

Development of a National Health Care Waste Management Policy for South Africa

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ABSTRACT A Policy for Health Care Risk Waste (HCRW) Management is being developed by the Department of Environmental Affairs and Tourism in collaboration with the national Department of Health. The HCRW Management Policy aims at: i) Setting of standards and guidelines for HCRW Management, ii) Environmental Performance requirements for Treatment Plants and preference of treatment technologies, iii) Particular approaches to improving management of HCRW in remote and rural areas as well as HCRW generated by smaller generators in communities, and iv) Proposed transition processes from the current to the preferred improved HCRW Management framework. The Paper includes a summary of the key interventions that is being proposed to be included in the National HCRW Policy.

KEYWORDS Health care risk waste, Medical waste, Infectious waste, Hospital waste, National waste policy, Air quality, Waste management regulations, National waste management strategy implementation.

1. INTRODUCTION

The Department of Environmental Affairs and Tourism (DEAT) in collaboration with the national Department of Health (NDOH) is currently undertaking a project on healthcare waste management as part of the National Waste Management Strategy (NWMS) Implementation project. The project commenced in 2004 and will end in December 2006. Other components selected for implementation as part of the NWMS Implementation Project are Recycling and the Waste Information System (WIS) components as well as a cross-cutting component dealing with capacity building, legal and institutional framework.

The overall project objective for the health care waste (HCW) component is: "Improved healthcare waste management is South Africa". There are four overall project outputs and these include:

1. Projections for HCW generation and treatment.

2. Development of models and tools for HCW (i.e. Policies, Strategies and Action plans, Guidelines, etc).
3. Needed information for WIS.
4. Crosscutting issues, which include among others: capacity building and awareness, legislation and institutional aspects, funding mechanisms, and pilot projects.

This paper focuses on the development of HCW policy for South Africa. The paper looks at the different aspects that were taken into consideration before and during the drafting of the policy.

1.1 Vision of the HCRW Management Policy

The Vision of this Policy is:

That health care risk waste (HCRW) is managed well in South Africa in an integrated way that is environmentally and economically sustainable while being occupationally safe and safe to the public.

The management of health care risk waste shall be in accordance with the principles of the National Waste Management Strategy and cover the health care risk waste stream over the full life cycle of the waste from planning/procurement to final disposal.

1.2 Who must take action?

The vision statement above translates, among others, into the following actions (illustrated in table 1.1 below) for the key stakeholders.

Table 1.1: Actions for the key stakeholders.

Key Stakeholders	Actions / Impacts
National and Provincial Environmental Authorities	Must make adequate plans to ensure that unacceptable impacts are not caused by the storage, transportation, treatment or final disposal of health care risk waste.
National and Provincial Health Authorities	Must budget adequately for well managed healthcare waste management systems and provide the necessary instructions and guidance in this regards.
Public and Private Health Care Facilities (i.e. hospitals, clinics, practices etc.)	Support and capacitate relevant staff to implement acceptable healthcare waste management systems and provide the required capacity, budget and skills.
Operators and owners of healthcare waste treatment plants	Review the current performance of treatment plants in terms of government requirements and make plans for reaching compliance within time limits granted.
Manufacturers and	Review the performance of plants manufactured and imported in

Key Stakeholders	Actions / Impacts
importers of healthcare waste treatment plants	terms of the public requirements to ensure that future plants comply with new requirements.
Local Authorities	Review the provisioning and accessibility of necessary healthcare risk waste management services and implement necessary bylaws, enforcement and awareness activities to ensure compliance with the public requirements.
Others	Take cognizance of the HCRW Policy

1.3 Objectives for healthcare waste management Policy in South Africa

The Objectives of this Policy is to set environmental requirements for HCRW Management related activities and functions. The detailed Environmental Requirements will be set in the HCRW Strategy and Action Plan as well as build into new or amended regulations and standards for South Africa. To that end it is suggested that the following pieces of regulation be developed:

1. Regulation of emission standards for incinerators to be set via a particular schedule to the Air Quality Act (Act 39, 2004).
2. General HCRW Management requirements to be included in relevant sections of the Waste Management Bill as well as a dedicated HCRW Management Regulation to the Bill being developed.
3. Particular environmental performance requirements are set for HCRW sterilization technologies including microbial kill-rates and monitoring via the Waste Management Bill being developed.

1.3.1 Objectives for Environmental Protection

It is the Objective that HCRW is managed in an integrated manner that ensures an acceptable level of environmental protection. Therefore, it is a Policy Requirement that:

- Environmental protection standards that are comparable with current internationally best practicable standards are introduced in South Africa via relevant regulatory tools that address the atmospheric, liquid and solid waste releases from HCRW treatment plants to the natural environment.
- Sub-standard HCRW Treatment plants are discontinued and replaced by compliant treatment system within practical time frames
- National departments implement flexible measures, such as awareness campaigns, voluntary agreements, or incentives that promote the substitution of environmentally unfriendly products from the HCRW stream via Green Procurement or similar approaches. This must in particular focus in the substitution of polyvinylchloride (PVC) based products as well as mercury and other heavy metal containing equipment in the health care sector.

1.3.2 Objectives for the use of Treatment Technologies

It is the Objective that there shall be no preference for or against particular types of HCRW Treatment i.e. all types of treatment technologies can be applied provided that it can be demonstrated that the treatment technology can comply with the required environmental performance requirements. These requirements are to be developed and specified via the following legislative frameworks:

1. A regulation under the National Environment Management Air Quality Act (Act 39 of 2004) must be developed that sets the environmental performance requirements for HCRW Incinerators
2. In the drafting of the new Waste Management Bill (expected to be out for consultation 2006) a particular regulation must be developed that sets standards for the performance of non-burn treatment plants for HCRW, such standards should include i) pathogenic kill-rates, ii) verification and monitoring procedures, iii) requirements for the residue being produced. Also, a particular regulation on the general waste management requirements for HCRW including containerisation, collection, storage, labelling etc.

The following overall Environmental Requirements must apply:

1. After treatment the residues shall not be easily recognisable as being health care risk waste (i.e. there may not be clearly recognisable and unbroken items such as syringes, needles, scalpels, bandages, blood bags etc. For this reason a form of size reduction mechanism may have to be used depending on the type of residue.
2. A well document monitoring protocol and verifiable monitoring data must be available to document the ongoing compliance with the environmental requirements of the Treatment Technology. This may be a combination of day-to-day parametric monitoring as well as grab sample or on-line measurements depending on the type of process.
3. Transition arrangements must allow for phasing out of sub-standard incinerators that are not equipped with advanced flue gas cleaning. Particular cognisance of problems of access to HCRW treatment and services in rural and remote areas must be included.
4. For the sterilisation (non-incineration) technologies the United Kingdom Environment Agencyⁱ, STAATT IIⁱⁱ or the similar draft standard being produced by Underwriters Laboratories Inc.ⁱⁱⁱ must be the benchmark. For smaller on-site applications parametric monitoring of non-burn treatment plants are allowed after initial biological monitoring during commissioning of the equipment supplemented by recurring biological monitoring from time to time depending on the type and size of plant.

1.2 Current HCRW generation and treatment capacity

As part of the NWMS Implementation Project a detailed study has been carried out to determine the current HCRW generation in South Africa. This is the most comprehensive assessment of the HCRW quantities to date carried out in South Africa. The detailed results of that survey are presented in a separate paper. The table 1.2 below includes a summary of the survey findings.

Table 1.2: Summary of Findings of HCRW Survey carried out 2006.

Province	Public Hospitals	Private Hospitals	Total Hospitals	Public Clinics	Private Clinics	Total Clinics
Units	tonnes/an	tonnes/an	tonnes/an	tonnes/an	tonnes/an	tonnes/an
Eastern Cape	2 238	849	3 087	302	21	323
Free State	1 027	490	1 517	100	5	105
Gauteng	3 216	4 022	7 238	179	119	298
Kwa-Zulu Natal	4 218	988	5 206	187	43	229
Limpopo	1 631	85	1 716	215	2	217
Mpumalanga	818	314	1 132	222	19	241
North West	914	371	1 286	339	22	361
Northern Cape	311	254	566	94	6	100
Western Cape	1 796	1 173	2 969	276	70	346
Mining		1 314	1 314		3	3
Total	16 168	9 861	26 029	1 912	309	2 222

Source: *Projections for Health Care Risk Waste Generation, Final Report, Dr. DEC. Rogers, CSIR.*

The Survey has also assessed the current HCRW treatment capacity in South Africa as indicated in table 1.3 below:

Table 1.3: Estimated HCRW Treatment Capacity in South Africa 2005.

	HCRW treatment service providers	Public hosp.	Non-public hosp.	Total
Tonnes per annum (tpa)	24 615	3 185	158	27 959
No of treatment facilities	12	146	3	161
Average daily throughput (kg/d)	7 178	84	203	7 465
% of total waste treated	88%	11%	1%	100%

Source: *Projections for Health Care Risk Waste Generation, Final Report, Dr. DEC. Rogers, CSIR.*

The Survey has shown that the HCRW generation and the treatment capacity on a national scale matches well. However, there are regions with excess treatment capacity and other regions with very limited availability of treatment capacity. Furthermore, there are in particular minor and rural generators of HCRW that are not being serviced currently.

1.3 International Experience with Management of HCRW

Internationally, the Management of Health Care Risk Waste has evolved considerably since the times when each hospital operated a simple incinerator without any environmental protection measures. The emergence of alternatives to HCRW incineration as well as the development of HCRW incinerators that comply with the highest international environmental standards has resulted in greater choice of treatment

as well as higher costs of treatment. The table below indicates typical choice of technology and standards applied in selected regions of the world. Currently the highest emission standards for waste incinerators are being enforced in the European Union (EU), whereas the United States has set the current highest standards for microbial kill-rates for non-burn treatment technologies that are also applied in the EU and Australasia.

Table 1.4: Approximate Application of HCRW Treatment Technologies in selected regions of the World.

Year of Standard:	2000/1997	1994/1998	1980'ies	1960'ies
Region	Highest Standard Incineration	Alternative Non-burn treatment ¹	Low standard incineration	Very low standard incineration
Scandinavia	✓			
E. Europe	✓ (few)		✓	
S. & W. Europe	✓	✓		
N. America	✓	✓	✓ (small scale)	
N. Africa			✓ (few)	✓
E., W. & C. Africa				✓
Southern Africa				✓
South Africa	✓ (Gauteng)	✓	✓	✓ (small scale)
Australasia	✓	✓	✓ (few)	
South East Asia	✓ (few)		✓	
S. & C. America			✓	✓

Source: Online Database of WHO at www.healthcarewaste.org and various literature and professional communications.

Internationally, the management of HCRW is very similar in terms of separation of HCRW into i) sharps, ii) pathological waste, iii) pharmaceutical/chemical waste, iv) general infectious waste and other special types such as mutagenic waste etc. However, there are specific regional variations such as i) separation of needle and syringes before disposal vs. disposal as one unit (cost issue), ii) choice of colour coding (red vs. yellow), iii) use of disposable vs. reusable sharps containers, vi) use of disposable vs. reusable HCRW containers (cost and environment issue) etc. Key focus internationally is to provide a safe and cost-efficient HCRW management system that generates the least environmental impact.

2. MOTIVATION FOR THE POLICY

2.1 Why Health care waste?

¹ Most widely applied are: i) Stream Sterilisation/Autoclave, ii) Microwave, iii) Dry-heat Sterilisation, iv) Chemical disinfection, v) Electro thermal de-activation, vi) and various combinations of technologies.

The question that one may ask is why there is so much focus on healthcare waste, and what about the rest of the other hazardous waste stream. Healthcare waste management was identified as one of the issues of priority in the NWMS that requires immediate attention, and has as such been selected for inclusion in the National waste Management Strategy implementation project, donor co-funded by the Government of Denmark. The approach to addressing HCRW may serve as a model for addressing other priority waste streams in the future. Furthermore, the inclusion of HCRW is motivated by the high level of public concern regarding the transmission of blood borne diseases via needle stick injuries caused by mis-management of HCRW that could affect both workers at health care facilities as well as communities exposed to mis-managed HCRW. Several incidences HCRW being found illegally dumped in communities or on landfills have been reported over that past decade.

2.1.1 Policy Development Process

The draft of the discussion document for the HCRW Management Policy was developed following the multi-stakeholder consultative workshops that were held in seven of the nine provinces (with the exception of Gauteng and Limpopo Provinces) across the country during the period 2004 and 2005. Similar problems were identified by the stakeholders in all the provinces where the workshops were conducted. The discussion document for the policy was further consulted within DEAT and NDOH as well as with key selected stakeholders whose comments were noted and further incorporated to form part of the draft policy that is currently under the discussion.

2.1.2 HCRW Management Problems Today

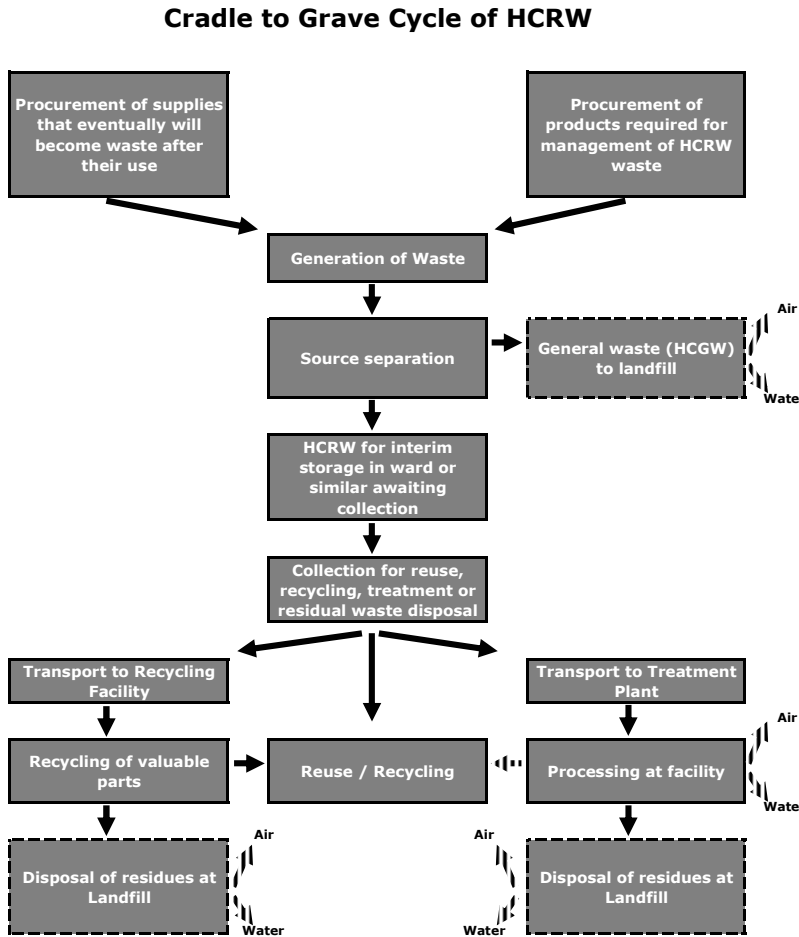
Today healthcare waste is managed in a manner that is causing problems to society and communities due to lack of environmentally acceptable treatment particularly in the rural and remote areas. Problems also arise due to insufficient attention afforded to environmental and safety impacts of the current unacceptable healthcare waste management practices that puts people at unacceptable risk and causes excessive environmental impacts through the use of open burning or use of poorly operated and poorly designed incinerators. There is also lack of clear guidance to the health care sector and waste management industry with regard to which performance standards and type of treatment technologies can and should be used in South Africa for healthcare risk waste.

The draft HCRW Management Policy that is being developed for South Africa is aimed at addressing the aforesaid problems and also at providing clear direction to the healthcare providers and the waste management industry regarding the standards to be met.

2.2 Cradle to Grave Life cycle of Health Care Risk Waste

There are problems and opportunities associated with each step from the cradle-to-grave cycle of HCRW which shall be addressed by the HCRW Management Policy. Figure 2.1 below indicates the various steps of HCRW Management.

As indicated in the figure below the actual waste generation can be managed, among others, by carefully controlling the procurement of supplies and waste receptacles (green procurement) with focus on waste minimization opportunities as well as increased waste awareness for the involved personnel. This HCRW Management Policy encourages introduction of Green Procurement procedures with special emphasis on the substitution of polyvinylchloride (PVC) with non-PVC polymers, substitution of mercury and heavy metal containing items and products with non-mercury and non-heavy metal alternatives.



Due to the significantly higher costs of HCRW treatment and disposal compared with the disposal of general waste this HCRW Management Policy encourages efficient waste segregation at source to ensure that only those types of waste requiring treatment as HCRW will enter that waste stream and equally to ensure that potentially infectious or hazardous waste enters the general waste stream. The draft HCRW Management Policy encourages focusing on recycling of waste products based on source separation, such as cardboard, paper, glass, polymers, X-ray developers, etc. where viable.

Grave Cycle of HCRW Management

Figure 2.1: Cradle to

3. CURRENT LEGAL FRAMEWORK FOR HEALTH CARE RISK WASTE MANAGEMENT IN SOUTH AFRICA

3.1 Current Legal Framework

Some provinces have gone ahead with the development of provincial healthcare waste management legislation and/or regulations such as the Western Cape Province and the Gauteng Province. However, this does reduce the need for guidance from national government. This HCRW Policy has been informed by the provincial initiatives and will

be producing national legislation and guidance to be implemented at provincial and local government level.

As part of the National Waste Management Strategy Implementation project a legal review of healthcare waste in South Africa was conducted to assess the needs and options for law reform pertaining to healthcare waste management in the country. The following synopsis of legal framework is based on that.

3.1.1 Integrated Pollution and Waste Management Policy, 2000

This White Paper details government's policy on pollution and waste management and has formed the point of departure for the National Waste Management Strategy. The goal of the Integrated Pollution and Waste Management (IP&WM) policy is to move away from a previously fragmented and uncoordinated waste management system to an integrated waste management system and it defines government's "cradle-to-grave" approach to the management of waste.

3.1.2 Environmental Conservation Act (Act 73 of 1989)

This Act is regarded as the most important piece of legislation governing waste in South Africa, particularly solid waste, since, unlike most other legislation regulating waste, it makes provision for the regulation of waste specifically and with the aim of providing for the protection of the environment. The amendment of ECA has allowed for transfer of duties relating to management of disposal of waste from DWAF to DEAT, effective from 01 January 2006. ECA provides for the formulation of a definition of waste by regulation. A regulation setting out such a definition² was passed in 1990 and in terms of the regulation, waste is accordingly defined as:

"an undesirable or superfluous by-product, emission, residue or remainder of any process or activity, any matter, gaseous, liquid or solid or any combination thereof originating from any residential, commercial or industrial area, which is discarded by any person, is accumulated and stored by any person with the purpose of eventually discarding it with or without prior treatment connected with the discarding thereof, or which is stored by any person with the purpose of recycling, re-using or extracting a useable product from such matter".

Although the definition excludes certain types of waste, health care waste is not one of the exclusions and it is accordingly clear that health care waste falls within the scope of the Act. ECA accordingly places an obligation on both generators of health care waste, to ensure that their wastes are disposed of appropriately, and waste operators, to handle such disposal in accordance with permit provisions.

In addition to the provisions of section 20, the Act allocates powers to both the Minister of Water Affairs and Forestry and the Minister of Environmental Affairs and Tourism to

² GNR 1986, GG 12703, 24 August 1990

pass regulations which expand the reach of the waste management provisions, although to date very few regulations have been passed in terms of the Act.³

The absence of regulations means that the potential for ECA to provide an effective and integrated management system for health care waste has not been realized. Health care waste is accordingly not specifically regulated under the Act.

3.1.3 National Environmental Management Act (Act 107 of 1998)

This Act is the framework legislation for environmental management and it provides for cooperative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote cooperative governance and procedures for coordinating environmental functions exercised by organs of state and to provide for matters connected therewith. Two of the specific environmental management acts that are part of the law reform process are:

- NEM: AQA – control of air emission from incinerators or thermal treatment plants of healthcare waste (Act 39 of 2004).
- NEM: Waste Management Bill (under development).

3.1.4 NEM: Air Quality Management Act (Act 39 of 2004)

This Act is about to repeal the old Atmospheric Pollution Prevention Act (Act 45 of 1965), however there are certain provisions under this Act that are still in force and these are relevant particularly to healthcare waste, such as provisions that relate to scheduled processes which requires permitting: waste incineration processes. However, there are no legally binding guidelines or standards for the operation of incinerators or even for other healthcare waste treatment technologies.

3.1.5 NEM: Waste Management Bill

Currently there is no single piece of legislation that regulates the management of healthcare waste in South Africa and as part of its law reform process the Department of Environmental Affairs and Tourism (DEAT) is currently in the process of drafting the National Waste Management Bill which is expected to be completed and ready for Cabinet approval by end year 2007. This Bill is seen as the single piece of legislation that addresses waste management in a holistic and integrated manner.

3.1.6 Other applicable legislation

Other legislations that apply to healthcare waste management (to some or limited extent) include:

- National Health Act (Act 61 of 2003)
- Hazardous Substances Act (Act 15 of 1977)
- Occupational Health and Safety Act (Act 85 of 1993)

³ Regulations that have been passed include those for waste disposal site permit applications (GNR 11196, GG 15832, 8 July 1994).

3.2 Environmental Legal Reform in Progress

Irrespective of how these considerations are actually addressed in a country, the basic elements of a health care waste management system, which should be considered as a framework for health care waste legislation, are suggested in the table below:

Table 3.1: The basic elements of a health care waste management system.

Government Mechanisms	HCW management Elements	Framework for legislation
Management mechanism	Institutional Arrangement	Legislation must indicate which government authorities have responsibilities for implementing and enforcing the legislation. It must also provide for effective co-ordination. Additional provisions regarding public consultation may be added.
Management mechanism	Mechanisms for planning	Planning is an important component of a health care waste management system as it can ensure the sustainability of the system if conducted properly. Planning activities may include approaches to ensuring that the required capacity of treatment and disposal facilities will be sufficient, the management of services to meet increased demands; and the introduction of mechanisms to improve cost efficiency.
Management mechanism	Collection and dissemination of information	Information management is of paramount importance for, <i>inter alia</i> , monitoring trends and the achievement of objectives, reviewing standards and for planning purposes. The type of information that may be required includes the significant sources of waste generators, quantities and composition of waste generated, rates of compliance and reports on progress in achieving legislated or voluntary targets.
Control mechanism	Definitions	Coherent definitions are important for ensuring that the scope of the legislation is clear. The lack of coherent definitions hinders the implementation of a consistent approach to the management of health care waste as well as the enforcement of such legislation
Control mechanism	Regulation of : - Generation - Storage - Collection and Transportation - Treatment, and - Disposal.	These provisions must establish the rules in terms of which health care waste is managed throughout its life cycle. This may be achieved by the introduction of permitting mechanisms and/ or the imposition of requirements and standards. Issues may include the conditions under which waste may be generated, the requirements for storage and handling, the frequency of collection and permissible treatment and disposal techniques.
Procedural mechanism	Compliance and enforcement	Compliance and enforcement mechanisms must be included in the legislation to ensure that compliance with the articulated rules can be enforced. Both traditional command-and-control approaches and other approaches should be considered for inclusion.
Procedural mechanism	General	The general provisions typically include administrative provisions such as appeals, exemptions and administrative powers and duties. given the Constitutional and legislative imperative to ensure that procedural rights are given effect to in the implementation of legislation, it is preferable to also include provision regarding how these rights, including public participation can be exercised

4. PROPOSED INTERVENTIONS FOR IMPROVED HEALTH CARE RISK WASTE MANAGEMENT

4.1 Overall Approach of Interventions

The proposed overall approach to interventions in support of improved HCRW management are illustrated in figure 4.1 below. , namely: i) *Enabling interventions* that put in place the necessary regulatory tools, funding and enforcement, ii) *Encouraging interventions* that provide accessible information, guidance and recognition, iii) *Engaging interventions* that provide the necessary awareness support, involvement and consultation with key stakeholders as well as iv) *Exemplifying interventions* where government is leading by example, pilot projects are used to demonstrate good practises and examples of good and bad practises are being broadcast to the community.

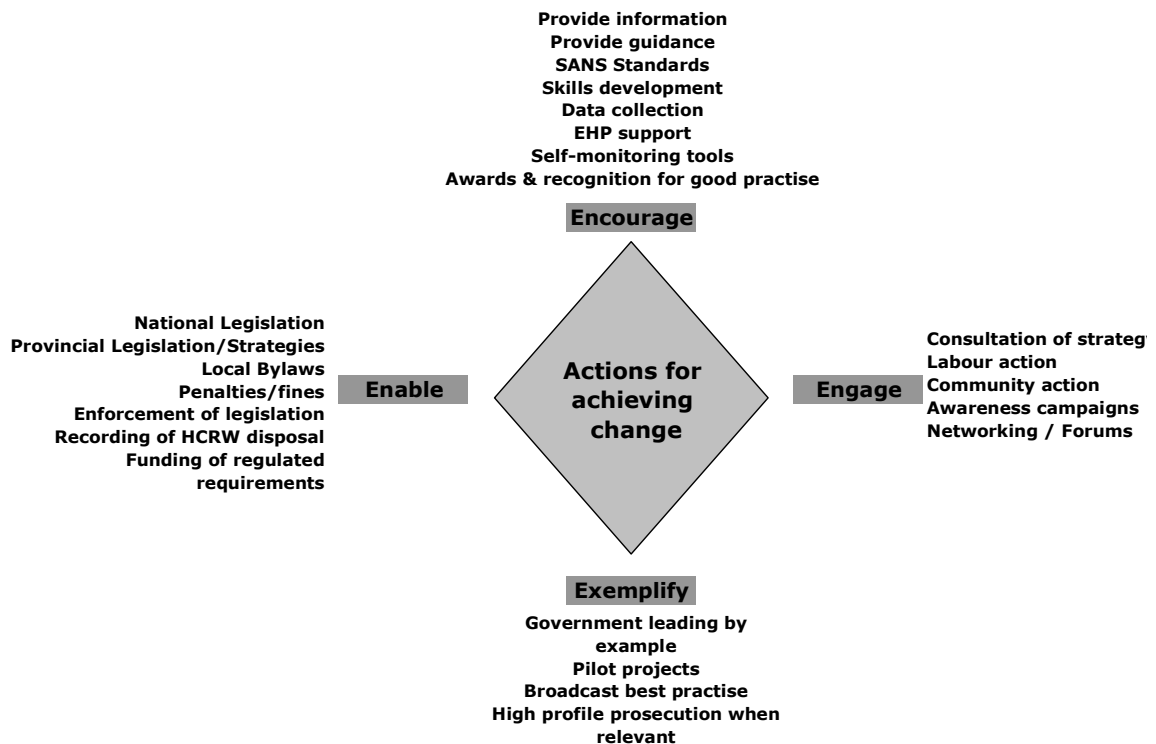


Figure 4.1: Illustration of Approach to Interventions for Improved Management of HCRW

4.2 Regulatory Interventions

Figure 4.2 below illustrates the particular enabling regulatory and funding interventions that are required to make implementation of the HCRW Management Policy possible.

The key regulatory interventions are i) Regulations for emissions from HCRW incinerators under the National Air Quality Management Act (39, 2004) as well as two regulations under the Waste Management Bill that is being developed, namely one that addresses general HCRW Management requirements as well as one that addresses the particular performance requirements for non-burn HCRW treatment plants.

Apart from enabling mechanisms introduced by regulatory tools and enforcement a number of actions designed to encourage, exemplify and engage are proposed as detailed in Figure 4.1 above.

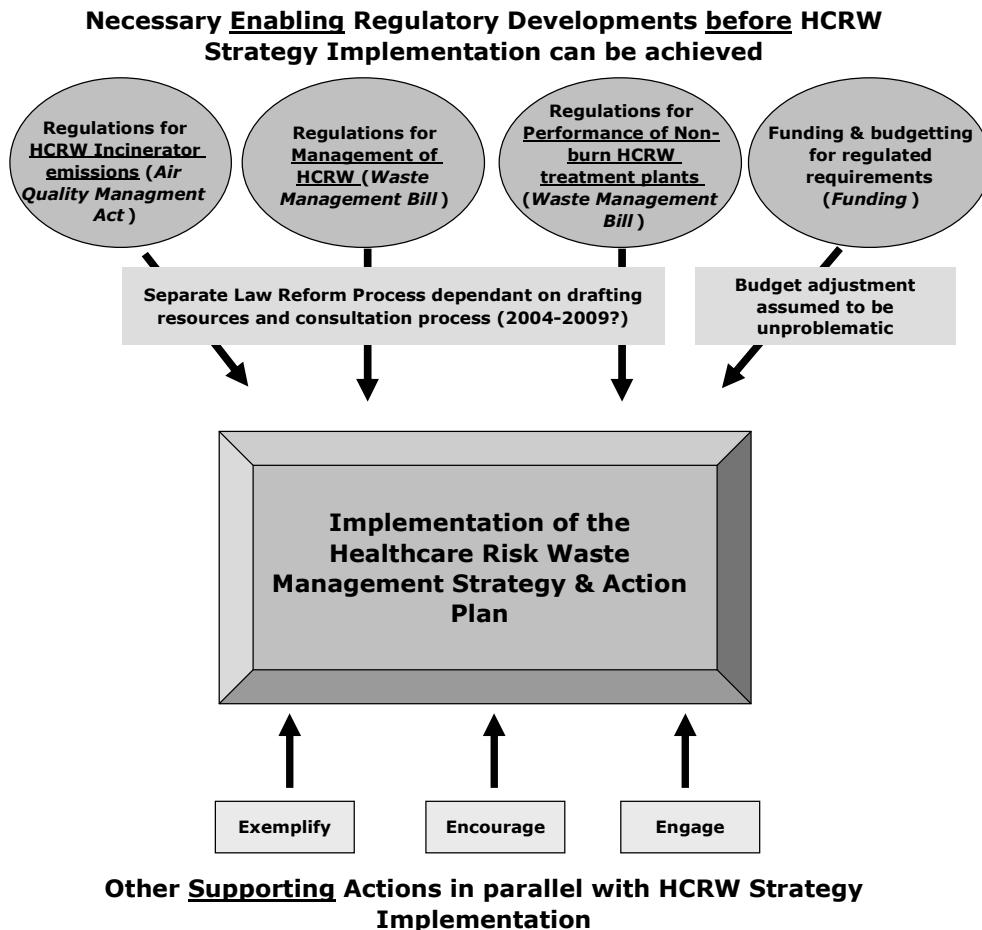


Figure 4.2: Necessary Enabling Regulatory Tools for Improved HCRW Management

4.3 Capacity Building Interventions

Other interventions that are suggested include:

- Elaboration of current curricula for health care professionals to include introduction to HCRW Management – to be determined in consultation with the

relevant bodies such as SETA, SAQA, Department of Education, and other relevant bodies.

- Provide guidance to provinces and local governments – the guidance materials such the guidelines for developing tender material and specifications, as well as Strategy and Action Plans for implementation of the policy are currently under development.
- Provide guidance to health care waste generators - the SABS code SANS10248 is currently being revised to include both the major and minor generators and the urban and rural environments in consultation with DEAT and NDOH and a SANS code 10452 for sharps containers is also under development.

4.4 Tools Supporting the Implementation of the HCRW Management Policy

The implementation of this HCRW Management Policy is to be supported by the following initiatives:

1. Development of a detailed *HCRW Management Strategy and Action Plan* that specifies times frames, responsibilities and actions for the implementation of the HCRW Management Policy
2. Development of *Schedules for HCRW Incineration for the Air Quality Act* that specifies emission limits and monitoring procedures as well as sets timeframes for compliance for existing facilities and new facilities
3. Develop *Regulations, including schedules to the National Waste Management Act* being developed that sets the following environmental standards: i) environmental performance and microbial inactivation levels to be achieved by non-combustion HCRW treatment technologies and ii) Environmental Requirements for containerization, transportation and disposal of HCRW, and a possible requirement for development of *local government Plans and By-Laws for Management of Health Care Risk Waste* being generated in the community.
4. *Revision of SANS code 10248:2004 to include guidance for small scale generators of HCRW and remote and rural health care facilities* and revision of current SANS 10248:2004. To this end, DEAT and National Health should jointly developing a particular approach and outreach programme to identify and rectify the numerous cases of open pit burning and sub-standard incinerator use as well as placenta pit disposal of HCRW in rural and peri-urban areas based on the guidance provided in the revised SANS 10248.

5. SUMMARY AND CONCLUSIONS

It is believed that the proposed HCRW Management Policy and the subsequent HCRW Strategy and Action Plan will provide a levelled playing field for the HCRW service industry and allow for replacement of unacceptable treatment plants with plants that comply with sustainable and acceptable environment and safety standards.

The setting of reasonable time frames for implementation of the HCRW Management Policy via the Strategy and Action Plan will have to be balanced to ensure timely achievement of acceptable standards without compromising the availability of affordable treatment facilities in all regions of South Africa.

With the proposed HCRW Management Policy South Africa will reach HCRW management standards that are comparable with good international practice that will guard communities and personnel against detrimental impacts from infectious waste including effects of emissions caused by HCRW treatment facilities.

The draft policy has been finalized and is awaiting final approval by the head of the department within DEAT before it can be consulted externally in the provinces and with the wider public. Similar processes will take place within the NDOH including consultations with the various structures/ clusters in all the process. Once the policy has been finalized, it will then follow the normal departmental consultation processes before final approval by the Cabinet. It is envisaged that the policy will be approved and published in the government gazette by the end of year 2007.

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7. ACKNOWLEDGEMENTS

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ⁱ July 2003, Version 2.5, Environment Agency, Waste Management Licensing Technical Guidance On Clinical Waste Management Facilities, July 2003

ⁱⁱ STAATT II. Technical Assistance Manual: State Regulatory Oversight of Medical Waste Treatment Technologies: A Report of the State and Territorial Association on Alternative Treatment Technologies. EPRI Report TR-112222. (EPRI, Palo Alto, CA, USA, 1998).

ⁱⁱⁱ Standard For Alternative Treatment Technologies For Disposal Of Medical Waste, BSR/UL 2334, Proposed First Edition, Draft, September 2003