

REPORT OF ASSESSMENT ON NATIONAL AND
INTERNATIONAL ECONOMIC INSTRUMENT, FINANCING
MECHANISMS AND INCENTIVE SYSTEMS OF WASTE
MANAGEMENT
and
PROPOSED FINANCIAL MECHANISM AND INCENTIVE
SYSTEM IN MONGOLIA

Report to: Carmelo Centeno, Delgerbayar Badam

Developed by: Enkhbayasgalan Nyamjav, National Expert

Ulaanbaatar,
January, 2017

Table of Contents

1	Background	3
2	Baseline study and assessment on existing economic instrument and practices of financing mechanisms and incentive systems of waste management	4
3	Proposing draft of financing mechanis and incentive system	12
	Reference material	15

1 BACKGROUND

Rapid increase in volume and types of solid and hazardous waste as a result of continuous economic growth, urbanization, industrialization, importing and utilization of goods, is becoming a burgeoning problem for national and local governments to ensure effective and sustainable management of waste.

At present, Mongolia has severe pollution of both soil and air generated from the wastes which were improperly disposed and burnt openly. Most of the solid waste is usually delivered to the disposal areas without any elementary classification.

Substantial efforts have been made to improve the environmental pollution, in particular, the waste management however the urgent waste-related problems, such as waste disposal in open areas, non-sorting of wastes and no waste processing factory, have still been the same in relation to the increased consumption due to the intensive population growth and the unplanned settlements. According to the Baseline study 2013-2014 of MEGDT (old name), Mongolia's municipal waste projection from 2015 winter to 2020 is calculated as 554.8 tons/day to 610,75 tons/day in 2020 winter, other waste projection is calculated as 145.2 tons/day in 2015 winter to 292.1 tons /day in 2020 winter.

There are six centralized landfills in Ulaanbaatar, and 357 waste fields in provinces. However, studies show that there are around 2,445 unauthorized small waste fields throughout the country. Even though a general cleaning is conducted at unauthorized waste fields and around 70 percent of the waste is transported every spring and fall, people dump their wastes again. Around 1.8 million tons of wastes are generated at waste fields annually.

Additionally, there is open burning happens everyday at those landfills. One of the biggest issue from waste dump and open burning, emission of dioxins and furans from centralized waste fields are high in Mongolia. For example, the volume of dioxins and furans emitted from the Moringiin Davaa centralized waste field per year is 10 times higher than Cambodia's.

Therefore, establishing the right legal environment was essential for an improvement of waste management in Mongolia. Training for public awareness raising activities among stakeholders were important in improving the best and safe practices. Also, efforts to reduce open burning should be promoted and such efforts should focus on government, private sector and civil society support of alternative end-of-life and waste management options.

Besides the adoption of legal framework and regulations which are now in place, there are some areas that require further strengthening. These are revising existing guidelines, setting up of national management system, treatment, training, and monitoring and inspection system on waste management in Mongolia.

In addition, one of the essential approach to develop effective, efficient and sustainable waste management is to introduce sustainable financing mechanism and incentive system to encourage actions of preventing, recycling, recovering, treatment of waste and BAT/BEP implementation.

2 BASELINE STUDY AND ASSESSMENT ON EXISTING ECONOMIC INSTRUMENT AND PRACTICES OF FINANCING MECHANISMS AND INCENTIVE SYSTEMS OF WASTE MANAGEMENT

2.1 The existing economic instrument, incentive system and financing mechanism of waste management in Mongolia

Mongolia has made a lot of works to improve the waste management however the consumption is on the rise in connection with the intensive population growth, while the unplanned settlements cause some challenges to the engineering and social infrastructure and provision of public services to citizens. Besides, the air and soil pollution, limited greenery and wastes still remain the urgent problems.

We have conducted baseline study to do gap analysis over the existing situation of legal framework of financing mechanism and incentive system of waste management, and described in this chapter.

2.1.1 Legal framework

- The first law to regulate waste was approved in 2000. The “Law on Prohibition of Importing, Transit and Export of Hazardous Waste” (2000), “Law on Household and Industrial Waste” (2003) and “Law on Prohibition of Use and Import of Some Plastic Bags” (2009) have been approved. In 2012, as part of the environmental laws revision package, these 3 laws had been integrated as the “Law on Waste” at the spring session of the State Great Hural as one of the package environmental laws. The goal of this law is to regulate the relations associated with the decrease, classification, collection, transport, storage, recycle, reuse, disposal and export of wastes in order to eliminate and prevent their toxic impact, and prohibition of import and transborder transportation of wastes. This law’s basic principles of economical management of waste are:
 - Paying the service fee for waste;
 - Providing economical incentives to those who participate in the collection, transportation, storage and land-filling/destruction of waste;
 - Ecological taxation regulation on imported goods and products.
 - Individuals, business entities and organizations shall pay service fee for waste.
- According to Legal entity income tax law (the amendment on law made in 2006 and came into force as January 01, 2007), a taxpayer’s Income from sale of technique or equipment that economizes natural resource, reduces environmental contamination and nature-oriented shall be tax exempt. The Government shall approve the list of equipment’s and spare parts of small and medium enterprises which shall be exempted from tax and also the list of goods, work and service and their technical requirements and specifications.

- With an aim to promote environmentally sound technology for waste management, Mongolia developed procedure on the incentive to be provided to citizens and business entities for introduction of environmentally sound technology in 1998. This procedure was passed under the Government Resolution #95 of 1998 in accordance with the Article 19.5 of the Environmental Protection Law. This procedure will be complied to incentivize the citizens, business entities and organizations that run activities directed to protect the nature and environment, effectively use and rehabilitate its resources, and reduce pollution and adverse impacts on the environment, and that transfer environmentally sound, pollution-free and non-waste technologies. The environmentally sound technology comprises of all types and forms of non-waste, least-pollution production and services which will not cause negative consequences or harm to the environment and human health.

For offering incentive to the citizens, business entities and organizations that transfer environmentally sound technology, the 3 main criteria; for production, service and products will be considered.

It is specified in the law that the state central administrative body in charge of the environment shall establish the criteria to be used for evaluation of the transfer of environmentally sound technologies by citizens, business entities and organizations in line with the specifics of the resource as well as manufacturing and service.

- Mongolia has developed and approved “The National Program on Waste Management Improvement” in 2014. This is the most recent strategy that has set phase wise targets. Phase I (2014-2017) emphasize on improving and developing the relevant legal framework for the reduction of waste, a better waste management system, capacity development for infrastructure and financing, increased participation of communities and the private sector, and the formation of proper habits for the public when dealing with waste.

The first goal of this National program is to improve legal framework on waste management, and its implementation, establish incentive and liability systems. The polluters pay principle has been included in this program.

2.1.2 Financing mechanism

Waste financing in Mongolia is a collective mechanism of national and city/provincial budget, donor financing, private investment, and revenue collection as waste fees etc. The Ulaanbaatar government and its districts have a mix of revenue sources to invest in urban service delivery, such as city revenues, shared-revenues, and intergovernmental fiscal transfers.

- The waste law adopted in 2012 states that citizens and entities will pay waste services fees to soum or district budget which will be expended to support and encourage waste reduction, waste collection, transport and disposal and organize awareness raising events connected to the former. The waste services fees became a component to the budget and one of the taxes since January 1, 2013.
- With reference to the amended “Law on Budget” of 2013 and the “Law on waste 2012”, the authority and opportunity for financial management were transferred to the local government. As a result, 1.275 billion MNT was issued and spent in 21 aimags for their waste management improvement. In 2013-2014, the total annual government expenditure per capita (US\$ per capita) in municipal solid waste management was 14 billion MNT / 3.2 million populations (UNCRD, 2015).
- Besides limited allocation of national government subsidies/budget for waste management, the cities usually raise budget for municipal service delivery (including waste management) from his revenues such as property tax, and other sources. Cities usually collect taxes (property taxes, income taxes etc.) as a revenue mechanism. Income tax collection in 2012 was 23.1 million MNT, and 116.7 million MNT in 2013. In 2015, Ulaanbaatar’s total revenue budget was 445464409.4 thousand MNT (445,464.4 Million MNT). Of which the landscaping and service for public properties, public hygiene, street lighting, cleaning and waste disposal received only 1,517.4 million MNT. This amounted as only 0.34% of Ulaanbaatar city’s total budget¹.
- According to audited reports of integrated budget performance for 2013-2015 of the UBC budget manager, Ulaanbaatar city has a loss of 7.65-33.55 billion tugrugs in waste services. The revenue of waste services accounts for 0.55-0.61 percent of the entire city budget revenues, while the cost of waste removal, rodent disposition and disinfection accounts for 1.4-3 percent of the entire expenditure.
- Solid waste collection, water supply, and sewerage systems are typical household services generally financed with user fees. Waste fees are the direct revenue mechanisms to support waste management expenditures. After the enforcement of the Waste Law 2003, Waste Service Fund (WSF) was established on 30 Nov 2006 resulting in establishment of the waste fee. It is a system where waste payment of the residents collected into the fund and used for reimbursing the waste transportation costs of servicing companies based on the number of transportation routes

¹ <http://ulaanbaatar.mn/files/p1995qg3q044u1vjc1ut71vj21s1c1.pdf>

- Solid waste management in Ulaanbaatar City is solely dependent on waste collection fees. The waste collection tariff for households in Ulaanbaatar is set by the Municipal Council by adhering to the national law frameworks. The waste fee is charged per person in household, while as per square meter for the business and commercial centres. Financing mechanism of the metropolitan solid waste is composed of the waste loading fees equal to 5000-25000 MNT collected from organizations, 2500MNT from households living in apartments and 1000MNT from ger area households, 500-100 tugrug in aimag and soums.

2.1.3 Public Private Partnership (PPP) and Private sector participation on BAT/BEP implementation

- State Policy on PPP was approved in Oct 15, 2009 in order to promote private sector participation in all sectors of economy. The waste management improvement is included in environmental sector partnership.
- Also, the Law on Concession (Jan 28, 2010) defines the processes of PPP implementation. In 2010, the Government approved the list of 121 concession projects. In 2013, the Cabinet approved new list of 51 Concession projects. Major of them are infrastructure projects such as Power plants, Railroads and Highways, social sector projects.
- It is important to structure the projects with proper risk allocation between the Public and Private sectors and to implement the PPP program in accordance with international best practices. The new list consists of 47 projects submitted by line ministries and 4 projects submitted by private sector, and 4 of them are environmental projects.
- The government passed the national program on waste management improvement under its resolution #298 on Sep 18, 2014. It is planned to implement the program in two phases: the first phase covers the years 2014-2017, while the second phase covers 2018-2022. The main principles of this national program are to dispose waste by environmentally sound technology and promote involvement of citizens and private sector in waste reduction activities based on partnership. Also, it is planned to increase PPP in waste management.
- The exhibition of “Green Technology Innovation” organized by the Ministry of Environment Green Development and Tourism, the Mongolian University of Science and Technology and the Science and Innovation Council in every year since 2013 and it promotes new initiatives and connects inventors with investors. This exhibition with aims of introducing business activities of new start-up companies that implement eco-friendly technology and innovation practices to the general public, business companies and investors, is participated by over sixty organizations. Also, participants discussed the worldwide trend of green technology, policy and strategy on innovation, main barriers and experiences of other nations.

2.2 International experience to develop and introduce financing mechanisms and incentive systems in waste management

- As stated in Guidelines for Framework Legislation for Integrated Waste Management Economic developed by UNEP when considering economic measures, it is important to identify the decision-makers so that the right people have the information they need to make decisions.

The following provisions related to economic instruments are essential to consider:

- Levies; and
- Funding Mechanisms.

Levies. Economic instruments like levies are used in waste management to make the system more efficient and to internalize the costs of waste management so that they are borne by those who create waste. Economic instruments discourage waste generation and provide an incentive for source separation of waste to boost the opportunity for waste minimization. In addition, finding funds out of the public budget is difficult because it competes with so many other priorities that have a more immediate impact (e.g. health and schooling). So, a self-funding mechanism is attractive to governments especially when it is seen as good for the environment. It is important that levies are not put into the government's consolidated fund, but instead ring-fenced for waste management as other priorities can become prominent resulting diversion of waste-generated money.

Funding mechanism. Cities in developing countries often struggle to access investment funding necessary to improve waste management. Grants to encourage the development of waste minimisation facilities and programmes are essential to enable the society to develop beyond collect and dispose to progress towards a circular economy. Levies provide a good (and politically easily defensible) source of funds to assist business and the community to encourage waste minimisation. Grants can encourage establishment of industries that would otherwise not have the capital to move into new areas (e.g. developing alternative low waste products). Careful management is needed so as not to create long term dependence by the supported industry. Consideration should also be given on the chance of the grants distorting competition with unsubsidised businesses. It should be noted that inducements, once applied, can be politically difficult to reduce or withdraw, regardless of whether the need has diminished or higher priorities compete for the resources.

- According to the study conducted by Earth Engineering center of Columbia University, the incentive system to increase recycling is to introduce Volume-Based Waste Fee System (VBWF) in Urban Areas. This is a model charges a variable rate for waste collection and disposal depending on volumes produced. Recycling is provided for free. This system reduces waste and improves recycling via simple market incentives, enhances awareness of costs associated with MSW production and more equitably distributes costs of disposal among highest users. The study stated that since bag-based PAYT/VBWF was applied in South Korea in 1995, per capita waste reduced by 26% to 2.2lbs/day and total recycling rate increased by 213%, since bag based PAYT (pay as you throw)/VBWF was applied in 1991 in Binghamton, NY, cut landfilling 50% the year introduced, recycling rate steady at 41% and elimination of line item tax for waste disposal. Since sticker-based PAYT/VBWF was applied in 2011 in Binghamton, NY, solid waste reduced by 42% and Recycling rate improved from 29% to 54%.
- As stated in “Economic instruments for solid waste management”, published by GIZ in 2015, it is required to ensure the financial sustainability of SWM services and, thus, good service delivery for citizens. In addition, economic incentives facilitate waste avoidance, recycling and other forms of higher-level waste treatment that are an essential part of resource-efficient SWM systems. In order to apply successful economic instrument, local authority should take following steps:
 - to systematically track solid waste management costs and analyse cost minimisation potentials in SWM planning;
 - to determine realistic cost recovery objectives and mechanisms, be it through improved local tax recovery, revenue creation from waste recycling or the establishment/ reorganisation of user charges, or through other instruments like tourist waste fees or landfill fees;
 - to consult with national or regional government to ensure that the local cost-recovery options planned are in line with national regulations and national economic instrument plans, and to receive support and guidance from higher-level government bodies.

Moreover, no single policy measure can achieve improved waste management practices on its own. An integrated waste management strategy requires a combination of measures, and there is no right or wrong approach. The possible economic instruments are;

- Pay-as-you-throw user charges might work more effectively if they are applied using a pre-paid system. This can still, however, be difficult to control.
- The benefit of variable user charges linked to property tax bands or to electricity consumption is that they can be set according to users’ ability to pay and can be easily billed together with these other taxes or charges

- advanced recycling fees and deposit-refund systems that support the principle of extended producer responsibility;
 - grants, subsidies and tax rebates for resource-efficient waste management technologies;
 - feed-in tariffs for energy from waste;
 - landfill taxes, insofar as they are delivered in tandem with instruments that facilitate the establishment of alternative treatment infrastructure.
- Pursuant to NZ Waste Minimisation Act (2008)², a levy to be imposed on waste disposed of to— (a) raise revenue for promoting and achieving waste minimisation; and (b) increase the cost of waste disposal to recognise that disposal imposes costs on the environment, society, and the economy. The incentive statement of this act that the Minister may approve funding of any project to promote or achieve waste minimisation.
 - Netherlands Environmental Management Act (2004)³ charges property owners on a per property basis. It states that cover the costs it incurs in connection with the management of household waste, each [local government] may institute a levy which may be imposed on persons who, whether by virtue of a personal or property right or otherwise, actually use premises in respect of which an obligation to collect household waste applies. The purpose is to enable a levy to be imposed on waste disposed of to raise revenue for promoting and achieving waste minimisation and increase the cost of waste disposal to recognise that disposal imposes costs on the environment, society, and the economy.
 - Japanese Basic Act for Establishing a Sound Material-Cycle Society (Act No.110 of 2000)⁴ states that in order to help business operators engaged in the manufacturing or processing of products, etc., or the cyclical use, disposal, collection or transport of circulative resources improve their facilities for efficient use of raw materials, expand their facilities for manufacturing recycled articles, or take other suitable measures to prevent or reduce raw materials, etc. from becoming wastes, etc. or to conduct proper cyclical use and disposal of circulative resources, the State shall make efforts to take necessary measures to give them necessary and appropriate economic assistance, taking their economic situations, etc. into consideration.

2.3 International practices, experiences, case studies on BAT/BEP implementation

² <http://www.legislation.govt.nz/act/public/2008/0089/latest/DLM999802.html>

³ <http://www.asser.nl/upload/eel-webroot/www/documents/national/netherlands/EMA052004.pdf>

⁴ <https://www.env.go.jp/en/laws/recycle/12.pdf>

The Stockholm Convention is a global treaty to protect human health and the environment from persistent organic pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. POPs circulate globally and can cause damage wherever they travel. In implementing the Convention, Governments take measures to eliminate or reduce the release of POPs into the environment. Over 150 countries signed the Convention and it entered into force, on 17 May 2004, 90 days after the ratification by the fiftieth country. It has been observed in Mongolia since Apr 30, 2004.

Article 5 of the Stockholm Convention on Persistent Organic Pollutants (POPs) on Measures to reduce or eliminate releases from unintentional production promotes the use of Best Available Techniques (BATs) and Best Environmental Practices (BEPs).

BAT means the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for release limitations designed to prevent and, where that is not practicable, generally to reduce releases of chemicals listed in Part I of Annex C and their impact to the environment as a whole.

BEP means the application of the most appropriate combination of environmental control measures and strategies.

Annex C Chemicals: Polychlorinated dibenzo-pdioxin and dibenzofurans, Hexachlorobenzene and Polychlorinated Biphenyls.

As a practical example, the BAT/BEP project focusing on unintentionally produced POPs in the fossil fuel-fired utilities and industrial boilers, also explored possible options for the simultaneous reduction of dioxins and CO₂ releases in response to the requirements of both the Stockholm Convention and the Framework Convention on Climate Change.

As stated in a publication of “Success Stories Stockholm Convention 2001-2011”, there are several projects assisted by UNIDO are ongoing, which are:

- Introduction of BAT and BEP methodology to demonstrate reduction or elimination of unintentionally produced POPs releases from the industry in Vietnam
- Demonstration of BAT and BEP in fossil fuel-fired utility in East and Southeast Asia (Cambodia, Lao PDR, Mongolia, Philippines, Thailand)
- Promotion of strategies to reduce unintentional production of POPs in the Red Sea and Gulf of Aden (PERSGA) coastal zone
- Environmentally Sustainable Management (ESM) of medical wastes in China
- BAT/BEP Centre for environmentally safe disposal of potentially hazardous consumer products and industrial wastes in Russia

3 PROPOSING DRAFT OF FINANCING MECHANISMS AND INCENTIVE SYSTEM

3.1 Draft waste law

Based on analysis on international legal documents and guidelines for framework legislation for integrated waste management, the following concept and provisions are included in proposed draft waste law.

The following table shows comparison between existing and proposing draft law articles related financing mechanisms and incentive systems.

Table 1. Highlights of financing mechanisms and incentive systems of waste management stated in law on waste

Item	Law on waste, 2012	Draft law on waste, 2016
Basic Principles of Economical Management of waste	<ul style="list-style-type: none"> • Reducing and re-using of waste; • Paying the service fee for waste; • Providing economical incentives to those who participate in the collection, transportation, storage and land-filling/destruction of waste; • Ecological taxation regulation on imported goods and products. 	<ul style="list-style-type: none"> • save natural resources • promote advanced technologies which generate no waste or minimum amount of waste in the process of manufacturing • Green purchasing • 3R promotion • Responsibility of manufacturing and importer • Product life cycle • 3R superiority
Service fee for waste	<ul style="list-style-type: none"> • Individuals, business entities and organizations shall pay service fee for waste. • Service fee shall be accumulated in the budget of soum and district. • Revenue accumulated from the service fee for waste stated in the article 20.2 of this Law shall be used for the following purposes: <ul style="list-style-type: none"> ○ Waste collection, transportation and land-fill/destruction; ○ Supporting activities or actions for reducing 	<ul style="list-style-type: none"> • Citizens, business entities and organizations generating regular waste shall pay waste service fee. • Citizens, business entities, and organizations generating hazardous waste shall pay hazardous waste fees that should cover costs associated with collection, transportation, storage, recycling, and disposal of hazardous waste • Payments for transportation and disposal of bulky and construction waste shall not be included in this service fees

	<p>waste;</p> <ul style="list-style-type: none"> ○ For incentives stated in the article 21 of this Law; ○ For public awareness raising and media advertisement and training. <ul style="list-style-type: none"> • Budget, reporting on performance and monitoring of the revenue stated in the article 20.2 of this Law shall be regulated in accordance with the Budget Law and other related legislations. 	<ul style="list-style-type: none"> • Waste service fee for regular waste generated by citizens, business entities and organizations shall be calculated based on quantity of waste generated. • Waste service fee for regular waste generated by households shall be calculated on per person basis • Waste service fee revenues may be collected together with fees for electricity, clean water, sewage, heating, maintenance of public space of residential buildings and common services • Service fee revenues shall be accumulated in the soum and district budget
<p>Incentives and supports</p>	<ul style="list-style-type: none"> • Individuals, business entities and organizations that are (i)functioning duties for waste reduction, collection, transportation, storage, recycling, reuse, destruction; (ii) applying new technology on the waste management shall be supported by advertising their actions or by providing incentives. • Regulation defining the procedures of giving incentives shall be approved by the Central Government. 	<ul style="list-style-type: none"> • Citizens, business entities and organizations engaged in activities related to waste sorting, collection, transportation, storage, export, reuse, regeneration, recycling, disposal and landfill shall be entitled to receive economic incentives. • Activities related to: cleaning of public areas; promotion of waste sorting, reuse and recycling; public campaign aimed at cleaning of surrounding area; organization of training and public awareness events shall be financed from the aimag, city, soum and district budgets • A monetary incentive equal to 15% of fines imposed for violation of legislation related to

		<p>waste shall be paid by soum or district governor to the informant if the information on violation was confirmed</p> <ul style="list-style-type: none"> • Bidders who offer recycled, regenerated raw materials and products shall be given advantage in procurement of goods, works, and services with state and local budget funds
--	--	---

3.2 Other laws

- Once draft of waste law came into enforcement, the following changes are proposed to be made in Economic Entity Income Tax Law.
 - Article 12.1. Taxable income shall be determined upon deducting the following expenses from gross taxable income:
 - Expenses of donation for activities to minimize waste.
 - Expenses of donation to support education and training to raise awareness of waste
- The proposed change in Advertisement law of Mongolia is to add “to give waste education to citizens” to the article 15.1. So, updated article will be “Social advertisement may include producing or distributing of advertisement to support waste education, social and state interest beneficial actions by citizen or legal entity, or transferring of its own asset to others without recharge, to produce or distribute such advertisement. This advertisement may have discounts in accordance with law or regulation”
- The proposed revision in objective of establishment industrial and technology park in Law on Legal Status of Industrial and Technology park is to revise article 4.1.4 as “to develop waste segregation, recycling, recovering and disposal industry”
- Add “organization or citizen who introduced or having business to recover and recycle waste shall be preferential in state and local tender” to the article 10.1.1 of State and locally owned capital goods, works and services purchase law.

REFERENCE MATERIAL

1. Best Available Techniques and Best Environmental Practices (BAT/BEP) for the elimination of unintentionally produced POPs releases, UNIDO
2. Success Stories Stockholm Convention 2001-2011, UNEP, 2012
3. Best Available Techniques (BATs) and Best Environmental Practices (BEPs) Guideline
4. Current and Future Activities for the Implementation of BAT/BEP in Power plants and Industrial boilers sector of Thailand, ppt by Pollution Control Department Ministry of Natural Resources and Environment, Thailand, 2011
5. Economic instruments in solid waste management applying economic instruments for sustainable solid waste management in low and middle-income countries, GIZ, 2015
6. Financing alternatives for Municipal Solid Waste, abstract by ROBERT H. ALDRICH and NEIL A. EISNER
7. Volume-Based Waste Fee (VBWF): Effect on Recycling and Applicability to New York City, research by John Abrashkin, Earth Engineering center, Columbia University, 2015
8. Guidelines for Framework legislation for integrated waste management, UNEP, 2016
9. National Solid Waste Policy, Brazil, 2010
10. Environmental Protection Act, Canada, 1999
11. Circular Economy Act, Germany, 2012
12. Federal Emission Control Act, Germany, 2002
13. Basic Act for Establishing a Sound Material-Cycle Society, Japan, 2000
14. Environmental Management Act, Netherlands, 2004
15. Resource Management Act, New Zealand, 1991
16. Waste Minimization Act, New Zealand, 2008
17. Hazardous Substances and New Organisms Act, New Zealand, 1996
18. Resource Management (National Environmental Standards for Air Quality) Regulations, New Zealand, 2004
19. Clean Air Act, UK, 1993
20. Environmental Protection Act, UK, 1990
21. Pollution Prevention and Control Act, UK, 1999
22. Pollution Prevention Act, USA, 1990
23. Resource Conservation and Recovery Act, USA, 1976