

**CONSULTING SERVICES PROJECT FOR INTEGRATED
SOLID WASTE MANAGEMENT OF LAHORE CITY OF
THE STATE OF PUNJAB IN PAKISTAN**



**DEVELOPMENT OF THE
EXISTING LEGAL
FRAMEWORK REPORT**



PROJECT TEAM

Controlled by

Esra ÖLMEZ

Project Coordinator

Reported by

Aynur Kemirtlek

Supervisor

Yelda Küçük

Environmental Engineer, MSc.

Rıza Şengül

Lawyer

LIST OF TABLES

Table 1 Annual Targets for Packaging Waste Recovery on the basis of material 12
Table 2 Rate of Disposal Responsibility of Battery Producers 14
Table 3 Recovery and Disposal Responsibility Rates of Accumulator Producers 14

LIST OF FIGURES

Figure 1. Process of Law 18
Figure 2. Law-Making Process in Pakistan 20
Figure 3. Organizational Chart for Environmental Protection Council 21
Figure 4. Organizational Chart for Environment Protection Agency 22
Figure 5. Organizational Chart for Environmental Arbitration 23

INTRODUCTION

Rapid developments in industry and technology increase the dominance of people on the nature and increase their life quality on one hand, and as a result of the disruption of the natural balances upon the increased population and rapid urbanization, has led to air, water and soil pollution that reached a level threatening all living creatures. Environment that had been perceived only as narrow scope pollution problems and short term solutions to eliminate them has now begun to indicate itself as the unity of natural, economic, social and cultural values. The most important factor determining this development is rapid and irreversible destruction of the resources used in realization of social and economic growth. Understanding this fact has brought about leaving traditional models of growth and searches for new models. Therefore, traditional unlimited growth and unlimited consumption a model has begun to be replaced by sustainable and well balanced growth models.

Amount of waste generated is increasing day by day in Lahore as in the whole world, depending on the social and economic structure and increasing population. Therefore, solid wastes have become one of the most important environmental problems that we experience. Solid wastes are not only those required to be disposed of in a secluded site, but also required a management system including many different elements such as collection, transportation, recovery and disposal. As a result of these developments, the term Waste Management has been widely used in everyday language, and a newer term "Integrated Waste Management" has become to be used.

For the purpose of forming the legal infrastructure of Integrated Waste Management, determining principles, technical terms and standards in this way, legal arrangements have been made in the whole world as well as in Turkey.

1. WASTE POLICY IN TURKEY, PAKISTAN AND IN THE WORLD AND ITS PRINCIPLES

1.1. European Union Waste Policy and Principles

In the basis of EU waste management policies, there lies "waste management hierarchy" and "producer responsibility". The priority in the hierarchy is prevention of wastes in production stage and decreasing waste amount and its hazard level. Recovery of the wastes through reuse, recycle and energy generation constitute the second step, which is recovery, and burning or safe storage of the wastes that do not allow Domestic Solid Wastes' Integrated Management in EU Harmonization Process constitute the last step.

Principle of producer responsibility is a reflection of the principles of "polluter pays" and is the coverage of any kind of costs arising from the wastes by the waste producers. Other principles are self-sufficiency at the level of community and member state, use of the most economic among the suitable technologies and disposal of wastes in the area closest to the source.

1.2. Turkish Waste Policy and Principles

Carrying out policy determination, strategy development, planning, standard determination, licensing, inspection, monitoring, measure taking, coordination, training etc. activities is under the authority and responsibility of the Ministry of Environment and Urbanization. Pursuant to the related

provisions of Metropolitan Municipality Law no. 5216 and Municipality Law no. 5393, responsibility in the field of waste management is Municipalities' to a significant degree. Turkey's waste management and principles have been determined in the framework of prioritized objectives, targets and strategies, in the direction of European Union principles and policies.

General principles of waste management in Turkey have been given below:

- ❖ Environment-friendly products (eco-labeled product)
- ❖ Clean production technologies
 - 3 R :(Reduce, Reuse, Recycle)
 - Minimizing waste production
 - Reusing
 - Recovery
- ❖ Integrated approach
- ❖ Recording, tracking and inspecting the polluter from the source to final disposal.

Basis of Turkey's is the principle of waste management hierarchy and principle of producer responsibility as in EU.

1.3. Pakistan's Waste Policy and Principles

Pakistan's Ministry of Environment published in 2005 the National Environment Policy (NEPA), which provides for integrated environment management policies under sections devoted to water management, waste management, air quality, bio-diversity etc.

National Sanitation Policy (6 March, 2006) is a document the Government of Pakistan prepared to assist local governments (including Punjab) in formulating their own strategies, plans, and programs. The sewage system and the current state of affairs in the region was analyzed, targets regarding the improvement of the sewage system were determined, and the roles and responsibilities of agencies, organizations and individuals as well as the mechanisms for implementation and monitoring were defined.

NEPA (National Environment Policy) (2005): With a view to formulating Pakistan's integrated environment management policy within the framework of the sections of NEPA (water management, waste management, air quality, bio-diversity etc.), the **National Environment Policy Act** is drawn up by the Pakistan's Ministry of Environment. The act covers the management of pollutants, integration of the process of improving and protecting environment with the private/public sectors, and the creation of a "National Environment Policy Implementation Committee" for the implementation and monitoring processes of the approved environment policy.

The general principles of waste management in Pakistan are as follows:

- ❖ Clean production technologies
- ❖ 3R: (Reduce, Reuse, Recycle)
 - Minimizing waste production
 - Reuse
 - Recovery
- ❖ Integrated approach
- ❖ Subsidies

2. SOLID WASTE MANAGEMENT LEGISLATION IN TURKEY AND PAKISTAN

Legal legislations concerning solid waste management in Turkey and Pakistan have been given below.

2.1. European Solid Waste Management Legislation

1982 Constitution granted right to live in a healthy and well balanced environment to the citizens, and defined developing the environment, protecting environmental health and pollution prevention as the duties of the state and the citizen.

In Turkey, environmental preservation policy consists of the Environment Law no. 2872 entered into force in 1983 and regulations, bylaws and communiqués prepared based on the mentioned law. Therefore, Law no. 2872 is accepted both as the beginning of the established and direct legal studies concerning the environment and the basic framework of the environmental preservation policy.

In Turkey, solid wastes have to be stored, shipped and disposed according to Environment Law no. 2872 and the regulations entered into force pursuant to this law. Moreover, Public Hygiene Law no. 1593, Municipalities Law no. 5393 and Metropolitan Municipality Law no. 5216 are applicable.

In addition to the solid wastes from the industry, solid wastes from the dwellings and workplaces have to be collected, shipped and disposed by the municipalities. However, in such cities with Metropolitan Municipality organization, temporary storage, collection of garbage and their transportation to the disposal facilities are County Municipalities' duty, and construction and operation of the disposal facility, where recovery, sanitary landfill, burning, composting and like are applied is Metropolitan Municipality's.

Management of solid wastes in conformity with the public health, according to rules of science, and using solid wastes for recovery and like are requirements of Public Health Law.

For our country, which is in the process of nomination in European Union, to complete negotiation process as soon as possible and to gain member status, it is required to reflect EU acquis on waste management including waste burning and sanitary landfill on the national legislation. Therefore, EU standards on solid waste management have been reflected on the directives. And this required revision of some directives.

Laws

There are many laws on solid wastes management in Turkey. These are:

- Environment Law numbered 2872
- Law on Making Amendments on Environment Law no. 5491
- Law on Organization and Duties of Ministry of Environment and Urbanization no. 4856
- Metropolitan Municipality Law no 5216
- Municipality Law no 5393
- Law on Municipal Revenues no 2464 (ÇTV)
- Law on Making Amendment on Law on Municipal Revenues no 3914
- Turkish Penal Code no 5237
- Public Health Law no 1593

Directives

- Regulation on General Terms of Waste Management (05.07.2008, 26927 R.G.)

- Regulation on Sanitary Landfill of Wastes (26.03.2010, 27533 R.G.)
- Regulation on Waste Burning (06.10.2010, 27721 R.G.)
- Regulation on Permissions and Licenses Required to be Obtained pursuant to Environment Law (29.04.2009, 27214 R.G)
- Regulation on Solid Waste Control (14.03.1991-20814 R.G.)
- Regulation on Medical Wastes Control (1993 -22.07.2005-25883 RG)
- Regulation on Hazardous Wastes Control (1995- 14.03.2005-25755 R.G)
- Regulation on Package Wastes Control (2004-24.08.2011-28035 R.G.)
- Regulation on Waste Oils Control (2004- 30.07.2008-26952 R.G.)
- Regulation on Excavation Soil, Construction and Destruction Wastes Control (18.03. 2004-25406 R.G)
- Regulation on Waste Battery and Accumulators (31.08.2004-25569 R.G.)
- Regulation on Plant Wastes Control (19.04.2005–25791 R.G.)
- Regulation on Tires with Expired Life (25.11.2006-26357 R.G)
- Regulation on Biphenyl with Polychloride and Terphenyls with Polychloride Control (27.12.2007-26739 R.G.)
- Regulation on Limiting the Use of Some Hazardous Materials in Electric and Electronic Goods (30.05.2008-26819 R.G.)
- Regulation on Control of Soil Pollution and Polluted Sites with Point Source (08.06.2010-27605 R.G.)

International Conventions

- Basel Convention on Transboundary Movements of Hazardous Wastes and Their Disposal (15.05.1994-21935 R.G.)

2.2. Solid Waste Management Regulations in Pakistan

At the federal level, administrative agencies organize relevant legislation and overall targets with a view to ensuring the protection of environment. The towns are under obligation to implement existing legislation. The Municipalities and Municipalities Association have also responsibilities regarding the collection of solid waste.

A preliminary information meeting was held with LWMC attorney Mr. Mehran Afzal on 23.09.2011 within the framework of legal regulations project package, and the following documents were obtained and examined.

Policies

1. National Environment Policy
2. National Sanitation Policy

Laws and Regulations

1. Pakistan's Environment Protection Law
2. Solid Waste Management Law
3. Punjab Municipality's Solid Waste Management Directives

4. Rules Regarding Hazardous Materials, 2003
5. Regulation on the Management of Hospital Waste, 2005
6. Pakistan Environment Protection Agency (IEE and EIA Analyses) Regulation, 2000

Agreements

1. Service and Asset Management Agreement for Solid Waste Management Services in Lahore
2. Articles of Incorporation for “M/S Lahore Waste Management Company”
3. Articles of Incorporation for “Lahore Waste Management Company”

3. DIRECTIVES AND REGULATIONS

3.1. TURKEY

3.1.1. Laws

Environmental Law 2872 (11.08.1983-18132 R.G.-Amendment 13.05.2006-26167 R.G.)

Environmental Law 2872 has been enforced upon being published in Official Gazette dated 11.08.1983 and numbered 18132. “Law for Amendment of Environmental Law” was enforced upon being published in Official Gazette 5491 dated 13.05.2006.

The purpose of this Law is to ensure protection of environment which is the common asset of all creatures according to the principles of sustainable environment and sustainable development.

As per article 8 of Environmental Law “It is prohibited to deliver any kind of wastes and residues directly or indirectly to the receiving environment, storing, shipping, removing such and carrying out similar activities in a manner to harm the environment, not in conformity with standards and methods established by the Regulations.

Environmental Law, Article 8 “It is prohibited forbidden to deliver any kind of wastes and residues directly or indirectly to the receiving environment, storing such and carrying out similar activities.”

Law for Amendment of Environmental Law 5491, this law is a framework law and establishes rules for the protection of environment and regulations for administrative organization and also provides authority to enforce directives for the protection of environment.

Amendment of Article 11 - “Metropolitan municipalities and municipalities are obliged to establish, operate domestic waste disposal facilities or have them established and operated.

Beneficiaries of such service are obliged to contribute to investment, operation, maintenance, repair and treatment expenses made by responsible administrations.

Solid waste collection, haulage and disposal fee are charged from the beneficiaries of this service according to the tariff to be established by the city council. Fees charges as per this clause may not be used for purposes other than services concerning solid waste“

Metropolitan Municipality Law 5216, with this law establishment of Metropolitan Municipalities is regulated. Also, authorizations for establishing and sanitary landfill facilities and waste treatment facilities were granted to Metropolitan municipalities. In spite of this, services for collection of domestic solid wastes and their haulage to disposal facilities is within responsibility of district municipalities.

Article 7. - "...preparing solid waste management plan, having such prepared; establishing facilities or having such established to carry out services for reuse, storage and disposal of solid wastes and excavation earth except for collection of solid wastes at the source and haulage thereof to transfer station..."

Municipality Law 5393, with this law establishment of Municipalities is obliged for settlements with a population in excess of 5000. Duties of collection, haulage, recovery, storage of domestic solid wastes and street and road cleaning are given to the municipalities.

Articles 14 and 15 - "...carrying out all services or having such to be carried out with regard to collection, haulage, sorting, recovery, destruction and storage of solid wastes..."

Law on Municipal Revenues 2464 (ÇTV), it covers fees to be charges in return of local services and tax revenues.

Article 97 - Waste producers are included in waste management services implementing "polluter pays" principle.

Law on Amendment of Law on Municipal Revenues 3914, with this law Municipalities were enabled to collect "sanitation tax".

Turkish Penal Code 5237, With articles 181 and 182, penalties concerning intentional and negligent pollution of environment are regulated and penal sanctions including imprisonment are stipulated.

Public Hygiene Law 1593, this law includes regulations with regard to duty and authority distribution between public institutions and municipalities on collection and storage of domestic wastes, taking required measures to safeguard public health.

3.1.2. Regulations

3.1.2.1. Regulation Concerning General Conditions of Waste Management (05.07.2008, 26927 R.G.)

With "Regulation Concerning General Conditions of Waste Management" which became effective upon being published on the Official Gazette 26927 dated 05.07.2008, European Waste Catalog (AAK) has been fully harmonized. It is a regulation which includes the conditions specified in directives of Waste Framework Directive (75/442/EEC,15/07/1975), Waste Directive (2006/12/EC, 05/04/2006), Commission Decree Concerning Establishment of Waste List (2000/532/EC, 03/05/2000).

Purpose of the regulation is to establish general conditions to ensure management of wastes without harming environment and human health from their production to disposal. Within this scope, articles of prohibition of pollution and export, establishing waste management plans, obligation to obtain license, ensuring financial liability insurance, covering disposal costs constitute the main provisions of

the regulations, annex of the regulation include the list of waste harmonized with European Union, defining hazardous and non-hazardous wastes.

General Principles of the Regulation are listed below;

- Prevention and reduction of waste production and hazardousness
- Recovery of waste or utilization as energy resource
- Utilization of methods and processes which will not harm environmental and human health
- Separate collection of wastes at source
- Haulage of wastes with vehicles having haulage license
- Disposal or recovery of the wastes through a licensed facility
- Disposal of the wastes at the nearest and most appropriate facility
- Prevention of collecting wastes by unauthorized persons, bodies/organizations
- Utilization of environment friendly technologies
- Several liability for damages resulting from wastes

In order to identify the wastes as hazardous they shall possess one or more of the hazardousness properties listed in Annex-3/A of the Regulation names Hazardous Properties.

Annex-4 of the regulation contains Waste List, in the list wastes with hazardous properties are emphasized with * as in AAK. The waste list contains more than 800 waste codes and almost half of these wastes codes define hazardous wastes.

Wastes in the waste list are divided into chapters as sector and source oriented. Wastes are identified with 6 digit waste codes in the list. Waste codes are gathered under total 20 sections and each section has been identified with two-digit codes. Two-digit groups are contained under each section. These groups define subheadings of that sector according to the type of the waste. The last two digits of the waste code provides the codes which define waste under waste group.

Duty, Authorities and Responsibilities

The regulation imposes responsibilities to waste producers and haulers to obtain license, to obtain haulage license, to keep records, to have financial liability insurance, to meet disposal costs.

- Real and legal entities that carry out waste disposal and recovery are obliged to obtain license from the Ministry,
- Persons, bodies or organizations that carry out waste collection and/or haulage works are obliged to obtain haulage license from Provincial Environment and Urban Development Directorates,

- Facilities and enterprises that produce waste and persons, bodies or organizations that carry out recycle operations are obliged to keep record of following information,
 - waste type,
 - code number of the waste,
 - waste quantity,
 - resource of waste,
 - facility it is delivered,
 - method of haulage,
 - processes that the waste is subjected to as per methods specified in ANNEX-II A and ANNEX-II B

- Bodies which carry out operations of collection, haulage of hazardous wastes and intermediate storage, recovery, reuse and disposal of such are obliged to have hazardous waste financial liability insurance against damages which can be incurred by third parties and environment due to an accident which may occur due to these activities.

- Owner of the waste or manufacturer of the product that results in waste is obliged to meet disposal cost in line with the principle of “Polluter Pays”.

- Beneficiaries of domestic solid waste disposal facilities established or operated by municipalities, special provincial administrations or unions established and operated by such organizations or have established and operated by such are obliged to contribute to investment, operation, maintenance, repair and treatment expenses made by responsible administrations.

3.1.2.2. Regulation Concerning Sanitary Landfill of Wastes (26.03.2010, 27533 R.G.)

Regulation Concerning Sanitary Landfill of Wastes (KADDY, 2010) regulates prevention of environmental pollution by minimizing the negative effects of leachates and landfill gases on soil, air, underground waters and surface waters in the disposal process of wastes using sanitary landfill method, making technical designs for suitable landfill base according to type of wastes and construction of sanitary landfill facilities, procedures for waste acceptance to sanitary landfill facilities, prevention of negativities which may pose risk on environmental and human health including greenhouse effect during processes of operation, closing of sanitary landfill facilities and post-closing maintenance processes, the technical and administrative issues concerning treatment, closing of current sanitary landfill facilities and post-closing maintenance processes. Within this scope, technical terms concerning sanitary landfill facilities and procedures and terms concerning acceptance of wastes to sanitary landfills and sanitary landfill storage of wastes and measures to be taken, inspections to be carried out and responsibilities to be subject to are identified.

Sanitary landfill facilities are classified as follows in the regulation:

a) Class I sanitary landfill facility: The facility having the required infrastructure to store hazardous wastes.

b) Class II sanitary landfill facility: The facility having the required infrastructure to store municipal waste and non-hazardous wastes.

c) Class III sanitary landfill facility: The facility having the required infrastructure to store inert wastes.

The regulation has defined limits for reduction to biodegradable wastes. Biodegradable waste quantity to be stored are required to be reduced to the following levels upon enforcement of the regulation;

- In 2015, 75% of the biodegradable wastes produced in 2005,
- In 2018, 50% of the biodegradable wastes produced in 2005,
- In 2025, 35% of the biodegradable wastes produced in 2005,

The regulation describes landfill location selection for sanitary landfill storage of wastes, establishing landfill site impermeability layer, leachate control, gas control, control of dust and noise produced during operation, general conditions, waste acceptance criteria and procedures, landfill area operation and post-control and monitoring procedures annexes.

3.1.2.3.Regulation Concerning Permits and Licenses to be Obtained as Per Environment Law (29.04.2009, 27214 R.G.)

Regulation Concerning Permits and Licenses to be Obtained as Per Environment Law (ÇKAGİYHY, 2009); aims to establish all tasks and processes concerning permits and licenses required to be obtained as per Environment Law 2872 and duties and responsibilities of competent authorities, environment management units and environment officers concerning this duty and duties and obligations of environment consultancy companies, enterprises and operators authorized by the Ministry.

3.1.2.4.Regulation for Control of Solid Wastes (14.03.1991-20814 R.G.)

Purpose of this Regulation is prohibition of directly or indirectly giving to receiving environment, storing, transportation, disposal of any kind of wastes and residuals and similar activities, by taking administration of consumption materials to affect the environment negatively under a certain discipline, prevention of pollutants to have a long lasting effect on the air, water and soil to disrupt animal and plant generations, natural richness and ecologic balance, and determination, application and development of principles, policies and programs for these purposes.

This Regulation covers terms concerning collection, transportation, recovery, making use of, destruction of and making harmless the domestic solid wastes thrown to residential areas, plant wastes thrown from parks, gardens and green areas, industrial and commercial wastes which are not of harmful waste quality but of domestic waste quality, purification sludge thrown from domestic water purification facility and industrial purification facilities' sludge which do not fall under the class of harmful waste.

Regulation for Control of Solid Wastes includes provisions with regard to composting of solid wastes.

3.1.2.5. Regulation for Control of Medical Wastes (1993 -22.07.2005-25883 RG)

Regulation for Control of Medical Wastes became effective upon being published on the Official Gazette dated 20/05/1993 and numbered 21586. It is revised upon being fully harmonized with Waste Incineration Directive in EU legislation harmonization process and new regulation became effective upon being published on the Official Gazette dated 22/07/2005 and numbered 25883.

The regulation covers the wastes produced in the result of activities of health organizations specified in ANNEX-1 and detailed in ANNEX-2 and conditions pertaining to separate collection of those wastes at the source of production, temporary storage, haulage and disposal of such.

The purpose of the Regulation is to regulate principles, policies and programs with regard to prevention of medical wastes to be delivered to the receiving environment directly or indirectly causing harm to environment and human health, separate collection at source without causing harm to environment and human health, haulage in the unit, temporary storage, haulage and disposal, and procedures and conditions for establishing and implementing legal, administrative and technical conditions from production to disposal.

Duty, Authority and Responsibilities

The regulation imposes several responsibilities to Ministry of Environment and Urban Development, civilian authorities, waste producers and municipalities.

3.1.2.6. Regulation for Control of Hazardous Wastes (1995 -14.03.2005-25755 R.G)

Regulation for Control of Hazardous Wastes became effective in 1995. EU standards pertaining to the management of hazardous wastes have been reflected to Regulation for Control of Hazardous Wastes which became effective upon being published on Official Gazette 25755 dated 14.03.2005. Hazardous wastes shall be disposed of under special conditions without causing harm on environment and human life due to hazardous properties they possess. Therefore, such wastes shall always be incinerated according to the technique and subjected to physicochemical process or subjected to sanitary landfill storage. With the regulation environment friendly management of hazardous wastes from production to final disposal is aimed.

Scope

It covers prohibitions, restrictions and obligations with regard to collection of hazardous wastes, temporary storage in the facility, intermediate storage, haulage, recovery, final disposal, import and export; and measures to be taken, inspections to be carried out and legal and technical responsibilities to be subject to.

Duty, Authority and Responsibilities

The Regulation reestablishes the duties of the Ministry, Civil authorities and obligations of waste produces and waste disposer bodies are revised.

3.1.2.7. Regulation for Control of Packaging Wastes (2004-24.08.2011-28035 R.G.)

Regulation for Control of Packaging Hazardous Wastes became effective under name of “Regulation for Control of Packaging and Packaging Wastes” upon being published on Official Gazette 25538 dated 30.07.2004. It was revised due to several problems experienced in implementation and became effective upon being published in Official Gazette dated August 24th, 2011 and numbered 28035. The regulation was prepared in full harmony with European Union 94/62/EC Directive on Packaging and Packaging Wastes.

This Regulation covers all packaging marketed nationally regardless of being domestic, industrial, commercial and enterprise sourced and made of plastic, metal, glass, paper, cardboard, composite and similar materials and wastes of such packaging.

Duty, Authorities and Responsibilities

Regulation on Control of Packaging Wastes imposes several responsibilities to Ministry of Environment and Urban Development, Provincial Environment and Urban Development Directorates, Municipalities, bodies introducing such to the market, packaging manufacturers and consumers.

Marketers:

To recycle the packaging waste in proportionate to the ratio specified in below Table 1 and document this in accordance with Regulation,

Table 1 Annual Targets for Packaging Waste Recovery on the basis of material

	Annual targets for recovery on the basis of material (%)				
Years	Glass	Plastics	Metal	Paper/Cardboard	Wood
2005	32	32	30	20	-
2006	33	35	33	30	-
2007	35	35	35	35	-
2008	35	35	35	35	-
2009	36	36	36	36	-
2010	37	37	37	37	-
2011	38	38	38	38	-
2012	40	40	40	40	-
2013	42	42	42	42	5
2014	44	44	44	44	5
2015	48	48	48	48	5
2016	52	52	52	52	7
2017	54	54	54	54	9
2018	56	56	56	56	11
2019	58	58	58	58	13
2020	60	60	60	60	15

3.1.2.8. Regulation on Control of Waste Lubricants (2004- 30.07.2008-26952 O.G.)

Regulation on waste lubricants published in Official Gazette No 25353 dated 21.01.2004 is repealed. New Regulation comes into force upon published in Official Gazette No 26952 dated 30.07.2008. With the arrangement concluded, regulation is fully tailored to Waste Lubricant Directive No 75/789 EC of European Union.

The objective of this regulation is to define the procedures and principles in order to identify the guidelines and programs required to prevent direct or indirect introduction of the receipt environment as it will cause damage on environment from production to disposal of waste lubricants, to ensure provisional storage of them without harming the environment and human

health, to establish the technical and administrative standards required in the waste lubricant management, to establish transfer landfills, processing and disposal facilities as well as to manage these facilities in compliance with environment.

This Regulation regulates the prohibitions, limitations and obligations related with production, provisional storage, transportation, processing, disposal, import and export as well as transit transfer of Category I, II and III waste lubricants indicated in ANNEX-1, the precautions to be taken as well as inspections to be carried out.

Duties, Authorities and Responsibilities

Regulation on Control of Waste Lubricants has imposed numerous responsibilities on Ministry of Environment and Forestry, Provincial Environment and Urbanization Directorates, Municipalities, marketers as well as waste lubricant producers.

3.1.2.9. Regulation on Control of Construction and Demolition (18.03.2004-25406 O.G.)

Regulation on Control of Construction and Demolition come into force upon publication in Official Gazette No 25406 dated 18 March 2004.

The objective of the Regulation is to arrange the general rules that must be complied as well as the technical and administrative issues related with reducing principally at origin, collecting, temporary storage, transfer, recovery, utilization and disposal of Construction and Demolition as not to damage environment.

Regulation covers excavation earth as well as construction and debris generated as a result of human activities and natural disasters, of which sources and components is specified in detail in Annex-1.

Duties, Authorities and Responsibilities

Regulation on Control of Construction and Demolition imposed numerous responsibilities on Ministry of Environment and Urbanization, Governorships, municipalities, crisis centers, waste producers.

3.1.2.10. Regulation on Control of Waste Batteries (31.08.2004 – 25569 O.G.)

Regulation on Control of Waste Batteries came into force upon published in Official Gazette No 25569 dated 31 August 2004. Regulation is revised on March 3rd, 2005. It is partly tailored to Directive No 2006/66/EC on Batteries and Directive No 93/86/EC Labeling of Batteries.

This Regulation stipulates the prohibitions, restrictions and obligations on labeling and marking of batteries, reducing the harmful substance amount in their production, collection, transport, disposal, export, import, transit transfer as separately from domestic and other waste after they are used and inspections to be made and obligations to be subjected.

Duties, Authorities and Responsibilities

Regulation imposed numerous responsibilities on Ministry of Environment and Urbanization, civilian authorities, municipalities, battery producers. To collect and dispose of the waste batteries in accordance with this regulation at the rates stated in Table 2 and Table 3 and to document the process;

Table 2 Rate of Disposal Responsibility of Battery Producers

Rate of Disposal Responsibility of Battery Producers (%)					
	1. Year	2. Year	3. Year	4. Year	5. Year
1. Group Batteries	15%	25%	30%	35%	40%
2. Group Batteries	25%	35%	50%	65%	80%

Table 3 Recovery and Disposal Responsibility Rates of Accumulator Producers

Recovery and Disposal Responsibility Rates of Accumulator Producers			
	1. Year	2. Year	3. Year
Accumulator	70%	80%	90%

3.1.2.11. Regulation on Control of Waste Vegetable Oils (-19.04.05 - 257910.G.)

Regulation on Control of Waste Vegetable Oils came into force upon published in Official Gazette No 25791 dated 19.04.2005.

The objective of the Regulation is to prevent the waste oils being discharged into receiving environment directly or indirectly from production until disposal of them and arrange the necessary technical and administrative standards as well as legal and technical rules.

This Regulation arranges the prohibitions, restrictions and obligations in relation with temporary storage, collection, carriage, recovery, disposal, trade, export, import and transit transfer of waste vegetable oils, the measurements to be taken, audits to be carried out, legal and criminal obligations to be subjected to.

Duties, Authorities and Responsibilities

Regulation imposed numerous responsibilities on Ministry of Environment and Urbanization, civilian authorities, municipalities, waste oil producers, disposers and collectors.

3.1.2.12. Regulation on Control of End-of-Life Tires (25.11.2006 – 26357 O.G)

Regulation on Control of End-of-Life Tires came into force upon publication in the Official Gazette No 26357 dated 25.11.2006.

The objective of the regulation is to define necessary arrangements and standards for establishment of a collection and transportation system in order to prevent end-of-life tires being discharged into

the receiving environment directly or indirectly, which will damage environment and recovery and disposal of them, preparation of a management plan for them as well as management of them and the rules on the restrictions and obligations related with import, exports and transit transfer of them.

This Regulation arranges the prohibitions, restrictions and obligations in relation with temporary storage, collection, carriage, recovery, disposal, trade, export, import and transit transfer of end-of-life tires (excluding bicycle and solid tires), the measurements to be taken, audits to be carried out, legal and criminal obligations to be subjected to.

Duties, Authorities and Responsibilities

Regulation imposed numerous responsibilities on Obligations of Ministry of Environment and Urbanization , Provincial Environment and Urbanization Directorates, Municipalities, Tire Producers, Operators of Recovery Facilities

3.1.2.13. Regulation on Control of Polychlorinated Bipheyls and Polychlorinated Terphenyls ((27.12.2007-26739 O.G.))

The objective of the Regulation on Control of PCB and PCT is to establish the administrative and technical principles and procedures in order to eliminate completely PCB used and the materials and equipment containing PCB without causing damage on environment and human health.

This Regulation covers the restriction and obligations related with preparation of inventory of PCB and materials and equipment containing PCB and their temporary storage, carriage, treatment and disposal as well as their export and import; the measurements to be taken, audits to be conducted as well as legal and criminal liabilities to be subjected to.

Duties, Authorities and Responsibilities

Regulation imposed numerous responsibilities on Ministry of Environment and Urbanization, Those who have used PCB and materials and equipment containing PCB , Those involved in treatment and disposal operation

3.1.2.14. Regulation on Restriction of the Use of Certain Harmful Substances in Electric and Electronic Equipment (30.05.2008-26819 O.G.))

The objective of this regulation is to stipulate the principles and procedures related with recovery and disposal of the electric and electronic equipment waste in an environmentally compliant manner by establishing the administrative, legal and technical rules in order to restrict the use of certain harmful substances in electric and electronic equipment and define the exceptional applications from these restrictions, controlling the import of electric and electronic equipment, all with the purpose of protection of environment and human health.

This regulation covers the electronic and electronic equipment classified under class 1, 2, 3, 4, 5, 6, 7 and 10 provided in ANNEX-1A as well s electric bulbs and lighting equipment for domestic purposes.

Duties, Authorities and Responsibilities

Regulation imposed numerous responsibilities on Ministry of Environment and Urbanization, Producers.

3.1.2.15. Regulation on Waste Incineration (06.10.2010, 27721 O.G)

The objective of this Regulation is to prevent and restrict potential adverse effects of waste incineration on the environment, particularly the pollution arising due to emissions to air, soil, surface waters and underground waters and potential risks on the human health with applicable methods.

This Regulation covers the minimum conditions required for waste incineration and common incineration facilities. Regulation contains in detail the information about, for waste incineration and common incineration facilities, general rules, location selection and license permit processes, waste acceptance, operation conditions, flue gas emission limit values, discharge of waste water coming from flue gas removal, incineration facility residuals, audit, monitor, measurement conditions and relevant sanctions.

3.1.2.16. Regulation on Control of Earth Pollution and Point-Source Contaminated Fields (08.06.2010- 27605 O.G)

The objective of this Regulation is to prevent pollution of earth as a receiving environment, to identify the fields and sectors where pollution occurred or will potentially occur, to define the rules for cleaning and monitoring the contaminated earths and fields in compliance with sustainable development targets.

This Regulation covers the technical and administrative procedures and principles in relation with prevention of earth pollution, identification of the fields and sectors where pollution exists or will potentially exist, to record them, cleaning and monitoring the contaminated earths and fields.

3.1.3. International Agreements

3.1.3.1. Basel Agreement on Control of Cross-Border Transport and Disposal of Dangerous Waste (15.05.1994-21935 O.G.)

Efforts has been continuing at international level in order to take measurements against potential damages of industrial waste on environment and human health in aspects of their management, disposal and transport. In this regard, Works has been initiated in United Nations Environment Program (UNEP) and issued "Basel Agreement" has come into force at 05.05.1992.

Our country has ratified the Agreement at 22.05.1989 and Agreement has come into force upon published in Official Gazette No 21935 dated 15.5.1994.

The objective of the Agreement,

- To reduce the cross-border movement of dangerous and other waste,

- To ensure rehabilitation and disposal of the dangerous and other waste in an environmentally-compliant manner in a place closest to where they generated,
- To minimize the generation of dangerous and other waste (In terms of Amount and potential harm)

Waste trade pattern is generally from industrialized countries to developing or underdeveloped countries. In order to prevent this, Basel Agreement establishes new norms, rules and legal procedures related with dangerous waste movements and disposal at international and national level.

LEGAL PROCESS

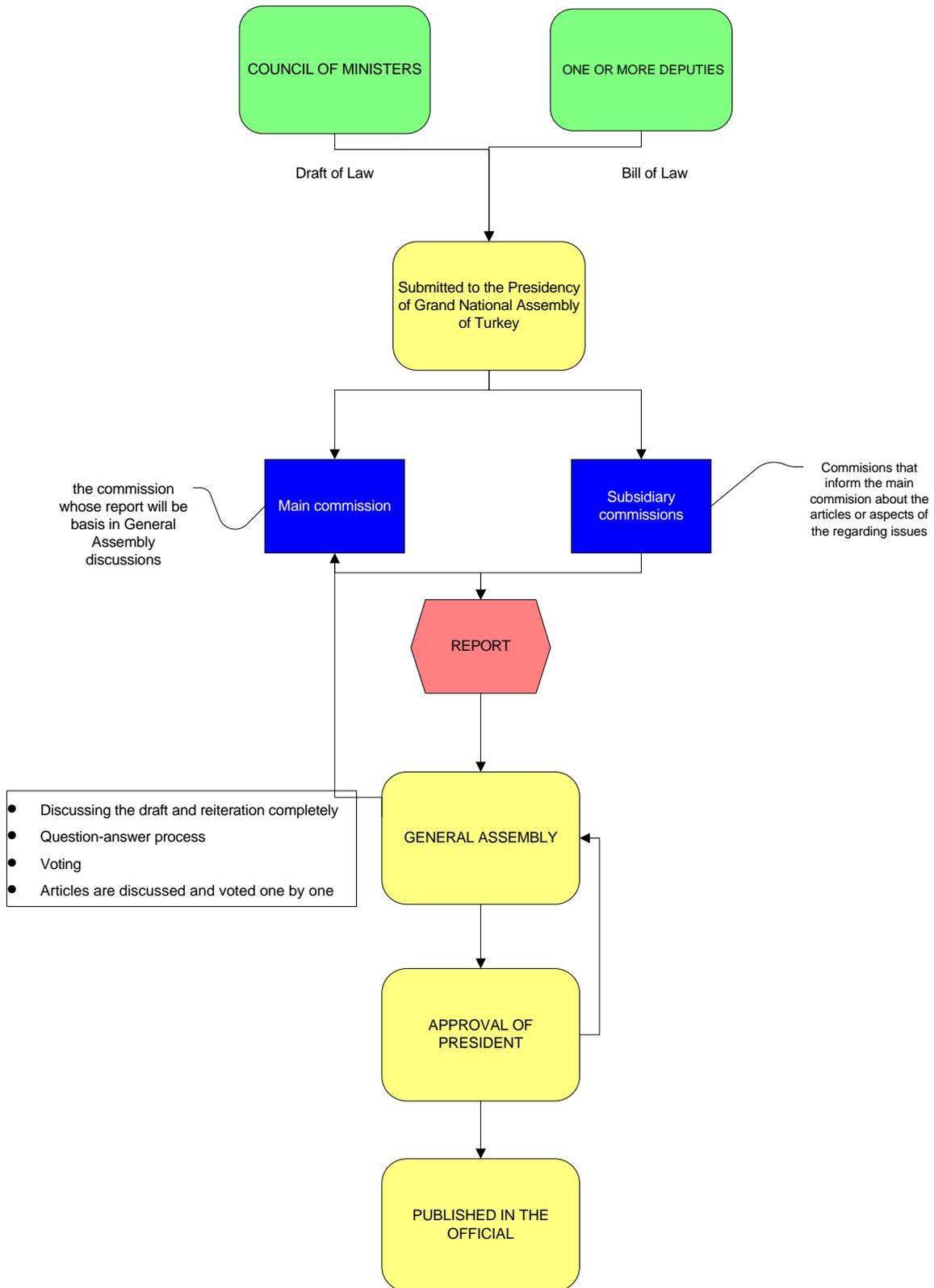


Figure 1. Process of Law

3.2. PAKISTAN

3.2.1. Laws

The flow-chart for law-making process in Pakistan is provided in Figure 2.

3.2.1.1. Pakistan Environment Protection Act (PEPA) 1997: **Pakistan Environment Protection Decree (1983)** was revoked and replaced with **PEPA**. Any proposed environment-related regulations, by-laws, circulars etc. in Pakistan are formulated on the basis of the **Pakistan Environment Protection Act**. The **Pakistan Environment Protection Council** formed by the Federal Government comprises the political authority in Pakistan. The **Pakistan Environment Protection Council** gave jurisdiction to the **Pakistan Environmental Protection Agency** formed by the Federal Agency. The Federal Agency is equipped with legislative powers. The Provincial Government, on the other hand, assigned jurisdiction on environment-related matters to **Provincial Environmental Protection Agency**. The arbitration on environment is provided by the Federal Government, which is granted the authority to come up with any number of environment arbitration as it deems necessary. The penalties and sanctions imposed by the Federal Government are based on National Environment Quality standards. Below are the process flow-charts for PEPA:

LAW MAKING PROCESS

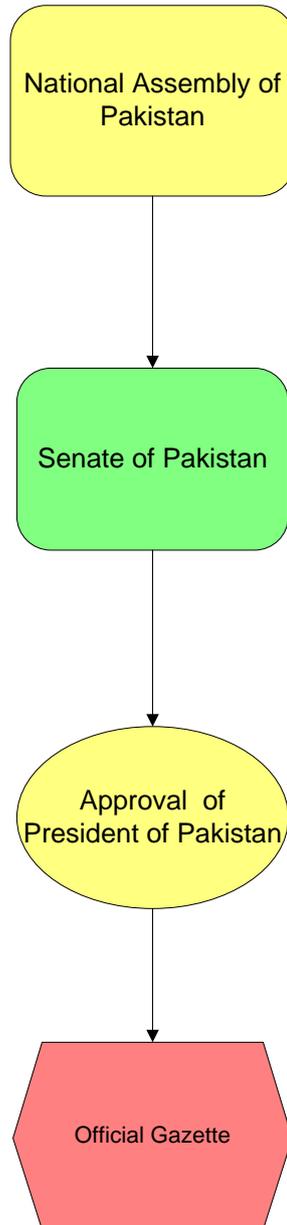
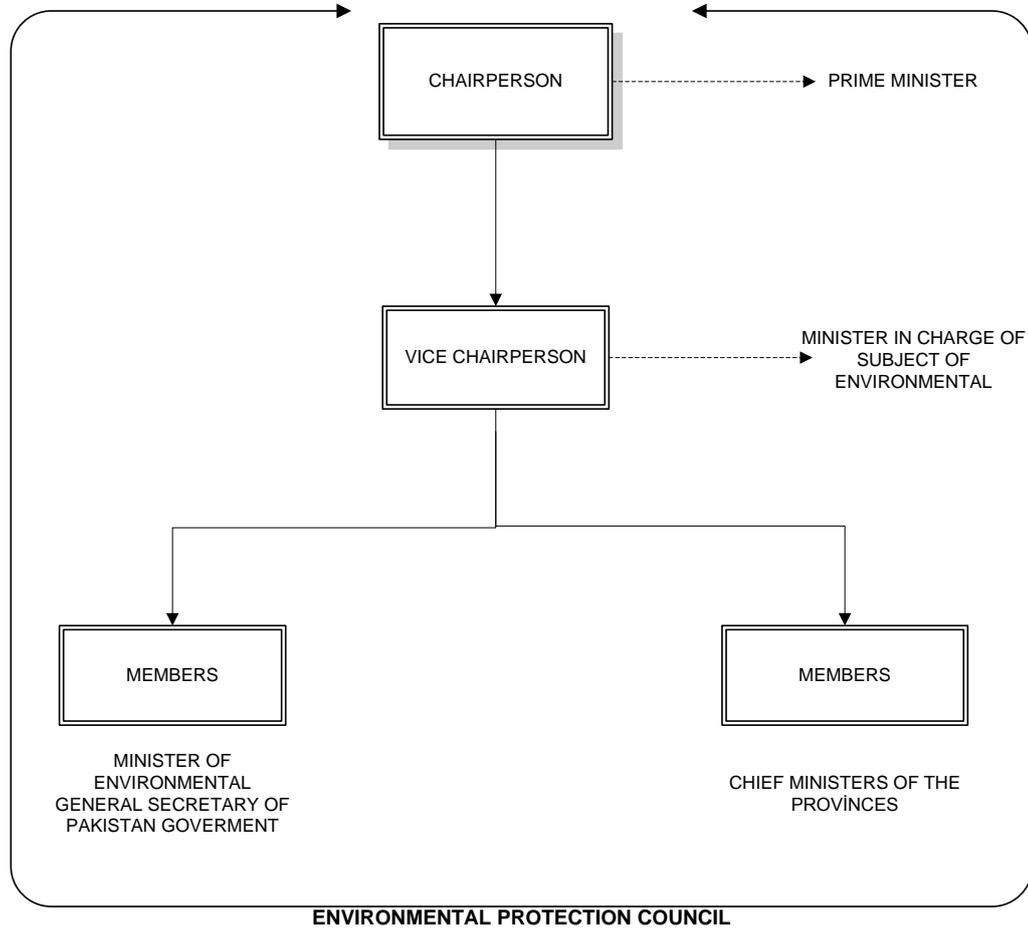


Figure 2. Law-Making Process in Pakistan

PAKISTAN ENVIRONMENTAL PROTECTION COUNCIL



35 PEOPLE
 20 PEOPLE SELECTS FEDERAL GOVERNMENT
 5 PEOPLE NON GOVERNMENT REPRESENTATIVES
 10 PEOPLE



CHAMBER OF COMMERCE
 INDUSTRY ASSOCIATIONS
 HEALTH GROUPS
 COMMERCE GUILDS
 CIVIL SOCIETY ORGANIZATION
 SCIENTISTS
 TECHNICAL SPECIALIST
 TRAINERS

Figure 3. Organizational Chart for Environmental Protection Council

ORGANIZATIONAL CHART FOR ENVIRONMENT PROTECTION AGENCY

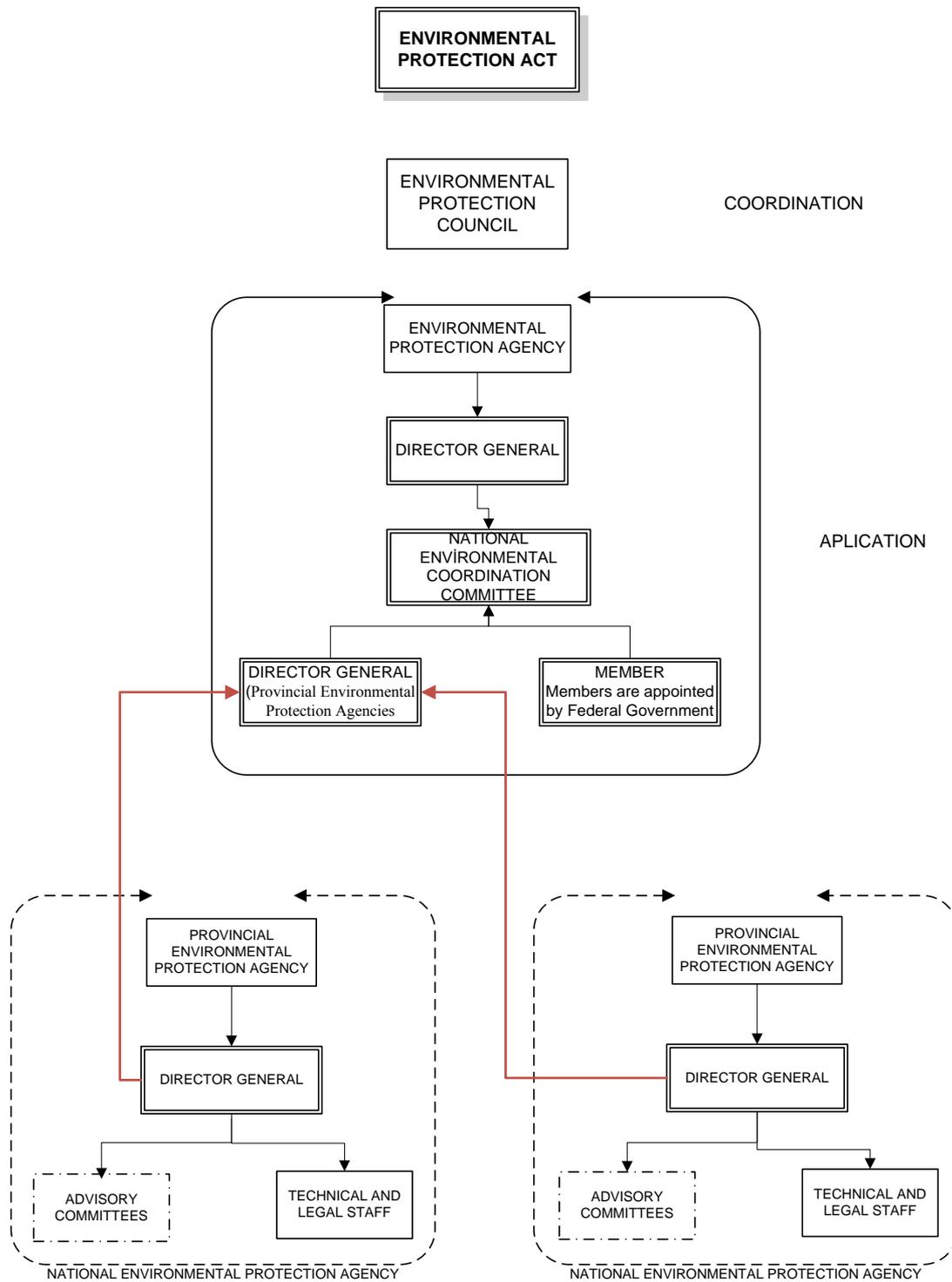


Figure 4. Organizational Chart for Environment Protection Agency

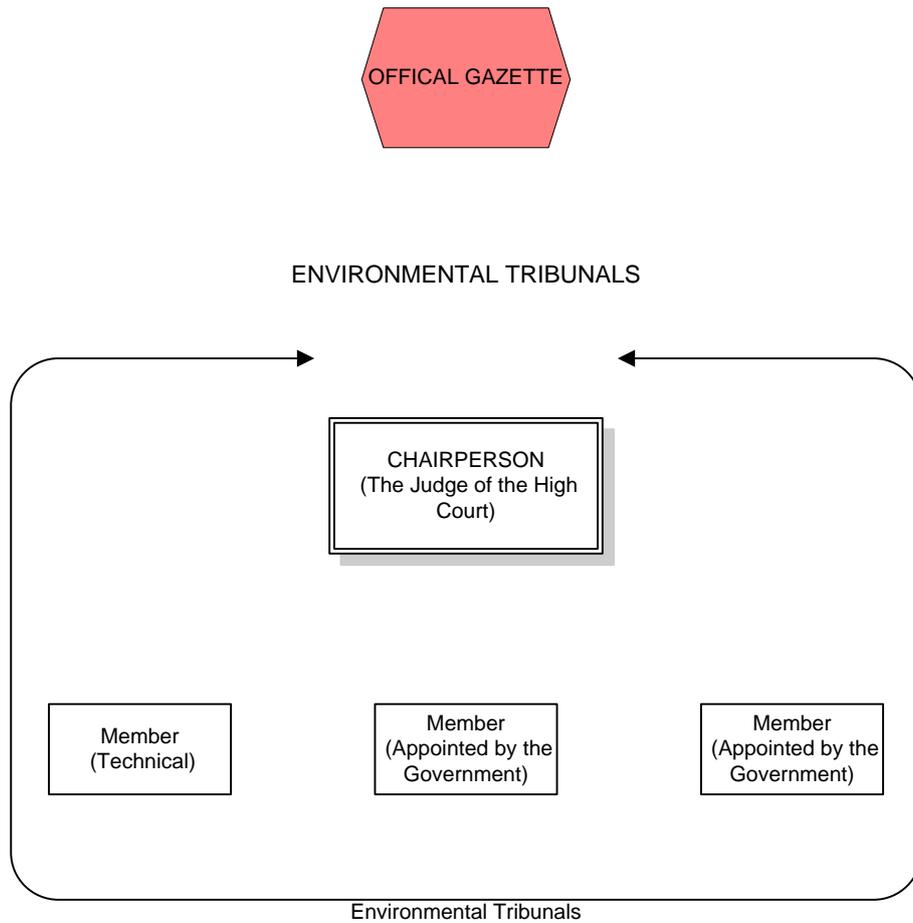


Figure 5. Organizational Chart for Environmental Arbitration

3.2.2. Regulations

3.2.2.1. Solid Waste Management Regulation (2005)

With the authority granted by the Zila Council on the basis of the relevant articles of Punjab Local Government Decree dated 2001, Lahore assigned Zila Nazimi the power to formulate and promulgate **Solid Waste Management Regulation**. The said regulation covers the definitions, sweeping and cleaning of streets and public spaces, collection and transportation of all kinds of waste, use of waste and farm manure, accumulation of waste and construction rubble etc. in public spaces, construction and maintenance of hygiene facilities (toilets and bathrooms), clogging, construction and maintenance of drains, cleaning of public buildings ((DO) (SWM) District Officer may recommend the sealing of a building in case the public spaces within CDGL area is not disposed of in line with the directive), closing of swimming pools under unsuitable conditions, removal of stools of animals owned by persons (the fees regarding the disposal of animal carcass shall be borne by the owner of the animal) and breaches/penalties. CDGL may establish a budget to meet the costs to arise with respect to this law, for use in the hygienic and environmental domain under its jurisdiction (CDGL generally collects its expenses from the polluters, via taxation). The SWM district officers appointed by CDGL are responsible with general coordination under the regulation, whereas the

waste producers are responsible with the removal and collection of the waste. The pricing policy is based on the pay-as-you-pollute principle. CDGL is responsible with providing disposal sites for waste.

Breaches and penalties: In case of any breach regarding the matters discussed in the regulation, a written warning is issued by the district officer to the breaching person, as per the relevant articles of the local government decree dated 2001. In case the breach is not eliminated within one week, the district officer may close and seal the facilities or building the warning was issued to. Furthermore, in case of breach of any section of the legislations, the District Officer may apply fines up to 500 rupees, and 50 rupees for each day of breach until such breach is eliminated.

3.2.2.2. Solid Waste Management Directives of the Municipality of PUNJAB (2007)

The Directive is prepared to put forward more detailed directives regarding the service, for the solid waste management site in the province is not fully operational within the framework of *Solid Waste Management Rules (2007)* within the framework of Punjab Local Government Decree dated 2001.

There are no comprehensive directives in Punjab, specifying all important elements of waste management systems. This Directive aims to fill this void by serving as a general manual for provincial government departments, local governments, private enterprises and other agencies that initiate or operate solid waste management activities in urban areas.

The directives in question cover only wastes concerning the municipality. Therefore, hazardous wastes including but not limited to medical and industrial waste, are not subject to the abovementioned directives. Various elements of Solid Waste Management, such as waste collection, waste transfer, recycling, waste burning, composting, biogas generation, and sanitary landfills are included within the framework of this directive, and technical assistance is provided to performing such procedures with a minimal impact on the environment.

3.2.2.3. Rules regarding Hazardous Materials (2003)

The Rules regarding Hazardous Materials regulate the licensing requirements for the collection, shipment, transportation, processing, disposal or importation of hazardous waste by firms using the materials specified in Appendix-1 of the relevant regulation, packaging and labeling issues regarding the management of hazardous wastes, requirements for facilities, general safety measures, safety measures for workers, oversight and monitoring, safety plan, accident reporting, waste management plan, importation and transportation of hazardous materials.

The firms intending to import or transport hazardous waste are under obligation to obtain licenses from the Federal Government/Provincial Administration, and to add EIA to their license applications. Federal Government/Provincial Administration is required to audit licensed firms at least once a year.

3.2.2.4. Regulation on the Management of Hospital Waste, 2005

The Federal Government promulgated the "Hospital Waste Management Regulation" dated 3 August 2005, as per article 31 of Pakistan Environment Protection act dated 1997. The regulation assigns the

waste management responsibility (sorted collection of the waste at the source, transportation and disposal) to hospitals, under the coordination of the waste management team comprising hospital staff.

The regulation covers the formulation of waste management plans on the basis of 14000 environment management standard, sorted collection of wastes at source, transportation and disposal as per the waste management plan, training and information of the personnel, accident management, monitoring and oversight.

The monitoring and oversight functions are performed by health inspectors, who report to the Hospital Complaints Review Committee comprising the officials of the hospitals in the area. Furthermore, a Hospital Waste Management Advisory Board is provided for to propose plans and projects for efficient management of hospital wastes, to carry out periodical reviews regarding the implementation of regulations, and to offer opinion on required amendments.

3.2.2.5. Pakistan Environment Protection Agency (IEE and EIA Reviews) Regulation, 2000

The regulation was put into effect by Pakistan Environment Protection Agency in year 2000, with the purpose of providing “Initial Environmental Examination (IEE)” and “Environmental Impact Assessment (EIA)” for facilities which cause environmental pollution. The regulation covers the projects which require and do not require EEI and EIA, preparation of EEI and EIA, review charges, preliminary review conditions, public participation process, decision and approval terms, compliance confirmation, monitoring, approval cancellations, project registration, promulgation of sensitive areas, and the composition of environmental assessment advisory committees.

The regulation classifies the facilities in two lists: Appendix-1 and Appendix-2. The facilities listed in Appendix-1 are required to prepare IEE, whereas the facilities listed in Appendix-2 are required to prepare EIA. The regulation also describes the schedules and deadlines for EEI and EIA preparation, and specifies the authorities to examine the files.

Solid waste disposal facilities are classified as follows:

- Appendix-1

“H. Disposal of waste

Waste disposal facilities with an annual capacity of less than 10,000 cubic meters, for the disposal of domestic and industrial waste”

- Appendix-2

“G. Disposal of waste

1. Disposal of waste and/or storage of hazardous or toxic waste (including garbage collection areas for toxic waste from hospitals, garbage incinerators)
2. Waste disposal facilities with an annual capacity of more than 10,000 cubic meters, for the disposal of domestic and industrial waste”

4. CONCLUSION AND ASSESSMENT

The legal framework in the EU, Turkey, and Pakistan is examined in order to establish the legal infrastructure for Integrated Waste Management, and to determine principles, technical guidelines, and standards applicable to waste management. The findings and recommendations reached in conclusion of the study are noted below.

Policy and Principles Regarding Waste Management

The National Environment Policy Act (NEPA) was promulgated in year 2005 by Pakistan's Ministry of Environment. NEPA defines general principles of waste management on the basis of globally accepted pillars of clean production technologies, 3R, integrated perspective on waste management, and subsidy mechanisms for waste management. In order to achieve a more efficient application of integrated waste management, it is necessary to include in NEPA new sections covering registration, monitoring, and oversight over all processes from the creation of pollutants, to final disposal.

Law

Pakistan's environment related law, PEPA was promulgated in 1997. The law provides for the establishment of Environment Protection Council, jurisdiction regarding the implementation of the law, and arbitration on environment related matters. The law also provides definitions.

It is necessary to revise the definitions of the terms waste, hazardous materials, hazardous waste, hospital waste, industrial waste, urban waste included in the law, under the light of the definitions provided in international literature. Furthermore, definitions of wastes which require urgent management, such as excavation rubble, construction rubble, packaging waste, or medical waste should be incorporated into the law. Moreover, existing regulations as well as future regulations on the matter of management of identified types of waste should be revised in line with the updated definitions.

What's more, the law is lacking provisions regarding general principles of waste management, measures and prohibitions regarding the protection of environment (the prohibition on pollution, protection of environment, obtaining permits, treatment and disposal obligation, audit, information and notification obligations, suspension of activities), and liability of polluters. These deficiencies should be remedied.

Regulations

In Pakistan, the regulations on this matter include Solid Waste Management Act, Rules Regarding Hazardous Materials, Regulation on the Management of Hospital Waste, and Pakistan Environment Protection Agency (IEE and EIA Reviews) Regulation.

Solid Waste Management Act

This piece of legislation contains provisions regarding management (collection, transportation) of solid waste, hygiene facilities (construction and maintenance), swimming pools, administrative sanctions, and general issues.

The relevant legislation covers both solid waste and waste water. This has negative implications on the efficient implementation of the legislation. The legislation can be revised as independent regulations covering solid waste and waste water, or a new regulation covering the management of solid waste (solid waste, excavation rubble, packaging waste, composting of organic wastes). The promulgation of a new regulation should be the first option in facilitating and increasing the effectiveness of practice. The new piece of legislation should cover definitions of waste, duties and responsibilities, construction and operation requirements applicable to sanitary landfills, composting requirements for organic waste, construction and operation requirements for construction and excavation rubble management sites, implementation principles for the management of packaging wastes, and general provisions.

Rules Regarding Hazardous Materials

The rules regarding hazardous wastes provide definition of hazardous materials, and require the firms that use such materials to obtain licenses.

The revision of the regulation's definition of the hazardous waste, provision of new definitions for efficient management, introduction of a new section covering clear definitions of powers and responsibilities (with respect to Federal Government / Provincial Administration, waste producer, disposal sites etc.), definition of provisions regarding the transportation of waste, recycling, and disposal, definition of the requirements regarding disposal facilities, introduction of provisions regarding interim storage and treatment facilities, and identification of reporting requirements are necessary. On the other hand, the substitution of waste codes in international literature on the basis of waste formation process, instead of the hazardous material's name, with respect to the identification of hazardous wastes, is also crucial for an efficient waste management.

Regulation on the Management of Hospital Waste

The regulation assigns the responsibilities of sorted collection of hospital waste at the source, transportation, and disposal, to the hospital.

The definition of hospital waste in the current regulation is fairly limited, and requires a revision as medical waste with broadened scope (so as to cover all medical facilities). Furthermore, the definitions in the regulation need to be revised as per the international literature. The oversight regarding the medical waste management should be carried out by the government, and a clear division of powers and responsibilities should be introduced. The minimum requirements applicable to the equipment used in collection and transportation of medical waste should be defined. Collection terms applicable to the collection and transportation of medical waste should be standardized, and a provision to ensure transportation by a single agency should be included.

Measures concerning the disposal of medical waste should be defined. Physical characteristics of temporary storage sites and disposal sites as well as principles regarding other disposal methods (sterilization, incineration) should be defined clearly in the regulation. Provisions regarding government oversight over disposal activities should be added to the regulation.