# Sri Lanka
# State of the Economy Report 2016

## Chapter 11
## Sustainable Development under Economic Constraints: MBIs and Environmental Fiscal Reforms

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# 11. Sustainable Development under Economic Constraints: MBIs and Environmental Fiscal Reforms

## 11.1 Introduction

The current challenges of macroeconomic management call for innovative solutions in all spheres of policy making. Environment policy is no exception. Environment policy in Sri Lanka is conventionally dominated by 'command-and-control' instruments based on regulations and standards. Globally, command-and-control instruments of environmental management have come under criticism due to their limited effectiveness, high cost of implementation, low economic efficiency, problems of sustainability and associated social issues. As a result, a growing enthusiasm for economic instruments for environmental management - also known as market-based instruments (MBIs) - can be observed even in developing countries. In a global context where traditional boundaries of 'economy' and 'environment' are fast becoming indistinguishable, environmental management cannot be disconnected from economic management, and vice versa. Hence, Sri Lanka needs serious consideration about MBIs as a potential means of achieving sustainable development goals vis-a-vis handling the environmental costs associated with them.

This chapter focusses on prospects for adopting MBIs in Sri Lanka and possible challenges. It begins with a review of concepts and practice of MBIs in the broader context of environmental policies. The review also covers emerging ideas about environmental fiscal reforms (EFR) that attract the attention of policy makers on sustainable development. It is followed by a brief account of the current policies of environmental management in Sri Lanka which is largely biased towards command-and-control instruments. However, there are some efforts to apply MBIs in Sri Lanka and experience suggests that significant challenges may be involved in introducing MBIs and EFR into the environmental policy arena in the country. The section, also offers some thoughts on ways for promoting MBIs and EFR so that environment policy can complement broad directions of macroeconomic management.

## 11.2 Market-based Instruments: Concepts and Practice

Environment policies are relatively a new development even in developed countries compared with other long-established branches of policy governance such as macroeconomic policies, industrial policies and agricultural policies. The idea of applying dedicated policies to overcome environmental

problems gathered momentum gradually with growing evidence about the negative consequences of economic growth on the environment, and increased scientific understanding of the interactive relationships between the economy and environment. However, understanding on the subject has grown rapidly over the last few decades and many innovative approaches have been proposed and tested. This section provides a brief survey of major policy approaches used for environmental management and key policy instruments practised under them. Broadly, three major types of policy approaches can be identified, namely:

- Suasive policies
- Command and control  (CAC) policies
- Market-based policies (economic instruments)

## 11.2.1  Suasive Policies

Suasive policies are the least coercive type of instruments used for environmental management. This approach enlists soft instruments that are applied horizontally without hierarchical arrangements. The key instruments used include informational measures and voluntary commitments.

*Informational measures*:  Informational measures are aimed at achieving conservation objectives by increasing awareness among the public on environmental issues and their consequences. Global days dedicated to various environment and natural resources (e.g., World Environment Day, World Water Day, World Ocean Day, World Ozone Day, etc.) are among the more general versions of suasive instruments, whereas eco-

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labelling represent specific, targeted instruments.

*Voluntary commitments*: These include actions taken by parties under their own initiative such as codes of conduct, environmental charters, public voluntary schemes (PSVs), etc., that lead to improvement of the environment.

The essential features of suasive instruments are lack or limited involvement of coercive elements and encouragement of individuals/ firms to take action on enlightened self-interest and/or heightened sense of social responsibility. Suasive instruments are usually a part of an overall portfolio of environmental policy instruments in all countries, and can be considered as complementary measures to command-and-control and market-based instruments.

# 11.2.2 Command-and-Control Policies

Command-and-control policies make up the bulk of environmental policies in many countries. There are two major ways of applying command-and-control policies, namely, regulations and standards.

*Regulations*: Regulations involve imposing controls/restrictions over parties that are responsible for environmental degradation. They usually involve policies aimed at protection and safeguard of environmental resources. Banning substances identified as causing harmful impacts on environment and human health (e.g., chloro fluoro carbons (CFC), persistent organic pollutants (POPs)); controlling the transport of hazardous substances; declaring protected areas for conservation of forest, wildlife and

biodiversity, and; prohibition of harvesting/ use of endangered species are some examples of applying regulations as environmental management policy instruments.

*Standards*: Standards are another widely applied instrument to control environmental pollution and maintain the quality of environment. Unlike in the case of certain product quality standards where producers can voluntarily select whether to adopt standards depending on their commercial advantages, environmental standards usually come in connection with regulatory tools that demand the compliance of target groups of polluters. Standards can be set in different forms. The more prevalent types include:

- Ambient environmental quality standards: set maximum allowable limits of pollutants in air and/or water

- Emission/effluent standards: define the maximum level of concentration of pollutants from the source of pollution

- Process standards: define the standard requirements to be met by production processes to minimize environmental threats associated with them

- Product standards: establish required quality standards that need to be adhered by final products

- Technology standards: specify the type of technologies that need to be adhered for controlling a pollution problem

The success of command-and-control instruments depends on the level of compliance. Hence, command-and-control instruments essentially involve hierarchical systems of institutional governance with legal powers bestowed upon them by legislative enactments.

Maintaining such institutional structures needs considerable capital and recurrent expenditures that lead to persistent fiscal burdens on national, provincial or local government bodies. Moreover, problems of governance, inefficiencies and corruption usually associated with such hierarchical systems could significantly affect the effectiveness of command-and-control instruments to address the environmental problems that they were designed for.

## 11.2.3 Market-based Instruments (MBIs)

In contrast, MBIs are policy tools that create incentives for environmental management through the manipulation of market forces instead of applying coercive regulations. Unlike 'penalties' for non-compliance or 'environmental offences', in the case of MBIs polluters or 'exploiters' of resources are expected to bear the environmental cost of their actions in terms of payments or adjustments in the systems of ownership rights. Economists have developed a strong theoretical foundation based on market failure concepts to support the policy applications of MBIs. Many types of environmental pollution can be explained as externalities. Polluters use environmental resources free of charge to dispose waste and harmful by-products associated with their activities; the public good nature of many environmental resources makes them vulnerable to such abuses. Moreover, non-private property rights associated with environmental resources could expose them to 'over-exploitation' as there are no incentives for private individuals/firms to conserve them. The very same market failure argument has also provided the theoretical basis for coercive government interventions through command-and-control instruments. Instead, proponents of

MBIs suggest taking an 'economic' approach through manipulating prices and ownership systems to correct market failures so that incentives are created to conserve environmental resources or to control their abuse.

There are a number of MBIs discussed in the literature, and some are actually being practised with varying degree of success. There are a few major types that have been discussed widely in the literature, namely; taxes and charges, payments for environmental services (PES), property right adjustments, creation of markets (e.g., tradable permits) and deposit/refund systems.

*Taxes and charges*: Taxes and charges can be applied in numerous ways to correct market failures associated with environmental resources. The most prominent examples are emission taxes or pollution charges. They imply charging taxes on a per unit basis of pollutants to internalize the cost of pollution, so that the private cost to polluters will encourage them to control their activities. This has been practised for different types of pollutants for some time now, especially in developed countries. Charges on pollution can be applied on variable forms; directly on loads of emissions/effluents, indirectly on units of output or use of inputs responsible for pollution. Moreover, taxes can be charged in variant forms such as user charges for garbage or wastewater disposal into public systems, and licensing or permit charges for pollution generating activities. Such charges are prevalent in many countries though they are not always connected to environmental costs associated with them. Another way is to apply differential taxes on products depending on

the level of environmental damage they cause.

*Payment for environmental services (PES)*:  Applications of PES has the same logical foundation as taxes and charges; where environmental 'bads' are taxed, 'goods' should be rewarded.  This is very appealing to environmental economists of all branches even though the practical applications of the concept are still limited, especially in developing countries. Some projects on PES applications have been pilot-tested in areas such as forest, soil and watershed conservation in several countries recently and they indicate mixed results. One major constraint that restricts the application of PES instruments in developing countries is difficulties in raising long-term funding facilities for rewarding environmental services on a sustainable basis.

*Property rights*: Given that some environmental resources are of a non-private nature - i.e., public goods, common property or open access resources - controlling access through the creation of rights systems (e.g., water rights, mining rights, fishing rights), permits or licensing is another way of applying MBIs for environmental management. The application of property rights as an MBI has been tested in natural resources such as fisheries, groundwater, minerals and forestry sectors.

*Creation of markets*:  Instead of controlling pollution through regulations and standards, some countries have attempted to create markets for polluting rights and controlling

these markets to maintain the total level of emissions within manageable limits. The prominent example is tradable emission permit systems that have been practised in a number of developed countries for different type of pollutants. Since the permits are issued to maintain the total emission within a ceiling, this instrument is also called cap-and-trade systems. Tradable catch quota systems practised in fisheries resources is another example.

*Deposit/refund systems*: Deposit-refund systems have been widely used in the case of recyclable materials such as glass and plastics for over a long period, even in developing countries. This helps to reduce the accumulation of loads of waste, encouraging recycling. Currently, the possibilities to apply deposit-refund systems to handle rapidly growing loads of electronic waste are being explored.

# 11.2.4 Environmental Fiscal Reforms (EFR)

Environmental Fiscal Reforms (EFR) identify a range of taxation and pricing measures that can be used for environmental management, while helping to raise fiscal revenues.[1] In essence, it does not refer to any particular type of instrument, but a range of environmental instruments that can be used as a fiscal policy tool to help macroeconomic management too. The EFRs are usually discussed in connection with MBIs, while fines, penalties and fees for non-compliance (e.g., fines on timber extraction) and visitor fees collected from protected areas (which are associated with command-and-

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[1] OECD (2005), *Environmental Fiscal Reform for Poverty Reduction*. OECD Publishing, Paris, France.

control policies) also generate fiscal revenue despite administrative costs associated with them. However, the importance of MBIs for EFR can be highlighted as they are 'economic' instruments that can be handled more easily as a source of government revenue for fiscal policy management.

Three major types of benefits are commonly identified with EFR, namely; environmental benefits, fiscal benefits and poverty-reduction benefits. Environmental benefits that can be generated by EFR are pollution control (e.g., pollution taxes), improved natural resources management (e.g., taxes on resource use), safe disposal of waste (e.g., user fees) and mobilization of funds for investment in environmental management. Fiscal benefits from EFR include government revenue, reduced public finance burden for environmental management, and minimized economic distortions due to coercive government interventions. On the other hand, correctly designed system of EFR can be expected to generate poverty reduction benefits such as improved access to water, energy and other environment related facilities while releasing funds for pro-poor investments from otherwise costly investments on environmental management. Overall, the essence of EFR is managing a country's environment as an economic asset, internalizing the cost of externalities through taxes/charges, and raising the returns from environmental resources to reflect the true scarcity value of resources and user costs associated with them - not only for the present generation but also for future generations to come. Correspondingly, key instruments associated with EFR are as follows:

- Taxes and charges on pollution and waste (emission/effluent and garbage)

- Taxes on natural resources extraction and use (e.g., forestry, fisheries and minerals)

- Taxes and subsidy reforms to discourage environmentally harmful products (e.g., fuel subsidies, fertilizer subsidies)

- Reforms on user fees and prices of basic services (e,g., water, energy)

# 11.3 Environmental Policies in Sri Lanka

As in the case of many developing countries, environment policy in Sri Lanka is dominated by command-and-control instruments. The country's experience in managing environmental resources through regulatory measures dates back to the colonial era. It includes a multiplicity of regulations and standards aimed at addressing environmental problems. They can broadly be divided into two major categories as follows:

- Policy instruments aimed at managing the environment as a whole. The National Environment Act (NEA) is the cornerstone of Sri Lanka's national environment policy. It was introduced in 1980 as the key legislative enactment dedicated to the protection and conservation of environment in Sri Lanka. The Central Environment Authority (CEA) was established as the agency responsible for implementation of the NEA.

- Policy instruments aimed at issues relating to specific natural resources (e.g., forests, wildlife, minerals) and related economic sectors (e.g., agriculture, irrigation). Apart from the NEA, there is an accumulated body of Acts, Ordinances and regulations introduced to address sector specific issues from the colonial

period. These regulatory instruments are being handled by several line agencies. An early milestone was the establishment of the Forest Department in 1887 under the Forest Ordinance of 1885.

The institutional mechanism for implementing environment policies in Sri Lanka involves a complex arrangement of several line ministries and agencies. Sri Lanka has a separate ministry for the subject of environment since 1992 which is supposed to take the leadership in preparing the country to face environmental challenges. However, the scope of subjects under the ministry has changed regularly over time. Presently, the subject of environment is handled by the Ministry of Mahaweli Development and Environment which has ten line agencies listed under it: Central Environmental Authority, Forest Department, State Timber Corporation, Marine Environmental Pollution Authority, Geological Survey and Mines Bureau, National Gem and Jewellery Authority, Gem and Jewellery Research and Training Authority, Mahaweli Authority, Coast Conservation Department and Central Engineering Consultancy Bureau. In addition, the Ministry of Sustainable Development and Wildlife is looking after the subject of wildlife, with the Department of Wildlife Conservation, Department of National Zoological Gardens and Wildlife Trust listed under it.

## 11.3.1 The NEA and Environmental Management

The NEA provides an overall coverage for legal protection of the environment as a whole. The Act, together with multiple amendments and several regulations introduced under it, offers extensive powers to the CEA, especially for controlling various forms of pollution. These powers build the structural framework of command-and-control policy instruments used in environmental management in Sri Lanka. The main regulatory instrument used for managing industrial pollution in Sri Lanka is Environmental Protection Licences (EPL). Three types of licences are being issued for high polluting, medium polluting and low polluting industries that lay conditions for discharge of emissions/effluents to land, water and air. Pollution from vehicle emissions is being handled through mandatory emission tests linked to annual revenue licences. The CEA also handles procedures for managing scheduled (hazardous) wastes in Sri Lanka that needs special licences depending on the type of operation (e.g., waste generation, storage, disposal, etc.).

The CEA is vested with the powers to prepare and gazette environmental standards that are legally enforceable. Accordingly, a number of regulatory standards have been prepared to control air pollution, noise pollution and waste management. Despite the legal validity of these standards, ensuring their compliance is the major challenge since there are no effective monitoring mechanisms in place. Even though the CEA has authority to control pollutants such as pesticides also, given the non-point nature of pollution involved, the effectiveness of controlling them through regulatory measures appear to be limited. As a result, selective banning of pesticides has been the main strategy used for controlling pollution from agricultural sources.

Another important instrument enabled by the NEA is screening of investments at the project level through the Environmental Impact Assessment (EIA) procedure. Under this, all projects with potential environment impacts are subject to either an Initial Environmental Examination (IEE) or an EIA depending on the

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nature and level of environmental impacts they involve.

## 11.3.2 Policy Instruments to Address Specific Natural Resource Issues

Apart from the NEA, there are a number of legislative enactments and regulations that deal with specific natural resources and environmental issues. The key policy challenges involved in major natural resource sectors, important legislative enactments, and line agencies responsible for implementing them are given in Table 11.1. It shows that despite the central role to be played by the Ministry of Environment and the CEA, institutional responsibility to manage different environmental and natural resource issues is scattered among several ministries, government agencies and local government bodies. For instance, the responsibility to manage solid waste is vested with local government authorities - Municipal Councils (MCs), Urban Councils (UCs) and Pradeshiya Sabhas (PSs). Their mandate covers collection, transport, disposal/treatment of garbage and disposal of wastewater as stipulated by the Municipal Ordinance, the Urban Council Ordinance and the Pradeshiya Sabhas Act. Currently, there are 309 local government bodies (15 MCs, 37 UCs and 257 PSs) that fulfil this mandate around the country.

Overall, the policy governance in environmental management in Sri Lanka is a complex business involving several line ministries/ agencies with specific command-and-control mandates; some are overlapping with each other. Despite a multiplicity of institutions, there are significant gaps in policy and institutional arrangements to address certain critical environmental issues. For instance, line

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agencies in the water resource sector are mainly responsible for the supply of water for irrigation, household and industrial uses, and their capacity for handling environmental issues such as watershed protection and water pollution is limited. In the land sector, the current system is mainly designed to look after allocation of state lands for various purposes without effective mechanisms for controlling land degradation. Even though the NEA provides the CEA with powers to interfere in problems such as land degradation, soil erosion and watershed protection, etc., it cannot deliver without effective mechanisms involving sectoral

**Table 11.1**
**Key Policy Challenges, Important Legislative Enactments and Line Agencies in Major Natural Resource Sectors**

| Area of the Legislation | Key Policy Challenges | Key Legislative Enactments | Main Responsible Agency |
|---|---|---|---|
| **Land resources** | Land degradation<br>Soil erosion<br>Decline of fertility<br>Non-agricultural land degradation<br>Land fragmentation and tenure issues | Soil Conservation Act<br>Land Settlement Ordinance<br>Land Development Ordinance<br>Land Surveys Act<br>Land Reform Act<br>National Environment Act | Department of Agriculture<br>Department of Land Settlement<br>Department of Land Commissioner General<br>Department of Survey<br>Land Reforms Commission<br>Central Environment Authority |
| **Water resources** | Rising water scarcity<br>Destruction of critical watersheds<br>Overexploitation of groundwater<br>Water pollution | Irrigation Ordinance<br>Water Resources Board Act<br>National Water Supply and Drainage Board Act<br>Mahaweli Authority Act<br>Agrarian Development Act<br>National Environment Act | Department of Irrigation<br>Water Resources Board<br>National Water Supply and Drainage Board<br>Mahaweli Authority of Sri Lanka<br>Department of Agrarian Development<br>Central Environment Authority |
| **Biodiversity, forestry and wildlife** | Deforestation<br>Degradation of forests<br>Threatened species and ecosystems<br>Loss of habitats<br>Invasive alien species<br>Human-wildlife conflict | Forest Ordinance<br>Fauna and Flora Protection Ordinance<br>National Zoological Gardens Act<br>Botanic Gardens Ordinance<br>National Environment Act | Forest Department<br>Department of Wildlife Conservation<br>Department of National Zoological Gardens<br>Department of National Botanic Gardens<br>Central Environment Authority |
| **Coastal and marine resources** | Coastal resource degradation<br>Coastal erosion<br>Coastal pollution<br>Destruction of coastal habitats<br>Marine pollution | Coast Conservation Act<br>Marine Pollution Prevention Act<br>Fisheries and Aquatic Resources Act<br>National Aquaculture Development Act<br>National Environment Act | Coast Conservation Department<br>Marine Environment Protection Authority<br>Department of Fisheries and Aquatic Resources<br>National Aquaculture Development Authority<br>Central Environment Authority |
| **Waste management** | Municipal solid waste<br>Hazardous waste<br>Urban wastewater<br>Accumulation of e-waste | National Environment Act<br>Municipal Ordinance<br>Urban Council Ordinance<br>Pradeshiya Sabhas Act | Central Environment Authority<br>Municipal Councils<br>Urban Councils<br>Pradeshiya Sabhas |
| **Air pollution** | Decline of air quality<br>Health impacts of air pollution | National Environment Act<br>Factories Ordinance<br>Motor Traffic Act | Central Environment Authority<br>Department of Labour<br>Department of Motor Traffic |
| **Mineral resources** | Overexploitation of resources<br>Land and forest degradation<br>Deepening of river beds and river bank erosion | Mines and Minerals Act<br>National Environment Act | Geological Survey and Mines Bureau<br>Central Environment Authority |

Source: Compiled by the IPS.

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line agencies. Hence, the command-and-control architecture of environmental policies in Sri Lanka has several gaps in policy coverage and institutional coordination.

# 11.4 Use of MBIs as Environmental Policies: Sri Lanka's Experience

Despite the dominant position of command-and-control policies in environmental management in Sri Lanka, the country has some experience in MBIs as well.[2] A successful example is the application of deposit-refund systems (DRS) for certain types of used containers enabling their recycling (Box 11.1). Steele (1999) and the Ministry of Environment and Natural Resources (2008) have reviewed existing and potential applications of MBIs for environmental management in Sri Lanka.[3] Both reviews have identified cases where taxes/charges and subsidies were applied in relation to environmental resources and associated economic sectors (Table 11.2).

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**Box 11.1**
**Deposit-Refund Systems for Used Container Management**

A Deposit-Refund System (DRS) is an MBI which can be used in waste management, particularly with regard to used containers. Apart from the environmental benefits, DRS can bring in many other benefits such as employment generation, reduction in cost of collection for recyclers, and health benefits due to reduction of vector borne diseases. There are examples from other countries (e.g., Netherlands, Finland) where a DRS has been applied effectively for used container management.

In Sri Lanka, it has been proposed to introduce DRS for several types of containers including PET bottles, beer and energy drink cans and pesticide containers. There were successful attempts on DRS for local arrack bottles and certain brands of soft drink bottles in Sri Lanka. These are voluntarily initiated approaches by the corporate sector and they show that application of DRS is practically possible in the country.

There have also been attempts by the government in regard to DRS. However, a Cabinet proposal to introduce DRS for pesticide containers in 2012 did not materialize. Similarly, application of DRS for yoghurt containers has also been limited to discussions so far. Proper facilitation by government agencies and private sector involvement is important for the continuation of such programmes.

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[2] Steele (1999) suggests that Sri Lanka probably has the first documented example of applying environmental taxes as reported in an Anuradhapaura inscription in AD 65 about levying tax for fishing in large tanks owned by the King.

[3] See Steele, P. (1999), "Market-based Instruments for Environmental Policy in Developing Countries: From Theory to Practice with a Case Study of Sri Lanka's Recent Experience", in Sterner, T. (ed.), *Market and the Environment: The Effectiveness of Market-based Policy Instruments for Environmental Reform*, Edward Elgar, Cheltenham, UK.; Ministry of Environment and Natural Resources (2008), "Development of Market-based Instruments for Environmental Management in Sri Lanka", Ministry of Environment and Natural Resources, Colombo.

**The command-and-control architecture of environ-mental policies in Sri Lanka has several gaps in policy coverage and institutional coordination.**

As seen in Table 11.2, multiple taxes are charged for vehicles and petroleum imports, where the major purpose is raising revenue for the government. These taxes are not aligned to create incentives for changing the behaviour of consumers to overcome environmental issues associated with the use of vehicles or petroleum fuels. For instance, differential tax rates applied for petrol and diesel do not reflect any logical basis from the side of environmental management. Lower tax rates are applied for diesel even though it is not an environment-friendly product. Diesel is the fuel used for public transportation and hence low tax rates on diesel are justified as a move to reduce the cost of living burden on low-income groups who use public means of transport. Hence, it involves a trade-off between environmental and poverty-reduction objectives.

Increasing block tariffs are charged for electricity and pipe-borne water for domestic users. The block structure has been designed to discourage the overuse of electricity and water as large-scale users are charged at higher unit rates over and above block threshold limits. Hence, the price structure gives some incentive for conservation of energy and water. In the power sector, this has encouraged the use of energy saving technologies such as CFL bulbs, LED lighting and solar net metering. Moreover, this structure helps small-scale users, usually low-income earners, to manage their energy and water consumption bills at relatively lower levels. Hence, the pricing system of electricity and pipe-borne water supply has some beneficial features in terms of environmental and poverty-reduction benefits. However, suppliers of both services are state agencies that have reported persistent losses to be financed by tax revenues. Controlling the cost of living for masses is the justification given for keeping these utilities under state monopoly, disregarding inefficiencies that imply their services are undercharged. In the case of pipe-borne water, the services presently cover only a small segment living in urban areas. Limited coverage of pipe-borne water in the face of increasing water pollution and associated health problems implies negative impacts for the majority of people that do not have access to pipe-borne water.

No user charges are levied for irrigation and this leads to overuse of scarce water supply. Even though free irrigation provides some relief to a large number of small farmers, this relief is offered at a significant fiscal burden to the government for development and maintenance of facilities. A similar situation exists in the case of land and fisheries resources too. They do not involve any charges for services, or taxes to

control externalities associated with agriculture and fishing activities except for nominal licence/permit fees. Such nominal payments cannot either change the behaviour of users in favour of conservation of resources or support effective management programmes to prevent resource degradation. Legal provisions available under the Soil Conservation Act and the Fisheries and Aquatic Resources Act are largely ineffective. As a result, land and fisheries resources are subject to rapid degradation, seriously limiting the ecosystem services available for future generations.

No charges are involved in the case of collection and disposal of solid waste and sewage too. These services are maintained with a direct fiscal burden on government/local authorities and the service quality is extremely poor. Poor quality of services for garbage and sewage collection/disposal has led to a host of environmental problems that are affecting the poor more than the rich.

Growing evidence from scientific studies suggest that air and water pollution levels in many locations across Sri Lanka exceed the allowable limits stipulated by respective ambient quality standards. This implies air and water resources are overused, discharging effluent/emissions from industrial activities and vehicles. In other words, no effective pollution control is provided by the current system of EPL for polluting industries and mandatory emission tests for vehicles.

The following observation can be made about taxes, charges and pricing systems currently applied for environmental resources and associated economic sectors.

- Some taxes and charges have been adopted for revenue purposes alone,

and they have not been designed to encourage behavioural changes favourable for controlling pollution or conservation of resources.

- Pricing systems of electricity and water supply offered by state monopolies have some beneficial features that encourage resource conservation. However, as sources of government revenue, they have become failures.

- Some services relating to environmental management are offered at free of charge or subsidized rates. As a result, the quality of services remains poor, and they have failed to achieve their objectives, resulting in a fiscal burden to the government and environmental problems for the poor.

- No charges or taxes are applied to control resource degradation in land, water and fisheries resources, except certain nominal payments. Even though regulatory instruments are available, they fail to control rapid resource degradation taking place in these sectors.

Overall, even though there are taxes, charges and pricing systems applied in sectors relating to environment, many of them cannot be considered as true MBIs designed for environmental management. Considering this situation, the Ministry of Environment and Natural Resources (2008) has proposed certain recommendations to develop an effective system of MBIs that can also lay the foundation for successful EFR. Some of the key recommendations are:

- Introduction of user charges for the collection and disposal of waste and wastewater.

**Table 11.2**
**Taxes, Charges and Pricing Systems Applied in Environmental Resources and Associated Economic Sectors**

| Sector | Taxes/Charges/Subsidies | Perceived Outcomes (Direct/Indirect; Negative/Positive) | | |
| | | Fiscal Revenue/Cost | Environmental | Poverty/Livelihood |
|---|---|---|---|---|
| **Energy** | | | | |
| Electricity | Increasing block tariff with variable and fixed charges | Partial cost recovery at undercharged rates | No direct environmental benefit to users | Subsidized rates for small |
| Petroleum | Excise duty | Income for government | No direct environmental benefit | |
| **Transport** | | | | |
| Vehicles | Import and excise taxes Cess Luxury vehicles tax Revenue license | Income for government | No direct environmental benefit Indirect due to increased vehicle prices | No direct impact on poor |
| Roads | No user charges involved Toll fee collected from highways | Financed by national and local budget | Poor state of repair and maintenance | Free use of road facilities |
| **Water** | | | | |
| Domestic pipe - water borne | Increasing block tariff with variable and fixed charges | Partial cost recovery at undercharged rates | Health cost of non-users due to slow expansion of services | Subsidized rates for small users |
| Irrigation | No user charges involved | | Overuse of water | |
| **Pollution & waste** | | | | |
| Emissions | Fees for environmental protection licenses /mandatory vehicle emission tests | Partial cost recovery | Pollution control | No direct impact on poor |
| Effluents | Environmental protection license fees | Partial cost recovery | Pollution control | No direct impact on poor |
| Solid waste | No user charges involved | Financed by national and local investment | Poor service quality due to low suffer due to poor service | Low-income neighbour-hoods to |
| Sewage | No user charges involved | Financed by national and local budget | Poor service quality due to low investment | Low-income neighbourhoods to suffer due to poor service |
| **Agriculture** | | | | |
| Land | Acreage tax | Proceeds to agrarian development | No direct environmental benefit. | Nominal taxes. Benefits back to farmers |
| Fertilizer | Fertilizer subsidies | Financed by national budget | Environmental degradation due to overuse of fertilizer | Subsidized prices for small farmers |
| **Fisheries** | | | | |
| Boats and gear | Annual license fees for boats, gear and fishing operations | Partial cost recovery | | Nominal rates for small operators |
| Fuel | Fuel subsidies (discontinued) | Partial cost recovery | | |

Source: Compiled by the IPS using Ministry of Environment and Natural Resources (2008) and Steele (1999).
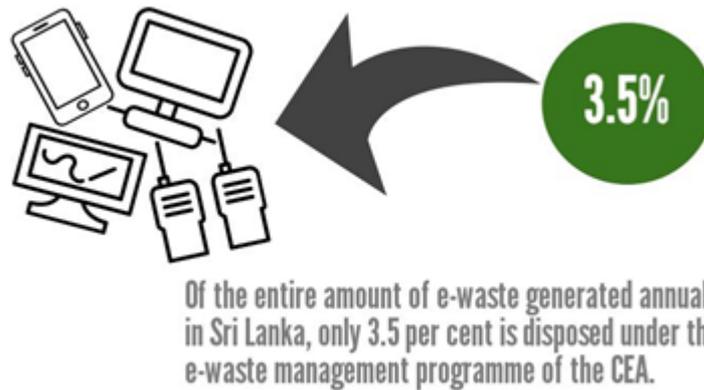
**Box 11.2**
**Extended Producer Responsibility for E-Waste Management**

Of the entire amount of e-waste generated annually in Sri Lanka, only 3.5 per cent is disposed under the e-waste management programme of the CEA. In order to minimize the health and environmental costs of e-wastes, there should be an effective approach to manage them properly. At present, the e-waste collecting mechanism in Sri Lanka includes both formal and informal entities. The formal sector represents companies registered with the CEA, and the informal sector includes small to medium collectors who operate without guidelines and licences. There are certain regulatory mechanisms under the National Environmental (Protection & Quality) Regulation No. 01 of 2008. The CEA's e-waste programme is carried out based on voluntary participation. A survey undertaken by the Ministry of Environment has shown that a lack of proper awareness is a key issue in e-waste management in Sri Lanka, where many individuals do not know the real environmental and health costs of e-waste. Secondly, the absence of a monitoring system, especially for the informal sector, is another key issue.

In order to overcome the existing gaps, the Ministry of Mahaweli Development and Environment has proposed an MBI based on the principle of Extended Producer Responsibility (EPR). In this approach, the producers are given the responsibility of collecting e-waste in an environmental-friendly manner, while consumers are motivated to handover the obsolete equipment to sellers. Since there are no producers in relation to electronic equipment in Sri Lanka, it takes the form of an Extended Trader Responsibility approach. Accordingly, a fee (depending on the value of the equipment) is to be charged from the consumer at the time of sale. Remuneration can be redeemed with a market interest of the fixed deposit at the time of handing over the equipment to the trader after the end of its useful life. The system will establish a unique ID for each unit of equipment, allowing for transferring the ownership of the equipment to any number of users from the first buyer. The functioning of the system will be based on a password and electronic card to facilitate the end user to handover the obsolete equipment to any trader in Sri Lanka, while realizing cash (with interest or using it as a part of payment for any new equipment). However, there is still much to be done in regard to setting the legal framework for this mechanism and creating awareness.  In effect, this is also a form of DRS designed for durable electronic goods, involving long-term handling of deposits with payments of interest.

- Introduction of water effluent tax and water extraction taxes for groundwater and surface water.

- Adoption of cost based prices for all products, inclusive of external costs.

- Redesigning the electricity and water supply tariffs in accordance with the full cost recovery principle.

- Disconnecting environmental taxes and user charges from social concerns, and addressing problems of the poor through well targeted subsidies.

- Establishment of an Environmental Fund to administer revenues expected from implementation of various MBIs.

3.5%

Of the entire amount of e-waste generated annually in Sri Lanka, only 3.5 per cent is disposed under the e-waste management programme of the CEA.

These recommendations have not been adopted so far despite some discussions about them. Meanwhile, the Ministry of Environment has come up with new proposals for introducing MBIs. Details about a DRS for managing e-waste, based on the principle of Extended Producer Responsibility (EPR), is given in Box 11.2.

## 11.5 MBIs and EFR: Some Thoughts on the Way Forward

In spite of potential improvements that can be expected from adopting MBIs for environmental management and EFR in Sri Lanka, establishing a viable system may need long-term preparation. So far, the enthusiasm shown by policy makers in the environment sector has not been matched by other key stakeholders, including policy makers involved in macroeconomic management. A major challenge involved here is overcoming the barrier of public perceptions which seem to be yet unprepared to view MBIs in realistic terms. One reason for abandoning the proposed

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National Water Policy in the early part of this century was the public allegation that it plans to charge taxes on water use. Long-nurtured offering of subsidies and free public services for small farmers, urban poor and other local resource users (e.g., fishers) is also closely connected to this situation. As a result, charging any payments in the form of taxes or user charges from those categories seems to be socially unwarranted, even in the light of ample evidence on resource degradation. Many civil society activists who champion the cause of environmental conservation also do not appear to view MBIs in a favourable light. Instead, they have often favoured the introduction of more stringent command-and-control instruments and strict implementation of existing regulations and standards. This situation has compelled politicians too to take a cautious approach, considering the political sensitivities involved.

Hence, the adoption of MBIs and EFR should be gradual and strategic. There should be well-designed awareness campaigns prior to 'pre-announcements' allowing time for stakeholders to adapt to the system in advance. The process of introduction should be initiated with interventions that would attract low public resistance. Instruments that can involve participated on a voluntary basis (e.g., DRS) may be given priority in the initial stage. Moreover, the introduction of MBIs should be done through a fully transparent process to avert adverse publicity, where authorities should be prepared to make amendments in a constructive manner whenever necessary in response to public views. More than anything else, a successful demonstration of effectiveness and public benefits from early interventions - ideally carried out in the Sinhala and Tamil media - would be the best advertisement for the long-term success of MBIs.