

Solid waste management:

Improved capacity = less waste

Recommendations on capacity development

compiled by Adrian Coad

from ideas and experiences shared at the CWG-WASH workshop held in 2008 at Ouagadougou, Burkina Faso



CWG

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Author Adrian Coad

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1. What is capacity?

This booklet is about capacity development in field of solid waste management. What is capacity? What is capacity development?

Capacity development is often understood to mean attending training courses, conferences and study trips abroad. This booklet aims to show that capacity development involves much more than that. Capacity is much more than knowledge.

To some people the capacity of an organisation might mean the amount of solid waste that it can collect and recycle or dispose of each day. This understanding is more helpful than considering capacity to be the same as knowledge, because this definition considers that the knowledge and other resources within the organisation are being put to use. The capacity of an organisation is its ability to achieve its mandate and objectives. A solid waste management organisation should be concerned with more than handling a particular tonnage of waste because of the need to protect public health and ensure cleanliness, as well as the need to minimise environmental impacts and to optimise economic factors. However, it is helpful to consider that capacity is linked to output, in the broadest sense.

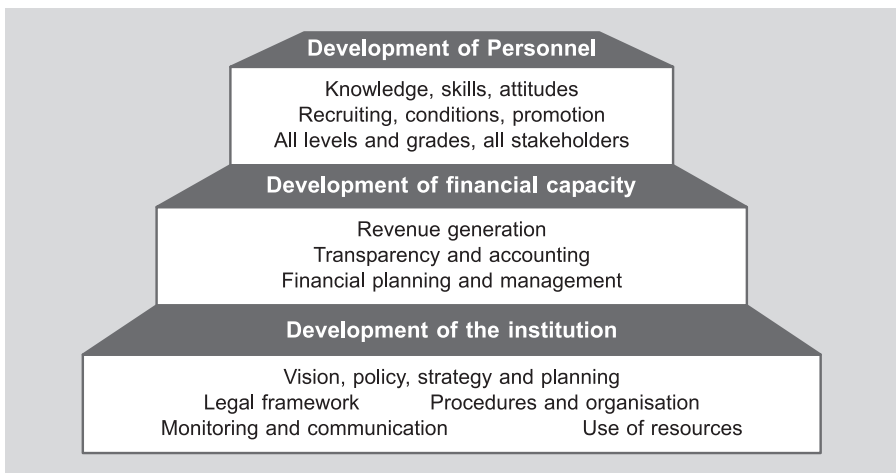


Figure 1: A representation of capacity development

2. Improved capacity = less waste?

The title of this booklet is "Improved capacity = less waste". It is true that an effective solid waste management organisation should be able to reduce the quantities of waste requiring disposal by means of waste reduction measures and recycling. However, the meaning of the title also includes the idea that capacity development reduces wastage of the resources of the organisation. The time, skills and ideas of the staff are not wasted. The investment in machinery is not wasted because good maintenance allows high productivity. These inputs are not wasted because the work is done in the most efficient way, because the methods used are well suited to the local conditions. The efforts of people outside the waste management organisation – the citizens who generate waste and informal sector recycling workers – are not wasted because of good co-ordination and communication.

3. Where did these ideas come from?

This booklet is based on the presentations and discussions of an international workshop, organised by the CWG¹ and held in Ouagadougou, Burkina Faso in December 2008.

The Workshop focused on situations in low- and middle-income countries and in transitional countries. The 63 participants came from 27 countries in Africa, Asia, Latin America, North America and Europe. Papers were presented on a wide range of capacity development subjects, including new concepts for training courses, legal aspects and working with communities, as well as a variety of case studies.



¹ There is some information about the CWG on the back cover.

4. The aims of this booklet

This booklet is written for political decision-makers and managers who are in some way concerned with solid waste management. It has been published with the following goals:

- To persuade decision-makers to take a fresh look at what can be done to improve the effectiveness of waste management organisations;
- To suggest measures that can best improve the knowledge, skills and attitudes of all employees working in waste management organisations;
- To encourage senior waste management practitioners to open the accompanying CD and to look at sections of the workshop report and the contributions that may be of interest and relevance.

This booklet has been written for busy people in the hope that it will suggest and communicate key points in an effective way.

5. More information

The CD-ROM included with this booklet includes much more information about the topics discussed at the workshop. The information on the CD includes a Workshop Report which goes into more detail about the issues covered only briefly in this booklet. Numbers in [square brackets] in this booklet indicate either the section in the Workshop Report where you can find a more detailed discussion of the points made here, or, if preceded by "#", a paper in Part B of the CD.

The accompanying CD-ROM includes

PART A Workshop report

- including discussions of ideas and innovations gleaned from the papers and case studies, and information about the Workshop

PART B Contributions

- Papers prepared for the Workshop, covering a wide range of aspects of capacity development
- PowerPoint presentations illustrating the papers;
- Reports of discussions and working group outputs;
- Other presentations and notes

PART C CWG Publication Series (Booklets No 1 - 4)

6. Benefits from capacity development

Capacity development encourages each employee to contribute more to the success of the organisation because she or he is more motivated and better informed. As a result, the staff are more like a team aiming for the same goal than a group of individuals kicking a ball in many different directions. Employees contribute ideas that improve output.

Many waste management organisations have wasted precious funds on unsuitable equipment, such as sophisticated waste collection vehicles or unproven techniques for treating or recycling waste. Capacity development can help to prevent this happening by

- giving staff knowledge and confidence so that they can counter the arguments of unscrupulous salesmen;
- encouraging decision-makers to listen to the technical arguments of subordinate staff so that their decisions are based on all available information;
- implementing transparent procedures for making decisions.

Suggestions in this booklet could lead to better relations with residents and with community and informal sector groups, resulting in fewer complaints, higher rates of recycling and more efficient use of resources.

7. The need for an integrated approach

“Integrated” is a word that is often used to refer to a more successful approach to solid waste management. This booklet and the workshop report on which it is based will explain the benefits of an integrated approach to capacity development in solid waste management.

All levels and grades of employees should be integrated into the training programme. This includes manual workers – such as sweepers and loaders – and all grades up to and including managers and other decision-makers. The three aspects of capacity development in Figure 1 – institutional, financial, personnel – should be integrated.

A common example of a failure to integrate capacity development is found when middle-level technical and management staff are given new ideas in training, but are not able to put these new ideas into practice, because their superiors are not familiar with these new ideas and the organisation is managed in a way that cannot accommodate them.

8. Making a start

Every situation is different, but here are some ideas: [#18]

- Take time to plan. Managers are often so busy with routine work and coping with emergencies that they have little time for planning. Delegating some duties is one way of making time for planning.
- Collect observations and suggestions from the all levels of the organisation. (The box below provides some explanation.)
- Set up working groups (perhaps one group for each of the three aspects – institutional, financial and personnel) to review suggestions, collect information and make proposals. These groups may operate for only a few months, but it is useful to define the responsibility on a longer-term basis for training and staff development.
- Look for start-up funding. In the long term, training and other aspects of capacity development should not depend on external funding, but it may be necessary to find assistance with the costs of setting up training programmes, preparing training materials, and training trainers.
- Capacity development programmes should be driven by internal demand. Capacity development should be seen as a process and way of working that continues indefinitely, so it is not sufficient to rely on an externally funded project that is designed solely according to the perceptions of outsiders.

Asking for suggestions

In traditional or conventional organisations, information and instructions flow only in one direction – from senior management down. In such organisations it may take some courage for managers to invite suggestions from subordinates. However, experience (famously in Japanese car manufacturing) has shown that employees at all levels can have useful suggestions and insights which can improve output in quality and quantity. It is important to show appreciation of suggestions. Information about, and explanations of, the response of management to the suggestion should be provided.

Asking for suggestions increases the commitment of employees to the organisation, and their motivation in their work. [#6]

9. Developing the organisation

The task of developing the capacity of a department or other organisation that is responsible for solid waste management is clearly a large and complex one, so the list that is provided here is by no means complete. Some of the key areas that should be looked at are:

- a) **Defining duties, responsibilities and chains of command.** Every department should have an up-to-date and comprehensive organisation chart that is displayed in many places and that is respected. All staff should have job descriptions that are specific and detailed. Organisation charts and job descriptions are useful tools that can reduce confusion and develop a sense of responsibility if properly used. [2.4.6]
- b) **Legislation** can be a support or an obstruction. Laws should be reviewed and revised from time to time. Some laws governing solid waste management date from colonial times and are not appropriate in today's world. Unnecessary restrictions in outdated legislation are often related to private sector participation, ownership of waste, revenue collection, other institutional arrangements and waste collection systems.
- c) **Involving others:** The private sector may offer specialist expertise, greater flexibility, or lower costs. Unfortunately, many instances of private sector involvement are marred by unsuitable arrangements or shortcomings on the part of local government – particularly inadequate contracts and poor monitoring. Capacity development can improve this situation [#5].

In situations where the municipality is unable to collect the waste from the whole urban area, community groups [#10] and informal sector workers [#4, #9] often provide valuable services. It is important that the local government agency can find a way to work together with such groups. Informal sector waste pickers often recycle considerable quantities of waste, reducing pollution and saving public sector expenditure. There is often a need to improve the way that these people are integrated into the local system.

- d) **Communication** with the public [2.4.7] should involve proactive use of the mass media, a well-run complaints and information system, and consultation with communities before decisions that directly affect them are made. Communication with political decision-makers and within the organisation are also very important.

10. Developing financial capacity

Clearly, the financial aspects of capacity development [2.4.9] are of great importance. Here are some suggestions.

Income

Combining the fee for solid waste management with the payment for electricity has been very successful in Mozambique [#18], because the electricity supply can be cut off if the two charges are not paid. The waste management charge is proportional to the electricity consumption so low-income households that generate less waste, pay less. A willingness-to-pay survey showed that even the low-income groups were prepared to pay more for an improved service.

Control of the funds

In many cities revenue that is collected for solid waste services is paid into a central fund and the amount that is available for waste depends on allocations made by the mayor. This means that there may be very little motivation to collect the fee and it is not possible to plan expenditure. An alternative arrangement is to establish a commercialised unit that has full control of its revenue and expenditure.

Use of the funds

In some cities expensive machinery is not operational because of delays in authorising small expenditures for maintenance. In such cases it may be wise to review the procedures for authorising expenditure.

Delays in payments to contractors may cause the contractor to go out of business, particularly in the case of small enterprises. This is not in the interest of the municipal client, because small enterprises can provide very useful collection services in areas that are otherwise difficult to serve. It is therefore wise to streamline and prioritise payment procedures.

Paying for training

Capacity development takes time and training is an on-going need, as new people are appointed or elected and as existing staff need new training and refresher courses. Therefore a plan is needed to ensure the funding for on-going training. In some cases it may be possible to charge for training (for example if training is offered to other organisations) [#3].

11. Personnel development – Objectives

Developing the capacity of the employees is not just a matter of sending them on training courses, although this is a very important part of it. Before considering training in detail, it is useful to consider the targets that we are aiming for and other aspects of personnel development which must also be considered.

Information, knowledge and understanding

We receive information from conversations, training sessions, printed material and the internet. This becomes knowledge when we regard the information as useful to us and worth retaining. Understanding is when the items of information fit together, when we are aware of the links, patterns or logic that join them together, and when we can apply knowledge in a new situation. Understanding of information may not come until we have used it several times, or have made mistakes – and learned from them - or have explained it to others (perhaps several times). With understanding comes confidence that enables us to state or explain what we know when we are under pressure. [2.3.1]

Skills

The objective of a particular training component may be to develop a skill, such as recognising different types of plastic so that they can be sorted for recycling, or reversing a truck, or dealing with a complaint, or conducting an interview. To develop a skill needs practice and feedback – to help us to improve our efforts until the required standard is achieved.

Motivation

Motivation is the inner desire that drives us to act. A person may have the necessary knowledge and skills, but if there is no motivation, (s)he will do nothing with them. Motivation may come from outside a person if there is the threat of a significant penalty if the required action is not taken, but the more effective and consistent motivation comes from within. With internal motivation we will do our best, even when no-one is watching.

Information tells us what should be done, skills are about how to do it, and motivation provides the reason why we do it.

Attitudes

Our attitudes [2.3.2] affect

- our selection of the incoming information that we wish to retain as knowledge
- the effort that we put into learning new skills, and
- our motivation.

We may try to hide our attitudes and we may sometimes not be aware of them ourselves. Others may see our attitudes more clearly than we do. Our attitudes are visible in our decisions and our behaviour.

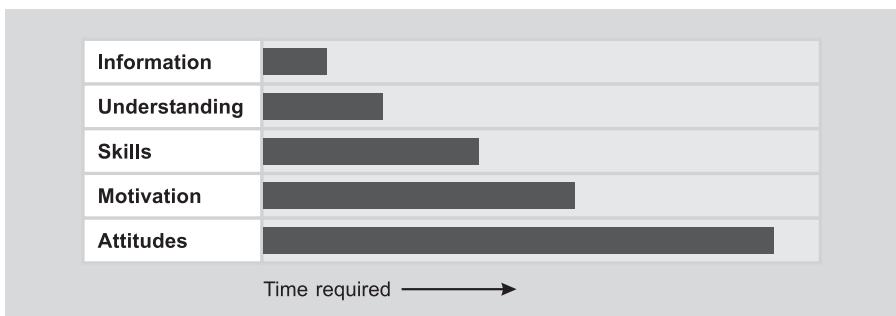
Attitudes towards colleagues – Do we work together as a team or are we competing with each other? What limits do we put on the help that we give to each other in our workplace?

Attitudes towards subordinates – Am I too authoritarian? What is my reaction if someone makes an honest mistake? Do I listen?

Attitudes towards the general public – Do I value their opinions and preferences? Do I keep them informed?

Attitude towards the private sector – Do I consider contractors as partners or servants? How do I feel about them earning a profit? Am I reluctant to monitor their work closely and fairly?

Attitude towards the informal sector – Do I acknowledge the benefits that waste pickers achieve? Am I prepared to respect them, co-ordinate with them? Do I respect their rights? [#4]



It is much often quicker to gain information and understanding than to change our attitudes, even if we are willing to change them.

12. Personnel Development – Opportunities

There are many ways of developing the capacity of the staff of an organisation. Education and training are the most obvious. They will be discussed in general terms in the following sections. In this section the stages of an employee's career will be followed to look for opportunities for capacity building along the way. Good staff create capacity.

Recruitment is the start of the process. In many organisations it is difficult to dismiss an employee, so it is important to employ the right people. Unsuitable appointments are sometimes made as personal favours or because of family relationships, and to avoid this it is preferable to require that decisions are made by an appointments panel that consists of a selection of senior staff, including some from the department or section where the candidate is hoping to work.

The starting point is a clear and detailed job description, so that there is no ambiguity regarding the duties that the successful applicant will be required to perform. Too much emphasis in the recruitment of professional grades is often put on the university qualification. Work experience, voluntary work and interests are often an important guide to a candidate's suitability, but CVs can be misleading and should be checked if possible. Assessments of knowledge and aptitude, written or oral, are appropriate for some positions. A probationary period of six months before the appointment is confirmed is advisable, provided that the confirmation of the appointment at the end of this period is not considered to be automatic, but dependent on performance.

Low salary scales are often a problem in public service. In Maputo higher educational standards were required so that salaries could be further up the scale. [#18]

It is common that manual and semi-skilled workers who are recruited into local government cannot be dismissed except in the case of serious misconduct. The combination of this permanent status with excessive recruitment has led to many problems for waste management organisations. In many cases the only other available arrangement is to employ casual labourers on a daily wage basis for less than the period that entitles them to a permanent job. Such casual labourers are likely to work harder than their companions on permanent contracts, but they may not receive proper training because their employment is temporary.

Supervision provides another opportunity for capacity development, but supervisors may have little time to provide much training and guidance. Nevertheless, supervisors should be encouraged to see training as part of their role and should be able to recommend that particular employees are sent for specific training when a need is identified. Supervisors of manual staff should have a means of transport if they are required to supervise operations in a number of locations.

Discipline may help or hinder capacity development. Punishment of time-wasting, dishonesty and careless mistakes is necessary. However, among professional staff it is important to create an environment in which initiative is encouraged, and so mistakes made for the first time should be regarded as learning opportunities. If mistakes automatically attract punishment and exclude promotion, there will be less initiative, less activity (because the best way to avoid doing anything wrong is to avoid doing anything) and less learning. Mistakes that are covered up can cause serious consequences, so it is better for this reason also to encourage employees to admit when they make a mistake.

Promotion should be based on merit rather than years of service, but it is very difficult to assess merit in an objective way. In some cases the opinions of subordinates, submitted anonymously, are used in the assessment of merit. A good supervisor or manager allows subordinates additional responsibility in small steps and observes how the employee handles these extra duties. Intense competition for promotion between colleagues can prevent team work and reduce the capacity of the organisation.

Departure When an employee resigns, retires, moves to another department or is dismissed, it is important that all the information that she or he has been working with is retained for others to use. A case was reported of staff who were leaving deleting computer files and removing notes and documents so that the person taking over was obliged to start from the beginning. [#8] Perhaps it can be a condition of the employment contract that the final salary payment is dependent on a full handover of all work-related information. Another option is the retention of retiring staff on a part-time basis for a few months to train their successors.

Now we come to training, which is the main topic for the remainder of this booklet.

13. The content of the training

Training should be relevant and multi-disciplinary

Relevant

Different cities have different conditions and so the methods of solid waste management that prove to be successful are very different. There are international - and even local - differences in waste characteristics, in housing and access roads, in wage levels and availability of foreign exchange, in climate, in the expectations and traditions of the residents, in access to spare parts for vehicles, in awareness of (and concern for) environmental issues, in enforcement of legislation, and in other factors. All these international differences cause major differences in the way that solid wastes should be collected, recycled and disposed of. Unfortunately this fundamental and most important fact is not understood by many decision-makers and not acknowledged by many salesmen and consultants. Ignoring this fact results in the wastage of large sums of money on vehicles and equipment that are unsuitable and that do not function satisfactorily – if they function at all.

This fact is the most important message that any training event in solid waste management can communicate. It can be illustrated with many unfortunate examples. This fact should also guide the design of a training course.

The designer of a training course can acknowledge the fact of this international diversity in two ways. One approach is to focus attention only on the basic principles that should guide the development of any solid waste management system, and insist that the trainees test all their suggestions against these principles. The other approach is to investigate and understand local conditions and suggest methods and approaches that could reasonably be tried on a pilot scale in these particular conditions, perhaps building on what is being done already, seeking to improve existing methods that appear to be sustainable.

A training course in Africa that was developed for the World Bank [#3] used these approaches. The training course focused on a set of principles, some of which were not exclusively related to solid waste management, and the trainers were encouraged to illustrate the principles with local case studies and examples. Some of these principles are listed in the box below.

Examples of principles [#3]

The due consideration of alternatives: This means that one cannot just accept a single solution without questioning whether it is adequate and appropriate. The advantages and disadvantages must be compared with those of other solutions, to ensure that the best solution is identified for implementation.

The law of diminishing returns, especially with regard to material recovery. This means that it is easy to recover material at first, but then it becomes more and more difficult as the availability reduces. In this case, the unit cost of recovery increases, while the product quality decreases.

Resource recovery and recycling are governed by economic principles. This means that resource recovery and recycling take place spontaneously when economically viable, which implies that there is a market that will pay an adequate price for the product. Where this is not the case, the operation needs to be subsidised.

The solution widely considered to be the best may often be inferior and unsatisfactory. An example is when politicians demand sophisticated, top-of-the-line technology, which they consider to be the best solution, without realising that it is actually unsustainable. This attitude obstructs the implementation of sustainable technology which, although not considered to be the "best" solution, is actually a good solution, because it works and achieves the required purpose.

Local knowledge is essential for promoting sustainability. Without local insight, one cannot understand the problems that one is trying to solve.

Knowledge of sound environmental principles. Since waste impacts on the environment, it is essential to understand the nature, causes and effects of pollution, amongst other things.

The need to consult people in matters that affect their daily lives or quality of life. This is a basic principle of democracy.

The optimum level of pollution and Best Practicable Environmental Option (BPEO). This is basically a compromise, aiming for a level of pollution which does not cost too much to maintain, but is acceptable and sustainable.

Training should also be relevant to the needs of the people who will be trained. Normally a training needs analysis is carried out to select the topics that need to be taught, and to determine the level and the amount of detail required. It is useful to ask the intended trainees what they think should be included, but this alone is not sufficient, because they may not be aware of aspects that they need to be taught. A written or oral test may reveal the level of understanding of the intended trainees. It is useful to consult the job descriptions of the intended trainees to be aware of what their work requires. It is also important to discuss with the superiors of the intended trainees to learn their opinions regarding the subjects and level of detail that should be presented in the proposed training programme. It may also be helpful to investigate any training that they have had in the recent past.

Multi-disciplinary

One of the interesting aspects of solid waste management is its multi-disciplinary nature. Good solid waste management results from consideration of civil and mechanical engineering, sociology, public health, management, environmental science, geohydrology, micro-biology, law, accountancy, chemistry and other disciplines. Few people are experts in all of these fields, and there is a risk that the experts who are preparing the training have a bias towards their own speciality. The training needs analysis should discover the necessary areas in which there is least understanding and ensure that these areas are given adequate coverage in the training materials [2.3.1].

The **sociologist** says: "We must find out about the informal sector, how they are treated by the public, the police and the municipality, how much waste they recycle, what they earn and how many women and children are involved"

The **engineer** says: "We need to have good data for the waste density so that we can specify or manufacture the most efficient and reliable vehicles. We must have a sanitary landfill that causes minimum pollution of air and water resources."

The **lawyer** says: "We must revise the legislation on waste and find ways to enforce it."

The **accountant** says: "We must record all expenditures in such a way that we know what we are actually spending on waste management."

Who is right? They all are.

14. Training options

This section briefly reviews the main methods that are used for passing on information and developing skills in solid waste management.

Formal education [2.4.2]

University qualifications are widely used as an indicator of subject knowledge and intellectual ability, but there is the risk that too much emphasis is placed upon them because the ability to perform well in university exams does not always correlate with the ability to achieve good results in a variety of work situations. There is also the risk that the graduates themselves and those around them may give degrees and diplomas too much recognition, so that the graduate is reluctant to ask questions (because this would expose her/his lack of complete knowledge) and the employee without university training feels inferior.

Most universities do not provide courses in solid waste management and do not facilitate interdisciplinary studies, so fresh graduates should be ready to learn about the aspects of solid waste management that were not covered in their university courses.

Students often have opportunities to gain practical knowledge during their summer vacations, and waste management organisations can benefit from the inputs of such interns [#8]. Projects and field work provide excellent opportunities for gaining practical knowledge and developing interest in aspects of solid waste management [#11].

Because of the need to publish in recognised, peer-reviewed journals, university staff and research students may feel obliged to focus their research efforts on sophisticated technologies rather than local practical problems, and so their inputs may not be relevant to local issues.

In Maputo [#18] higher salaries were paid to employees with higher qualifications, and this motivated many staff to attend evening classes to gain additional degrees. Scholarships were provided by the waste management department to employees who undertook to stay on at the department for a period after finishing their studies. (In general, such opportunities are open only to staff who work in a city where there is a university that offers appropriate evening classes.) Illiterate manual workers were encouraged to attend literacy classes and to complete basic education programmes.

Externally supported training

International donor and lending agencies often support training in solid waste management. Methods differ, but often the training is for only one or two of the staff of any organisation, and, for each participant, there is only one training event that is not followed up. The selection of trainees is often inappropriate, perhaps because of the lack of national-level co-ordination of solid waste management. There have been courses in which the trainees who are actually working in solid waste management are a minority. The trainees are often in the lower range of the technical and managerial staff, and so are not in a position to influence change. If the trainers are not familiar with the towns and cities represented by the trainees, there is a risk that the information that is presented is not relevant. It is unfortunate that foreign trainers are often accorded a higher status than local experts, even if their instruction is less appropriate to the local situation.

The World Bank training course [#3] that has already been mentioned avoided these problems because it used local consultants to design and deliver the training, and the programme was aimed at senior political and technical decision-makers. It also charged a fee for participation in the course, so that organisations would think carefully about whether to send a participant, and whom to send.

Internal training programmes

The requirements for a good training programme can be stated as follows:

- The training should be relevant to the local situation.
- All staff, from manual workers to decision-makers, should benefit from the programme. Manual staff become more committed to the organisation that they work for if they are informed about developments within the organisation and understand its aims [#6]. Senior staff and political decision-makers should be guided to make decisions using the best information that is available. Different training methods should be used, according to the seniority of the staff participating.
- Training events should be timed to cause minimal interruption to the day-to-day work. There is less disruption to work when training events are held in, or close to, the office, so that short sessions can be arranged at convenient times. (If the training is conducted close to the office there is always the risk that trainees are frequently called out of the training sessions to attend to problems associated with their day-to-day work.) However, if only one or two from a particular city require training in a particular topic or at a particular level, it may not be economical or beneficial to arrange training for so few, and so in such cases it is appropriate to arrange regional or national courses which draw participants from a number of cities.

- Training should not be a once-only event, because the development of understanding is assisted by a co-ordinated programme of follow-up, exercises and feedback, refresher courses and progressive development.
- Induction training should be provided to new staff at all levels. Whenever a new politician takes an interest in or responsibility for solid waste management, appropriate training should be available.
- Training programmes are more likely to be appreciated and effective if they are developed in response to internal demand.

For all these reasons, it is desirable that each solid waste management organisation has a training capability, or has convenient access to training. Much of the necessary training could be done using video or PowerPoint presentations, if suitable materials are made available. The use of good quality, locally-produced audio-visual training materials would greatly help in providing training to new manual workers and drivers, since large numbers of these staff need training.

In many cases, external financial assistance would be needed to develop training materials, train the trainers and prepare and equip training facilities.

Directed work experience

Junior technical and managerial staff can benefit greatly from well organised work experience or attachments in other organisations or in other sections of the organisation where they work. Being attached to other sections for a period of weeks can help them to understand more about other aspects of the organisation or to learn from other organisations. Being in a different and well-managed working environment can teach how to respond to new challenges. Observing good examples of attitudes and approaches can be much more effective than classroom teaching in transmitting good work practices. Confidence can grow if the trainee is given work assignments that are within her/his competence and if a more senior member of staff is willing to answer questions and provide guidance.

Qualifications from the British institutions of engineering (such as the Institution of Civil Engineering) require that the graduate engineer works in various different aspects of the discipline (such as design, construction and supervision), provides reports of this experience, writes essays relating to this experience and is interviewed by senior engineers. Such structured training gives a good grounding in practical skills and understanding. This kind of training could be organised by professional associations (as in Britain) or by a governmental agency. Even if there is no structured programme of this sort, it would be advantageous to encourage senior staff to mentor junior staff by meeting with them regularly to offer guidance and answer questions.

It is difficult for operations staff to understand a new system or even a new concept if it is presented only in the classroom. Seeing the system in operation is a great aid to understanding. A useful first step for a nation to upgrade its waste management would be to set up at least one good example of waste management practice and use it to train and create awareness. The three examples in the box below are offered as illustrations.

International connections [2.4.3]

There are many ways in which international development agencies and international NGOs have sought to assist in the improvement of solid waste management in low- and middle-income countries. A major challenge to all such efforts is the need to promote methods of waste management that are suited to the local conditions and therefore sustainable. Copying systems that are used in industrialised countries can do more harm than good.

International training courses Japan and Sweden have trained many developing country professionals by inviting them to Japan or Sweden to attend courses in solid waste management. Other countries have similar training programmes that include solid waste management. To maximise their positive impact, such courses should make very clear that systems of collection, recycling and disposal in the trainees' countries should not be modelled on those found in the host country, but should be based on first principles and basic objectives, according to local conditions [#3]. Visits to facilities and factories can be useful in presenting target standards but may be harmful if they encourage students to attempt to copy in their own countries what they see. The contacts made with other students from similar countries may be useful in encouraging South-South exchange of ideas and experiences.

Seeing is believing – and understanding

As a starting point, each country should set up one example of good practice that is used for training and awareness

Sanitary landfill – The requirements and techniques for environmentally acceptable disposal of solid waste to land are very difficult to understand purely from text books and pictures. A young engineer with classroom knowledge would find it very difficult to manage and operate a sanitary landfill. After working at a landfill for a few months, the engineer would have a much greater chance of successfully operating a site. Political decision-makers are unlikely to support financing an operation that they cannot imagine. It is therefore suggested that each nation should make it a priority to initially develop a waste disposal facility that is appropriate to local conditions and causing the minimum sustainable level of pollution [#3], and to equip and staff it so that it can be used for training, work experience and creating awareness among decision-makers and the general public. In many countries, the open, burning dump is the only method of waste disposal that is known.

Vehicle maintenance – It is common for vehicles not to be inspected or maintained until they break down. This results in wasted investment and unreliable services. A vehicle depot that operates a preventive maintenance system could provide useful training for mechanics and workshop managers, and also demonstrate the benefits of good management of maintenance.

Informal sector recycling – A city that develops a satisfactory system of co-ordination and complementarity with the informal sector could be used for training and for demonstrating principles of working together with the informal sector for mutual benefit.

Twinning [#16] Twinning is the linking of two cities in different countries for exchange of information and other means of support. If not managed well such relationships may have very little positive effect for solid waste management, because of the differences in conditions and sustainable solutions between the two locations. Experience in the Netherlands has shown the value of preparing each side before a visit takes place, and of setting clear objectives for each visit. The peer-to-peer exchange between senior executives is potentially the most effective way of transmitting information to decision-makers.

Study tours and other international visits Trips abroad are usually very popular because of the opportunity to travel, the allowances that are paid and the status that is attached. Because study tours are seen by many as a reward rather than an opportunity for learning, the people who are selected to participate may not be the type of people for whom the tour was designed. For some participants, shopping and entertainment are far more important than the technical visits.

There is often disagreement between the organisers of the tour and the decision-makers in the sending country regarding who should participate, and friction over allowances and accommodation may sour the atmosphere. Study tours concerned with other infrastructure services (such as water supply or electricity distribution) may be more beneficial than tours concerned with solid waste management, because in those other subjects the international differences are not as great.

International workshops and conferences vary greatly in their value for practitioners from developing countries. Some conferences have very few presentations that are relevant to low-income communities. The organisers of recent CWG workshops have taken steps to attract participants from municipal administrations to ensure a balance between the public sector and NGOs. Informal international networks of contacts established and nurtured by such international meetings can be very fruitful.

Some companies that are promoting new technologies invite senior decision-makers on an international visit to see one of their installations or factories, entertaining them very well, in the hope that this will influence them to select the particular technology without reference to unbiased technical advice.

Other opportunities for learning

The Internet provides a huge amount of information, but many still do not have convenient, fast and reliable access to it. Access to the internet from the workplace may not be available to some professionals and may be restricted for others because of the fear that staff will spend much of their time using the internet or e-mail connections in ways that are not related to their work [#8]. Information on the internet is not as universally accessible as many in the industrialised countries think it to be.

A working group at the CWG Workshop agreed that there is now a large amount of information on solid waste management in print, though much was not considered to be appropriate to many low- and middle-income countries. Some of the excellent books on solid waste management are too expensive to be afforded by individuals in low-income countries, and few waste management organisations have up-to-date libraries. Conference proceedings and course notes are a common source of information [#8]. It is hoped that the format of this booklet is suitable for distribution to readers who will find it useful.

Professional associations [#1] can provide useful training opportunities, provided that staff are enabled to attend meetings and that the speakers are prepared to speak honestly about problems and failures as well as successes [2.4.2]. Peer-to-peer sharing of practical experiences in such a forum can be very instructive.

Skills training

In order to develop practical skills it is necessary to practice (initially as role play or simulation and later in actual situations) and get feedback on that practice in order to develop competence and confidence. It may be useful to observe one's performance on video. Examples of practical skills include: how to lift heavy objects; driving on soft ground and reversing a large vehicle; undertaking vehicle maintenance tasks; reprimanding a subordinate for incorrect behaviour or poor work; first aid procedures; listening to an informal sector waste picker; interviewing job applicants; running a training session. Most skills are not learned merely by listening to a lecture.



Training may be needed to help new waste collection labourers to lift heavy loads without straining their backs

15. Recommendations

Information on capacity development

Advocacy document An advocacy document should be prepared to persuade decision-makers of the importance of capacity development. This document should encourage them to consider the human resources, organisational structure and financial management, as well as machinery and facilities, when they are planning to improve the standards of solid waste management.

It might be appropriate to provide this information as a short video or PowerPoint presentation, rather than in printed form.

Detailed guidance on capacity development Consideration should be given to the preparation of detailed information regarding the scope of capacity development in solid waste management organisations.

Inventory of training materials

An inventory should be prepared and maintained of all currently available training materials in all major languages, including details of how to obtain these materials and a brief summary giving information about how they can be used. It would be useful if there is provision for showing users' comments on each item.

Co-ordination of training

Solid waste management is usually administered at local level with much less national-level involvement than is the case for other aspects of urban infrastructure (such as water supply). However there are several ways in which national co-ordination (by the responsible Ministry or perhaps by a professional association) would be of considerable benefit, including the following:

- Preparation of training materials tailored to the needs of the country, including short audio-visual presentations;
- Advising on the relevance and effectiveness of available training materials;
- Organisation of regional or national courses in cases for which local training would not be appropriate;
- Co-ordination with international development agencies wishing to support capacity development and ensuring the appropriate selection of participants for any associated courses.

16. Final comments

As a conclusion, it is useful to return to the word “integrated”

- All who are involved in providing the solid waste management service should be integrated into the capacity development programme.
- Training should be integrated into the other aspects of capacity development, so that there is no conflict between the training that is provided and the working environment.
- Training should be integrated with other aspects of human resources management, including recruitment, promotion and salaries.
- Relevant concepts from the full range of disciplines on which solid waste management is based should be integrated into training programmes, so that training is balanced and comprehensive.

17. List of authors

Many of the ideas mentioned in this booklet come from discussions at the Ouagadougou Workshop and it is not possible to acknowledge each person who contributed in this way. The authors whose papers are referred to in this booklet are:

- #1 Olugbenga Adebola
- #3 Jarrod M Ball and Oumar Cissé
- #4 Bharati Chaturvedi
- #5 Sanjay K Gupta
- #6 Sanjay K Gupta and S A Khader Saheb
- #8 Maria Lombardi
- #9 Shamiso Mtisi
- #10 Alexio Mubaiwa
- #11 T.C. Nzeadibe and C.K Ajaero
- #16 Anne Scheinberg
- #18 Joachim Stretz

CWG Publication Series

Paper copies of these booklets are available from the CWG Secretariat. They are also stored on the attached CD-ROM or can be downloaded from the CWG website, www.cwgnet.net.

No 1

Solid waste collection that benefits the urban poor

Suggested guidelines for municipal authorities under pressure
Based on discussions at the CWG Workshop held in Dar es Salaam
Compiled by Adrian Coad (2003)

No 2

Private Sector involvement in Solid Waste Management

Avoiding Problems and Building on Successes
Adrian Coad (2005)

No 3

Solid waste management and the Millennium Development Goals

Links that inspire action

Barbara Gonzenbach and Adrian Coad
with contributions from Sanjay K Gupta and Jonathan Hecke (2007)
Also available in a bilingual version Hindi / English

No 4

Solid waste management: Improved capacity = less waste?

Recommendations on capacity development
compiled by Adrian Coad (2010)

Themes of the past CWG workshops

Nr.	Year	Location	Theme
1	1995	Ittingen, Switzerland	Initial workshop with the objective to determine the state of the art and to set a programme of collaborative action
2	1996	Washington DC, USA	Promotion of Public - Private Partnerships in Municipal Solid Waste Management in Low-income Countries
3	1996	Cairo, Egypt	Micro and Small Enterprise Involvement in Municipal Solid Waste Management in Developing Countries
4	1998	Belo Horizonte, Brazil	Waste Disposal – Upgrading Options for Lower- and Middle-Income Countries
5	2000	Manila, Philippines	Planning for Sustainable and Integrated Solid Waste Management
6	2003	Dar es Salaam, Tanzania	Solid waste collection that benefits the urban poor
7	2006	Kolkata, India	Solid Waste, Health and the Millennium Development Goals
8	2007	Gouda, The Netherlands	Building Sustainable Livelihoods: Economic Aspects of Informal Sector Activities in Solid Waste Management
9	2008	Ouagadougou, Burkina Faso	Capacity development and advocacy for improved solid waste and resource management.

The accompanying CD-ROM includes

PART A Workshop report

- including discussions of ideas and innovations gleaned from the papers and case studies, and information about the Workshop

PART B Contributions

- Papers prepared for the Workshop, covering a wide range of aspects of capacity development
- PowerPoint presentations illustrating the papers;
- Reports of discussions and working group outputs;
- Other presentations and notes

PART C CWG Publication Series

- No 1 Solid waste collection that benefits the urban poor
- No 2 Private Sector involvement in Solid Waste Management
- No 3 Solid waste management and the Millennium Development Goals
- No 4 Solid waste management: Improved capacity = less waste?

Solid waste management – Improved capacity = less waste

This booklet consists of ideas about developing the capacity of solid waste management organisations in low- and middle-income countries. It is based on the presentations and discussions at the CWG-WASH international Workshop which was held in Ouagadougou, Burkina Faso in December 2008. Accompanying this booklet is a CD-ROM which includes the report of the Workshop, the presentations and other materials from the Workshop.

This booklet argues that capacity development is not just training, but that it has three components – development of the institution, development of financial capacity and development of personnel. According to the trend of the Workshop, most attention is focused on the development of personnel, including the possible objectives of training and discussion of the various methods that can be used.

Although this booklet is intended for decision-makers with little time for reading, and is therefore brief, it provides a summary that is both practical and comprehensive.



CWG

Collaborative Working Group
on Solid Waste Management in
Low- and Middle-income Countries

What is the CWG?

The CWG – the Collaborative Working Group on Solid Waste Management in Low- and Middle-income Countries – is an informal global forum within which people whose work is related to solid waste management exchange experience and support each other. The CWG is concerned with all aspects of solid waste management, with a focus on non-OECD countries (both “developing” and “transitional” countries). Solid waste management includes street cleaning, storage, collection, transfer, recycling, organic waste management, and disposal activities, and these tasks may involve municipal agencies, the formal or informal private sector, NGOs, community organisations and the waste generators themselves.

The CWG is associated with the Water and Sanitation Collaborative Council (WSSCC, www.wsscc.org), as the WSSCC’s Thematic Working Group on solid waste management. WASH – Water Sanitation and Hygiene – is the WSSCC’s campaign name.

For more information visit the CWG website www.cwgnet.net, or write to:

CWG Secretariat
c/o Skat
Vadianstrasse 42,
CH – 9000 St.Gallen, Switzerland
e-mail: cwg@skat.ch
web: www.cwgnet.net