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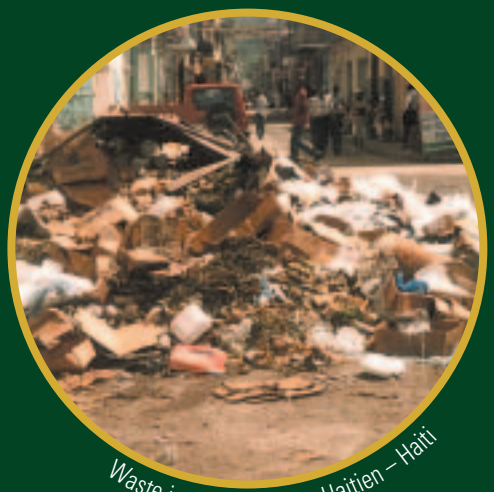
No. 5

GUIDELINES FOR
MUNICIPAL POLICYMAKING
ON URBAN AGRICULTURE

Recycling Organic Wastes in Urban Agriculture



Waste is a problem, Cap Haitien – Haiti

Four Reasons Why Urban Agriculture Matters

Hunger is growing
In less than 30 years, the number of people who go to bed hungry in Latin America has increased by 20%: as many as 65 million people are now affected. Feeding the entire population is a challenge that cities must meet.

Natural medicines for all
The poor spend between 40 and 60% of their scarce incomes on food and almost 15% on health care and medicine. The production of medicinal plants and derived products — infusions, extracts, and essences, — facilitates access to health care for the very poor and marginalized.

Recycling wastes and wastewater can help ensure food security in cities
Only 2% of the waste produced in our cities is treated properly. Thousands of cubic meters of wastewaters are not being used or are treated at a high cost. These can be transformed, however, into excellent sources of natural fertilizer, irrigation water, and nutritional supplements for animals.

Creating low-cost employment and generating income
Urban agriculture (UA) generates employment at a low cost in relation to the estimated costs of other productive sectors. Creating on job in UA costs less than US $ 500, an investment that can be recovered through micro-credits.

The benefits in terms of food, health, the environment, and job creation explain why an increasing number of municipalities want to develop and modernize their urban agriculture programs.

This series of guidelines is based on current scientific and technological research and reflects innovative practices in cities in the region. These practices are a source of inspiration: we invite you to share them and, in turn, enrich the experience.

Happy urban harvesting!

Y.C.

Using organic waste in urban agriculture, Quito – Ecuador

Challenges

Micro-company involved in waste collection, Lima – Peru

Cities in Latin America and the Caribbean generate an increasing volume of wastes, which is usually dumped in open landfills or into bodies of water. These practices pose serious risks for public health and the environment. Waste collection and disposal are also expensive. A legal framework is needed for environmental management and urban planning that includes the management of household wastes in ways that ensure both sustainable investment and cost recovery.

The production of solid organic wastes in the region, which varies between 30% and 60%, could be used in urban agriculture (UA). But there is much disinformation — as well as a lack of participation on the part of citizens and municipal authorities — about recycling systems and the use of solid organic wastes. It is therefore essential to promote environmental education, to increase the level of public participation, and to develop appropriate technologies for the treatment and use of solid organic wastes.

This document provides guidelines and suggestions for the treatment and use of solid organic wastes in urban agriculture.

"Techniques for using solid organic wastes in urban agriculture should be further refined and validated; urban farmers should be trained in how to recycle and use solid organic waste; the public should be educated about how to separate waste at the source (formal and nonformal education); and local and national governments should develop standards to promote and regulate the recycling of waste."

Quito Declaration, signed by 40 cities. Quito, Ecuador. April 2000.

Five Guiding Principles for Policymaking

In support of organic waste management in urban agriculture

Pig farming using organic waste, Montevideo – Uruguay

1. Including the integrated management of solid organic wastes in land use

Issues such as the separation of solid organic waste at the source and its treatment and use should be part of a coherent legal and regulatory framework and should be included in physical planning.

At the level of municipal plans and zoning, the spaces where solid organic waste is recycled should be located near areas of waste generation, disposal, and final use (e.g., parks and farming areas). (See Guideline 3.)

Location of waste recycling stations

To do this, it is necessary to

- Link the treatment and use of solid organic waste to separation and use at the source (household composting systems for family farms).

- Install environmentally sound treatment plants near waste transfer stations or areas of final waste disposal (e.g., landfills).

- Recycle solid organic waste in locations close to or inside green areas or areas of farming/ animal-husbandry.

In Montevideo (Uruguay), the municipality is studying the possibility of relocating pig producers, now operating in densely populated areas, out to periurban and rural areas near waste recycling stations. These studies include proposals for efficient and safe food supply and marketing systems.

Vermiculture, Tomé-Chile

2. Separating solid organic waste at the source

The separation of solid organic wastes at the source reduces transportation costs, extends the useful life of landfills, and makes it easier to use organic waste. Environmental education and public awareness promote people's involvement in these processes. Special attention should be given to the following:

Implementing communication and education strategies

Communication and education strategies to promote community involvement should be implemented as continuing activities, under a clear policy and a municipal strategy framework.

In Camilo Aldao (Argentina), the Ecoclub and schools participated in a process to raise awareness and to educate the public. Under this program, 80% of the solid organic waste generated in the municipality was recycled and used for compost and vermiculture operations.

Developing municipal programs and campaigns for waste collection and recycling

Campaigns for waste collection and recycling should promote the separation of waste at the source and should target urban households, education centres, hospitals, industries, hotels, businesses, markets, etc.

In Porto Alegre (Brazil), City Hall started a pilot pig farming program under which solid organic waste was separated at the source. The program used environmental education to attract the participation of schools, hotels, open markets, and restaurants.

3. Developing appropriate technologies

To facilitate the use of solid organic waste, municipalities should promote appropriate low-cost technologies that are compatible with environmental requirements and production activities.

Using solid organic waste for compost

Organic solid waste can be used in agricultural production and in the maintenance of green areas through the processes of composting and vermiculture.

A plan for the productive use of household organic refuse was implemented in Tomé (Chile). The compost generated is used as fertilizer in UA activities. The municipality provides low-income families with compost for growing fresh vegetables.

Using solid organic waste for animal feed
Solid organic waste, after being properly treated, can become an excellent source of animal feed (pig farming and fish farming).

In Montevideo (Uruguay) organic household refuse is used in pig farming operations. The Faculty of Veterinary Science of the Universidad de la República is developing low-cost technologies for treating household waste and eliminating pathogens.

In Cuba, the Ministry of Agriculture is responsible for setting urban agriculture policies. Two sub-programs have been implemented: "Materia orgánica" (organic matter) and "Alimento animal" (animal feed) aimed at "using all local food sources for animal feed, including fruit and vegetable harvest residues, legume seeds, agricultural byproducts, oil seed residues (e.g., peanuts, soy), and other crops."

4. Generating revenues

For different technologies to be viable, a cost-benefit analysis should be carried out to prioritize UA projects with a higher return on the use of solid organic wastes.

Counting benefits
The benefits of solid organic waste management should be determined, and demonstrated, in terms of:

- Number of jobs created
- Lower collection and final disposal costs as a result of recycling organic waste
- Lower production costs by using organic compost instead of agrochemicals
- Reduced risks (and associated costs) to public health by decreasing environmental pollution through the reduction of the volume of waste.

Co-financing projects
The public and private sectors have an important role to play in financing the integral management of solid organic wastes. They should define mechanisms for providing farmers with access to microcredit that ensures social integration and supports private companies or producers/farmers by means of subsidies and incentives.

In Porto Alegre (Brazil), 16 pig farmers grouped into an association took advantage of a municipal program funded by the Participatory Budget. The municipality assumed responsibility for collecting and treating the solid organic waste and transported it to a distribution centre where each farmer received 6 kg of treated animal feed.

Promoting the development of micro-enterprises
The creation of micro-enterprises for treatment or recycling operations should be promoted as a way of achieving financial sustainability.

In Quito (Ecuador), a micro-company involved in composting and vermiculture signed an agreement with the Municipal Department of Parks and Gardens for selling its products, which would be used in municipal green areas. With a steady source of income, the company was able to apply for microcredit and provided employment for up to seven families.


Compost bed, Camilo Aldao – Argentina

5. Pooling resources

Many small- and medium-size municipalities lack the finances or technical resources, as well as the needed infrastructure. As a result, they are ill prepared to collect and dispose of solid organic waste. By pooling their forces as a consortium or agency, they can jointly design integrated systems to accomplish these tasks.

In Haiti, the municipalities of Cap Haïtien, Acul du Nord, Limonade, Milot, and Plaine du Nord joined together to establish three agencies to accomplish the following:

- Joint decision-making by five mayors and one technical advisor from a local NGO (GTIH). Together they designed strategies for inter-community interventions and budgeting.
- Joint coordination by 16 representatives of civil society, the local government, and technical advisors. Together they reinforced coordination for carrying out waste collection tasks.
- Joint activities to raise awareness and provide incentives and education. Several committees were formed in each municipality to promote community involvement, public awareness, and education.


Micro-company involved in recycling, Lima – Peru

"Let's facilitate the production of food inside the urban perimeter, applying intensive production methods and taking into account the people–crop–animal–environment relationship. Let's also provide an urban infrastructure that promotes the stability of the labour force and a diversified production of crops and animals year-round by using sustainable practices, including waste recycling."

National Urban Agriculture Group, Cuba.

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Separating waste at the source, Port of Spain – Trinidad and Tobago

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This policy document is part of a series of nine guidelines on different urban agriculture themes:

1. *Urban agriculture: A tool for sustainable municipal development*
2. *Urban agriculture and citizen involvement*
3. *Urban agriculture: Land use management and physical planning*
4. *Micro-credit and investment for urban agriculture*
5. *Recycling organic wastes in urban agriculture*
6. *Treatment and use of wastewaters in urban agriculture*
7. *Urban agriculture: Fostering equity between men and women*
8. *Urban agriculture and food sovereignty*
9. *Processing and marketing urban agriculture products*

The series is available on the Web sites of the Urban Management Program ***(www.pgualc.org)*** *and IDRC* ***(www.idrc.ca)***

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