/ESR6lowres.pdf

their counterpart, to provide the labor to establish the garden. In return, the allotment garden association received agricultural equipment, tools and supplies necessary to start the operation. The local government facilitated the community organizing while Xavier University in cooperation with the GTZ Water & Sanitation Program transferred the knowledge on integrated crop management, composting and ecological sanitation through a series of workshops and hands-on trainings. The production practices for vegetables in allotment gardens were generated in earlier research projects (Holmer, 2000) and are similar to those in rural areas. However, they differ in the choice of cultivars which are adapted to the climate of the tropical lowland as well as in the reduced application of agrochemicals due to the proximity to populated areas (Guanzon et al., 2003).

THE CONTRIBUTION OF ALLOTMENT GARDENS TO FOOD SECURITY

Prior to the establishment of the allotment gardens, a food security survey was conducted among 300 respondents in four of the pilot city districts to determine the present food security status level of households and, thus, compile baseline data to evaluate the impact of the allotment gardens at a later stage (Guanzon et al., 2004). Since the full range of food insecurity and hunger cannot be captured by any single indicator, the so-called “CPS Food Security Supplement²” was applied in the study to measure the food security scale. Specifically, the CPS core module asks about household conditions, events, behaviours, and subjective reactions such as (1) anxiety that the household food budget or food supply may be insufficient to meet basic needs; (2) the experience of running out of food, without money to obtain more; (3) perceptions by the respondent that the food eaten by household members was inadequate in quality or quantity; (4) adjustments to normal food use, substituting fewer and cheaper foods than usual and (5) instances of reduced food intake by adults and children in the household. The results showed that on the adult scale, only 29.3 % of the respondents were considered food secure, while 31.3 % were food insecure without hunger and a high 39.4 % were food insecure with hunger (table 1).

Table 1: Food security status of urban poor in Cagayan de Oro on adult scale

Categories	Frequency (#)	Percentage (%)
Food secure	88	29.33
Food insecure without hunger	94	31.33
Food insecure with hunger	118	39.33
Total	300	100.00

² The Current Population Survey (CPS) Food Security Supplement (CPS-FSS) is the source of national and State-level statistics on food insecurity and hunger used in USDA's annual reports on household food security (<http://www.ers.usda.gov/data/FoodSecurity/CPS/>)

The levels on the child scale were somewhat different. Only 22.3 % could be considered food secure, while 43 % were food insecure without hunger and 17.7 % food insecure with hunger. The latter number shows that adults are willing to share food with their children and rather suffer from hunger than their children (table 2).

Table 2: Food security level of urban poor in Cagayan de Oro on child scale

Categories	Frequency (#)	Percentage (%)
Food secure	67	22.33
Food insecure without hunger	129	43.00
Food insecure with hunger	53	17.67
No child	51	17.00
Total	300	100.00

Two years after the implementation of the allotment gardens (and one year after the outside funding had ended and the gardeners were able to sustain their activities without financial support), a survey was conducted to assess the socioeconomic effects of the project (Urbina et al., 2005). The perceived benefits of the allotment gardens in Cagayan de Oro are multiple. 25 % of the vegetables produced are consumed by the family, 7 % are given away to friends and relatives while 68 % are sold to walk-in clients, who come mostly from the direct neighborhood. They appreciate the freshness of the produce, the convenience of proximity as well as the lower price compared to the public markets. The gardening activities, a secondary occupation for all the association members, have augmented the available income by about 20 % while the vegetable consumption has doubled for 75 % of its members. This is especially notable since the average vegetable consumption in Cagayan de Oro is only 36 kg per capita and year, which is one half of the recommended minimum intake as suggested by FAO (Agbayani et al., 2001). When asked how their vegetable consumption level would be affected if the allotment garden will stop its operation, only 19 % of the respondents said that they would consume the same amount, while 81 % replied that they would consume less.

Aside of the monetary benefits, the respondents particularly appreciate that the allotment gardens have strengthened their community values since it is a place where they can meet, discuss issues and enjoy spending quality time with their families and friends in a clean and silent natural environment which they are deprived of in the densely populated areas where they live.

CONCLUSION

The project has been awarded with a best practices award of the German Government in 2004. The German Government also signaled further support for up scaling the activities in future. The city government of Cagayan de Oro is presently mainstreaming the concept of allotment gardening into its overall city planning and development, which will also use participatory GIS-based approaches to identify suitable areas for further allotment garden sites. This will be supported by a city ordinance that will give tax holidays and other incentives to landowners who make their areas available for allotment gardens (personal communication Cagayan de Oro City Councilor Caesar Ian Acenas, January 19, 2006). The PUDSEA Network is one

of the major vehicles to promote allotment gardening to other urban areas in Southeast Asia³. Representatives from Cambodia, Indonesia, Thailand and other Philippine cities have already expressed their interest to replicate this model. Xavier University through its international training center SEARSOLIN⁴ also offers a corresponding one-month module within its social leadership development course.

In order to strengthen the allotment garden program, additional trainings in community building will be conducted to support the associations in managing their day-to-day activities, especially as regards democratic rules, capital build-up and marketing. Further, continued agronomic research is needed in the areas of crop improvement, integrated pest management, plant nutrition, water management and post harvest handling.



Figure 1: San Isidro Allotment Garden at Barangay Kauswagan. Diversity of vegetables and high production levels allow for better food security and income generation.

³ Periurban Development in Southeast Asia (www.pudsea.net)

⁴ See www.xu.edu.ph/searsolin/module9.htm



Figure 2: Ecosan Toilet (left) at the St. Ignatius Demonstration Garden, Manresa Farm

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