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Partnerships for solid waste management in developing countries: linking theories to realities[☆]

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Abstract

Both public and private sectors are active in management of solid waste in developing countries. There is an emerging trend in encouraging the private sector to enter into solid waste management (SWM) operations, and attempts are being made to formally link the public and private sector operators. Such linkages may improve the efficiency of the entire sector and create new opportunities for employment. However, any change in the present order may inevitably affect the lives of millions of most vulnerable and marginalised population in the cities of the developing countries—both as users and providers of the service. It is worth revisiting the fundamentals of partnerships from the perspective of relevant theories. Two pertinent sociological theories, functionalism and general systems, view institutions as composed of interdependent parts that must adapt to survive in a changing world. The economic theory of property rights assigns rights of ownership as the reason for the private sector to excel. Economists also argue that hybrid organisations composed of both public and private sector hold a great deal of promise. These hybrid sector organisations provide a means to combine the efficiency and expertise of the business world with public interest, accountability and broader planning of government. These new organisations are important as alternatives, not replacing the existing order, but balancing the roles played by the public and private sector agencies. The competition theory of management science may be adapted to the concept of complementation in place of the traditional view of competition. This theory explores the values of co-operation among organisations to best exploit the comparative advantage of each. In the light of above theories, this paper analyses the possibilities for public/private partnership using the example of SWM as a sub-sector. The paper discusses necessary conditions for harnessing optimal benefits from this arrangement. Poorly designed attempts for partnership may actually worsen the situation by opening new avenues of inefficiency and corruption. Other caveats and barriers for integration are also presented. The paper

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concludes that partnerships will not be effective and sustainable unless proper incentives for both sectors are built into the design. Finally, the authors debate whether there is a need for a facilitating agency for designing and nurturing partnerships.

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1. Introduction

Solid waste management (SWM) is an important environmental health service, and is an integral part of basic urban services. From the earliest primitive human society there have been attempts to safely dispose of solid waste. In the early days, disposal did not pose difficulty as habitations were sparse and land was plentiful. Disposal became problematic with the rise of towns and cities where large numbers of people started to congregate in relatively small areas in pursuit of livelihoods. On one hand, the density of population increased in these centres of congregation and therefore wastes generated per unit area also increased. On the other hand, available land for disposal of waste decreased in proportion. SWM thus emerged as an essential, specialised sector for keeping cities healthy and liveable.

The challenges of the SWM sector are continuing to grow with the growing urbanisation. Urbanisation has become a worldwide trend, and is particularly rapid in the developing world. The urban population of the world is expected to double to more than five billion people in the next 35 years, with 90% of this growth taking place in developing countries ([World Resources Institute, 1997](#)). In tandem with the growing urban population, the production of solid waste is also increasing. A report by the World Bank estimates that solid wastes in urban areas of East Asia alone will increase from 760,000 tonnes/day to 1.8 million tonnes/day within 25 years, while waste management costs will almost double from US\$ 25 billion to US\$ 47 billion by 2025 ([Urban Age, 1999](#)). It is clear that SWM in future will expand in scope and complexity. It will also consume a considerable proportion of city budgets. The SWM sector, therefore, deserves careful attention for striking a balance between quality of service and cost effectiveness. This challenge is particularly significant for developing countries, where resources are limited but urbanisation is occurring rapidly. This article discusses the possibilities and challenges of partnership between public sector and private sector for better SWM service delivery from theoretical as well as practical points of view.

2. Public and private sector actors in solid waste management

Both public and private sectors are active in handling SWM in developing countries. Actors from each sector are presented below in view of their particular advantages and constraints.

Public sector agencies in SWM generally mean municipalities or city corporations. They operate under certain inherent limitations. For instance, rigid laws, under which they must work, make it difficult to bring change to operational matters. Moreover, since much of the work such as street sweeping, loading and unloading waste and drain cleaning are done manually, the public

sector must employ a large number of people. Consequently, labour unions often wield considerable influence over the whole organisation. This sector also suffers from low productivity of staff, inadequate supervision and unsatisfactory equipment. Politicians, who find the SWM service an important instrument to retain patronage and popularity, may exert influence on the management also.

Outside the pale of the formal public sector exists a vibrant ‘informal’ private sector¹ in almost all cities in the developing world playing a significant role in SWM. All people not engaged by the public sector whose livelihood solely or partially depends on solid waste may be grouped as the private sector. Most of the private operators are ‘informal’ workers. The term ‘informal’ sector is used to refer to the economic activities which have the following characteristics: non-permanence and casualness, outside the scope of existing company law or government regulations, carried on in small-scale by less capitalised establishments mostly relying on household labour (Salahuddin & Shamim, 1992). Informal sector activities are not regulated or controlled by government agencies—they exist and operate because of market forces or other socio-economic factors (Ali, 1999). The above definition very well describes the activities carried out by the multitude of people who depend on solid waste to earn or supplement their income. In low-income countries the size of the informal sector is significant because of poverty, unemployment or underemployment. There are also comparatively formal entities active in the sector. These are community-based organisations and small business enterprises. Overall, private sector operators may be grouped in the following way.

2.1. *Waste pickers*

Millions of poor people in the teeming cities of the developing countries support themselves and their families by directly or indirectly participating in waste collection and recycling. For instance, over 20,000 women work as paper pickers in Ahmedabad city (Salahuddin & Shamim, 1992). It has been estimated that up to 150,000 waste pickers are active in Municipal Corporation of Delhi area (Chaturvedi, 1998). In fact, all cities in the developing world have a sizeable population that ekes out a living from picking waste generated by their wealthier neighbours. This is the most vulnerable and marginalised group that comprises mostly of women and children.

2.2. *Itinerant/stationary waste buyers*

Itinerant buyers are people who walk around town to buy any waste material that they can sell for a profit such as paper, plastic and glass bottles and metal cans. There are also stationary buyers who operate shanty shops to buy waste brought to them by others including waste pickers. These are very small-scale operations.

2.3. *Small-scale recycling industry*

Small businesses involved in SWM are mainly recyclers of waste material. They purchase items like glass, metal cans and plastics. Using these wastes as raw materials, they manufacture saleable

¹The informal private sector comprises of business initiatives using very small capital relying mainly on household or individual labour, and is outside government regulations (e.g., itinerant waste buyers).

products. Their suppliers may be waste pickers, itinerant and stationary waste buyers, even micro-enterprises. These are self-sustaining operations that remain in existence as long as the demand for their product remains. They may have informal linkage with the public sector as buyers of waste from the public sector SWM workers.

2.4. *Large-scale recycling industry*

Large factories are industrial establishments that buy suitable waste material in bulk to use in their manufacturing process. Compared to small industries they buy waste in large quantities. Their suppliers may be itinerant/stationary waste buyers or any operator who can store waste until a saleable quantity is reached. These are profit-oriented operations whose sustainability depends on the market forces.

2.5. *CBOs*

Community-based organisations (CBOs) are informal institutions that are formed by members of a community to address a need such as a park, sports facility or community centre. Sometimes these organisations respond to deplorable environmental conditions in their locality by initiating SWM operations, mainly primary collection and street cleaning. They are usually run by activist youths with support from the community. Providing a social service is usually the primary moving force in such operations. Breaking even financially is sought rather than making a profit. Sustainability of this type of initiative depends on the activists of the project to attract financing and remain accountable.

2.6. *NGOs*

Non-governmental organisations (NGOs) may enter into SWM related activities for a number of motives—social concerns for waste pickers, introducing new recycling technology (e.g. composting), extending micro-credit, concern for the poor environment in which their beneficiaries live, or simply because they are contracted by other agencies to implement a project. They are driven mainly by the need to achieve their goal, and not to make profit. Their scope of work may include primary collection, rehabilitation of waste pickers, building awareness in the communities, dissemination of information, research and the introduction of new technology. NGOs traditionally work closely with communities and there is usually good co-operation from the community members. Sustainability of NGO initiated operations depends on the length of their ‘interest’ in the project or on external source of funding. However, sometimes the initiatives may be picked up by entrepreneurs and developed into self-sustaining enterprises.

2.7. *Micro-enterprises*

Micro-enterprises are for-profit business operations. These are run by entrepreneurs. Entrepreneurs are by definition innovators and agents of change. Their focus is on creativity, innovation and the constant search for new products or process ideas. They want to know what

their customers want and strive to deliver that at the best competitive price (Carson, Cromie, McGowan, & Hill, 1995).

Micro-enterprises enter into SWM activities because they see a gap in service delivery and existence of a demand for fulfilling that gap. They find this niche and charge for their services. For example, they may find a demand for house-to-house garbage collection (primary collection) that the municipality cannot provide, and seize the opportunity by providing the service in a neighbourhood for small charges to the households. Hundreds of such micro-enterprises are now in operation in larger cities in Bangladesh. Using tricycle vans, they provide house-to-house waste collection for a small monthly charge to households. Any item of value is salvaged and sold to small or large recycling industry to maximise profit. Their approach is very much demand-responsive, and they keep close contact with their clients. As their operation is profit-oriented, there is good sustainability potential as evidenced by their existence for a good number of years in Bangladesh.

The private sector, as described above works alongside public sector in many developing countries. The extent of private sector depends on a number factors including demand for the service, ability to pay, poverty and regulations. When it comes to privatisation, governments generally only consider full privatisation without considering the partnerships with all levels of the private sector.

3. Concepts behind effective public/private partnership

Public–private partnerships (PPP) are considered as alternatives to full privatisation² in which government and private companies assume co-responsibility and co-ownership for the delivery of city services. Through these partnerships, the advantages of the private sector—dynamism, access to finance, knowledge of technologies, managerial efficiency, and entrepreneurial spirit—are combined with the social responsibility, environmental awareness, local knowledge and job generation concerns of the public sector. Under mutually favourable circumstances it is advantageous to have both the public and the private sectors playing active roles, thus capitalising on the strengths of each sector.

PPPs could offer the best of both sectors, and one may believe that such alliances are naturally inclined to form. In reality, partnership between the two sectors is not easy to achieve. Certain enabling environment is necessary to foster trust and working relationship. PPP is more than the public sector merely offering co-operation to the private sector to facilitate the profitability of local firms. It is far more than occasional meetings between the city council and local business organisations. Partnerships are shared commitments to pursue common goals (Kolzow, 1994). Some enabling conditions that are required to form successful PPPs are:

- A positive culture that encourages leadership and citizen participation, and that is related to the long-term development concerns of the community.

² Full privatisation is the arrangement where the public sector completely withdraws from rendering service delivery, and opening up the field to the private sector. In this case the private sector assumes the total responsibility of service delivery, while the public sector shifts towards regulation and protection of public rights.

- A realistic commonly accepted vision among the public sector, private sector and the community members that is based on the area's strengths and weaknesses as well as on a common understanding of the potential for the area.
- A participatory ethos in concerned organisations that can blend the self-interest of members with the broader interest of the community.
- Continuity of policy in the sector including the ability to adapt to changing circumstances and reduce uncertainty for business and individuals who want to take economic risks.

4. Possibilities of public/private partnerships for better SWM

SWM practices in developed countries progressed from 'no-system' to an increasingly centralised 'municipal system'. The classical approach to SWM, therefore, is to consider it an 'urban planning' problem or a public health issue. According to this approach, the municipal authorities are the main actors in the field (Baud & Shenk, 1994). Cities in developing countries generally followed this model and it is deemed that the responsibility for managing solid waste primarily rests with the municipal authorities. However, as described above, a number of private sector operators with varying capacity are adding valuable contributions to the SWM sector. The question then arises whether a synergy in the form of partnership between the two sectors may be achieved or not to deliver better SWM services?

Formal public/private partnerships will increase the scope of activities of the private sector. This arrangement may improve efficiency of the entire SWM sector, and create new opportunities for employment. On the other hand, any change in the present order may inevitably affect the lives of millions of most vulnerable and marginalised population in the cities of the developing countries. Therefore, careful analysis of theoretical and empirical data on public/private partnership as applied to SWM is much needed. This will aid in ensuring effective public/private partnership and optimum resource utilisation, and minimising the related risks.

5. Theoretical background of PPPs with reflections on SWM

Theories pertaining to PPPs add to understanding the validity of such arrangements with respect to SWM. Here we present a review of relevant sociological, economic and management theories.

5.1. Sociological theories

Public/private partnership for SWM may be viewed in light of sociological theories of functionalism and general systems as elucidated by Abuyuan (1999). According to the functionalism theory institutions must survive by adapting to changing circumstances by means of interdependence on its various branches or partners. PPPs in SWM adapt to this theory well if we view the partners as parts of a whole organisation that delivers services. Here the partners (public and private) may be seen as interdependent organs of a larger organisation each having its specialised function working as a whole towards the common goal of delivering effective service.

The general systems theory analyses systems from three different viewpoints: (1) system relations to determine the nature of relationship between various components of a system; (2) system effectiveness to judge how satisfactory are relationships among various components of a system for the whole system to survive or make optimum use of resources; and (3) system dynamics to investigate what forces a system to change and the direction in which the change occurs. This theory is also relevant to PPP for SWM. Indeed it is a prerequisite to have a clear role demarcation and defined relationship to make PPP work in the SWM sector. It is necessary that the private sector be given the role in which they have the maximum potential to excel. For example, the private sector has a comparative advantage over the public sector in the case of primary collection. Conversely, financial and management inputs for operating secondary collection may be beyond the capacity of most private sector agencies, and it may be better to leave this activity to the public sector. It is also important to make an assessment on how comfortable the partners are in a PPP arrangement. Adjustments in the way each sector works may be necessary to nurture and sustain the partnership so that optimum resource utilisation is ensured. The partnership arrangement should be considered dynamic, as various factors like population growth, new regulations and acquisition of new skills will necessitate change in the arrangement. The force and direction of change in the work performed by the private and the public sector should be carefully weighed to maintain the optimum balance.

Both functionalism and general systems theory helps in visualising partnerships as adapting, living beings vying for survival in a changing world. This perspective is valuable in analysing the need, evolution and future direction of partnership.

5.2. *Economic theories*

Numerous comparative economic studies have been conducted that contrast similar public and private corporations. The majority of evidence shows that the private sector consistently generates higher profits and operates more efficiently. Economists point to the Property Rights theory and the belief that it is the rights of ownership that creates incentives to excel (Hart, 1998). In the private sector, people and commercial enterprises succeed by paying no more than necessary. Businesses pay the market rate—it pays no more than necessary for labour, supplies and capital. In contrast, government also procures goods and services from the market for providing public service, but market competitiveness is not applied. The result is higher cost.

In recent decades there has been increasing concern about the cost of government, and at every level of government, there have been serious budget difficulties (Cox, 1996). Meanwhile, an alternative economic arrangement has been emerging. A diminishing distinction between the public and the private sectors was noticed by Dahl and Lindblom as early as 1953 (Larkin, 1994). As the combination of the two sectors was becoming more widespread, a new term of “mixed economy” was coined to describe such arrangements (Hull & Jhern, 1983 in Larkin, 1994). Bozeman (in Larkin, 1994) examined some characteristics of the mixed economy in detail. He argued that business firms are becoming more independent of government agencies and many government agencies are becoming more like business firms. He observed that both public and private sector agencies behave in a traditional manner with regard to certain issues and display the behaviour of their counterpart in other matters. Bozeman also found the formation of hybrid organisations making the dichotomy of public and private sector even less distinctive. Etzioni

(in Larkin, 1994) argued that these hybrid or ‘third sector organisations’ hold a great deal of promise for many of our domestic problems. These third sector organisations provide a means to combine the ‘efficiency and expertise’ from the business world with public interest, accountability and broader planning of government. According to Etzioni, the new organisations are important as alternatives, not replacing the existing order, but balancing roles played by public and private sector agencies (after Larkin, 1994).

The above concept is pertinent to PPP for SWM, as this is a basic service that must be provided to all citizens, and profit cannot be the main motive. The government and public agencies cannot completely withdraw from this sector because this has a public health and public good dimension. The question, therefore, is how to minimise the cost and maximise the resource utilisation, while maintaining the best possible quality of service. A hybrid or mixed organisation composed of both the private and public sector may offer such opportunity.

5.3. *Management theories*

To meet the needs of society three distinct sectors—public, private and non-profit—have emerged although their boundaries are not always completely distinct. Each of these sectors has its comparative advantage. Traditionally each sector used to restrict itself to its own sphere of activities. Lately, however, organisations have grown to realise that much value can be created by co-operating with others outside of its sphere. Aickenhead (1999) has investigated various theories of management to reflect upon public/private partnership, a summary of which is given below.

Traditionally partnership among organisations occurred rarely and on a small scale. The perception of the business world has been one in which the players fight bitter battles, not satisfied with only winning but needing also to see others lose. But increasing demand, complexity and limitation of resources have forced organisations to recast their views. They have begun to realise the importance of developing a collaborative advantage. It is often no longer possible to win when others are losing. The focus has shifted from ‘win–lose’ to ‘win–win’. Resource dependency theory posits “alliances and networks operate as alternative mechanisms to markets or hierarchies for addressing specific strategic needs” (Saxton, 1997 in Aickenhead 1999). The ‘co-opetition’ framework offers a new way to view the interaction of organisations. It adds a player to the traditional value net of customers, suppliers and competitors. This new element is called ‘complementor’. “A player is your complementor if customers value your product more when they have the other player’s product than when they have your product alone” (Brandenhurger & Nalebuf, 1996 in Aickenhead, 1999). The definition of competitor is the opposite of that of a complementor. A competitor makes the product of its rivals less attractive. It is common for organisations to fill both the roles of competitor and complementor at different occasions. This increases the chance of co-operation. However, before an organisation can see the value of co-operation it must emerge out of two traditional mind-sets: the ‘business-as-war’ and the ‘either–or’. The first of these parochial ideas views all players as potential enemies that should be vanquished. The second does not allow exploration of alternative relationship between organisations. To help avoiding these biased, detrimental approaches it is important that an organisation learns to use the power of perspective. An organisation should draw its value net from the perspective of itself as well as other players. Then the benefits of co-operation amongst

the players will become clear. It is particularly important that an organisation draws the value net of any new entrant, as there is a tendency to view new entrants solely as competitive threats rather than complementary opportunities. Finally, the theory of co-opetition is not simply about being nice. It is about co-operating with others to best exploit the comparative advantage of each organisation. In fact, a complementor can and should suffer a little but overall benefit from the arrangement. The core precept of co-opetition theory is that it does not matter if others win—or lose—it matters if the organisation itself benefits (after [Aickenhead, 1999](#)).

Transpiring the above spirit to partners in SWM could be difficult. For example, the public sector may be reluctant to relinquish power to the private sector. Being seen as the provider of service is very appealing to the politicians as this ensures a rapport with their constituents. Transfer of part of the services to the private sector greatly dilutes their image as “friends in need”. Under partnership arrangements, municipalities may also feel as left out with responsibility but without means to intervene when necessary. On the other hand, intense competition among the private providers may make the opportunity less lucrative. With careful planning and participation from all sides, however, such difficulties may be minimised.

6. Particular challenges for PPP in developing countries

[Onibokun and Kumuyi \(1999\)](#) suggest that policy frameworks and implementation strategies must be accompanied by new forms of governance to increase efficiency and effectiveness, and maximise popular participation in service provision. An increasing interest in public–private–community partnerships is evident in the sector. But this is often related to technical or financial issues, rather than with political, sociological and environmental relationships. [Onibokun and Kumuyi \(1999\)](#) further noted that techno-financial approaches have failed to develop an institutional set-up necessary to empower citizens to participate effectively.

Most public policy experience with partnerships has been in core countries of the world economy like Britain and the United States. Such countries are radically different from their developing world counterparts. [Mitchell-Weaver and Manning \(1991\)](#) pointed out that developing countries began adopting PPPs as an approach to economic development during the 1980s. This was done primarily in response to pressure from the World Bank, IMF and First World donor agencies like USAID. As with other development concepts, acceptance of PPP mechanisms reflects the dependence of governments in developing countries on outside assistance to finance projects in both public and private sectors of their economies. PPPs represent an industrialised-country public policy prescription applied in developing country settings. If PPPs are to contribute to developing countries, they must become developing country institutions, fitting the prevailing settings, and meeting the particular needs of these countries. The overriding question facing development scholars and policy analysts today is the appropriateness of PPPs to the needs of developing countries.

There is marked contrast between developed and developing countries in terms of relative wealth, decision-making autonomy, economic complexity and structural diversification. Another very important difference is the impact of the informal sector on the national economy in developing countries. Almost all developing countries have vibrant informal labour markets and small-scale grey market producers. The importance of the informal sector has also increased in

developed countries. But in many developing countries with very large and rapidly growing populations, it is the informal sector that caters to the urban families. For the countries with large metropolitan cities the informal sector institutions should be stabilised and brought into the mainstream economy for growth. The informal sector should be encouraged to take part in market expansion. The relevant question is when and how can PPPs promote informal activities? Developing countries may be particularly well suited to using PPPs to link government, the informal sector and international organisations. The question remains how to adapt PPPs to developing country needs. Approaches for PPP must incorporate adaptation and change necessary to bring the informal private sector within the mainstream financial and legal net.

7. Are conditions right for PPP in the SWM sector in developing countries?

The key elements required for PPP—a public sector with less than satisfactory efficiency and capacity, a private sector willing to undertake some parts of the activity, and the general public willing to pay the private sector for the extra service—are all present to some degree in most developing countries. The public sector would be inclined to PPP because SWM consumes the majority of municipal budgets, and PPP may offer considerable savings. For instance, municipal corporations spend typically more than 60% of operations budget in primary collection (Ali, 1999). This cost can be partly offset by having partnership with the private sector. Municipalities also tend to suffer from chronic budget deficits, have much difficulty in expanding their work force, and have limitation in meeting public demand, all of which could further provide incentive for collaboration with the private sector. Furthermore, reducing corruption and resisting political influence that hamper efficient service delivery could be added reasons for the public sector to consider PPP.

An avenue of opportunity exists for the private sector in SWM, as there is a demand from the public that cannot be met by the public sector. The private sector has the capacity to tackle the challenge as capital cost or technological know-how requirement is low. It has been demonstrated that people are willing to pay for this service, therefore, a sustainable source of income is present.

The people—the third tier—are willing to pay because they get better service and cleaner neighbourhood. The private operators provide solutions that are appropriate, demand-responsive and low-cost.

There are also a number of hurdles against attaining PPP in the sectors. Firstly, the legal and regulatory framework is generally weak in developing countries. This hampers formal integration of the private and public sector. Secondly, vested interest groups that benefit in terms of financial gain or power play under the present arrangement would want to maintain status quo. Thirdly, capacity within the public and private sectors may be lacking to cope with the new way of doing business. For example, introduction of house-to-house primary collection may rapidly increase the volume of waste to be handled at secondary points. The public sector may not be ready to handle the sudden increase in waste quantity. Such mismatch could actually exacerbate the present state of service. Fourthly, if transparency, fairness and accountability cannot be maintained it may open up the sector for further corruption and inefficiency.

8. Will effective PPP for SWM evolve naturally?

As mentioned earlier, it appears that the basic ingredients for PPP formation in the SWM services in developing countries are in existence. In fact, it has already been introduced or being tried in some countries. While in other countries the public and private sectors have been working in parallel in absence of partnership or proper planning. For sustainable PPPs certain enabling conditions must be met. The question then arises whether PPP will form naturally by pressures of mutual interest or whether a facilitating role by an external agency is necessary for the convergence. For sustainable and effective PPP for SWM, both public sector and private sector must adapt to a new way of doing business. It is difficult for public bodies such as municipalities to change their traditional role of service provider to a new role of service partner and regulator. Conducive policies and institutional framework are necessary for the above changes to take place. At the same time public agencies and local government require capacity building to address new challenges. Since the capacity in local government is small to shift from a traditional role of service provider to a new role of a regulatory body, it is felt that facilitation in such transition is vital. The facilitator can build the capacity in both public and private sector to cope with the new way of doing business through partnership. Public awareness and community participation also are no less important items where a facilitator can provide input.

The second role for a facilitator could be to assess risks of PPP and devise ways to minimise the risks. Some of the possible risks are mentioned here:

- As pointed out earlier, a large number of people depend on solid waste for their livelihood. It is inevitable that PPP would affect their lives in some way. Snel (1999) cited an example in Pune, India where a for-profit business negotiated a waste collection contract in an area where a group of waste picker women used to conduct house-to-house collection. The new business acquired the sole right to buy recyclable materials and threatened to drive away the waste picker women. Private operators may jeopardise the livelihood for large numbers of waste pickers, and may also try to monopolise waste management in certain communities. One must remember that these are the most vulnerable people having the least power to absorb the shocks of change.
- Weak regulatory capacity of the public sector may lead to exploitation of vulnerable groups. For example, some private waste collection businesses are employing children as young as 8–10 years. They frequently suffer from cuts and bruises while collecting waste because their employers do not provide them any protective gear (Begum, 1999).

Ensuring the spreading of the benefits of PPP equitably among the high-income and low-income areas add to the challenge. There is also the possibility of resistance from the public workers' unions. Furthermore, there is the challenge of monitoring, accountability and transparency in the whole process. Finally, the facilitating agencies could document the process and disseminate the lessons learned for wider replication.

9. Conclusion

The SWM sector in developing countries will face increasing strain under rapidly growing urbanisation. Alternatives to the present mode of delivering service by the public and private

sector working in isolation may become imperative to maintain a minimum quality of service. Theoretical and practical considerations indicate that there is a good potential for public–private partnerships in the SWM sector in developing countries. However, the conventional approach to public–private partnership in the developed countries, where large conglomerates and government agencies form alliances, may need to be modified for developing countries. A vertical integration of SWM services between small-scale operators and the public sector may offer a better choice in these countries.

Such arrangements could improve the efficiency of the entire sector. Theories suggest that under proper conditions partnerships can thrive. To create conducive conditions, the design and approach for this partnership must be carefully constructed. Poorly designed attempts for partnership may actually worsen the situation by opening new avenues for inefficiency and corruption, hitting hard the livelihoods of the most vulnerable people.

Partnerships will not be effective and sustainable unless there is incentive for both public and private agencies to enter into it. Beneficiaries of the present mode of service will resist any change. Therefore, a new set of incentives must be designed for both private and public sectors. Other barriers for meaningful partnership include weak structural, financial and legal framework. These weaknesses provide outlets for lack of transparency, fairness and accountability—the underpinnings of effective partnership. Repressive regulation or excessive competition may drive out the private operators. Partnerships must also be dynamic, adjusting to new situations as both private and public sector agencies evolve in terms of scope and nature. Therefore, the design of a partnership calls for a balanced and measured approach. There may be a need for a facilitating agency to nurture partnerships with possible subsidies. Capacity for effecting proper partnerships does not exist in either public or private SWM agencies in low-income countries. Translating theories into realities requires research and advocacy, building political will and popular support. An independent facilitating agency that has no conflict of interest is necessary for bringing about successful partnerships for SWM service delivery.

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