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**ENVIRONMENTAL INITIATIVES IN SOLID WASTE MANAGEMENT IN SOUTHERN
CITIES: DEVELOPING INTERNATIONAL COMPARISONS**

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**A. Introduction: An Integrated and Socio-environmental Approach to
Municipal Solid Waste Management**

This paper comments on trends in local action for municipal solid waste management (MSWM) to better understand the emerging socio-economic movement for an integrated approach to municipal solid waste problems. The aims are to suggest some of the main factors that can be used to understand the goals, strategies and progress of individuals and groups entering this field of socio-environmental action, to note the handicaps they face in influencing waste policies and practices, and to make recommendations for furthering international communication on this subject.

I present information on initiatives outside of South Asia which, by introducing social and environmental concerns, seek to change conventional practices and policies in MSWM. The particular cases referred to are:

1. the work of Bertrand Sampaio de Alencar of ASPAN in Recife, Brazil;
2. the Garbage Recycling Project of the Metro Manila Women Balikatan Movement;
3. the German-aided (Deutsche Gesellschaft fur Technische Zusammenarbeit-GTZ) "Scavengers in Indonesia, a Human Development Programme" in Java, Indonesia.

These represent an individual research initiative, a well-organized metropolitan NGO project, and an international agency-assisted project involving co-operation of research institute and NGOs in three cities.

What do I mean by "an integrated, socio-environmental approach" to solid waste management? A number of ideas, some of which have been articulated in projects and conferences since the 1980s, can be said to form basis of an emerging movement for reform of conventional approaches to MSWM in Southern cities.

Some of the main assumptions are:

- that MSWM includes both conventional and informal activities (e.g. waste picking and unregistered recycling) and whatever their public health problems, these activities may positively contribute to waste management (through resource recovery) and to social order (e.g. through employment of the disadvantaged);
- that MSWM, rather than merely having limited goals of collecting, transporting and disposing of wastes, should have among its primary aims, waste reduction and the facilitation of recycling;
- that an accommodation should be sought among the goals of social welfare,

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employment, and waste reduction/resource recovery, on the one hand, and the desire for efficient waste management with minimum handling on the other;

-- that a variety of "stakeholders" should have a say in determining policies for MSWM, including NGOs, and that such co-operation forms part of citizen participation in MSWM.

These principles represent a synthesis of concerns, raised more often by citizens than governments, in cities of the developing and developed worlds. There are several local projects in the former that are seeking ways of integrating conventional MSWM and informal activities in waste recovery and recycling, or, of reducing conflict among the actors who lay claim to urban wastes.

Scholars and social actors who are contributing to this emerging movement have pointed to several general trends relating to waste management in developing cities that compel attention to the relations between conventional and informal systems.

These trends include:

-- Waste picking (from streets, transfer points and dumps) rather than declining with modernization has increased in large cities as more valuable materials are consumed and discarded and recycling industries proliferate;

-- The direct buying of recyclables is declining in some countries (e.g. most Latin American ones, Indonesia, Philippines) and thus so are habits of separating wastes at source;

-- Technical changes in waste collection (quicker pick-up, throwing out in plastic bags, containerized collection) are occurring which inhibit informal recovery and increase dump picking, a hazardous form of waste recovery;

-- Conventional approaches to MSWM have become unsustainable in many cities: a significant portion of wastes generated cannot be collected regularly, while dumping space is located at uneconomical distances and is hard to acquire;

-- Waste reduction and recycling are now internationally accepted as bedrock principles in all waste management;

-- The public are more aware of the risks associated with poor waste management and the benefits of clean recycling; various types of citizens' groups are becoming involved in waste issues;

-- There are attempts to co-ordinate official, private and community-based activities in urban services to increase access for basic needs;

-- International environmental meetings now include issues of waste management, especially for cities (including the Earth Summit, Rio, 1992, the NGO Forum at Rio which passed a "Social Movements Waste Treaty," and the Global Forum's Sustainable Cities workshop to be held in Manchester in June 1994).

These trends, hardly assessed by research, but recognized by those active in the field, have different force in different regions. The need for comparative research

to examine the relationships between conventional and informal waste management and for waste actors to share experiences of research and action is an aim of international, comparative workshops. In spite of very different political/administrative contexts, and human and financial resources, in the urban regions of the South, both scholarly researchers and NGO members hope to strengthen the research effort and to attain more effective practical application by comparative analysis.

The specific questions that guide the following discussion are: what are the major factors we need to take into account in comparing socio-environmental initiatives for MSWM, and what general conclusions can be drawn from our current knowledge of particular projects?

B. Socially-oriented and environmentally-oriented projects

In comparing NGOs working in the area of waste management a distinction can be made between those primarily devoted to social development and those whose main motivation is environmental improvement: the former have been dubbed the "red" and the latter the "green" NGOs (Huysman, 1993). Like most dichotomies, this distinction is not very helpful in reality. From their own experience and from exposure to international discussion, project leaders develop multiple goals, and they resist being slotted into one category or another. When questioned, most leaders claim to be equally devoted to environmental and social goals. Nevertheless, one can describe a continuum of concerns, from predominantly socially-oriented to predominantly environmentally-oriented. The two ends can be summarized as:

1. Socially-oriented: the primary concern is the humane one of the welfare/empowerment of informal waste workers, from which there has developed a broader wish to change approaches to MSWM. The contribution of informal waste workers to resource recovery and waste reduction is highlighted and ways are sought to permit them to organize, to work safely and sometimes to develop skills in recycling;
2. Environmentally-oriented: the primary concern is to make an impact on the nuisances and hazards of poor waste management through community co-operation, which may entail the organization of waste recovery and recycling. Over time, a broader understanding of options in MSWM and modes of community action develops, which may include an interest in the relations of conventional to informal waste management.

The judgment of just where a project fits on the line should be made by examining its activities over a period, rather than relying only upon the initial statements of project goals.

The character of a project can become important when social and environmental goals come into conflict. In the early phases of a project, before there is much engagement with government agencies, such conflicts can be masked; the need to decide about compromises among social and environmental goals is likely to arise the more an NGO attempts to influence civic policies.

Interactions with welfare-oriented community-based organizations (CBOs) may be significant in introducing social concerns into essentially environmental or aesthetic programs, while exposure to international thinking may lead to an adoption

of waste reduction and recycling as basic principles.

C. Further Comparative Dimensions:

The following are some of the main questions that can be asked in analyzing projects and making comparisons.

1. **Initiation and leadership:** Did the project idea come from international development officers or professionals, arise from local concerns, or emerge from the interaction of international and local ideas? Does the project rely mainly upon the leadership of one person, or several project workers in an NGO or CBO, or does it involve collaboration of several institutions (e.g. CBOs, NGOs and research institutes).

2. **Funding and administration:** What has been the funding history? Was the work begun with international donor support, local NGO funds, or a mix of types of support? What is the level of funding? Is external support short-term seed money, or will it continue for some years? Is the project expected to become self-supporting, or to obtain substantial community/corporate contributions?

How many people work regularly on the project? What are their qualifications and experience? Is the work paid or voluntary? What range of services can the organization offer in pursuit of project goals?

3. **Action/research commitment and capacity:** Is the work primarily social action, or are there research goals and a genuine research capability? Are academics or trained researchers involved in the research? Has there been independent assessment of the project, or only "in-house" monitoring? If a social action project wishes to develop a research capacity (either for monitoring, or to contribute to international scholarship) how are the research skills developed? How transparent is the project about its data gathering, research methods and results? How many people are "reached" by the project, and in what ways?

4. **Policies on approaches to MSWM:** Here the project focus (whether more socially or environmentally oriented) is significant. There are a range of policy issues. Among the two most important are:

i) Whether there is a desire to achieve some kind of "integration" of informal workers with the MSWM system. For instance, there may be a stated policy that waste pickers are to be recognized as a part of waste management, to be registered, and provided with equipment and space to work without harassment. Or, that ways of collecting wastes or recyclables at the street and neighbourhood level should permit waste pickers to be transformed into registered waste "collectors" so that they have healthier and more socially acceptable working conditions and the possibility of social mobility;

ii) Whether, in promoting waste reduction and resource recovery, the emphasis is upon separation of recyclables at source ("source separation" or "segregation") or whether recovery by picking from mixed post-consumer wastes is accepted. (In some cases, a project accepts the latter as an initial phase because of the great difficulty or organizing thorough and consistent source separation in large and complex cities with many residents who lack knowledge of recent waste management

principles. The ultimate goal may be to encourage the recovery of wastes by separation at source and so to reduce picking or sorting of materials from mixed wastes).

5. Political strategies: Since a goal is to change MSWM, influencing municipal policy-makers is important. Do the project workers have a strategy for modulating the thinking and practice of the local authorities? Or do they aim to by-pass the solid waste authorities and to gain the support of decision-makers at a higher administrative or political level? What are the avenues of access? What issues arise in pursuing strategies for political support? What are the implications for the development of the project? What has been the reaction of the local authorities; what sort of recognition or support has been given, to what effect?

6. National/international recognition and communication: Has the project work been reported at national and international meetings? Are there readily-available project reports? Are the results of meetings transmitted to the local level, to practical effect? Are project workers able to "network" and thus keep in touch with the thinking and experience of similar projects elsewhere? Is the project handicapped in communication by lack of funds and facilities?

7. National context of interest in new approaches to MSWM: The above factors apply to individual projects. The national context of voluntarism and of structures that affect policy-making and attitudinal change is of particular relevance for comparison. How strong are environmental movements? Do official social agencies and social welfare NGOs take an interest in issues of waste management (for instance, through concern for street children)? Is there much experience with co-operatives, and enabling legislation? Is there an institutional structure that allows national discussion of approaches to solid waste management? Are multiple stakeholders recognized in this structure? How are policy guidelines communicated to the city level, including the general public?

8. Cross-country comparisons: It would be helpful if scholars could make some preliminary comparisons, even as hypotheses to initiate regional comparisons. Some of the questions that could be addressed are:

-- How do the major regions compare in terms of the amounts of recyclables discarded as wastes and reaching dump sites?

-- Have the Latin American cities more pickers relative to itinerant waste buyers than Asian ones?

-- Within Asia, do the South Asian countries have more, and more specialized, itinerant buyers (and therefore more source separation) than countries like Indonesia, the Philippines and Thailand?

-- How do waste pickers, itinerant buyers, traders and wholesalers compare in terms of literacy levels, capital investment, length of time in the work and "entrepreneurship," etcetera, in different regions?

-- How does the sophistication of the general "NGO culture" affect the ways that groups formulate strategies and pursue goals?

-- Do some regions experiment more with organization of pickers as a strategy than others? Why? What has been the success?

-- How does the training and education of civic officers and the efficiency of local administration differ among regions, and what are the likely effects of differences upon openness to new ideas in waste management?

-- How important is a general awareness of environmental issues among the public to co-operation with waste reduction?

Obviously, it will not be easy to answer the kind of questions that I have posed here. In the first place, it is not clear how to "operationalize" some of the concepts. (Indeed, we have, as yet, no standardized terminology or agreement on definitions). The project workers may not keep systematic information, may not be able to afford the time or money to answer surveys, or may not think that transparency is appropriate at their stage of development.

Even minimal information on these clusters of characteristics would help us to make judgments about the impact or potential impact of projects seeking to change MSWM.

D. Three Different Socio-environmental Initiatives

Information is not available to analyse even one project in terms of all the dimensions mentioned above. Here, I outline three initiatives to illustrate some of the differences mentioned. (It should be noted that the information on these projects has been obtained from project leaders and not by independent research).

1. The project "Diagnosis of Informal Solid Waste Management in Recife, Brazil," exemplifies an initiative resting largely with an individual member of a regional environmental NGO (ASPAN), and supported by a private international donor agency (The John D. and Catherine T. MacArthur Foundation) (de Alencar, 1993). This is a young project, which has begun with a research phase. Understanding how the solid waste systems operate in Recife is seen as the first step and one that will contribute to a co-operative relationship with the solid waste authorities (who have no systematic information on the aspects being studied).

The wider goals are to assist the social development of waste pickers (through organization) and to improve resource recovery/recycling in the city by gaining the co-operation of the municipality for recognition of pickers and the promotion of source separation. Improving the efficiency of resource recovery and the health and working conditions of both pickers and traders by reducing picking from mixed wastes are central to the philosophy of this project.

The initial research has been completed and in the planned second phase the research will focus on: the health of waste pickers; issues of social acceptance in the community; the options for organization of the pickers (registration and identity cards being a first step); and negotiations with the solid waste department on policy changes.

Initiatives elsewhere in Latin America in forming associations, unions and co-operatives of pickers will be studied, and there will be workshops and discussions

with municipal decision-makers and private sector persons who might contribute to the new approach. Research and pilot work will be done on source separation, including public attitudes towards MSWM.

The project is the work of Bertrand Sampaio de Alencar, who has two research assistants, and the advice of Ruy Rego, a doctoral candidate in sanitary engineering of London School of Hygiene and Tropical Medicine. There is no research institute involved.

The research has been possible because the project leader obtained a Population Policy grant from the MacArthur Foundation, which has now decided to support the second phase. When this grant money ends, ASPAN, the NGO that introduced the concern for waste pickers to Recife, will provide funds and volunteers for two to three years, by which time it is hoped that the organizations of pickers (and perhaps waste traders) will be well established. It may be necessary, however, for further funds to be raised if the research component is to continue.

De Alencar has good relations with the municipal waste department as he had previously done some work for them, and he is backed by an experienced and well-known NGO. There are many examples of organizations ("unions," "co ops") of informal workers in Latin America.¹ These factors, and the recognition that comes from the prestigious Macarthur Foundation fellowship, are aspects of the "political/administrative" support that will be needed to achieve substantial change in the solid waste system of Recife.

De Alencar attempts to keep in touch with researchers in this field in Latin America and elsewhere as he is keen to set this work in the context of international discussion on the "integration" of formal and informal waste management.

This project is conceived as one of research contributing to international discussion, of social action for the empowerment of waste pickers, and of environmental improvement through source separation and recycling. It illustrates the strategy of beginning with basic research to develop analytic models and provide information to local decision-makers and the community.

2. The "Garbage Recycling Project" in Metro Manila, in contrast, has evolved over a decade from the inspiration of one woman, backed by a large and well-funded national NGO (Metro Manila Chapter of Women Balikatan Movement-MMCWBM). Leonarda Comacho, now the chairer of the Metro Manila chapter, spent a year in Switzerland in the early 1980's where she was impressed by the cleanness of Swiss towns and by the people's habit of keeping recyclables separate from their refuse and depositing them for the municipal authorities to collect and distribute to recycling firms. On her return to Manila she engaged the Quezon City chapter of Balikatan in the mounting garbage problem. From clean-up drives in San Juan city of Metro Manila, a group in Balikatan moved to discussions of the root causes of solid waste problems. Leonarda suggested that local traditions of householders separating newspapers, bottles, cardboard, and the like could be supported and extended.

The possibility that a materials separation and trading project could benefit the "barrow boys" (who mainly obtain recyclables by picking from mixed wastes) was seen as a social benefit from the beginning. It was the Balikatan initiative that led to the ill-fated government-funded "Cash for Trash" project which established waste

materials buying centres and attempted to by-pass the traditional "junk dealers" in the mid-1980s (Furedy, 1990). Its failure persuaded Leonarda that a viable approach to household resource recovery had to have the co-operation of junk shop dealers. Hence the project, originally called Linis-Ganda ("Clean-Green") and based in San Juan and Quezon City only (Comacho, 1991), focused on: gaining the co-operation of neighbourhood waste dealers in employing door-to-door buyers ("eco-aides"), (issued with photo identity cards by Balikatan); mobilizing the support of households for separation and sale; and aiding the dealers in technical and business development (Furedy, 1992).

There are now 21 dealers in the project, employing 200 eco-aides who buy approximately 50 kg of materials each per day (mainly paper, cardboard, bottles, plastics and metals). Since September 1992, 25,000 households in Quezon City and San Juan are participating and the concept is being implemented in other places of the three cities and 12 towns of Metro Manila, mostly by Balikatan chapters, although other citizen groups also support the effort (Comacho, 1994).

The project has 300 volunteers working for the various components: motivation for source separation, assistance to junk shop dealers, training of eco-aides, work in schools, monitoring. The MMCWBM officers take a direct interest and at least 100 of them contribute from time to time in the planning and monitoring of the project. There are three project staff, who donate their time. The staff and some volunteers meet at least once a month, more frequently when doing a particular drive.

The financial support given by the MMCWBM has been crucial to the initiation and continuance of the work. The project has not received funds from overseas' NGOs or international agencies. (However, the World Bank has promised support for experimentation with compost- and charcoal-making).

The latest development has been the organization of a co-operative for the dealers who were experiencing difficulties in obtaining loans to expand their businesses (as a result of greater volumes of materials brought in by the eco-aides) because they do not own their premises. By forming a co-operative, the participating dealers take advantage of the Philippine co-op law enabling them to borrow at 7% interest under the Department of Trade and Industry. The first co-op was set up in Quezon City with a board of seven trustees, drawn from dealers and Metro Manila Balikatan members. Dealers in San Juan have joined the Quezon City co-op and others are being organized in Tagig, Pasig, Kalookan and Pateros.

The other main expansion has been educational work in schools (116 public and 50 private ones with a total of 3000 students in Quezon City). The dry wastes produced in the schools is separated in bins and sold to eco-aides. Composting of the food wastes from the canteens is being tried in some cases.

In gaining the co-operation of householders with the concept of source separation, the Garbage Recycling Project seeks the support of home owners' associations. The Home Owners' Association of Greenhills, for instance, has been very co-operative because the project has enabled members to reduce payments to municipal staff for garbage collection. (There is a hint here of how independent community efforts in waste reduction could be seen by municipal authorities and/or workers as a threat to their jobs and profits).

In fact, in their "political relations" the organizers do not deal with the local solid waste authorities. In the 1980s Leonarda Comacho discussed source separation and its potential with the mayor and officers of SWM of San Juan and Quezon City but they showed no interest and have not changed their views (indeed, are currently negotiating for a Japanese waste incinerator). Leonarda Comacho argues that the demonstrable success of the source separation and waste trading activities, the spread of the concept within Metro Manila, and strong support at the national presidential level (see below) will eventually persuade the solid waste departments to adopt waste reduction policies and acknowledge the power of local organizations to help solve solid waste problems.

Leonarda's work has been recognized by the First Lady of the Philippines, Mrs. Amelita Ramos, who has made her a trustee of the Pasig River Rehabilitation Foundation. The program of the foundation includes the promotion of waste recycling. (This is in contrast to the relations with the Aquino government, which tried to close the whole project down, perhaps because Leonarda had been closely associated with the regime of President Marcos) (Lapid & Soncuya, 1991). International recognition has come through participation in meetings and workshops.

This is an example of a predominantly environmental project, emphasizing community participation in source separation. The social assistance is for employees of waste dealers rather than waste pickers. (There is no requirement that dealers employ street pickers as itinerant buyers and no records of how many of the eco-aides are former pickers). The dealers are doing well out of the public co-operation and co-op membership. Balikatan is an affluent organization with many volunteers, and support from private corporations. For these reasons this project does not face the problems of "welfare" subsidies that are usually needed by groups dealing with poor waste pickers.

3. The "Scavengers in Indonesia-- a Human Development Programme" (1991-1993), involving as it did research institutes, large NGOs, and CBOs in three Javanese cities was of a different scale and complexity. It is an example of a short-term, well-funded project under bilateral development assistance [German aid (through GTZ) to Indonesia], built upon more than ten years of research and projects by NGOs and university institutes.

Since the Dutch-funded "Informal Sector" research project of the late 1970s, the idea of assisting waste pickers to attain better social status, improved working conditions, and possible acceptance ("integration") into the waste management system, had been discussed by researchers and development specialists [e.g. Adi Sasono of Lembaga Studi Pembangunan, Prof. Hasan Poerbo of Institut Teknologi Bandung (ITB), Prof. Johan Silas of Jurusan Teknik Arsitektur, Institut Teknologi Surabaya (ITS)].

International interest was aroused when President Suharto made a statement, in 1989, that waste pickers are "a self-reliant brigade" who deserve public respect and should not be treated as "tramps." GTZ project advisors, familiar with attempts elsewhere to assist waste pickers (e.g. in the GTZ solid waste project in Kathmandu) responded to the suggestion that the work of research institutes and NGOs be supported by a substantial project, covering three Javanese cities, Jakarta, Bandung and Surabaya. The goals were to support a range of research and activities to improve the status of waste pickers and to promote recycling of materials and organics. The co-ordinating institution was Lembaga Studi Pembangunan (Institute for Development Studies) with

the work in Bandung coming under Development Technology at ITB and in Surabaya under the Laboratory of Housing and Human Settlements of ITS.

A number of in-house reports were written in 1993 but there has been no international reporting of results (in spite of the interest in countries such as India in the themes of the work). Neither the GTZ headquarters in Germany or the project office in Jakarta have released any information in response to my specific enquiries for this workshop, although I was told recently that if I go to Jakarta I will be given access to the reports.

Although it ran for only two years, the Indonesian project was the most substantial one devoted to the issue of waste pickers in relation to SWM: it had the most involvement of qualified researchers and large NGOs, adequate funds, international advice and monitoring, and national approval and co-operation. The work done in the project may not be appropriate for small NGOs or CBOs with meagre funds.

It is possible that this lack of openness is because a second phase of the work is being discussed and the project participants want to consolidate their conclusions during the discussions. I am grateful to Manfred Oepen of Appropriate Communications in Development, a German advisor to the project (Oepen 1991), and to Prof. Johan Silas for supplying the details given here.

The most progress on issues of waste picking in Indonesia appears to have been made in Surabaya but it should be stressed that the work in Surabaya began in the late 1980s: GTZ briefly supported ongoing work.

Prof. Johan Silas of ITS, a specialist in housing for low-income families, does not like to take credit for the experiments in Surabaya. He points, rather, to a combination of factors: a two-term mayor (Poernomo Kasaidi) dedicated to understanding the street people of the city and able to influence public attitudes, research by the Laboratory of Housing at ITS on a community with many waste-picker families, and a municipal cleaning department open to new ideas (Silas 1994).

Working with local volunteers Silas helped to establish "Mitra Pasukan Kuning" (Friends of the Yellow Troupe) a loose association of waste pickers that had 7,110 registered members by 1991. (The reference to the Yellow Troupe is to the official cleaning staff who wear yellow uniforms: pickers are seen as informally assisting the cleaning staff).

In 1990 the mayor announced that an assistance team would work with the pickers' association to issue identity cards, and organize picking areas. The assistance team worked to prevent harassment, and to facilitate access to health and social care agencies. The pickers' organization pledged to be socially co-operative (re law and order) and to help keep the city clean. For instance, there were drives against graffiti in the city in which youth groups joined with street pickers to whitewash defaced walls. Some members of the Friends of the Yellow Troupe formed a co-operative savings society, and were assisted in this by a local businessman. (It has yet to be officially registered with the Co-operatives Department).

The principles of the Surabaya approach are that: waste picking should be socially recognized as valuable and respectable work; pickers should be helped to have protective clothing and equipment; pickers should be recognized" by the city authorities and be permitted to recover materials without restriction or harassment

at designated sites. While the work of picking is to be respected, however, individuals are encouraged to move out of it after a few years. A major emphasis is that the children of participating pickers should be educated and get vocational training to ensure that they will not take up picking themselves. (It is recognized, of course, that for every picker who moves on to other work, there are other rural migrants or unemployed who will take his/her place). Indeed, studies by the Housing Laboratory at ITS suggest that pickers work for an average of about five years before moving on to other jobs (Silas, 1994).

The Friends of the Yellow Troupe is not a formal organization and it appears to have become rather diffuse lately. (On my visit to Surabaya in early April I was not able to identify any leaders or any place that was even an informal headquarters). The main effect of the publicity given to the idea of accepting and assisting waste pickers in Surabaya has been on public attitudes. Organizations such as the Rotary and Lions Clubs have given welfare aid, and the public sympathy is shown by actions such as the donation of gift parcels specifically for waste pickers at Ramadan (about 6,000 parcels have been given out each year for the past four years).

Since 1990, then, Surabaya has had an official policy of accepting waste pickers and promoting the registration of recycling enterprises. This is seen in the context of improving solid waste management. Oepen has concluded that the successful kampung (low-income neighbourhood) improvement programs in Surabaya, an official openness towards "informal" work, "credibility" of the local government among the poor, a good sense of civic co-operation, and a history of practical action at "strategic social entry points" are all factors in the progress of accepting waste pickers as having a role in waste management in the city (Oepen, 1991).

The Scavengers' Development Project focused on waste pickers. The project emphasized changing the official and the public's perception of pickers, supporting organisation of pickers, and educating their children. In addition, experimentation with composting was funded, but on the assumption that the organics would be obtained from the residuals left after hand-picking of dry materials. (Until very recently there has been little interest in the concept of source separation in Indonesia, or in the revival of declining traditions of selling household recyclables to itinerant waste buyers. A few small initiatives in separation have been tried but no information is available on their success. In Surabaya, the blue bins for recyclables have not been used as intended and a proposal that Sunday should be a day for households to set out recyclables for pick up was strongly opposed by the solid waste crews probably because they thought they would lose income from their own en-route picking if recyclables were made available directly to waste pickers).

It is to be hoped that the directors of the GTZ project will soon agree to share the experience gained in the three cities in the first phase.

E. Assessing Progress, Understanding Handicaps

The differences among the projects described here shows how difficult it is to generalize about probable factors in success. The information available from several projects suggests the importance of the following factors:

-- A dedicated, articulate project leadership able to devote substantial time to the work;

- The continued interest of the supporting NGO (not turning the key for the project);
- A capacity to undertake substantial campaigns for political acceptance and public awareness;
- Effective access to key policy makers at the local level (especially for projects that aim to change the status and role of waste pickers);
- A local or national context of support for informal work;
- Exposure to international developments in community action for MSWM;
- International funding for research and advocacy.

The socio-environmental approach has much to support it theoretically--it incorporates recent principles of waste management, it integrates pressing social and environmental issues, it recognizes socio-economic realities (e.g. waste pickers will be around in poverty-prone cities for as long as valuable materials are discarded). Its acceptance in practice is, however, hampered in many ways. Four of the main ones I will touch upon here are:

1. The entrenchment of the conventional approach and its reinforcement by international aid;
2. The lack of people, research and technical expertise and financial resources to support efforts for change;
3. The difficulties of economic and organizational viability;
4. The lack of interest of the main environmental movement groups in Southern countries in MSWM.

1. At present the training for, and international assistance to, MSWM in developing countries strongly reinforces a technico-managerial approach that is devoid of broader environmental and social considerations. In general, MSWM, although very costly for cities, is given low priority in any case; when financial support is provided it goes to sanitary landfilling techniques, compaction vehicles, containerization, computerized routing, even controls on informal waste recovery. The socio-environmental approach conflicts in a number of ways with conventional management, so without frank discussion between municipal managers and proponents of the socio-environmental approach, little progress can be made towards integration of principles and flexible practice. Now that MSWM is being taken up in major aid projects more and more, it is important that those with experience of socio-environmental approach should make their points of view known to the major donors in urban environment.

2. NGOs have little prospect of achieving change in municipal policies unless there is adequate research to demonstrate the importance of informal waste recovery and recycling. NGOs need to undertake pilot projects to show that there is a real possibility of making the relations of informal workers more compatible with the conventional techniques, if not exactly "integrated." The research must be social, economic, and environmental.

There are currently few people with expertise in MSWM, waste trading, or recycling who can assist the NGOs. The engagement of research institutions in work on socially integrated solutions to waste problems is needed. There is no organization with both the interest and funds to undertake detailed independent evaluation of relevant projects throughout the developing regions. The International Reference Centre for Wastes Disposal of the Swiss National Institutes of Technology is the only institute gathering information on initiatives worldwide, but the two person team cannot do much to directly advise local projects, especially on research and evaluation. Improvement in research techniques is likely to come from internationally-funded research projects of Northern universities which can support some training for local researchers. [For instance the proposed project for a Solid Waste Information System of the Technology Choice Enhancement Project of the Pacific Basin Research Centre, Harvard University (Montgomery & Rosenberg 1995)]. The Netherlands and Switzerland are also contributing in this direction. The Dutch Development Assistance Agency has recently given a grant to Wastes Consultants (Gouda) for an Urban Waste Expertise Programme (Waste Consultants 1994).

3. Work with waste pickers to change their status, skills and social acceptance, especially in cities where pickers have minimal earnings, is the most difficult task for organizations devoted socially-sensitive waste management. Pickers are the most disadvantaged of informal waste workers, having the lowest levels of literacy, lowest earnings, and worst working conditions. They are socially stigmatised and are often believed to be habitual thieves. In South Asia they usually have low levels of self-esteem. They are often "outsiders" with few local connections, or network support; thus they are often transitory, and unamendable to, or unaware of, trade organization. Unless special arrangements are made (such as designated working areas) their work usually interferes with the official waste management system, and is thus condemned by municipal managers. Where pickers are mainly women and children the problems of social development are even more complicated (Huysman 1994).

As is usually the case in social development work for the very disadvantaged, resources are required over long periods and a requirement to become self-sustaining in a short time may be quite unrealistic. In cities where pickers can earn more than other unskilled workers, and where there are established policies to recognize and assist informal workers, public, corporate, professional and NGO co-operation may be achieved, as seems to be the case in Surabaya.

Projects experimenting with processes such as composting of solid wastes may require much support over periods of time unless there are rather special conditions such as a high and close-at-hand demand for compost and entrepreneurs like waste dealers interested in expanding into compost-making. (This has been the case with the decentralized compost projects of Java initiated through the project of the Centre for Policy and Implementation Studies and the Harvard Institute of International Development) (HIID, 1993).

On the other hand, the recycling of materials to produce consumer goods may benefit from technical advice and loans but should not require subsidies. Again, projects that focus upon economically-viable clients (e.g. established waste dealers) are clearly better able to promote trade organization and community co-operation. While funds and assistance are required to improve the environmental aspects, marketing co-ordination and so on, waste dealers and their workers can readily become self-supporting. What has inhibited more thinking about how dealers and pickers or

independent itinerant waste buyers can work better together is the fact that traditionally waste dealers manipulate their primary suppliers to protect themselves from the vagaries of waste materials markets. The current work of the Centre for Advanced Philippine Studies in Manila to develop computerized data bases for waste traders and recycling industries is an innovative approach to problems of markets for recyclables in large cities (Lapid, forthcoming).

4. If the socio-environmental approach to MSWM is really to become a "movement" it needs the general support of the established environmental organizations within the country or region. Except in some Latin American countries, this has rarely happened because environmental groups have focused on rural issues such as deforestation. As the interest in the "brown" concerns of cities develops, there are many urgent claims to their attention. Issues of hazardous wastes are naturally regarded as more serious by environmental organizations than issues of general garbage (although, in reality, wastes are intermingled). International incentives may be needed to interest major environmental organizations in integrated solid waste management. The International Institute for Environment and Development in London has taken a lead, organizing workshops on recycling and waste recovery/trading at the conference on Cities and Sustainable Development conference in Manchester in 1994 (Mitlin and Satterthwaite 1994).

F. Conclusion

Projects such as those mentioned here have drawn on an interaction of ideas about community-based waste management from Northern and Southern cities. Although guidelines for replication cannot yet be specified, North-South and South-South collaboration, especially in making practical comparisons, should continue to strengthen the socio-environmental movement. There is a need to bring together the best features of different approaches and avoid debilitating conflict among the major stakeholders in MSWM.

In conclusion, let me emphasize that there are so many context-specific factors that affect the functioning of community-based development work that merely knowing the general goals and strategies of one group does not necessarily help other groups decide whether a similar approach will succeed in their cities. In the absence of good comparative research, and consistent international networking, local experimentation with candid evaluation and monitoring are likely to remain the processes by which action groups decide among strategies for achieving change.

END NOTES

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2. There is more experience with organizing informal workers, including waste pickers, into associations in major Latin American countries such as Mexico, Brazil, Chile, Peru and Argentina than elsewhere in the developing regions. There is a more sophisticated NGO culture and greater experience with co-operative organization in general. Waste pickers are likely to have more basic education, and more social

mobility, while high levels of recyclables in waste streams allow them to gather larger and more profitable amounts than, for instance, pickers in South Asian countries. The examples of picker co-operatives in Monterey and Mexico city are often mentioned ((Rodriguez, 1993).

Other examples of NGO work for picker organization are: 1. Centre for Ecology and Development, Santiago, Chile: organized a "union" of "cartoneros" (pickers), has begun to link work of cartoneros to needs of the city by liaising with the municipality, exploring facilitating small recycling enterprises for the unions. This Centre has done similar work in Penalolen, Greater Santiago. In 1991 a waste-trading centre was started as an experiment in eliminating intermediary traders to improve profits for pickers. 2. Institute of Political Ecology, Santiago: obtained assistance from Fund for Solidarity and Social Investment to build a waste-buying store, and develop a recycling manual for small enterprises. They negotiated in 1993 to bring the Municipal office of Vitacura and cartoneros together to work on improving recycling (Rodriguez, 1993). There have been, however, many examples of failures of organizations for waste recovering and recycling, which are rarely documented. See for instance the example in Curitiba in the early 1980s (Gilhuis, 1988).

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