

Urban Ecology in Bangkok, Thailand: Community Participation, Urban Agriculture and Forestry

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Abstract

This paper describes a community-based urban environmental management project in Bangkok, Thailand. In this project, representatives from two non-governmental organizations (NGOs) worked with two poor communities in Bangkok to establish citizen working groups to address local environmental problems. Once these working groups had identified problems, they established and enacted plans to address them. During this process, NGO staff also worked with local governments, building bridges between community groups and elected officials. In addition to improving the local environment, this project developed a framework that other communities could follow to establish their own urban green programmes. This framework was adopted and replicated in fifty communities by the Bangkok Metropolitan Administration. Using this process we demonstrate that both environmental goals and social development goals can be met at the same time.

Cet article décrit un projet de gestion collective de l'environnement urbain à Bangkok, en Thaïlande, dans lequel des représentants de deux organisations non gouvernementales (ONG) ont travaillé avec deux communautés pauvres pour mettre sur pied des groupes de travail de citoyens cherchant à résoudre des problèmes environnementaux locaux. Une fois les problèmes identifiés, ils ont mis sur pied et réalisé un plan d'action. Au cours de ce processus, le personnel des ONG a aussi travaillé avec les gouvernements locaux, établissant ainsi des liens entre les groupes communautaires et les élus. En plus d'améliorer l'environnement local, ce projet a créé un cadre de travail dont d'autres communautés peuvent se servir afin de mettre sur pied leurs propres programmes environnementaux urbains. Ce cadre a été adopté par 50 communautés de Bangkok. Ce processus a permis de démontrer que des objectifs environnementaux et de développement social peuvent être réalisés simultanément.

Key words

South East Asia, urban agriculture, urban forestry, community participation, international development.

Introduction

Moving in search of a better life, people across the globe have abandoned traditional socio-economic systems, broken ecological bonds with nature, and flocked to urban centres. While this process started in the "northern" or "developed" world, less developed countries have quickly caught up. In late 1999, the United Nations declared that over 50% of humanity now lives in urban centres (Brook and Davila, 2000). To support densely packed urban populations, societies take resources from around the planet and concentrate them in cities. Moving natural resources in this way sustains modern society and results in significant environmental degradation. We extract resources from remote areas, causing deforestation and soil erosion, and we move resources to urban areas, causing problems with waste disposal and water and air pollution (Wackernagel and Rees, 1995; Wackernagel, 1994). This process of taking raw materials from around the globe and accumulating waste in cities has broken the self-regulating cycles of nutrient flows that are characteristic of many undisturbed ecosystems. Climate change, ozone depletion, species loss, and habitat destruction are all consequences of modern, urban life (Douglas, 1983; White, 1994).

These problems are compounded in the developing world since economic constraints are much larger in countries like Thailand, than in North America or Europe: it is difficult to find money for environmental management when basic needs and poverty are an immediate concern. In Bangkok alone, one third of all homes do not have water and most sewage ends up untreated in the canals that crisscross the city (Sivaramkrishnan and Green, 1986). These concerns are exacerbated by the pace of change in the developing world, which is much more rapid than in Europe or North America. For example, Bangkok is similar to many cities in the developing world in that it had just one million people in 1950 while today it is home to close to 12 million. This pace is not expected to slow for decades (Platt *et al.* 1994).

In addition, the developing world is concentrated in the tropics, which covers 7% of the earth's land surface, and is home to an estimated 50% of the earth's species (Shiva, 1994). Not only are the tropics significant in terms of biodiversity, but they are also among the earth's most fragile ecosystems. The soil in these regions tends to be low in organic matter – which buffers against changes in acidity and increases fertility – because hot moist conditions make organic matter decompose quickly. The majority of biomass in tropical ecosystems is above the ground in living plant material. Because of this, Lamprecht argues that tropical soils are maintained by the vegetation that grows on them as opposed to temperate ecosystems where the soil maintains the plant life that grows on it (Lamprecht, 1989). Once the original vegetation is removed, soils are susceptible to erosion, quickly lose fertility, and stop supporting high biodiversity. As a result, urbanization threatens some of the planet's most important and fragile environmental areas. In Thailand, this leads Laird (2000) and Bello *et al.* (1998) to conclude that unfettered and unplanned economic expansion has led to serious environmental problems.

In light of these challenges, this paper describes a community-based environmental management project in Bangkok, Thailand that was designed to

address these problems at the local level. Funded by the Canadian International Development Agency (CIDA), and run through a partnership between the Canadian-based International Centre for Sustainable Cities (ICSC) and the Thailand Environment Institute (TEI), this project has worked with poor urban communities in Thailand to develop urban agriculture and forestry plans. While the goal was primarily environmental – to use community participation to improve nutrient cycles in urban areas by promoting urban forestry/agriculture – this project quickly evolved into a capacity building exercise to help communities address environmental problems.

Urban Greening in Bangkok

Bangkok, home to 12 million people, offers a huge potential for urban ecology. First, both the Thai government and the Bangkok Metropolitan Administration (BMA) have established urban greening as a priority. Bangkok has one m² per capita of public green space, and the BMA wants to increase this to 10 m² per capita (Apichat, 1999). Second, while the downtown core is densely populated, approximately 39 % of the greater Bangkok area is vacant, undeveloped, low-lying and marshy, or abandoned (Pornchokchai, 1992). This was partly caused by Bangkok's extremely fast growth rate in the 1960s, 70s, and 80s that meant municipal authorities could not build an adequate road network to keep all of the city accessible by car. As a result, large areas, especially in the outer-lying regions, have been cut off from typical urban development and remain more or less empty. Seeing this potential, and the obvious need for a better urban environment, the Thailand Environment Institute (TEI) – one of Thailand's leading ENGOs – approached Canada's International Centre for Sustainable Cities (ICSC) to work on a Canadian International Development Agency (CIDA) funded partnership on urban greening in Bangkok. The tasks of this project were to:

1. Teach members of two pilot communities in Bangkok about the benefits of urban green space.
2. Form community working groups in these two areas and guide these groups to plan, implement and maintain urban green space in their community.
3. Develop and test a process or method of community involvement so the needs of the community and the larger-scale environmental benefits of urban greening can be met.

The challenge behind these goals was the development of a process that future communities could use to improve the environment while not overly influencing their priorities. To do this we needed to ensure that the opinions of women, minorities, or other marginalized groups were placed alongside environmental concerns so that neither was subordinate.

To create this framework, TEI and ICSC staff anticipated that activities would fall into three major steps: preliminary work, planning and implementation. Preliminary work involved finding a site where people would participate, where land was available, and where the local authorities were supportive of the project. Next, the communities needed to form working groups, who would receive education and training on urban green space. The planning phase

consisted of drawing a map of the existing area, establishing goals, planning the new green space, and establishing a work plan. The key consideration for this phase was to ensure that all groups in the community – including women, children, any minorities, and the elderly – were involved in the process. The last phase was to implement the green plan. This included site preparation, planting, and ensuring that there is was a regular maintenance schedule. To help communities through these stages, TEI and ICSC created a background educational booklet (in Thai), and drew up a checklist of relevant questions for each phase. The goal was to provide communities with enough structure that all relevant issues would be covered, while allowing sufficient flexibility so that communities would be able to articulate their own needs (for more information see Fraser, 2001).

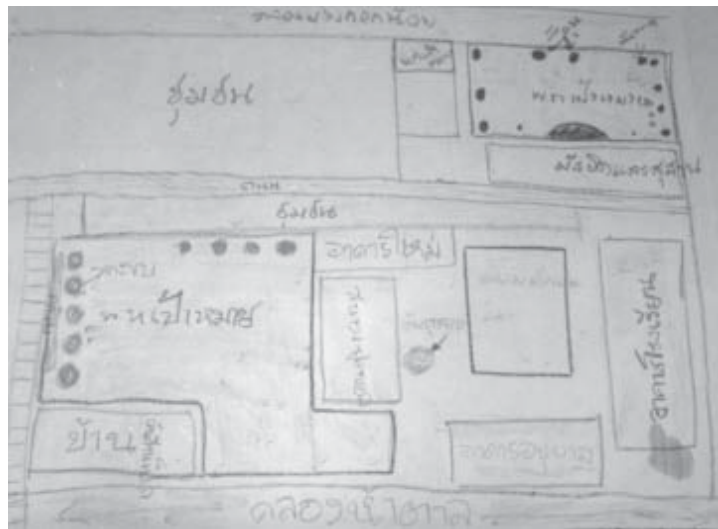
To apply this framework, the first step was to identify two test communities that exhibited both an interest in greening and had some available land. In March and April, 2000, members of TEI and ICSC met with communities and local government officials in Keht Bangkok Noi and Keht Bangkok (Bangkok is made up of 50 Kehts, which represent the most local level of government). The visits demonstrated that these two communities were not only receptive to working with TEI to develop an urban green plan but also that local governmental officials were supportive from the outset. The next step brought the communities together for a workshop on urban greening. In May 2000, all community members and local officials were invited to an educational workshop. Attended by over 50 people, this one-day event brought together community members, Keht officials, urban planners and representatives from a local agricultural college. Topics included urban environmental problems, how-to conduct an urban greening program, and the care of trees in the city. A booklet was produced for this event as a resource guide to urban greening (Fraser, 2001). At the end of the workshop, each community chose a working group of approximately 12 people. The working group was self-selecting and made up of volunteers.

The planning process included three main phases. The first task was to create a map of the potential green space that included existing trees, buildings, utilities, and canals. This map served two functions: (1) it was the basis of the urban green plan that the community was about to develop; (2) perhaps more importantly, an inventory of the community made residents evaluate their local surroundings as part of the greater environment. This activity forced the community as a whole to assess their landscape and think pro-actively about ways to improve it, both for themselves but also in terms of the entire city and the global environment. Using the map as a guide, the communities drew up a list of goals that they hoped to achieve with this project. These goals included increasing the amount of shaded area and, for one community, planting community gardens both for personal consumption and for sale. The map was then used to plan the specifics of the green plan. Finally, the community drew up a list of tasks and assigned responsibility for those tasks. Figure 1 shows the map made by one of the communities.

Throughout this process, staff from TEI and ICSC met with local government officials to ensure that municipal and neighbourhood administrations

would support this project. Work with officials began with a series of meetings with Keht planners as well as high-level municipal authorities who were supportive of the project. Based on their input we hosted a workshop for planners, where we brought together community members and government officials. Although at first, some officials seemed suspicious of our motivations, TEI is a well-recognized and respected organization in Thailand, with good connections to the senior civil service. Based on these contacts, we were able to establish good relationships with many officials and worked with them to ensure that local governments were supporting community initiatives.

Figure 1. Map drawn by community working group of area where they wanted to develop a green plan.



Between July 2000 and May 2001 the two communities embarked on the third and final phase, which was to implement their green plan. Although TEI and ICSC helped coordinate this, the work itself was organized by the working groups and supported by local governments through the donation of labour, equipment and planting materials (trees, organic fertilizer and seed from municipal nurseries). In the first community, in Keht Bangkapi, residents selected two small areas (20m² each) that were overgrown with weeds and garbage. The community cleared these areas and planted a diverse arrangement of local species of fruit trees that would provide shade in the future. Activity also took place on the bank of a canal that runs through the community. Residents cleared a 5 m wide, 300 m long path along one side of the canal that had been filled with a dense mass of grasses and thorn bushes (Figure 2). Following this they planted fruit trees immediately adjacent to the canal to stabilize the banks and prevent erosion (Figure 3) and turned the remaining space into very diverse intensive garden plots (Figure 4). There was room for ten families to have plots. While the families consumed some of the produce, whatever was left was sold at the roadside (Figure 5).

Figure 2. The future site of the community garden in Bangkapi before work began.



Figure 3. The community garden during site preparation in Bangkapi.



Figure 4. Community members working the community garden in Bangkapi.



Figure 5. Community members displaying produce from gardens in Bangkapi.



The second community was based in Keht Bangkok Noi. This community chose to plant shade trees and fruit trees in an unused soccer field. There was also a plan for the local school children to develop vegetable gardens, although this has not happened yet.

Results of Project

In order to assess the impact that this project had on the communities, TEI and ICSC chose six progress indicators that were used to evaluate the success of this endeavour. They are: (1) to establish community urban green plans; (2) to help build community capacity with regard to environmental issues; (3) to reduce poverty in communities; (4) to establish links with government to ensure broad-based support for this project, (5) to improve the status of women, and (6) to develop a model for other communities to develop their own urban greening projects. Table 1 summarizes these indicators and the way we measured the results.

Indicator 1. Establishing an Urban Green Plan

Both communities formed working groups, assessed environmental problems in their communities, developed an action plan and have implemented the plan. Bangkok Noi now has a large field planted with shade trees; six months after planting all the trees had survived and the community had established a maintenance schedule. The adjacent primary school has plans to develop a student-run vegetable garden next to the trees. Bangkok Noi established a very successful community garden that generated enough income to make the green plan self-financing.

Indicator 2. Community Capacity Building

Each community developed a cohesive working group. Decision-making in these groups was through consensus, or majority vote when consensus was impossible. When asked what TEI should focus on in the next phase of this project, one gentleman in Bangkok Noi said that the most important aspect of this project was building "power in the community." This was the first time the community of Bangkok Noi worked together on a community project, and the first environmental initiative members had ever undertaken. In Bangkok Noi an elderly member of the working group, when asked what was the best part of this programme, said that he had stopped drinking and felt a renewed sense of purpose in his community thanks to his contribution to the community garden.

Indicator 3. Poverty Reduction

Bangkok Noi established a vibrant community garden. The garden has room for 10 plots, each of which has the potential to generate 2,000 Baht/month (\$80 Cdn.). In an area where the average family income is only \$400 Cdn. a month a garden plot can add 20% to a family's income. While some of the families consume the produce, others have come together and, with help from other families who do not have plots themselves, sell vegetables and herbs by the road. This money is pooled and used for community projects; for example,

Table 1. Summary of progress indicators, measurement methods, and results of community-based urban greening project in Bangkok.

Indicator	Measurement	Highlights of Results
Establish green plan	Area planted and number of species present	<p><i>Bangkok Noi</i>: 55 by 55m planted with shade trees, 20 new local species added.</p> <p><i>Bangkapi</i>: 5 by 300m of community gardens, 15 new local species added.</p>
Community capacity building	Number of people participating	<p><i>Bangkok Noi</i>: 24 people joined the working group, attending all events. Over 100 people contributed to each of 3 major working days.</p> <p><i>Bangkapi</i>: 17 people joined the working group, about 100 people contributed to 3 major working days and 9 families took responsibility for individual allotment gardens.</p>
Poverty Reduction	Income generated by community gardens	<p><i>Bangkapi</i>: community could generate 20,000 Baht/month (\$800 Cdn.) from 10 gardens (average household income is \$400/month). Not all produce is sold, as some is consumed and reduces the family's food expenses.</p> <p><i>Bangkok Noi</i>: Local school has not established vegetable garden yet.</p>
Link communities with government	Resources provided by BMA and Keht	<p><i>Bangkok Noi</i>: Keht provided 20 labourers for 3 days, a parks official attended 3 days worth of activities and the Keht director joined the activities on five days.</p> <p><i>Bangkapi</i>: Keht provided 15 labourers for 3 days, a community development officer helped for parts of approximately 40 days, and the director of the Keht attended activities on 5 days.</p> <p><i>BMA</i>: Social welfare officer attended workshops and training activities on 6 days, the Deputy Permanent Under Secretary attended activities and was available for consultation for 6 days, a truck and other equipment was provided for use on parts of 6 days.</p>
Status of Women	Number of women participating in events	<p><i>Bangkok Noi</i>: 70% of activities were carried out by men, 30% women (as estimated by TEI project coordinator), 1 woman on the working group.</p> <p><i>Bangkapi</i>: 50% of activities were carried out by women, 50% by men. Working group is 50% women, and a woman is the treasurer and responsible for all income generated by the community garden.</p>
Develop a model for other communities to follow	Creation and distribution of educational material describing urban greening in a step-by-step fashion	TEI and ICSC created a booklet, an activity checklist, and a web page describing a framework to conduct community-based urban greening projects. The BMA distributed this material to 50 communities and supported urban greening projects in each community.

some helped pay for the hospital stay of one community member.

Indicator 4. Links with Government

This project benefited from good support from both the local Keht officials as well as from the BMA. Between these two levels of government well over 100 person days of labour were contributed. In addition, this project found a firm ally in the senior civil service. Ms. Nathaton, the Deputy Permanent Secretary, provided regular guidance, attended workshops and helped plant trees. One difficulty encountered was that in the fall of 2000 the director of Keht Bangkok Noi changed. The new director is not as sympathetic, and since this change the community has had difficulty gaining support from the new administration.

Indicator 5. Status of Women

In Bangkok Noi, a Buddhist community, women and men were equally represented at all functions, and a woman was the treasurer of the working group. In Bangkok Noi, a Moslem community, TEI staff made concerted and regular efforts to ensure women participated in the project. Despite these efforts, TEI staff estimated that women only participated in 30% of activities and there was only one woman on the working group. Ensuring that women played an active role in the project constituted one of this project's major challenges. Given that most TEI staff, including the project coordinator, were female, we feel that progress on this goal was being made, and that the project provided a good example to the people of Bangkok Noi.

Indicator 6. Developing a Model for Other Communities.

To date TEI and ICSC have developed a web site, a booklet, and an "urban greening training manual." All of these provide useful tools and access to resources so that communities in Thailand can develop strategies to meet local environmental problems. In addition, a report on the health implications of urban greening was commissioned and is available on our web page (see Fraser, 2001).

Lessons learned

Two general lessons were learned from this project. First, we feel that engaging community participation, in a guided fashion, is a viable way of meeting both community needs and environmental goals. Both communities were engaged and excited to improve their environment. This is illustrated by the goals that the communities established for their green plans at the workshop. In Bangkok Noi, residents decided that they wanted their site to (1) improve local ecology, (2) create recreational areas, (3) provide an ecological demonstration area for local school children, (4) improve community relations, and (5) provide a source of vegetables and other foodstuffs. In addition, as the project unfolded, the communities became more and more excited to improve their neighbourhoods. Initially, the community in Bangkok Noi decided to only allow a small area measuring 50m by 10m to be used for this project. After the initial planning workshop, members of the working group convinced their local council to expand this to a 55m by 55m field. After an afternoon of on-site

planning, the working group added two additional areas. To improve these areas the community proposed to: (a) clean the areas; (b) use about 10% of the land for community vegetable gardens; (c) use seedlings growing in the one already-treed area to plant around the perimeter of their soccer field; (d) dig a small fish pond and plant trees around it, (e) clean up underneath the existing trees and prune them back to provide a shaded walking area; and (f) obtain mango, coconut, banana and other fruit trees from the local government nursery and plant them in front of their Mosque. In addition, they discussed the need to compost household waste as a source of fertilizer for this area so the possibility of establishing household composters is being investigated.

While not all of these goals were ultimately acted upon, work in these two areas illustrates that community participation is a viable and effective way to create socially relevant and environmentally beneficial development programmes.

The second lesson from this pilot project is the important role that land tenure plays. The land along the canal where Bangkok's community garden was planted is privately owned. As no (official) development can occur within 5m of canal banks, this land could not be used by the landowner. A letter of agreement between the Keht, landowner and community was signed allowing the community to plant their garden. In December of 2000 the landowner contacted the community and indicated that he was no longer interested in supporting the project. At the time of writing, the community of Bangkok is investigating a new site for their gardens, and the landowner has fenced off the community gardens with barbed wire. To address this problem in the longer term, TEI is currently working with a landowner in a new community. In this case, TEI contacted a land-owner who was willing to publicize his involvement in community based urban green plans. This may result in the landowner receiving an award from the BMA for allowing his under-utilized land to be used by poor community members for urban greening projects. The goal is to set a visible precedent to landlords in Bangkok that shows how they can work with poor communities to improve the environment.

Despite this strategy, the issue of land tenure will always be a problem. This project is about providing the urban poor with access to green space to improve the environment and to meet community needs. Consequently, communities that can obtain a guaranteed access to land may be too wealthy to fall within our mandate. The communities that need development assistance are ones where the poor have no access to resources, and cannot obtain secure land tenure. Simply put, we would be working in the wrong place if land tenure was not a problem.

Conclusion

Although this project began as a response to an environmental need – to improve greenspace in Bangkok – environmental improvement quickly emerged as a method to promote community awareness, capacity building, and empowerment. In many ways, the urban environment became a lens through which communities re-evaluated their own relationship with the city, the impact of urbanization in a global context, and how small groups can exert

some control over the shape of their neighbourhoods. Therefore, it became necessary to broaden the goals of our project from a narrow focus on greenspace, to encompass a number of other development objectives. Strictly speaking, it would have been less time-consuming to merely work with the municipal government to secure land, hire a landscape architect and construction crew and plant as many trees as possible given our budget. However, the acts of including the communities, establishing working groups, and carefully inventorying and identifying existing trees allowed this project to have a much larger impact than would have been likely had we used a more direct approach. In 2001, inspired by the work done in these two communities, the BMA decided to provide funding to replicate this process in one community from each of Bangkok's fifty Kehts. The BMA convened an initial meeting with community leaders and distributed the booklet describing this process that was produced by TEI. It is unlikely that this project would have had this scope if TEI and ICSC had merely hired a landscaping company to establish parks. Instead, by working with communities, and providing a basic framework that any group could follow, this project has been able to grow far beyond its original scope. Although the modest gardens established by the residents of Bangkok Noi and Bangkok Noi do not have a significant influence on the greater urban environment, the overall project is helping shape a change of behaviour and perception in regards to the environment throughout Bangkok.

Post Script

Work is currently underway on phase II of this project. TEI and ICSC are replicating this process in two more Bangkok communities, including the one described above where the work was initiated by an enthusiastic land owner. A third community in a town outside of Bangkok has also been chosen for phase II. Tambol Na Pralan Municipality, located 2 hours north east of Bangkok, is an industrial town that boasts a number of open pit rock quarries and rock crushing facilities. Local residents live alongside open-air stone crushing and blasting factories, and approximately 1/3 of all hospital visits are due to respiratory ailments. In addition, because all the vegetation has been removed, this area is prone to droughts and floods. Re-establishing vegetation in this community is of utmost importance. However, due to the extent of the local environmental degradation, it will be a challenge to establish new trees and shrubs.

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