ISWA Perspective on Waste Management 2005- 2010

ISWA is an independent, non-governmental, non-profit making association. ISWA’s objective is the maximum exchange of information and experience worldwide on all aspects of solid waste management. The major technical activities of ISWA are carried out by ISWA’s Working Groups. The Working Groups provide the technical expertise for ISWA meetings, projects, information, and conference programmes. Members of the Working Groups represent the interests of all sectors of waste management - the private and public sectors, the academic world, service providers and manufacturers etc. ISWA therefore is in a unique position to provide a strategy paper on waste management reflecting the views of a large spectrum of waste professionals dealing with all aspects of waste management.
Foreword

Through its members ISWA has access to a unique combination of knowledge and experience within waste management. Following a request from the ISWA President 2000-2002, Mr Christoph Scharff, each of the ISWA Working Groups developed a ten years perspective published in 2003 at the ISWA Annual Congress in Melbourne, Australia. In this ten years perspective paper the ISWA working groups summarised the developments from the last 10 years (since Rio – 1992 until the Johannesburg World Summit 2002) and gave their view on the needs for developments for the next ten years.

In the present era of rapid communication and quick changes in society a ten years perspective may seem too long and could even risk hampering the development of new solutions. On the other hand, in order to implement a sustainable waste management strategy there is a need for a clear and well-established waste policy within a reasonable horizon. This balance between long-term stability and quick and open decision channels is not unique to the waste industry. However, ISWA sees it as one of its important tasks to use its collective knowledge to facilitate bridging the gap between these two conflicting perspectives.

The present document has been drafted with the aim of continuing the dialogue initiated within the different ISWA groups (especially the Working Groups and the Scientific and Technical Committee). It is therefore the second version and attempt by ISWA to develop such a paper and it will be updated and amended through continuous dialogue both within ISWA and with ISWA’s external contacts. Any comments on the report will be highly appreciated.

There is no single solution to solve the waste “problem” that clearly stems from a large number of different sources. Nevertheless, the main objectives of waste management within the broader perspective of resource management remain the same:

- limiting the amount of waste generated,
- increasing reuse and recycling and,
- limiting the content of hazardous substances in waste to aid treatment and stabilisation of these residues and thereby achieving the main goal of sustainable waste management for the remaining waste that will always be generated.

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1. Introduction

It is 3 years after the launching of the 10 years perspective and the holding of the Johannesburg World Summit on Sustainable Development (WSSD). The ISWA Scientific and Technical Committee find that it is now time to fine tune as well as monitor the latest developments. The first version had a very broad focus on the waste management sector and this review will focus more on what has to be done and what ISWA has done and intends to do.

The present document has been drafted as a continuation of the ten years paper and will therefore not repeat the historical review back as far as Agenda 21, but rather reflect on the Johannesburg World Summit Plan of Implementation. ISWA find that it is important to keep this document alive and keep the dialogue continuing among the various interests group within and outside of ISWA.

This perspective will therefore first of all in chapter 2 summarise the goals within the waste management sector stated in the Johannesburg Plan of Implementation (JPI). ISWA will in Chapter 3 reflect on the international goals and comment on those in relation to the ISWA 10 years perspective. Many of the issues raised by ISWA have been included in the JPI, but in many ways it could have been more ambitious. To explain the direction of the ISWA perspective and future agenda we have in Chapter 4 outlined the latest developments, since Johannesburg on the international arena and indicated the latest trends in various parts of the world. In Chapter 5 the ISWA perspective is set out with an indication of what ISWA has done for last couple of years and what is needed for the future. Finally in Chapter 6 the ISWA future agenda is outlined. This agenda is the overall agenda for ISWA for the next 5 years.

Cardboard collection in Shanghai, P.R. China
2. Johannesburg Plan of Implementation

The Johannesburg Plan of Implementation (JPI) was adopted in September 2002, at the World Summit on Sustainable Development (WSSD). It sets out the international targets for future development within the environmental area which includes waste management. The JPI reaffirms the commitment to the Rio principles and, the full implementation of Agenda 21, including those contained in the UN Millennium Declaration. The JPI outlines the necessary steps towards sustainable development* in 153 paragraphs, where some of these involve management of waste and resources.

The overarching objectives of the JPI are the following:

- Poverty eradication
- Changing unsustainable patterns of production and consumption
- Protecting and managing the natural resource base

When looking at the JPI the waste issue is seen in the context of changing unsustainable patterns of production and consumption and states that there is a need for a fundamental change in the way societies produce and consume in order to achieve global sustainable development. It is further mentioned that there is a need for “de-linking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste” (JPI: §15, p7). In order to achieve the necessary change in production the JPI focuses on clean production policies, through investments, dissemination of information as well as the importance of training programmes to small and medium-sized enterprises, on the use of information and communication technologies. Another very important aspect is the energy efficiency aspect of achieving sustainable production and consumption patterns.

From the governmental side the JPI states that it is important to encourage relevant authorities at all levels to take sustainable development considerations into account in decision-making, particularly during national and local development planning, investments in infrastructure, business development and public procurement.

§22 in JPI deals specifically with the waste issues and states that it is important to develop waste management systems based on the following waste hierarchy:

1. Prevention and minimisation.
2. Reuse and recycling.
3. Environmentally sound disposal facilities, including technology to recapture the energy contained in waste.

Besides developing waste management systems based on the waste hierarchy, - the following points are seen as objectives within the waste area:

* Economic development, social development and environmental protection
• The encouragement of small-scale waste-recycling initiatives that support urban and rural waste management and provide income-generating opportunities, with international support for developing countries.

• Promote waste prevention and minimisation by encouraging production of reusable consumer goods and biodegradable products.

Paragraph 23 deals with hazardous waste where the Basel Convention is responsible and the following objectives amongst others have been decided:

• Encourage partnerships to promote activities aimed at enhancing environmentally sound management of chemicals and hazardous wastes, implementing multilateral environmental agreements, raising awareness of issues relating chemicals and hazardous waste and encouraging the collection and use of additional scientific data.

• Promote efforts to prevent international illegal trafficking of hazardous chemicals and hazardous wastes.

• Prevent damage resulting from the transboundary movement and disposal of hazardous wastes in a manner consistent with obligations under relevant international instruments, such as the Basel Convention.

The JPI clearly view the waste problem as a problem related to unsustainable consumption and production patterns and the solution is therefore also seen as promoting clean production and more focus on reusable and biodegradable products. Waste is not mentioned in the JPI as part of the resource problem nor as part of the objective for protecting and managing the natural resource base.

Furthermore, it is interesting to see the priorities of the waste hierarchy outlined in JPI. First of all JPI does not view reuse as part of prevention and hereafter JPI places reuse and recycling on the same level of priority, above technology to recapture the energy contained in waste (which in addition is defined as a disposal operation). It seems as if the hierarchy is drafted with a very product oriented approach focussing on the full circle of product placing Waste-to- Energy as a disposal operation. Furthermore, it is interesting to see that JPI distinguishes between prevention and reuse, which according to ISWA is seen as one of the instruments for waste prevention.

The JPI also states that one should encourage small-scale waste-recycling initiatives that support urban and rural waste management and provide income-generating opportunities, with international support for developing countries. This is clearly also looked upon from a product and production perspective where recycling has a high priority, in contrast to the environmental perspective where the creation of controlled landfills is often viewed as the first priority in developing countries.

The JPI has the objective of preventing illegal trafficking of hazardous waste, but does not mention the increasing problems of illegal export of waste going to sham recovery operations, often located in developing countries.
3. ISWA and the Johannesburg Plan of Implementation

ISWA fully supports the overall objectives of the JPI and especially the very high priority on prevention, which is outlined in the JPI. However, ISWA finds that the waste problem is viewed from a narrow perspective in the relationship with sustainable development. ISWA has in the 10 Years Perspective Paper stated the following:

“ISWA believes that it is important to not only focus on prevention of the waste from the end-of-life products, but also try to prevent the so-called hidden flows left behind in other countries outside Europe. The European countries are increasingly exporting environmental problems, and this trend should be reverted.

In order to meet one of the major challenges –preventing waste - a new approach is called for. Focus must be upon the entire product chain and not only on the end-of-life phase of products, substances and materials. Important decisions in relation to the amounts of waste generated are taken both at the concept and design stage and further on during the production process” (ISWA Ten Years Perspective-2003)

In the light of the above statements ISWA would have preferred the JPI to look at the waste problems as a resource issue and analysing the waste as materials, which begins their life in the extraction phase and which end their life as resources either as material or energy. Waste has a very important life stage before becoming a product, which is totally neglected if we only consider it from a clean production and consumption perspective.

In order for society to develop in a more sustainable way there is a need for dematerialisation of the economy, in other words to produce the same with less. The amount of virgin material input per service unit (MIPS*) must be minimised. The huge amounts of waste generated during extraction of natural resources have serious environmental impacts such as erosion, contamination etc. and this often takes place in the developing countries. The waste generated during extraction can also be referred to as hidden flows, which is waste that is connected to the product, but may never become visible in the country where the product is produced and consumed, which is why this type of waste often is referred to as hidden flows.

We have different kinds of waste problems in the production and consumption phase. Many production processes produce much waste, some of which is hazardous waste. There is as JPI also states a need for redesigning products, thereby minimising the hazardous nature of the products (detoxification) and for being creative in the production technology in order to minimise waste during the production. However, both production and consumption will always generate waste, but waste generation must be minimised and detoxified. Furthermore, ISWA sees the need for ensuring that the products are designed so that they can be easily dismantled and recycled. At the moment there is a tendency towards producing more complex products, which are difficult to dismantle for recycling. For example, a modern cell phone consists of many different materials. Without the battery it only weighs 100 grams, and it is almost

impossible to dismantle. There is a need for technology development, as many products today consist of new mixes of material, hampering recycling.

ISWA does not fully agree with the way that JPI approach the waste hierarchy. ISWA finds that prevention and reuse is the overall target and hereafter recycling as well as energy recovery and finally followed by sanitary landfills. ISWA supports the general philosophy of the waste hierarchy, but states that it has to be applied with flexibility, taking into consideration the local and socio-economic circumstances. ISWA for example believes that sanitary landfills in the developing countries should be the first priority, because the alternative in many cases is uncontrolled dumps. ISWA however, supports JPIs idea of introducing small-scale waste-recycling initiatives that support urban and rural waste management and provide income-generating opportunities, but ISWA does not view this as the first priority.

ISWA takes the view that it is very important that we get a better understanding of the Total Material Requirement (TMR) of all the products that enter the waste streams in order to calculate, which treatment option is the optimal. ISWA stresses that it is important to decouple the use of resources from economic growth and to make sure that we change the trend towards exporting the environmental burdens through increasing the dumping of environmental impacts in other countries outside and especially in developing countries.

The ISWA position is therefore, that the way to move towards better recovery criteria is to work with energy flows (energy balances) and material flows analysis, which enable us to look at the total lifecycle of our resources and to make better decisions on which material should be recovered and which that can be better used for recovery of energy. It is also important that the Kyoto targets are allowed for when considering the weight of energy recovery versus material recovery.

4. New directions since Johannesburg Plan of Implementation (state-of-the-Art)?

ISWA is an international association within the waste area and has a general overview of the state of the art on a global level both through our international experts, and also via our various partners* which ISWA is working with on a daily basis.

As stated in the 10 years perspective paper the EU waste policy has for a long period of time been the absolute frontrunner region of the world in implementing waste legislation and being very strongly committed to the waste hierarchy focussing on the goal of prevention and recycling from an end-of-life product perspective.

Waste management policies in the EU are however, currently undergoing significant changes. In Sixth Environmental Action Programme (6th EAP) the waste issue has been incorporated into the management of natural resources. In the communication on the 6th EAP, drafted by the Commission, the waste issue

*ISWA partners ISWA is working on an international level through our Regional Development Network and our National Members placed in 32 countries around the World. ISWA is Working in co-operation with UNEP on developing countries issues. ISWA is working with the EU Commission on EU Related issues and receives EU NGO funding from the European Commission for disseminating information on how to implement the EU waste policy. ISWA is signing a MoU with the World Bank and UNEP.
is part of a chapter called “The Sustainable Use of Natural Resources and Management of Waste”. The Commission is also in the process of issuing a resource and recycling strategy which will act as the framework for the also forthcoming thematic strategy on recycling and prevention of waste, which will be the future framework for waste regulation within the EU. Furthermore, it has become clear that the integrated product policy (IPP) is the cornerstone of the 6th EAP that will set the agenda for European environmental legislation.

The fact that the waste management unit in the European Commission’s Directorate General (Environment) no longer exists may be regarded as a visible sign of this reorientation. A new unit called “Sustainable Resources – Consumption and Waste” was established in its place. This change demonstrates that a more integrated approach is taken that considers the entire life cycles of products. Furthermore, the general objective of attaining sustainable development will be the guideline to widen the perspective from a mainly environmental focus to the inclusion of economic and social aspects.

ISWA has closely followed the work of the EU Commission and has also been active in trying to highlight the international perspective on waste management and the resource policy, which many times is neglected when formulating policy. Furthermore, the EU is turning away from the waste hierarchy as the overall objective for waste management and is now looking at the hierarchy only as a guideline and instead basing the policy on environmental impacts through Life Cycle Analysis (LCAs).

The thematic strategy on sustainable use of resources and the thematic strategy on recycling and waste prevention will be launched by the end of 2005 and will form the future waste policy. The strategy on prevention and recycling of waste will include a revision of the waste framework directive (WFD), in the following directions:

- A shift from viewing the hierarchy as and overall goal to the focus on environmental impacts
- More focus on the market
- New criteria for recycling operations

The EU Commission has also in May 2004 issued a 10 years waste policy paper “Resource use, Products and Waste Policies: Three Facts of and Impact Based Approach to Environmental Policy – How will waste policy evolve”. This paper predicts that the waste policy in the future will include a
combination of prevention, material recycling, energy recovery and disposal and that the key issue will be to find the optimal level of recycling rates and the best combination of different approaches. Further the 10 years waste policy paper states that an impact and life cycle approach will clearly require prioritising of objectives and trade-offs between different environmental impacts.

In this paper it is also clearly stated that in the future a more market oriented approach will be dominating, given that a level playing field will be developed in which all European waste management facilities are functioning at high environmental standards and that recycling materials respond to harmonised quality standards. After having introduced these common standards an open market will be the next step. “an open waste market, based on waste management facilities operating at a high level of protection for the environment.”(p4)

The new focus on the market is seen as a driver for efficiency, but the Commission, however has expressed that the market forces alone will not encourage recycling, which then has to be encouraged with political and economical instruments (ISWA EU-Newsletters (No. 42 &43)

Outside of the EU and especially areas, such as the USA the landfill gas market is at the moment increasing mainly due to the carbon fund as one of the Kyoto mechanisms for sequestration of carbon. Within this fund, market mechanisms are now being developed to support the transfer of "Carbon Credits" (i.e. in this case, the amount of carbon sequestered from landfills). This developing market may afford landfill owners the opportunity to install the necessary technology in order to accumulate these "Carbon Credits". Many carbon fund projects are at the moment being introduced around the world with the support of the World Bank.

However in the developing countries uncontrolled landfills are still a huge danger for the surrounding environment, and a health risk to the population, causing contamination of drinking water and soil. Many governments are becoming aware of the waste management concern for public health and environmental protection countries, but there is clearly a lack of capacity at a governmental level. The waste generated by human settlements and the resulting problems are mainly the same – but there are differences between regions and locations due to variables such as climatic, cultural, industrial, geological, legal, and environmental factors. The waste management systems in different developing countries vary substantially and are in some cases virtually non-existent.

Most developing countries have various processes aimed at the recovery of materials from the waste stream. Studies have shown that local industries are, in some cases, strongly dependent upon the availability of secondary raw materials for reprocessing. Some of these materials include: cardboard, various paper products, different types of plastics and metals.
Unfortunately, the methods used to recover secondary raw materials are inefficient, disregard the basic principles of occupational health and in some instances cause significant environmental problems, as is the case for the recovery and reprocessing of automobile batteries at the “home level”. Resource recovery or scavenging, as it is commonly called, takes place in most urban areas in developing countries. The process is carried out at various stages of the waste management system and in different ways. Some of the most common methods are briefly described in the following paragraphs.

In large urban areas with an active and well-defined commercial area or an area with a large number of apartment buildings occupied by people earning a high income, scavengers typically sort through the waste before the authorized collection vehicle arrives. The most common materials that are recovered include: various types of paper products (cardboard, newspaper, and office papers), some plastics and aluminium containers. In most cases, the scavengers use carts or similar units for the storage and transport of the recovered materials. In areas where there is a relatively high generation of recyclable materials, the scavengers store the materials in specific locations for their eventual collection by commercial trucks. There are isolated cases where scavengers travel from house to house buying secondary materials.

Another method of scavenging takes place during the collection process. In this particular method, the collectors themselves and/or helpers conduct a certain degree of segregation during loading of waste into the collection vehicles. The segregation process is facilitated in the situations where open trucks are used, allowing for some of the collectors to be stationed inside the vehicle. The recyclable materials are stored either inside the truck or on the sides of the vehicle.

The last and certainly the most onerous type of scavenging is the one that takes place at the disposal site. Disposal sites, particularly those located in medium and large metropolitan areas attract hundreds, and in the mega cities thousands of individuals for the recovery of a variety of materials for sale. Some of the scavengers live on or near the disposal site. Living on disposal sites is not only detrimental to the health of scavengers but, as it has been shown in several instances, it can be dangerous due to slides and fires. The relative closeness of the disposal site to the scavengers’ dwellings and other factors make it easy for them to allow the participation of their children and other family members in segregation activities. The scavengers work at the landfills under some of the most precarious conditions and under different climatic situations (from extremely hot to very cold and wet conditions). In some of the very large disposal sites, the scavengers set up rules and have been known to divide the site into areas where only specific groups are allowed to work.

The situation in developing countries is also becoming more and more a discussion issue in relation to the increasing export of waste to especially Asia and Africa where waste is exported for “recycling”. This is becoming an increasing problem which, many authorities in developed countries find very difficult to control. The huge export for recycling is of course based on the high saving of cost through low salary rates in developing countries, but also based on very low standard treatment facilities where
impacts are far exceeding the environmental benefit of recycling. In many cases it has been discovered that children are dismantling electronic equipment under atrocious working conditions.

**Future Trends**

When looking more closely at the latest developments the trends that ISWA has identified can be summarised as followed:

- We are still facing increasing amounts of waste closely linked to the economic growth
- In Europe we see a tendency to become more market orientated with an open waste market operating on common quality standards.
- The EU strategies will be launched in the EU June 2005 and will contain a revision of the WFD (the horizontal part of the EU legislation)
  - It will contain revisions of some of the definitions
  - It will specify the definitions on disposal and recovery
  - It will promote a free waste-internal market, based on waste treatment operations operating on a high standard level
- The Internal Market will harmonise recycling through two channels: 1) Harmonising the standards for recovered materials/products. 2) Harmonising the standards for operating recycling operations (through IPPC)
- The Environmental Impacts will be the future focus (versus waste amounts)
  - Not only one solution but a combination of waste prevention, material recovery, energy recovery and landfills
- Increasing exports of waste for recycling will in the future make the market dependent on the market conditions on e.g. the Asian Market
- Increasing problems with occupational health in the recycling industry, especially in developing countries
- More focus on climate change in relation to waste management

5. **ISWA Perspective 2005 -2010**

- ISWA supports an impact and resource based approached to waste policy, built on a sound knowledge base and including the impacts being placed on other countries.
- ISWA supports the development of prevention re-use and recycling society, where we efficiently prevent waste generation and save resources via recycling.
- ISWA believes that it is important that the market is based on waste management facilities operating at a high level of protection for the environment.
- ISWA also stresses that an integrated waste management system includes energy recovery as part of the strategy for saving fossil fuel resources and hereby linking to the Kyoto targets
- ISWA sees a huge problem in the export of waste to developing countries where there are low standards for treatment and there are likely to be huge environmental impacts
- Occupational health is a very important area, which has to be given a high priority both in connection with the export of waste to developing countries, but also in developed countries with.

- ISWA finds that there is a need for capacity building and training on a regional level taking into account local aspects.

Waste Prevention
ISWA finds that prevention is the most important challenge for the future and finds it crucial that all countries should be obliged to reach certain prevention targets and to develop prevention plans as part of their waste management plans. As concluded by the WSSD (Johannesburg), the goal of higher sustainability of our societies requires greater coherence among the policies and strategies of all sectors. In particular, waste prevention should be integrated into sector policies and strategies for all activities in society.

ISWA believes that it is important not only to focus on prevention of the waste coming from end of life products, but also to prevent the hidden waste flows left behind in other countries. Europe and the United States are to a larger extent exporting their environmental impacts to developing countries, where standards are lower and less costly.

ISWA finds that the overall decoupling target, of decoupling waste generation from economic growth, should be monitored via two indicators; one indicator on impact and one on the total material requirement (TMR), to reflect the material need including materials from outside of one's own country. The message has to be “less waste and less hazardous”, which link perfectly to the overall goal of the Johannesburg Plan of Implementation.

To reach the goal of waste prevention a structural change of today's society is needed. Social progress has led to the overuse of natural resources in order to fuel our consumer societies. For example, social progress has meant more waste generated, as people consume more take-away foods and buy more easy-to-use throwaway goods, such as disposable diapers etc. Social progress has also meant more welfare and less dependency on family security networks. Therefore we see more and more single person households that generate more waste on a per capita basis than families living together.

ISWA has in 2004 on various occasions stressed these international aspects to the EU Commission in connection with the forthcoming thematic strategy on prevention and recycling of waste. ISWA has also issued two position papers in connection with both the forthcoming EU Thematic Strategy on
Sustainable Resource Use and Thematic Strategy on Prevention and Recycling of Waste (all the ISWA position papers can be downloaded from the ISWA website)

**Clean Production and Consumption**

There are many environmental impacts from a modern consumption society, including increasing waste amounts, which can be viewed as an impact in itself. When extracting raw materials for production there are many environmental impacts through the waste generated during the extraction process. Therefore when reuse and recycling is increased this, in itself will minimise the impacts, through minimising huge amounts of mining waste. The next step for our societies is to minimise the waste from the production process and introduce the concept of clean production. Much can be done to minimise waste generation and to boost the development of a sustainable society. This year ISWA participated in UNEP’s 8th High Level Seminar on Sustainable Consumption, where more than 260 experts gathered from more than 60 countries to contribute to a better understanding and promotion of sustainable consumption and production policies and practices. For this meeting ISWA stated that the challenge for modern waste managers is to help to develop and establish policies and programmes to make people consider their patterns of consumption to avoid the purchase of any goods that are then discarded without being used.

Furthermore, it is important to have an integrated product policy and a more stringent chemical policy, which are key policy tools for qualitative waste prevention.

Clean production and consumption is an important long term strategy for minimising waste in the future and saving natural resources. However, the trend has for many years been the increasing amounts of waste as well as more hazardous waste being produced, which has to be treated in a sound and sustainable way. Treatment of waste at a high environmental level is and will always be the main issue for ISWA, since this is our main competence area.

**Reuse, Recovery and recycling**

Reuse, recycling and recovery facilities are today huge industrial processes, which are producing important resources with great value. These facilities also have impacts upon the environment through waste, air and waste water emissions. To minimise the environmental impact from all waste management facilities and to work for the introduction of the best available technology is a key issue for ISWA. ISWA has this year supported the proposal from the EU Commission on expanding the Integrated Prevention and Pollution Control (IPPC) Directive to also cover recycling facilities. Under this directive Best Available Techniques reference notes will be developed (BREF) to insures a high level of environmental protection.

ISWA works towards reaching a higher level of recycling and reuse in order to save natural resources;
illegal transportation of waste. There is a need for an international level playing field for recycling, guaranteeing a high level of environmental protection.

It is a goal for the future to prevent exports of inappropriate waste to the developing countries for recycling. The standards of treatment in these countries are often not environmentally safe and often totally uncontrolled. An example is the dismantling of electronic equipment containing hazardous substances, where it is an objective of ours to prevent the use of children in the workforce. Not only is this a danger to their health and to the environment, it is also unethical and therefore introduces the social dimension of sustainable development.

In some geographical areas there is a great need for reversing the trend towards erosion, compaction and sealing the contamination and loss of fertile soil. Organic matter is both an important soil constituent and the main source of food and energy for living organisms. Exogenous Organic Matter (EOM) is organic matter that is returned to the soil for the purpose of growing crops, improving soil quality and restoring or reclaiming land for future use. Returning good quality EOM to soils is also a way of closing the ‘organics loop’, thereby linking sustainable waste management practices with sustainable agricultural practices and meeting the needs of our current and future generations to grow enough crops.

ISWA has been working very actively in trying to make the EU policy makers aware of the environmental benefits of closing the organic loop and the ISWA Working Group for Biological Treatment of Waste (WGBTW) has been active in the work of developing a thematic strategy for soil protection on a European level. The WGBTW sees the need for the introduction of a European directive forcing the Member States to recycle organic waste, since this treatment is important and often meets very high market barriers, because of the relatively high cost of separate collection.

In other areas Waste-to-Energy with high energy efficiency producing both electricity and district heating is a very good recovery process for waste with a high heat value and not suitable for material recycling. The perfect waste management system will have all the treatment facilities operating on separated waste after carefully undertaking LCA and Material Flows Analysis. The ISWA Working Group on Thermal Treatment is working actively for the full implementation of the EU Incineration Directive on the EU level and has in 2004 been very active in feeding the Commission with the technical information on best available techniques for the preparation of the BREF on incineration of waste. ISWA has also in 2004 been looking at the limits and possibilities for destruction of Persistent Organic Pollutions (POPs) in flue gas cleaning residues in compliance with the Stockholm Convention in which ISWA has an appointed expert. ISWA also issued a position paper on the safe handling of flue gas cleaning residues stating that landfill disposal is the most important environmental concern where the leachate of heavy metals and salts is the main problem. Finally ISWA also issued a Position Paper on emission limits from Waste-to-Energy plants versus co-incineration plants, stating that with the current legislation in the EU co-incineration of waste in a cement kiln can lead to a higher level of emissions to the air than emissions from a dedicated waste-to-energy plant.

Waste-to-energy should also be viewed as a supplement in an integrated waste management system substituting landfills in areas were heat production is needed and where land is a scarce resource. Many waste-to-energy plants are today important electricity and heat production facilities and should be
viewed as a recovery operation rather than disposal operation. Many incineration plants around the world are still not to be viewed as recovery plants; ISWA therefore has as one of our goals to improve the knowledge on environmentally sound waste-to-energy plants. ISWA is also at the moment working on a state-of-the art report on the treatment of bottom ash and has in 2004 formed a sub-group working on this issue.

**Landfill**

A major activity of ISWA in the developing countries is to provide training courses on the closure of open dumps, introducing landfill regulation, minimum standards and guidelines. Furthermore, ISWA is working on the introduction of landfill gas collection and energy recovery. Other aspects that ISWA is working on are operations on site, closure and end-use concepts along with standard practices for ground water monitoring and testing, leachate management, gas management and storm water management. The ISWA working Group on Sanitary Landfills held a Beacon Conference 8-10 March on Sanitary Landfills in Buenos Aires, Argentina as well as a workshop on landfill operation and maintenance workshop 16-17 November 2004 in Tel Aviv, Israel. ISWA has in 2004 published Field Procedures Handbook for the Operation of Landfill Biogas Systems. Coupled with the current rise in landfill biogas systems comes the need for proper operations and the prevention of accidents. As more personnel are hired to operate active landfill biogas systems, there remains an industry concern to make sure field personnel and managers receive regular training.

In particular, the training is important where the use of sanitary landfill is on the increase. The conversion from old dump sites to lined, controlled landfills is resulting in more methane gas generation and the need for immediate collection and control. An example might be several of the countries recently joining the European Union where the waste management programs are expected to be improved during the intermediate term. ISWA is offering training within this area and has also made the new published manual available for all ISWA members.

ISWA is also at the moment working on expanding its training activities in all areas through a closer co-operation with UNEP and the World Bank

**Scavengers**

ISWA is well aware of the fact that scavenging activities play a major role in the survival of many of the people that perform those activities. However, the methods used for the activities reduce the efficiency of the waste management system and most importantly are detrimental to the health of the scavengers.

Scavengers that perform their activities prior to the collection phase break open bags to have access to their contents or indiscriminately remove other materials from containers and leave them on the street, increasing the time required to collect the materials by the formal collection sector. Resource recovery conducted during the collection process reduces the efficiency of the collection system. Scavengers that conduct their work at the disposal sites have a tremendous influence on the speed at which the collection
vehicles discharge their contents as well as on the effectiveness and efficiency of tractors and/or compaction equipment. Adequate modifications to the existing scavenging systems must be made so that resource recovery is limited to specific locations and that those who conduct the process do so under safe and “clean” conditions. Most importantly, children and the elderly must be absolutely prohibited from conducting any kind of scavenging activities.

**Impact from Hazardous Wastes**

ISWA works on the implementation of the World Summit on Sustainable Development Plan of Implementation. Article 22 states:

- **paragraph (d):** “Encourage partnerships to promote activities aimed at enhancing environmentally sound management of chemicals and hazardous wastes, implementing multilateral environmental agreements, raising awareness of issues relating to chemicals and hazardous waste and encouraging the collection and use of additional scientific data”.
- **Paragraph (e):** “Promote efforts to prevent international illegal trafficking of hazardous chemicals and hazardous wastes and to prevent damage resulting from the transboundary movement and disposal of hazardous wastes in a manner consistent with obligations under relevant international instruments, such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.”

ISWA is working on disseminating of information on the safe handling of hazardous waste. ISWA jointly launched the management Training Resource Pack (TRP) with UNEP.

ISWA held a workshop in Shanghai on these issues and is also planning to hold courses in Argentina, covering various waste issues, as part of ISWA’s partnership with the Argentine Ministry of Environment and Sustainable Development on a national waste strategy.

**Climate Change**

Climate change is one of the biggest environmental, social and economic threats facing the planet. The main gas responsible for climate change is carbon dioxide, but there are other ‘greenhouse’ gases as well, some of which (e.g. methane) are directly related to some waste management practices, such as landfilling. In order to bring climate change to a halt, global greenhouse gas emissions must be reduced significantly.

Waste management produces greenhouse gases in a number of different ways. The anaerobic decomposition of waste in landfills produces methane, a greenhouse gas 21 times more potent than carbon dioxide. In addition, the transportation of waste to disposal sites and also recycling facilities produces greenhouse gases from the combustion of the fuel used.

Waste reduction and recycling help address global climate change. The manufacture, distribution, and
use of products – as well as management of the resulting waste – all result in greenhouse gas emissions. Waste prevention and recycling reduce greenhouse gases associated with these activities by reducing methane emissions, saving energy related to production of replaced goods (plastics, fertilisers, etc.) and increasing forest carbon sequestration and by locking up of carbon in the soil.

In the international climate strategy many countries are seeking to minimise greenhouse gas emissions and in this perspective Waste-to- Energy is coming more and more into focus.

ISWA is addressing the issue of climate change in the different working groups and is organising a joint working group meeting on this issue in 2005 in Argentina.

In summary, waste management has to become an integral part of sustainable integrated resource and climate policy and practice.

Developing countries “ISWA Regional Development Networks”

At the General Assembly in Melbourne in 2003 it was decided to establish Regional Development Networks among the National Members in Eastern Europe and Russia, Asia, the Middle East and Latin America. As ISWA has no National Members in Africa so far, the possibility of having Networks in this continent has been postponed.

The aims of the Regional Development Networks were set up to be:

- Promotion of sustainable waste management in the Region
- Networking for solving local problems

The Networks will be organising training courses and ISWA specialised Beacon Conferences as well as other conferences and other means of technology transfer.

Furthermore, the Networks will provide ISWA with information on the development of waste management in the region and alerting members of waste management issues in the region as well as identifying regional priorities for development assistance agencies e.g. World Bank.

So far 3 Networks have been established: one in Latin America focusing on Brazil and Argentina, one in the Middle East centred on Turkey and Israel and one in the Asian and Pacific area consisting of Australia, New Zealand, Singapore and Thailand.

Other Networks will hopefully be established between the remaining National Members of the designated network areas.
6. ISWA Future Agenda

§1. Developing ISWA Key Issues
For implementation of the ISWA 10 years perspective the ISWA working groups have seen the need and agreed to develop some key issue papers for the future ISWA work programme. The issues, which have been agreed upon are seen from the perspective of the above mentioned statements and development tendencies on a global level. The key issue papers will be the following:

- Waste Prevention and Resources management
- Globalisation of recycling
- Closing of open dumps
- Greenhouse gas emissions from landfills
- Occupational Health
- Health Care Waste management in developing countries
- Scavenging, including health care issues
- Waste Management in the light of Climate Change

The papers will be developed by the ISWA Working Groups and will be implemented in the yearly work programmes of the ISWA working groups.

§2. Education and training
ISWA has for some years carried out ad hoc training courses around the world through various Working Groups. The STC and the Board are in the process of developing a structured training programme for the next two years. ISWA is therefore at the moment working on the following areas:

- Develop a joint training programme with the World Bank
- Technical courses, seminars and workshop on EU priority issues under the EU funding programme
- Developing an ISWA educational programme leading to the granting of a certificate of qualification entitled International Waste Manager

§3. Capacity building
ISWA has acknowledged that in many cases in the developing countries the need for capacity building is a higher priority than the very technical training. There is, in general, a need for setting up a control system with a competent authority and a legal system as the driving force for development. ISWA has therefore developed a short booklet on waste management planning in cooperation with UNEP and will in the future work on the following projects:

- National Waste Strategy for Argentina
- ISWA twining programme between National Members
- Focus more on capacity building in the work of the working groups
- Project with the World Bank funding on capacity building

§4. Cooperation with other international key players
ISWA has entered into formal partnerships and less formal co-operation with a number of international
bodies and agencies, including:

- World Health Organisation (WHO)
- United Nations Environmental Programme (UNEP) and the Secretariat of the Basel Convention
- European Union (EU)
- World Bank

The ISWA Scientific and Technical Committee has regular meetings with the partner organisations and the STC held a meeting with the World Bank during the Annual Congress in Rome 18 October 2004 to discuss the possibility of having joint training courses. After the meeting the STC drafted a proposal to the World Bank on co-operation, which is at the moment being developed into a Memorandum of Understanding, between ISWA and the World Bank. ISWA will begin working with the Work Bank in the future as an important development of our global network.

§5. Becoming truly international

ISWA has developed three Regional Development Networks in Latin America, in the Middle East and in the Asian and Pacific area. The future agenda is to strengthen the networks and to further develop other regional networks around the world.

§6. ISWA as an international Waste Information Portal

The STC has in 2003 and 2004 redesigned the ISWA homepage to become a communication channel to people outside of the organisation. The STC’s main goal with the website has been to develop an international waste information portal “the one stop shop”. The homepage is designed as road map on how to find information. The sharing of information has always been the key issue for ISWA and will for the future also be a key issue via the ISWA website.

www.iswa.org
References:


ISWA International Waste Manager programme: http://www.iswa.org/index.php?option=content&task=view&id=221&Itemid=185

ISWA Ten Years Perspective on Waste Management 2003: http://iswa.org/components/com_docman/dl2.php?archive=0&file=MTB5ZWFycGVyc3BlY3RpdmUucGRm


The Prototype Carbon Fund, managed by the Carbon Fund: http://carbonfinance.org/pcf/Router.cfm?Page=About

UNEP’s 8th High Level Seminar on Sustainable Consumption: http://www.iswa.org/index.php?option=content&task=view&id=186
