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**Mainstreaming the Use of
Environmental User Fee
(Component 2)**

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Acronyms

BOD/BOD ₅	Biochemical Oxygen Demand
CAC	Command and Control
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DO	Dissolved Oxygen
EIA	Environmental Impact Assessment
ENRAP	Environmental and Natural Resource Accounting Project
EUF	Environmental User Fee
LLDA	Laguna Lake Development Authority
MBI	Market-based Instrument
NEUFS	National Environmental User Fee System
PEENRA	Philippine Economic-Environmental and Natural Resource Accounting
SEECCTA	Strengthening Environmental and Enforcement Compliance Capacity Technical Assistance
TSS	Total Suspended Solids

Main Report

1.0 Introduction

Current environmental management in the country relies on direct regulation. But observation would show that these regulations have not exactly been successful in controlling air and water pollution. River surveys conducted from 1989 to 1992 showed that already 4% of the 125 rivers are biologically dead (EMB 1996). To curb the deteriorating condition of the country's environment, the Department of Environment and Natural Resources (DENR) is exploring alternative management strategies.

Since 1995, the Philippine government has considered several initiatives to encourage "the regulated community" to meet environmental standards without resorting to government sanctions (ADB, 2001). The Environmental Management Bureau (EMB) has long recognized the importance of a market-based approach that would decrease pollution from all sectors, improve ambient environmental quality, and protect valuable natural resources.

In 1996, the World Bank assisted the Laguna Lake Development Authority, an attached agency of DENR, in designing a system of environmental user fee based on the concept of pollution charges. Nationwide implementation of a similar system was then suggested prompting the DENR Philippine Economic-Environmental and Natural Resources Accounting (PEENRA) unit to request technical assistance from the Environmental and Natural Resources Accounting Project (ENRAP) in 1998 to study and design a framework for national implementation. In the absence of a legal authority to implement a pollution tax or charge, it was proposed that a similar concept be incorporated as part of the permitting system under the National Pollution Control Law (PD 984).

The World Bank funded SEECCTA Project follows up on those earlier studies to finalize the National Environmental User Fee System (NEUFS) and its implementation plan through national consultations. The NEUFS under DAO 2002-16 is designed as an industrial and commercial wastewater discharge permitting system that amends the implementing rules and regulation of PD 984.

2.0 Rationale for Economic Instruments in Pollution Management

2.1 Potential Impacts of Worsening Pollution Problem

The continuing conflict on the management and usage of different water bodies in the Philippines may have far-reaching impacts on its environmental structure and existence. If pollution discharges, particularly in terms of BOD and TSS, would continue to increase because of industrialization, it is expected that its water quality will soon be degraded. BOD is the quantity of oxygen used by microorganisms in the aerobic stabilization of wastewater and polluted waters (Viesmann 1993). Pollutants in a waterbody utilize oxygen dissolved in the water (DO), thereby, imposing a BOD on the oxygen resources available in the watercourse. This condition would create an inverse relationship between BOD and DO in the water column. The higher the BOD levels in the water the

lower the DO level that can be made available for the aerobic decomposition of organic substances and for the various organisms thriving in the water column. For instance, any reduction in DO to less than perhaps 3-5 mg/liter can cause an adverse impact on fish that require a relatively high oxygen concentration to meet their metabolic needs (Viesmann 1993). A further increase in oxygen demand would result in an even lower DO and progressively worse conditions for other aquatic life. The addition of enough oxygen demanding materials to the watercourse could cause the total depletion of DO, which, consequently end up in fish kill. Furthermore, the absence of DO could result in the growth of microorganisms that produce by-products that cause foul-odors in the water and its surrounding (Lamb 1985).

Suspended solids, by definition, are materials with a particle size larger than dissolved molecules or ions (Viesmann 1993). These substances are large enough to be removed from water during its passage through a specific type of laboratory filter. They are also usually large enough to settle in quiescent water to become part of the bottom deposits or to rise to the surface as scum if they are lighter than water.

Suspended solids may have many undesirable effects on water quality. For example, chemical precipitates may increase turbidity that will make water less attractive for most purposes. Increase turbidity means less sunlight penetration. Low solar energy penetration will result in the death of light-dependent aquatic organisms. This condition may have a profound influence on the ecological balance in the watercourse.

Some suspended matter, especially those matters that are lighter than water, may float and form scums. Aside from being unsightly, it will also interfere with the passage of light and oxygen through the surface. On the other hand, suspended solids heavier than water may settle and accumulate in deposits referred to as sludge banks. If the suspended solids are high in organic content, decomposition of sludge banks may give off foul odors, especially when exposed to the atmosphere at low water levels. The more direct effects include reducing the capacity of the watercourse because of their accumulation, killing fish because of clogging their gills, and destroying bottom life by blanketing it under accumulated sediment (Lamb 1985).

2.2 Pollution and Economics

Experience has shown that command and control (CAC) mechanisms complemented with market-based instruments (MBI), which provide economic incentives to modify behavior, may be a more effective way to achieve many environmental goals. Though not less expensive than implementing CAC alone, CAC with MBIs often yield better results by harnessing the powerful cost-benefit motivations of businesses and individuals.

MBI—or economic instruments (EI)—are policy tools that use financial incentives to change the behavior of industrial, agricultural, and residential polluters. These instruments provide financial rewards for polluting less and impose costs for polluting more (Anderson 2002). Such instruments comprise a broad group of policies, including pollution charges (also called fees or taxes), tradable/marketable permits, input or user

fees, and subsidies for environmentally friendly activities (Anderson 2002, and Speck et al 2001).

Governments often come upon these economic instruments as part of a second generation in environmental protection. The first generation of command-and-control regulations often targets and controls the most highly visible sources of pollution. As the costs of abatement and pollution rise, however, a second generation of policies—one that makes investing in abatement more attractive—becomes crucial.

In many cases, market-based instruments use the standards set by traditional command-and-control regulations as a basic building block. Instead of merely imposing a standard fee for each regulatory breach, however, economic instruments—particularly pollution charges—typically includes a charge rate that varies with the amount of the pollutant’s concentration. Economic instruments work best, therefore, when they are designed to complement command-and-control measures (Anderson 2002).

In its 1997 analysis of economic instruments for environmental protection in China, the OECD identified six primary reasons to use economic instruments:

1. direct regulations are costly and often difficult to enforce;
2. the trend toward “deregulation” requires a search for more economically efficient policy instruments;
3. governments need increasingly stringent and ambitious tools to protect the environment;
4. such programs can provide a source of revenue or financing for environmental programs;
5. economic instruments represent an “integration” of environmental and economic policies; and/or
6. re-evaluating environmental tax or ‘tax-like’ systems may result in the removal of distortionary subsidies.

But regardless of the inherent strength and efficiency of EUF as a policy tool, it can only work if the scope of MBIs matches the countries’ institutional capacity to implement them. MBI approaches that introduce gradual and flexible reforms are most likely to succeed within the current institutional context. Also, information building and information sharing, particularly the experience of others which have already implemented similar schemes are key factors in helping to remove legal and political barriers.

3.0 Experience on the Use of Economic Instruments

3.1 International Experience

According to Speck et al (2001) at the Regional Environmental Center for Central and Eastern Europe, emissions charges of the 1970s and early 1980s were mostly revenue raisers, without any incentive role. However, with the emerging market economies of the

¹ OEI – Old or Existing Industry; NPI – New/Proposed Industry

1980s and 1990s, the costs and implications of the charges became real. They became used extensively as change agents for behavior.

A review of literature detailing effluent charges in the OECD and Eastern European countries reveals that most governments set base fees for each pollutant; these fees then increase depending on the amount by which a polluter exceeds the standards.

With regard to pollution emissions and resource use, market-based instruments are typically tied to already-existing systems of permits and emission and discharge standards. Effluent standards typically are extensions of the national traditional command-and-control regulatory system (Vincent 2000 and Klarer 1999). That is, standards already exist and have in place frequent monitoring and reporting requirements. Thus, the added costs of linking the fee system to the regulatory system is relatively low. The evaluation of permit-driven MBIs, therefore, “cannot be separated from the performance of the permit system” (Speck 2001). Likewise, many countries have established air emissions charges using the national permit system as the foundation (Klarer 1999). As in the case of wastewater fees, they frequently are comprised of fixed fees that go toward administrative costs, plus the variable fees that go into dedicated environmental funds.

However, Speck (2001) notes that economic instruments may not be appropriate in all cases. In the case of hazardous wastes or “hot spot” pollution areas that pose a risk to public health, he argues that it would be an unwise strategy to give polluters flexibility and time to clean up their operations. Their operations must be clean starting *now*.

In addition, he notes, already existing solid waste regulations may undermine the effectiveness of economic instruments. This is because many solid waste policies already have established quantitative targets for the share of waste to be recycled, incinerated or landfilled. Such regulations might prevent industries and households from responding fully to the financial incentives provided by MBIs, particularly if, as Klarer (1999) notes, industrial taxes heavily subsidize those of households.

For those Central and Eastern European countries who do have waste disposal charges or taxes, says Speck, the collection, separation, and disposal of wastes (to landfill or by incineration) still remains problematic. Charges are usually too low to permit full cost recovery. Even at low prices, polluters engage in illegal dumping (US EPA 2001). In Europe and the United States, factors in setting fee structures can include: the amount of waste (by mass or number of waste containers), expenses for the landfill / depot operation, and the size of the real estate from which the waste comes. These fees are not necessarily earmarked for further environmental programs.

Table 1 provides some sample pollution charges currently being used in other countries.

The merits of applying these instruments within the realm of environmental management extend beyond theoretical and scientific understanding; the continuous expansion of the market-based instrument’s employment in different parts of the world is a valid proof. As an initial task, the SEECCTA strategy was to draw on these experiences to expedite the development of the process for mainstreaming the use of market-based instruments in

the Philippines. The study specifically focused its review and assessment on the various features and components of the EI and analyzed each one based on how it would apply or whether it would not work on the context of the economic-social-political set-up in the country.

Enabling Law/Organizational Set-up

A necessary and fundamental condition for setting up any policy, is an enabling law that would give credence to its implementation. Likewise, an organizational set-up that provides the kind of policy environment conducive for a market-oriented type of policy is also vital.

In the case of Germany, the government initially passed the Effluent Charge Law, which combined a discharge fee with a permit structure prior to implementation of an EI. The Philippine set-up for staging EI as a policy tool can be compared to that in Netherlands where water pollution charges are based on a regulatory system of discharge licenses and a system of water charges. It is within DENR's permitting mandate, as provided in PD 984 that sets the framework for the introduction of NEUFS in the environmental policy landscape (Beder 1993). The legal basis of NEUFS is further elaborated in the latter part of this Report.

Coverage

The extent of coverage of an economic instrument varies depending, among others, on the enforcement capacity and the size of the regulated community. France, for instance, has an extensive coverage including domestic and non-domestic dischargers. While China, like the Philippines' proposed NEUFS design, imposes fees on enterprises and institutions. In Germany, the coverage is more general and encompassing, i.e. all direct dischargers of such pollutants as settleable solids, chemical oxygen demand (COD), mercury, cadmium, and toxicity to fish are covered in the policy.

Table 1. Illustrative Pollution Charges		
Country	Fee	Comments
Water Effluent Charges		
U.S.	Permit fees levied on firms, plus variable charges (e.g., dependent on volume & toxicity)	10 U.S. states assess charges based on discharge volume and toxicity, while 18 others calculate based on volume alone. The remainder builds in fees according to the purpose of water use, the characteristics of receiving water, and type of facility releasing the discharge. 1993 data.
Poland	BOD charges range from 191 to 1920 USD/ton	Fees apply to enterprises that discharge to water or to soil. Prices are a combination of discharge permits fees, plus (cumulative) pollution charges above certain thresholds. Charges increase depending on the quantity, concentration, and toxicity of six different pollutants—see BOD and COD examples. Collection rates are 57 percent, with some fees going into the National Environmental Fund and some into sub-national environmental funds. 1997 data.
	COD charges range from 109 to 1343 USD/ton	
Air Emissions Charges		
Lithuania	Permits are combined with a pollution charge and non-compliance fee	Fees apply to “legal or natural persons” with emissions permits for from either stationary or mobile sources. Charges differ by source and whether the concentrations of more than 100 pollutants exceed prescribed standards. (Each pollutant starts with a base rate; these are then aggregated.) Collection rates are 100 percent. The national budget receives 30 percent and Municipal Protection Funds receive the other 70 percent. 1997 data.
Sweden	Permit charges, plus 5 USD/ kg of NO ₂	Levied on the actual emissions of heat and power producers exceeding 50 GwH of production, these fees hastened compliance with 1995 national emission requirements. Reductions measured between 30 and 40 percent. The industry plowed revenues back into air quality control. 1992 data.
Solid Waste Charges		
Germany	1) 38-108 USD/ton 2) 27-81 USD/ton	1) For domestic refuse disposal 2) For hazardous waste disposal. 1995 data
Slovakia	1) 0.3 – 7 USD/ton 2) 0.1 – 1 USD/ton	1) At regular landfills 2) At specialty landfills. These fees apply to all waste producers disposing all types of waste (MSW, hazardous, etc.) at landfills. Fees depend on the quantity, toxicity, and kind of landfill. The revenue leader is MSW. Collection fees are 70 percent; some funds go to the national environmental fund and some to sub-national general budgets.

In the design of the proposed national NEUFS in the Philippines, some of the major factors that determined the coverage of the policy include the available baseline information on pollution; the existing personnel and logistical capacity of EMB Regional Offices to monitor and implement the policy; and the profile and potential capacity of the regulated community to comply.

Formula/Model

In Germany, wastewater charge is based on the discharge permit limits agreed for each polluter, rather than on actual emissions (OECD 1997). While in the Netherlands, the charges reflect the number of “pollution equivalents” that are in the particular discharge, where one pollution equivalent is standardised to the amount of effluent that an individual produces.

Somewhat similar to this model is the one currently implemented in France where households pay a flat rate charge equivalent to three pollution equivalents. For firms, the system is applied on a different basis to three categories. First, small companies with a pollution load below about five pollution equivalents pay a fixed rate. Second, companies of intermediate size, normally pay the levy according to a schedule that takes into account the number of employees, the type of activity, and consumption of water and raw materials. Third, larger firms with emissions above 1,000 pollution equivalents, pay charges which are based on measurements of the quantity and concentration of emissions (OECD 1997)

Australia: Charges are based on concentrations of contaminants in the effluent entering the sewerage system. Charges at a higher rate for higher-strength wastes. In a way, the board is providing an incentive for cheating – because it charges companies at higher rates if they are discharging higher-strength wastes, and then asks them to monitor for themselves how strong their wastes are.

The Philippine proposed system takes on a more basic form by simply charging all industrial and commercial discharge by a common rate.

These components and several others are considered and factored in the proposed design of the NEUFS and the Implementation Plan, which will be discussed in details later in this Report.

3.2 The LLDA Environmental User Fee Experience

3.2.1 Basic Features

The Laguna Lake Development Authority (LLDA), an agency attached to DENR, has the legal authority to assess, collect and earmark funds from industrial effluents within its jurisdiction. It is, therefore, in a unique position to implement a system of pollution charges, which it calls environmental user fees.

Since 1996, LLDA has implemented a system of user fees on the discharge of waste water by commercial and industrial facilities. In the first year of implementation, LLDA

targeted highly polluting industries such as food processing, beverage firms, piggeries, slaughterhouses, dye & textile, and pulp & paper mills. About 21 medium- and large-sized firms participating in the program—both domestically owned and multinational corporations—averaged 88 percent reductions in biochemical oxygen demand (BOD).

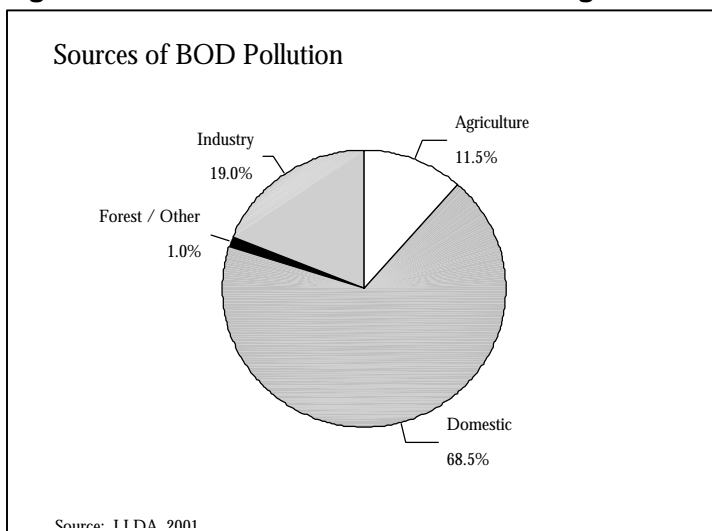
Over a seven-year period (1993-2000), Krupnick et al (2002) and LLDA reported write that BOD inflows to the lake declined by 75 percent from about 99,000 tons in 1993 to 74,000 tons in 2000. Industry's share has also decreased; 35 percent of the BOD load used to come from industry and now it is closer to 20 percent, compared to 68 percent from domestic sources, 11 percent from agriculture, and 1 percent from forestry and other sources. LLDA officials credit the EUF program to a large degree for these reductions (**Figure 1**).

The LLDA EUF model has two basic components: a fixed charge; and a variable charge based on pollution load (**Box 1**). The computation of the fixed charge computes the fixed charge per industry according to the administrative and monitoring costs that LLDA will spend for each establishment. The fixed fee (FF) in the model is intended to cover the administrative cost of processing the discharge permit, monitoring, and as well as evaluating compliance among firms subject to the system. The fixed fee is determined from the total volume of wastewater discharge, regardless of BOD concentration. The fixed fee schedule is as follows:

Conventional		Heavy Metals	
Volume of Discharge (cu.m./d)	Fixed Fee (PhP)	Volume of Discharge (cu.m./d)	Fixed Fee (PhP)
> 150	15,000	> 150	18,000
31-150	10,000		
30	5,000	150	12,000

The other component of the EUF model the is computed using a basic rate, based on the marginal abatement cost for BOD for the whole industry in the area, multiplied by the BOD load. In the calculation of the variable fee, LLDA follows a two-tier fee rate system

Figure 1. Sources of BOD Pollution in Laguna de Bay



based on a discharge concentration threshold below which a discount is given on the variable portion of the fee. That threshold corresponds to the existing concentration- based standard for BOD, which is 50 mg/l. This means that if the final discharge has a BOD concentration below 50 mg/l, the charge per unit weight applied is lower. Currently this lower tier fee rate is set at PhP5.00/kg BOD. Above 50mg/L BOD, the fee rate is six

times higher at PhP30.00/kg. This makes the EUFS structure "progressive" in terms of rewarding discharges that comply with the BOD effluent standard and has the effect of reframing the pollution fee objective to one of inducing (cost effective) compliance with the standard—a case of mixed regulatory and economic instrument approach. Note that the fee itself is calculated based on the total load, not on the BOD concentration.

BOX 1
THE LLDA ENVIRONMENTAL USER FEE SYSTEM

The formula for calculating the amount of the fee under the EUFS is as follows:

$$AF = FF + (VF * T_{BOD5})$$

where:

AF = Total annual user's fee
FF = Fixed fee
VF = Variable fee

In turn, the formula for obtaining the total annual BOD₅ is:

$$T_{BOD5} = C_{BOD5} * Q * d * Cf,$$

where:

T_{BOD5} = total annual BOD₅ in kg
C_{BOD5} = average effluent concentration of BOD₅ (mg/l)
Q = daily wastewater discharge (m³/d)
d = number of discharging days per year
Cf = unit conversion factor (10⁻³)

3.2.2 Criticisms

Criticisms of the LLDA system tend to fall within three categories: the structure and amount of fees, the required wastewater quality parameters, and the implementation / enforcement of the EUF system.

Structure and Amount of Fees. While the 6-fold difference in the two-tier rate presents a strong incentive for lowering the BOD concentration of the final discharge, unfortunately, this also creates a strong incentive for firms to dilute their final discharge. The Netherlands-assisted Sustainable Development of the Laguna de Bay Environment Project (SDLBEP), which conducted a review of the EUFS, found that through dilution of wastewater, either through illegal piping or mixing with extra cooling water, polluters are able to cut down on the fee that they would otherwise have to pay under the EUFS. Calculations done by the project indicate that due to the practice of diluting wastewater

to bring its BOD concentration to below 50 mg/L, actual revenues from industrial polluters are only 16 to 25 percent of what the revenues should have been had dilution of wastewater not been resorted to by firms. Because of the inexpensive dilution recourse, pretreatment and pollution prevention initiatives would not pay off, thereby undermining the intent of the environmental user fee system (Tetra Tech EM Inc 2000).

Further, the Tetra Tech EM consultants note that the two-tier system's tendency to create a perverse incentive to dilute could lead to a host of other environmental problems, including induced groundwater pumping to obtain dilution. One course the consultants recommended is to modify the formula and doing away with two-tier system. Note though that firms paying an environmental user fee are still subject to LLDA's regulatory standards and sanctions for non-compliance under PD 984. Hence, even without the two-tier system, the disincentive for polluters to not comply with the regulatory standards still exists.

Water Quality Standards. The LLDA EUF pilot program only takes account of BOD, to the exclusion of all other effluent parameters included in DAO 35, including total suspended solids and heavy metals. The other DAO 35 pollutants already are part of the LLDA regulatory system. All LLDA water quality tests conducted for the environmental user fee program and regulatory enforcement are processed through the same LLDA lab; it would be relatively simple (technical) process to build additional parameters into the EUF program.

Further, some argue that the requirements should not stop short at the BOD standards set forth in DAO 35; rather, it should be even more stringent than 50 mg/liter. In the United States, for example, BOD levels for secondary treatment at wastewater treatment plants are about 30 mg/liter.

All of the tributaries and lakes in the LLDA system currently are classified "Class C" for fisheries (i.e. fishing takes priority among lake activities). For Laguna de Bay to become a water supply body by 2006, this would entail an upgrade to A or B classification, requiring substantial treatment to reach acceptable levels.

Enforcement. The implementation of the EUF pilot program has critics on all sides—chief among them LLDA officials, who would like to increase numbers of inspection staff and fee collection rates. Currently, program monitoring and analysis is a manual process, which introduces a high degree of error; LLDA would like to computerize its record-keeping.

Industry representatives have complained of an uneven/irregular application of standards by LLDA officials. They also suggest that the EUF program should consider providing regulatory relief for those facilities complying with LLDA standards (i.e., less frequent monitoring, less frequent reporting, or lower fees).

There are about 30 inspectors and laboratory personnel dedicated to the EUF program, and as such LLDA relief heavily on the self-monitoring reports sent in by industries. Companies are required to send in quarterly wastewater quality reports, and LLDA randomly tests their accuracy. As a result, the EUF program has prioritized the large-

scale dischargers and placed the small- and medium-sized enterprises (SMEs) among the lower priorities.

4.0 The National Environmental User Fee System

4.1 Model

Traditionally, EMB has relied mainly on command and control type of pollution management and within this structure, permitting has been one of the more important tools they use. It is within this given mandate to issue permits that set the framework for instituting a policy shift from pure a command and control (CAC) to one that complements it with a market-based instrument such as the NEUFS.

The NEUFS of DAO 2002-16 (see **Volume 3, Report No. 1**) is based on loading of pollutants, with charges assessed for all loading levels. The NEUFS, also called as wastewater discharge permit fee, consists of both fixed and load-based fee, i.e.,

$$Df = F + LBF$$

where:

- Df = total wastewater discharge permit fee per establishment or installation
- F = fixed fee per establishment or installation per year (PhP/ facility)
- LBF = pollutant load-based fee

The fixed fee covers the administrative cost of processing, filing, monitoring and inspection. It is based on the average daily volumetric flow of wastewater discharges (measured in cubic meters per day), and the presence of heavy metals in the wastewater (**Table 2**).

Table 2. Fixed Fee Schedule

Volumetric Rate of Discharge	Fixed Fee without the Heavy Metals (PhP)	Fixed Fee with the Heavy Metals (PhP)
Up to 30 cu.m./day	6,500	9,000
More than 30 up to 100. cu.m./day	7,500	10,000
More than 100 up to 150 cu.m./day	8,500	11,000
More than 150 cu.m./day	10,000	12,500

The structure of the fixed fee has two characteristics that enhance administration. First, the fee is assessed and collected when the discharge permit is issued, ensuring that collection rate will be 100%. Second, as the fixed fee depends on only two variables (volumetric rate of discharge and heavy metals among the pollutants discharged), it is

relatively easy to determine which fixed fee rate should be assessed since this information will be readily available in the description of the permit.

The other component of the WWDP is to be paid by commercial and industrial establishments and installations which have obtained a wastewater discharge permit. The annual LBF for each establishment is calculated as follows:

$$\text{LBF} = \text{R} \times \text{L}$$

where:

LBF	= is the annual load-based fee to be paid by establishment/installation (in PhP/year);
R	= is the rate per kilogram of BOD ₅ or TSS (in PhP5/kg);
L	= is the total annual BOD ₅ or TSS pollutant load (in kg/year)

The amount of LBF required from each establishment is based on the volume of pollutant load they discharge. The basis for computing the load for the current year of application will mostly rely on actual sampling analysis of the plant's wastewater quality on the previous year (i.e. presumptive calculation). However, in cases when these primary data are not available, certain proxy or default values can be used such as the pollution load factors provided in the Industrial Effluent Guide. Since the calculation of LBF in the time of application will be based on the previous year's performance, the plant has an incentive to reduce the charge by proving that its pollution is lower than the estimated load or they can either pay the exact amount estimated.

In terms of administrative efficiency, the LBF is relatively easy to administer as it relies on information provided in the permit application and monitoring reports. Collection rates can be expected to be high for two reasons; first, facilities are entitled to a 10% discount if payments are made within 30 days of their due date; and second, LBF for all but the largest dischargers are not very large.

The collection rate for the LBF is enhanced by requiring establishments to be current on LBF payments in order to apply for and receive the annual discharge permit. As there is a maximum 1000 PhP/day penalty for discharging without a valid permit. Not paying the LBF could result in penalties far larger than the LBF if this provision were to be introduced into the IRR.

4.2 Legal Issues Regarding DENR-EMB NEUFS

4.2.1. Nature of the NEUFS

The nature of the **NEUFS** will help in determining on whether or not it may be adopted and implemented by **DENR** absent any specific legislation providing for the same. The threshold question that must be answered is whether or not the **NEUFS** is a tax or a form of taxation.

Philippine jurisprudence refers to *tax* as "a financial obligation imposed by a state on persons, whether natural or juridical, within its jurisdiction, for property owned, income

earned, business or profession engaged in, or any such activity analogous in character for raising the necessary revenues to take care of the responsibilities of government". An often-quoted definition is that of Cooley: "Taxes are the enforced proportional contributions from persons and property levied by the state by virtue of its sovereignty for the support of government and for all public needs." (*Republic of the Philippines vs. Phil. Rabbit G. R. No. L-26862, March 30, 1970*)

In another case, the Supreme Court stated that the term "tax" frequently applies to all kinds of exactions of monies which become public funds. It is often loosely used to include levies for revenue as well as levies for regulatory purposes such that license fees are frequently called taxes although license fee is a legal concept distinguishable from tax: the former is imposed in the exercise of police power primarily for purposes of regulation, while the latter is imposed under the taxing power primarily for purposes of raising revenues. Thus, if the generating of revenue is the primary purpose and regulation is merely incidental, the imposition is a *tax*; but if regulation is the primary purpose, the fact that incidentally revenue is also obtained does not make the imposition a tax. To be considered a *license fee*, the imposition questioned must relate to an occupation or activity that so engages the public interest in health, morals, safety and development as to require regulation for the protection and promotion of such public interest; the imposition must also bear a reasonable relation to the probable expenses of regulation, taking into account not only the costs of direct regulation but also its incidental consequences as well. (*Progressive Development Corp. vs. Quezon City, G. R. No.36801, April 24, 1989*)

As distinguished from other pecuniary burdens, the differentiating factor is that the purpose to be subserved is the raising of revenue. A *tax* then is neither a penalty that must be satisfied or a liability arising from contract. Much less can it be confused or identified with a *license* or a *fee* as a manifestation of an exercise of the police power. It has been settled law in this jurisdiction as far back as *Cu Unjieng v. Patstone*, decided in 1962, that this broad and all-encompassing governmental competence to restrict rights of liberty and property carries with it the undeniable power to collect a regulatory fee. Unlike a tax, it has not for its object the raising of revenue but looks rather to the enactment of specific measures that govern the relations not only as between individuals but also as between private parties and the political society. To quote from Cooley anew: "Legislation for these purposes it would seem proper to look upon as being made in the exercise of that authority . . . spoken of as the police power. (*Republic of the Philippines vs. Phil. Rabbit G. R. No. L-26862, March 30, 1970*)

To help determine if the NEUFS is a tax or not, it is important to find out the purpose of the NEUFS. Is the NEUFS a revenue-raising measure or is it merely a regulatory measure?

As defined in *DAO 2002-16*, the NEUFS is a fee levied to the dischargers for using the environment for waste disposal purposes or receptacle facility according to each unit of discharge. In the policy statement or *DAO 2002-16*, it is stated that the NEUFS is being adopted and promulgated in order to, among others, reduce water pollution and improve the ambient quality of water bodies and to encourage firms to pursue the least-cost means of pollution reduction and internalize the philosophy of self-regulation. (*Section 2*,

DAO 2002-16). Nowhere was it stated that the NEUFS is being adopted for purposes of raising revenue for the government.

It would now appear that the NEUFS is akin more to a fee or charge for the use of a natural resource (in this case, water resource) for waste disposal purposes. It can be likened to forest charges that are being imposed by the DENR.

In the case of forest charges, it has been settled that:

"In the first place, we do not subscribe to the proposition of the court below that because the collection of the forest charges has been entrusted to the Collector of Internal Revenue, said forest charges are taxes to be governed in the same manner as internal revenue taxes. As the court below had admitted, the Tax Commission had expressly stated that forest charges are not taxes but the price of forest products.

"Forest charges, which are not properly taxes but rather the price paid for exploiting national resources, need to be revised to make them more in harmony with present-day conditions in the industry and with public policies." (Report of the Tax Commission, p. 36, Vol. 1)

"Forest charges are to be distinguished from taxes. They are, strictly speaking, the price which the Government charges for the privilege granted to concessionaires to exploit the public domain, rather than a tax imposed to support the general services of the government. Since under the Constitution all timber lands in the public domain belong to the State, sound public policy demands that they be conserved or wisely exploited in order that the patrimony of the nation may not be impaired." (ID., p. 90, Vol. 1) cited in CIR v. Pio Barretto and Sons L-11805 May 31, 1960.

It can therefore be said that in order that a license fee may be considered merely as a regulatory measure, it must be only "of a sufficient amount to include the expenses of issuing the license and the cost of the necessary inspection or police surveillance, taking into account not only the expense of direct regulation but also incidental consequences." On the other hand, if the fee charged is a revenue measure, the power to exact such fee "must be expressly granted by charter or statute and is not to be implied from the conferred power to license and regulate merely." *City of Iloilo vs. Villanueva G. R. L-12695 March 23, 1959*

4.2.2 Legal Basis of the NEUFS

The DENR issued DAO 2002-16 on July 11, 2002 which provides for the adoption of the NEUFS nationwide. According to the said DAO, the NEUFS was adopted through the current permitting system under PD 984.

An examination of PD 984 shows that there is no specific mention of environmental user's fee in its provisions, which is understandable since the term EUF was not yet used in vogue at the time of its issuance, but its concept and purpose may already be derived from the law. It is then important to peruse the relevant provisions of the law in general.

Executive Order No. 192 states that it is policy of the State to insure the protection and enhancement of the quality of the environment. It is also the policy of the State to recognize and apply a true value system including social and environmental cost implications relative to their utilization, development and conservation of our natural resources. (*Section 3, EO 192*)

The DENR is the primary government agency responsible for the conservation, management, development and proper use of the country's environment and natural resources. (*Section 4, EO 192*)

The DENR is mandated under Section 5 [o], EO 192 to promulgate *rules and regulations for the control of water, air and land pollution*. It is also tasked with the promulgation of ambient and effluent standards for water and air quality including the allowable levels of other pollutants and radiations. (*Section 5 [p], EO 192*). Further, the DENR is empowered to *exercise other powers and functions and perform such other acts as may be necessary, proper or incidental to the attainment of its mandates and objectives*. (*Section 5[s], EO 192*)

PD 984 provides that the NPCC (now the DENR-EMB) shall *“(a)adopt, prescribe, and promulgate rules and regulations governing the procedures of the Commission with respect to hearings, plans, specifications, designs, and other data for sewage works and industrial waste disposal system, the filing of reports, the issuance of permits, and other rules and regulations for the proper implementation and enforcement of this Decree*. (*Section 6 [d], PD 984*).

Further, NPCC (now DENR-EMB) is empowered to *“(i)ssue, renew, or deny permits, under such conditions as it may determine to be reasonable, for the prevention and abatement of pollution, for the discharge of sewage, industrial waste, or for the installation or operation of sewage works and industrial disposal system or parts thereof. xxx The Commission may impose reasonable fees and charges for the issuance or renewal of all permits herein required.”* (*Section 6 [g], PD 984*)

DAO 2002-16 therefore finds clear support from the declaration of the state policies and the mandate of the DENR. The foregoing general provisions on the rule-making powers of the DENR provides adequate basis for its authority to adopt and implement the NEUFS.

4.2 Process of Developing the NEUFS Model of DAO 2002-16

One consistent thread running through case studies of economic instruments from Asia to Eastern Europe to the United States note that one of the most difficult methodological challenges is setting environmental user fees at a level that provide a financial incentive to change behavior, without resulting in uncompetitive conditions for firms (Vincent 2000 and Ruzicka et al 2002b).

This seems to be a common problem throughout all the MBI case studies. To try to pinpoint the optimum charges and fees, some governments have attempted abatement cost surveys. As Bluffstone and Larson note (1997), the most effective level for pollution

charges—in theory—would be where marginal environmental benefits equal marginal abatement costs. However, few studies that design fee systems spend much time calculating damages, which are difficult to measure, especially at the margin. Because of the administrative challenges of collecting and processing this data, Bluffstone and Larson note that in practice, governments tend to focus on collecting information about abatement costs. They know that polluters will put in place abatement programs and technologies if it will be less costly than paying government fees. Some cost consultants have suggested enacting several rounds of “trial and error” in order to determine optimum fee levels (DHV 2000).

In the U.S., wastewater calculations are often based on original measurement of water use (Anderson). This approach is possible because the same utilities first provide and then treat water. The structure is determined by individual states. Some rely on volume only, while some use volume plus toxicity, and others construct a fee schedule comprised of other factors: complexity of the water discharge permits, purpose for which the water was used, characteristics of the receiving water, heat load, potential health threat to the receiving community, and type and size of user. In such cases, water use and wastewater treatment bills are often combined (Klarer 1999).

Generally, charge rates are set according to any combination or all of the following principles: a) at a level to reflect marginal or average damages; b) at a level high enough that some establishments will abate because the cost of doing so is less than the cost of paying the charge; and c) at a level that meets revenue targets (when fee functions mainly as a financial instrument).

Apart from doing the rounds of extensive literature review, SEECCTA followed the following processes in formulating the design of the NEUFS in close coordination with EMB Central Office and discussions with various stakeholders:

- Reviewed the recommendations of the team of consultants from the *Laguna Lake Environment and Water Management Project-Phase 2 Studies: Draft Framework and Guidelines for Expansion of the Environmental User Fee System* (See **Box 2** below.)
- Made an inventory of the major features of pollution charges in different countries
- Reviewed the recommendations on the framework and model from the PEENRA-ENRAP study and draft Implementing Rules and Regulations revising the IRR of PD 984 to consider a load-based system of effluent discharge permitting.
- Utilized the industry pollution and abatement cost data from LLDA and ENRAP to determine the variable fee rate.
- Reviewed the self-monitoring system recommended by previous DENR projects and the system followed by LLDA.

Box 2

Major Recommendations from the Laguna Lake Environment and Water Management Project-Phase 2 Studies: Draft Framework and Guidelines for Expansion of the Environmental User Fee System

After 5 years of implementation, LLDA EUFS underwent a review. The following are the major findings and recommendations:

- The review of the LLDA EUFS showed that the two-tier fee structure based on the 50mg/L BOD threshold created a perverse incentive to dilute wastewater discharges. The Consultants recommended the adoption of a uniform or fixed fee rate for the variable fee portion of the formula.
- Align LLDA system with the DENR national EUF system to avoid confusion among industries.
- Bring back a simple stream factor component into the formula, as initially recommended in the Hagler Bailley study in 1996, and to rename this as “ambient environmental quality coefficient.”
- LLDA pursue its original intent to accommodate multiple pollutants in the EUFS and to start by adding total suspended solids (TSS) into the system. More importantly, LLDA must develop a capability to determine appropriate fee levels for each pollutant based on the approaches described above.

- Public consultations involving a mix of stakeholders (industry, NGOs, government agencies, and Congress) in Metro Manila, Region VII and Region XI, and all DENR regional offices.

Proposed ENRAP-PEENRA model (**Box 3**) was modified to make it simpler to implement and to align the NEUFS and the LLDA EUF models. Using the abatement costs and monitoring data of LLDA, ENRAP survey for Regions 3, 7 and 11, and the PCO reports from Saranggani province, the variable fee rate was determined and evaluated using the cost functions developed by Dasgupta *et al.* (1996) for China. The cost function is as follows:

$$C_j = f(W_j, E_j/I_j, M_s, X_j)$$

where:

- C_j: Total annual cost of abatement for the plant
- W_j: Total annual wastewater volume
- E_j/I_j: Vector of effluent/influent ratios, which can be interpreted either as concentration ratios or volume ratios (since waste water volume is constant across influent and effluent for each plant, it cancels out of the concentration ratio).
- M_s: Vector of input prices at the location of the plant (s).
- X_j: Vector of relevant plant characteristics (sector, age, ownership, productive efficiency, etc.)

Box 3

**ENRAP / PEENRA PROPOSED
 WASTEWATER DISCHARGE PERMITTING MODEL**

The basic model has two basic charges: (a) a fixed charge per facility to capture the administrative and monitoring costs of implementing the system; (b) a variable load-based charge per pollutant per facility. The fixed charge is based on the minimum administrative cost and, therefore, will have to be reviewed annually. The variable charge is based on the pollutant load, i.e. the volume and concentration of a particular pollutant, and ambient condition of the water body. It can also accommodate multiple pollutants by summing up the charges per pollutant.

The basic model is as follows:

$$PC_i = F_i + \sum_{j=1}^n [(R_j \times L_j) \times S_j]$$

Where:

- PC_i = total pollution charge per facility i
- F_i = fixed charge per facility i per year (P/facility)
- R_j = rate per unit of pollutant load by pollutant j (P/kg)
- L_j = pollutant load j , which computed as $(C_j \times Q_j \times N)/10^3$
- n = number of pollutants
- S_j = stream factor for the ambient environmental quality of the river for pollutant j
- C_j = concentration of pollutant j (mg/L)
- Q_j = volume of discharge at facility i (cu.m./d)
- N = number of operating days
- 10^3 = conversion factor to kilograms

The stream factor, S_j , represents some factor to account for the ambient environmental quality of the receiving body of water. It is computed as:

$$S_j = 1 + (A_c - A_t)/A_t$$

Where A_c is the current ambient environment condition of the water body and A_t is the target ambient environment based on the best usage classification.

Double log regressions were then performed using a simple regression or constant elasticity model:

$$\ln C = \alpha_0 + \alpha_1 \ln W + \beta_1 \ln [E/I] + \varepsilon$$

4.3 Implementation Plan

The implementation of NEUFS needs relatively different administrative capability and know-how than the implementation of pure CAC policies. There are design issues that would expectedly crop up; and as with design issues there is no substitute for experience (Markandya n.d.). Accordingly, the implementation strategy is not to hasten to do everything at once, instead there will be a gradual phasing-in in terms of scope until it has reached its full implementation stage.

Under P.D. 984, DENR has the authority to design a program with a grace period and/or phased implementation. DENR is authorized to “develop comprehensive multi-year and annual plans for the abatement of existing pollution and the prevention of new or imminent pollution”. These plans could call for the staged implementation of the program, focusing first on specific sources and parameters.

The general strategy would be gradual introduction of NEUFS charges involving only a few pollutants (i.e. BOD and TSS in this case), whose levels are then raised and scope expanded over time. The mechanisms for NEUFS implementation is designed in such a way that it can later be improved with continuous evaluation and modification.

4.4.1 Industrial Coverage

The NEUFS of DAO 2002-16 covers industrial or commercial wastewater discharge in any manner into Philippine water and/or land resources. On the first year of implementation, coverage will initially include those **industries with existing Permit to Operate (PO)** and those **new establishments (Table 3)** based on the list or inventory provided by any existing industrial database system of the Regional Office.

First year

Industrial Coverage : Those establishments with existing Permit to Operate
: New establishments

Those with the existing POs are the logical choice since they are mostly composed of few large firms with corresponding large wastewater generation. The Regional Office will continue to work on expanding the coverage to include other establishments or installations (commercial and industrial), which discharge process and domestic wastewater, not previously covered (**Table 3**). The Regional Office should check with their respective local government units (LGUs) in their area of jurisdiction as to the existence of these other establishments based on the records that the LGUs keep for taxing and/or business permit purpose. The main intent is to ensure that EMB has a good sense of all establishments discharging wastewater in the region.

Table 3. Provisional Terms and Other Programs for NEUFS Implementation

Items	Year of Implementation				
	1	2	3	4-5	6-10
1. Geographical Coverage					
National Capital Region					
Other Regions					
2. Industrial Coverage					
Establishments with existing Permit to Operate					
New Establishments					
All the other establishments (not initially covered)					
3. LBF payment exemptions (effective only for the period specified)					
All establishments					
Establishments with >30 cu.m./d WW discharge					
Non-contact cooling water					
Small-scale industries					
4. LBF Payment Cap (effective only for the period specified)					
5. Revisions: Rate of Charge and NEUFS Guidelines					
Centrally-determined					
Regional/local-setting					
6. Regional Quarterly Progress Report					

* Year 1 starts upon approval and implementation of the NEUFS Implementing Rules and Regulation.

On the side of the firms, in the interest of giving them sufficient time to adjust their budgets and financial plan, on the first year of the effectivity of their Discharge Permit, they will only be required to pay the applicable fixed fee, **presumptive load-based fee will only be charged on their second year of application.**

Regarding small-scale establishments, in order to ease monitoring requirements while still building up the Regional Office’s monitoring capability, those **industries with wastewater discharges less than 30 cu. m./day will only be required to pay the minimum fixed fee rate**, they will initially be exempted from paying the load-based fee. **Those industries discharging greater than 30 cu.m./day will be required to pay the assessed load-based fee, on top of the fixed fee.** However, this exemption will only remain in effect for the **first five years** upon implementation in the region. **On the sixth year, subject to the recommendation of the Regional Office and approval of the Secretary, all establishments/installations will be treated and charged fairly, in proportion to their total discharge.** Other industries or installations not initially covered in the first five years, will be evaluated by the Regional Office for inclusion or continuous exemption (e.g. non contact cooling water will not be charged with load-based fee).

First five years
 Establishments with <30 cu.m./d discharge: Exempted from paying LBF

Further, on the same period (i.e. **sixth year**), the **load-based fee cap** (as stated in Section 20 of the IRR – **see Volume 3, Report No. 2**) granted to all establishments

would also be removed. The provision given in Section 20 of the IRR states that “The amount of load-based fee that the firm will be required to pay is pegged to an amount not to exceed 10 times their fixed fee, effective for the first five years from the adoption. . .” The cap will be removed to be replaced by other incentives such as longer permit life (subject to consultation with other stakeholders and approval of the Secretary).

6th year
 Load Based Fee cap will be removed

4.4.2 Geographical Phasing

Based on Section 35 (a) of the Implementing Rules and Regulations DAO 2002-16, the NEUFS “. . .shall be implemented within the National Capital Region (Metro Manila), except in areas under the jurisdiction of Laguna Lake Development Authority (LLDA), commencing from the year of effectivity of these rules and regulations” (**Table 3**). Further, on Section 35 (b) it was stated “On the third year of implementation of these rules and regulations, all EMB Regional Offices shall undertake the implementation of the NEUFS”.

Period	Start of Implementation Coverage
1 st year	NCR
3 rd year	All regions

For the **first five years** of NEUFS implementation, the **EMB-Central Office** shall make all the **final decisions** pertaining to general implementation procedures. The **Central Office sets the national water management goals** which serves as basis for setting NEUFS charges while, **Regional Offices** will be responsible for **administration and enforcement**. Although the Regional Offices will issue the permits, the Central Office maintains oversight over the permitting process as a whole.

During the initial years, much of the problems regarding implementation and enforcement are expected to crop up. Problems would vary on different region, but generally, it can be expected that lack or insufficiency of resources will be a common denominator in all the regions. As these issues surface, **internal restructuring, logistic deficiencies and other implementation issues** pertaining to NEUFS should gradually be addressed and worked out with the aid of providing additional funding to Regional Offices. Cognizant to this reality, the implementing rules and regulations of DAO 2002-16 grants provision to make necessary revisions on the NEUFS procedures by the **fifth year** of implementation. By this time, the Regional Offices and even the industries would have a better understanding and appreciation of the NEUFS program. The gradual strengthening of the institutional and enforcement capability of regional authorities will pave the way for more systematic implementation of NEUFS. **Table 4** provides details of the short-term plan regarding NEUFS direction and targets if it is to be sustainably and properly implemented.

On this first round of NEUFS evaluation and guideline revision, the **Central Office may allow the Regional Offices to draw up changes in the NEUFS rules and regulations pertinent to their area of jurisdiction.** The Central Office may allow such discretion when upon their evaluation; the **Regional Office** has demonstrated **organizational readiness and technical capability to undertake such functions.**

Organizational readiness includes, but is not limited to, satisfying requirements such as: a) established industrial database (i.e. a well-functioning Environmental Information Management System or EIMS); b) minimum staffing requirement is met including staff training; c) minimum requirements for laboratory and monitoring facilities are available; d) modeling software and technical capability to do an analysis linking effluent discharges to ambient condition. In other words, the precondition for granting of authority to regional level requires that EMB-ROs, at the minimum, must be able to **comply** with the short-term **Implementation Program (Table 4)** outlined above. Other Regional Offices which cannot meet these requirements will continue to use and rely on centrally-determined rate/charge.

This provision allows EMB Regional Offices to be involved in the process of making equitable and well-targeted decisions about the local environmental goal and deriving the corresponding rate of charge that would meet this goal. The Central Office will continue to issue nationally derived rate of charge. Such charge which will be used by other regions as a "reference" charge in setting their own "locally-derived" rates based on their own pollution reduction target, consistent with the ambient water quality guideline.

4.4.3 Personnel and Logistical Requirements

Similar to the command and control programs of DENR, NEUFS also has its own requirements if it is to be effective in its enforcement goals. As can be expected, there are often difficulties in meeting the costs of monitoring and implementing the regulations. In any case, gradual as it may be, the Regional Office should incessantly incorporate NEUFS requirements in its annual request for budget.

Table 5 identifies the **minimum personnel** needed to administer wastewater discharge permit system based on the following administrative system, as identified in the Hagler and Baily (1996) report: 1) a management information system with accurate records of all sources of industrial wastewater discharge; 2) technical specialists with an understanding of the industries, composition of effluent and technologies used to treat different pollutant parameters; 3) laboratory and monitoring capabilities to test effluent samples; 4) a billings and accounts receivable unit; 5) a permitting system to tie the charges to; 6) an enforcement arm to inspect and investigate the firm, and to impose a penalty for non-payment; and 7) a legal unit to resolve disputes and/or handle appeals.

Table 4. Short-term Plan for the NEUFS Implementation

Activity	Schedule (Year)									
	NCR					Other Regions				
	1*	2	3	4	5	1	2	3	4	5
I. Institutional Preparation										
Rationalization of personnel requirement										
Training of staff in their respective tasks										
Purchase of necessary computers										
Purchase of other necessary equipment										
II. Database Management										
Master list of all firms with P/O & A/C										
Update of industrial database using data from business and other tax purpose permits (from LGU)										
Industrial database from PCO reports										
Database of ambient water quality sampling results										
Revise Industrial Effluent Guide										
Database for Fee Calculation										
Update of database using SMR										
III. Permitting Activities										
Communication or formal notice to covered establishments & installations										
Print and distribute permit forms										
Permits issued to all covered establishments & installations										
IV. Monitoring Activities										
Delegate inspectors										
Set schedule for compliance monitoring (set cluster by municipality)										
Procure field monitoring equipment										
Upgrade laboratory facilities										
Analyze lake, river & other water samples										
Analyze changes in water quality vis-à-vis the NEUFS scheme										
V. Information Dissemination										
Develop program for training and workshops for EMB RO personnel										
EMB Website: guidelines for application; procedures; how long will it take, etc.										
Dialogues with various stakeholders										
Distribution of pamphlets & other information materials										
Workshop for PCOs										

* Year 1 starts upon approval and implementation of the NEUFS Implementing Rules and Regulation.

Table 5. Minimum Personnel Requirement for the Application of NEUFS Program

Job Description	Requirement	Applicable Salary Grade
1. Processing Permit		
Evaluator-Engineer	4 applications/day	SG 15-22
Records Officer	8 permits/day	SG 18
Clerk (receiving)	24 permits/day	SG 4
Clerk (releasing)	24 permits/day	SG 4
Cashier	24 permits/day	SG 18
2. Monitoring		
Inspector – Engineer	3 establishments/week	SG 15-22
Technical Aide/Driver	3 establishments/week	SG 4
3. Database Management		
Info Technology Officer	1 personnel/region	SG 22
Computer Maint. Tech.	1 personnel/region	SG 11

It will be within the **discretion of the Regional Office how they intend to go about effecting internal restructuring** to meet NEUFS personnel and other administrative requirements. Generally, the program will be run by the **Environmental Quality Division, complemented with staff from the Legal Division and Administrative and Finance Division** that would assist in the areas of permitting and accounting.

Training and capacity building for staff participating in the program has to take place at several levels. Training in areas such as sampling and analysis; environmental economics and policy; database information management; and compliance monitoring can be carried out through short courses here or abroad. However, rationalizing the manpower requirement of NEUFS is just one among the other essential preconditions for a well-functioning NEUFS program. Equally important is the access of NEUFS implementers to logistical support such as vehicles that would allow mobility to inspectors, complete field monitoring kits, and other laboratory equipment as enumerated in **Table 6**.

Regarding data management, **Table 6** identified computer hardware and programs as part of the necessary preconditions since NEUFS is designed to operate through an **automated electronic storage and retrieval of industrial effluent and ambient water quality data; automated calculation of wastewater discharge permit fees; and customized accounting for billing, receivables and payment delinquency resolution.**

Table 6. Equipment and Physical Resource Requirement for NEUFS Implementation*

Item	Unit Cost (PhP)	No. of Units	Remarks
4-wheel drive vehicle	1 M	1 per inspecting team	4 plants to monitor per week
Desktop Computers with printer	100,000	1 per personnel	For processing permit and database management
Laptop computers	150,000	1 per inspecting team	4 plants to monitor per week
Facsimile machine	3,500	1 per Regional Office	For sending notices and memos to industries
Computer software	10,000	1 per Regional Office	For permitting and database management
Portable DO meter	385,000	1 per inspecting team	4 plants to monitor per week
Field monitoring kits	350,000	1 per inspecting team	4 plants to monitor per week
Automatic dispenser	13,000	1 per Regional Office	
Dessicating Cabinet	21,000	1 per Regional Office	
BOD incubator	147,000	1 per Regional Office	
pH meter	15,000	1 per inspecting team	4 plants to monitor per week
Analytical balance	112,000	1 per Regional Office	
Automatic sampler for TSS	49,750	1 per Regional Office	
Drying oven	158,000	1 per Regional Office	
Magnetic filter	n.d.	1 per Regional Office	
Vacuum pump	60,800	1 per Regional Office	

Notes: 1. Refers only to the minimum logistical requirement.

2. In 2003 prices

Sources of Price Information:

1. Vehicle: Ford Philippines
2. Computer/printer/laptop: Columbia Computer International Corporation
3. Photocopying Machine: Ubix Corporation
4. Fax machine: www.dealtime.com
5. DO meter: Analyticon Instruments Corp.
6. Field monitoring kits: Domestic Trading Corp.
7. Dessicating cabinet/dispenser: Memorandum receipts for EMB RDD
8. BOD incubator: Aalpha Multiservices
9. pH meter: JP Tech Inc.
10. Analytical balance: Precision Weighing Balances
11. Automatic sampler for TSS: www.Omnicontrols.com
12. Drying oven: SEECCTA Final Report Price List
13. Magnetic filter: Direct Industry; Industry Virtual Exhibition
14. Vacuum pum: SEECCTA Final Price List Report

4.4.4 Issues and Potential Obstacles

As in any government policy or ruling, there are inevitably impediments and apprehensions in adopting and applying the NEUFS. In the interest of designing a balanced and efficient system, several workshops and consultations were conducted to present the NEUFS model and design and to solicit comments and inputs from various stakeholders. **Appendix 1** provides a listing of the consultations held and the issues/comments/recommendations raised by various sectors; **Appendix 2** gives details of the discussion held during a training session composed of key personnel from the EMB Regional Offices; and **Appendix 3** presents the position papers prepared by different industry groups. Some of the major issues, comments and suggestions raised, including some of those discussed during the fora are highlighted in the following discussion:

Equity Consideration Regarding Fixed Fee

In terms of equity considerations, the main concern about the fixed fee structure is whether establishments with relatively different compliance administration requirements are paying the same fixed fee (vertical equity). There are three concerns in this respect:

- 1) the surcharge for heavy metals is the same whether an establishment discharges a single heavy metal or a number of heavy metals;
- 2) the surcharge for heavy metals is the same for a facility discharging 30 cu. m/day as for a facility discharging 1000 cu. m/day. In the process of evaluation of the permit, it is not likely that the applications submitted by these two facilities, pursuant to Section 5 of the IRR, would require similar processing time or that inspections and reviews of monitoring reports would require similar efforts.

Design of NEUFS

The ideal way of coming up with level of pollution charges requires information about marginal damages attributable to pollution. Such information is most often missing and is not available. The absence of such information is not exactly a hindrance to the NEUFS implementation, but it is an obstacle to the setting of the right level of the rate of charge. The use of an ex-ante analysis of firm's marginal abatement cost is not a full-proof guarantee that the rate of charge will be set at most efficient level, it is through trial and error that one can better know which and at what level NEUFS will work to improve enforcement and ensure industrial compliance.

Pollutant Covered

OECD and countries in Central and Eastern Europe that levy discharge fees require facilities to pay fees on all pollutants for which a fee rate has been specified. Typically, charges are assessed for BOD₅, COD, and heavy metals.

Cost of Innovation

Industry sector will always be reluctant to adopt NEUFS unless they can clearly see its advantage to their interest. Some of the concerns of the industrial sector especially concerning NEUFS' impact to their financial performance can be very valid. The presumption among policy-makers that the adoption of a less polluting technology

necessarily improves social welfare may not always be accurate. The possible measures to improve environmental performance - such as maintain and operate existing pollution control equipment to a higher standard; supervise workers more intensively to ensure that pollution is minimized; choose new production equipment that is less polluting even if it is somewhat more expensive; and examine production processes, and even the products produce, to determine the changes that will lead to smaller emissions - all involve cost.

The innovation and adoption of a cleaner technology is costly, and firms must weigh this cost against the benefits of the new technology, in the form of reduced pollution and reduced abatement costs.

Administrative Difficulties

Detailed instructions on the NEUFS model and procedures may be developed, however, it would be useless if it is not simultaneously backed up by physical resources and necessary legal and institutional framework or set-up. Some of the issues include shortage of trained regulatory personnel or the absence of appropriate monitoring and data base systems. The lack of monitoring equipment, tools and well-organized data bases is one reason that, even where violations of the environmental law are clear, the obstacles to identifying and punishing violators are great. However, aside from insufficient manpower and/or lack of necessary monitoring tools and laboratory in the Regional Offices, there are also other administrative/enforcement problems that could possibly crop up such as monitoring and measurement of pollution; how to adjust and make revisions in the NEUFS guideline; when to make allowances for special conditions, etc.

Recipients of the NEUFS Revenue

One primary issue related to the success of MBIs is whether collected fees will stay in the environmental sector or not. As a general rule, all incomes and collections of the government are required to be remitted to the national treasury. It becomes part of the public fund that is appropriated according to the provisions of the law or treated as a special account in the general funds.

PD 1234 (1977) institutes a procedure for the management of special and fiduciary funds earmarked for or administered by departments, bureaus, and agencies of the national government, including government owned and controlled corporations. It provides that all incomes and collections for special and fiduciary funds authorized by law shall be remitted to the national treasury and treated as special accounts in the general funds. The decree came out with a list of special funds included in the directive, but the same principle applies to all other funds that may later on be created.

The only exception is when there is an explicit provision to this effect. An example would be E.O. No. 927 (1983), which empowers the LLDA to collect fees for the use of the lake water and its tributaries and where a huge percentage of this collection is mandated to be retained by the LLDA. This law expressly provided that the LLDA's share shall form part of its corporate funds and shall not be remitted to the National Treasury as an exception to the provisions of PD No. 1234. Another example is PD No. 1586 (1977) which expressly provided that the Environmental Revolving Fund to be

used for the administration of the Philippine EIS system shall constitute as an exception to PD 1234.

It is thus opined that, with respect to the NEUFS, its collection would definitely accrue to the national treasury for appropriate management and administration. A special law (similar to the provisions found in the LLDA law and in PD 1586) would be necessary to create a special fund for purposes of holding, administering and managing the NEUFS collection; and such special law should explicitly provide that it will function as an exception or an exemption to the rule requiring remittance of all incomes and collections to the national treasury.

However, it should not be downplayed that there is also merit in remitting all revenues to the national treasury where it can be allocated to the highest priority spending categories. These categories might be environmental but they might also include health care, education, transportation and other public sector responsibilities that improve the general well being of the population and environment. Speck identifies a few shortcomings of earmarked funds, including “the potential to lead to inefficient allocation of resources and the creation of vested interests that will push for extension of subsidized financing for longer than may be necessary.” In addition, he says, “while environmental funds play a short- to medium-term function of providing necessary financing to top-priority projects, they do not provide longer-term solutions to many of the underlying problems preventing investments in the environmental sector, such as deficiencies in the commercial banking sector and poor enforcement of environmental policies” (Speck 2001).

5.0 Other Proposed Measures

Regular Review of the NEUFS Model

The rationale for a regular review of the policy is to produce a result more harmonious with the desired water quality objectives. The objectives will change through time as a result of changing environmental and economic conditions.

The NEUFS design is a continuing work in progress and could be refined as the agency gains more implementation experience, and as the system’s environmental and economic impacts become more apparent. There is also much room for dynamic changes to better address the concerns of affected sectors. Hence, DAO 2002-16 is designed in such a way that it can periodically and continuously be improved with continuous evaluation and modification. In this regard, it would be of great benefit if the implementers would take a pro-active stance and be very assiduous in monitoring and documenting the performance of NEUFS and the factors that affect this performance. To accomplish this task, EMB implementers should be involved in continuous collection of data and reassessment of influential factor, and engage itself in *ex post* evaluation looking into the following aspects:

1. Industries compliance histories, prior and during NEUFS implementation
2. Documentation the baseline environmental profile (a basic procedure in setting the environmental target)
3. Assessment of enforcement capability and the problems encountered.

4. Assessment of factors that influence pollution abatement decision of industries
5. Provision of guidelines for determining pollution load factor/coefficients, which are of particular importance for establishments covered in the NEUFS but has no baseline data to which the charges can be based upon.
6. Proper monitoring of the level of industry pollution discharges to determine level of compliance and effectiveness of the system.

Fund Management

As soon as an enabling law is enacted for earmarking of revenue, especially during the early years of NEUFS implementation, EMB should consider establishing a national environmental fund that would use the LBF revenue for co-financing of environmental projects, either through grants, soft loans, or interest rate subsidies. There are a number of such national funds, especially in Central and Eastern Europe. For instance, ten of the 13 Central and Eastern European countries considered place fees into earmarked funds (Speck 2001). Speck suggests that earmarked funds not only help to improve the environment by subsidizing new environmental infrastructure, but can also improve collection rates, because the regulated community knows officials will plow these funds back into the same sector. Such a use of environmental fees to subsidize environmental infrastructure can, according to Anderson (2002) leave the taxpayer burden unchanged. Also, as EMB consider expanding the use of economic instruments to other pollution problems, the environmental fund could easily be adapted to receive revenues for other environmental charges and expand its project activities to include these sectors.

Attached in **Appendix 4** are some background materials on international experiences with environmental funds. As demonstrated in **Appendix 4**, most of the national environmental funds rely on pollution fees or product charges as their main sources of revenue.

Acceptance Building Measure

- Enforcement varies systematically with local circumstances, hence, the need to allow the system to flex with the local circumstances, like the system that has been implemented in China. Such community-level flexibility in administering national regulations is critical to continued support for either charges or standards in a country like the Philippines with highly varied environmental, social and economic conditions.
- Dissemination of information. This activity should not be regarded as a propaganda activity, but rather as a fair effort to inform the affected sectors and society, in general, regarding NEUFS. Information dissemination efforts should include, but not be limited to, the following focus:
 - (i) Industry has to be convinced that the government is serious about environmental protection.
 - (i) Demonstrate that it will give industries flexibility

A sustained information campaign should be instituted for the industry and the public in general to keep them up to date on the developments regarding the impacts of NEUFS as a policy tool in controlling pollution. Industry also has tendency to adopt and embrace

a scheme where there is sufficient information that would give them a sense of security **Appendix 5** provides some general guidelines for the design of a NEUFS communication program.

Complementary Measures / Strategies

- To **further harness the effectiveness of economic instrument**, it should be implemented on a larger scope of pollution prevention and control, which may include, aside from NEUFS and regulatory standards (via existing CAC scheme), voluntary measures such the **public disclosure program** (discussed in great detail in Component 3 of SEECCTA including the proposed Implementation Plan) that harness good environmental management image to enhance the “green” consumer confidence and competitiveness.
- In implementing a new trend in environmental regulation such as NEUFS, there is inevitably a compromise between the "ideal" of how the policy should work, and the way in which it actually works. Compromises may take the form of temporary exemptions for vulnerable sectors, longer phased-in period where the social impacts are perceived to be negative, a cap or threshold in the payment of LBF to cushion the economic impact of the regulation, longer permit periods as incentive for improved environmental performance, and other similar measures. There is nothing wrong, in principle, in those compromises, and indeed they are an important part of the tools to be used for the implementations of economic-based instruments. There are some compromises, however, that can render the NEUFS virtually useless, or certainly less effective than a direct regulation. For instance, a reduction in the variable fee rates to a very low level or putting a very low payment cap that renders the system ineffective since the polluters could find it more cost-effective to pay the fees than improve environmental performance.

For small-scale industries, some form of a general permit within the NEUFS should be developed instead of outright exemption or subsidies. These are sources that usually do not apply for a Permit, and are currently not within the monitoring portfolio of EMB, but are usually out of compliance. In this case, complementary incentives can take the form of technical assistance to increase compliance over time. Funds for these activities could come from the NEUFS revenues once the Clean Water Act or any enabling law could permit such earmarking.

Extension of the NEUFS to include other pollutants

It is important that several or multiple pollutants will eventually be included in the charging system as the system matures. Otherwise, charging only one or two pollutants will lessen the inherent nature of EI to reduce pollution. This will occur when polluters focus on the treatment of pollutant that is being charged, and they no longer concern themselves on exerting effort to reduce other pollutants. Although the model is designed to be flexible, there are certain considerations in accommodating other pollutants into the NEUFS (See **Appendix 6** and **Appendix 7**).

For one, extensive data are required to calculate appropriate environmental user fees such as initial monitoring information, emissions/effluent inventories, and the marginal costs to abate pollution. According to an ADB report, which notes that “DENR has failed

to establish a system for consistent information collection, sorting, compilation, and reporting on critical factors such as environmental parameters, the extent and cost of damages to natural resources, and the number and type of polluters and waste generators (especially SMEs).”

Below are further details on the information needed for expansion to the following sectors:

Highly Toxic and Hazardous Wastes

In the NEUFS wastewater or effluents containing heavy metals are made to pay a higher fixed fee to account for the additional monitoring and laboratory costs. However, the variable fee is still computed based on BOD or TSS loads. The heavy metal content of the effluent will still be subject to regulatory standards. Before certain heavy metal are accommodated into the NEUFS, DENR needs to determine and/or estimate toxicity coefficients of these pollutants. For example, the German National Effluent Charge model used damage units to account for toxicity of mercury and cadmium compounds. Therefore, before expanding the NEUFS to include toxic and hazardous materials in the NEUFS, toxicity studies will have to be conducted. **In the absence of toxicity studies or when the pollutant is already known to be highly toxic and hazardous, direct regulation may be the only feasible instrument by which to achieve the goals of public policy. Controlling very hazardous emissions will generally be best accomplished by outright bans.**

Domestic Household Wastewater

Industries have always pointed that households are the major contributor of organic type (e.g. BOD) of pollution load. For this reason, the total load that goes into water bodies would dramatically decrease if household effluents can also be controlled. However, at this early stage of implementing the NEUFS, where design and institutional issues have yet to be seen, including the large number of households in the implementation design may prove to be difficult and even disastrous to an effective enforcement. But foremost consideration is EMB’s lack of legal mandate over the household sector.

As the NEUFS matures and major policy issues have been addressed, the most that EMB can do is to work with the local government units and local water districts, if they are requested.

The combination of two possible approaches recommended in setting an environmental user fee for domestic sources: (i) as a surcharge applied on the water consumption bill of the household, and (ii) as an environmental tax imposed on the residential property depending on whether the property has a properly maintained septic tank for pre-treatment of household sewage.

The system can be complemented by an environmental property tax levied on the basis of proper maintenance of septic tanks. Revenues from both systems can then used for building municipal wastewater treatment facilities, improving technical capability of implementing units, and in the overall implementation of the system.

Other necessary steps that the LGUs and the water districts can undertake, with assistance by DENR-EMB are:

- Conduct of studies to determine the appropriate models, level fixed charges per unit water consumption, property tax rates, administrative costs and implementation arrangements, and potential social and economic impacts;
- Design an IEC program to improve transparency in the calculation and billing procedures considering the socio-political implication of putting such a system in place.

Necessarily, the above scheme requires buy in from the local water districts and local government units. However, if the ultimate goal is improvement in the ambient environmental condition, then expansion of the NEUFS application to household is inevitable. The studies can be timed so that the results can be used in the review of the NEUFS.

Monitoring

A more comprehensive set of recommendations to improve EMB's monitoring capability is contained in a separate report. Below are some recommendations for NEUFS implementation.

- EMB should turn their inability to regulate all factories to their advantage by flexibly targeting plants for monitoring and enforcement.
- Rotate inspectors to avoid becoming sympathetic with the plants/establishments.
- Memorandum Circular regarding monitoring protocols to remind inspectors of the proper inspection techniques. There are tendencies of uneven implementation of compliance monitoring procedure.
- Fast tracking the accreditation of laboratories: DAO 98-63 Guidelines for the designation of DENR-recognized environmental laboratories.

Technical and Logistic Capability

One of the major constraints in enforcing anti-pollution laws is the inadequate technical capability of the enforcing agency. Currently, EMB and its regional counterparts still do not have sufficient trained technical personnel to carry on the growing demands of the industry. To expedite NEUFS implementation, training of key EMB and industry personnel are clearly fundamental. Such trainings can provide them a new perspective and a reorientation of their priorities.

Together with upgrading human resources should be the equivalent upgrading of tools and facilities to ensure reliability and stability of the enforcement and monitoring process. For one, not all regions have laboratory facilities and those that have are often inadequate.

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Appendix 1

Proceedings of the Consultations Held for Various Stakeholders

The Implementing Rules and Regulations for DAO 2002-16 or the DENR-EMB National Environmental User Fee has gone through countless revisions as a result of various consultations with different stakeholders.

The public consultations provided a venue for various sectors to air their side regarding the proposed implementation of the two instruments through their comments and suggestions. The consultations were held in the three priority regions of the SEECCTA project, i.e., the National Capital Region, Central Visayas, and Southern Mindanao.

The first leg of the series of consultations was held at the Aegean Hall of the Waterfront Hotel in Lahug, Cebu last November 18. The consultation was attended by representatives from various firms, local government units, and non-government organizations.

The second public consultation was conducted at the Mandaya Hotel in Davao City last November 28, 2002. It was also participated by various firms, local government units, and non-government organizations.

Since the initial phase of the National Environmental Users Fee System and Public Disclosure Program will be implemented at NCR, the consultations in the Region were more extensive and has to be conducted in three separate sessions. The first session held last December 4, 2002 at the Protected Areas and Wildlife Bureau's Visitors Center, was mainly participated by local government units and national government agencies. The second session, which was also held at the PAWB's Visitors Center last December 5, 2002, was participated by people's organizations and non-government organizations. The last session of the NCR consultations was held at the Pearl Hall of the SEAMEO-INNOTECH in Commonwealth, Quezon City last January 30, 2003. The event was participated by representatives from various industry associations and private firms. The event also provided an opportunity for industry associations to present their position papers.

Some of the comments made during the consultations and thereby addressed in the IRR and the Procedural Manual are as follows:

Coverage

- ❖ It should not be limited to certain industrial sectors. The coverage should include septic tank extractors who dispose their collected domestic waste directly to water bodies. The waste treatment system of this type of industry should be monitored.

Furthermore, hospitals should also be included in the scope of DENR monitoring through coordination with the Department of Health.

- ❖ In Manila, one thing that should not be ignored is the way small and medium enterprises treat and dispose their wastes. What are the steps taken by the EMB to

tackle such problem? Are these industries included in the scope of the NEUFS and are they going to be charged the same fees as those of the larger firms?

- ❖ In the banana plantation industry, one of the major issues is that pesticide/fertilizer spray is done through aerial spray thereby causing some of the chemical residues to have direct contact with the soil/ground. Problem arises when the rainy season comes. The surface water run-off from the banana plantations could contain potential pollutants. Various companies have been investing on research regarding the establishment of proper waste treatment facilities. But due to the large area of the plantations, it seems impossible to put up such facility. With the new NEUFS, are banana plantations to be charged with a certain amount of fee for their surface water run-off?
- ❖ The NEUFS specifically caters to industrial and commercial waste. But the industrial and commercial community only accounts for 20 percent of the pollution in water bodies. The other 80 percent essentially comes from domestic sources. What does the EMB plan to do about this? Attention should also be focused on domestic sources of pollution since the large bulk of pollution comes from them.

Rate of Charge

- ❖ One of the issues raised during the open forum was with regards to the applicability and repercussions of the P5.00 per kg of BOD to the industries. Was there any study conducted by the DENR-EMB Region 7 that could validate and show the effect of such fee to industries, especially to the small and medium enterprises?
- ❖ Was the fee derived using only table simulations? Regional disparities in terms of geophysical features and resource endowments should have been incorporated or used in the derivation of such amount since each region is different and distinct from each other.
- ❖ Are firms who discharge water with higher standards than that of the receiving body going to be charged the same way?
- ❖ There are some firms that exceeds the BOD standards set by the DENR-EMB. How will the EMB handle such violation? Are they going to be charged an additional fee different from the established P5 per kg of BOD or will there be other penalties imposed?

Regional Differences

- ❖ Considering regional differences, is there a way wherein the amount of the NEUFS could be made different among the regions? This means that the value of the NEUFS to be collected from industries will vary across regions.

Complimentarity with Other Collected Fees

- ❖ One major issue that needs to be clarified is with regards to that of the fees collected by two other government agencies for the extraction and use of water. According to the industries, Metro Cebu Water District (MCWD) collects an environmental fee while the National Water Resources Board (NWRB) collects

ground water extraction from them. And with the upcoming implementation of the NEUFS, industries think that they are paying too much for the use of water resources. What needs to be done at this point, according to them, is the harmonization and coordination among these government agencies environmental fees on water.

- ❖ Firms and even households are currently charged an environmental fee by water companies. How is this different from the proposed environmental users fee? The imposition of too many fees for the environment may kill various industries especially the small and medium enterprises.
- ❖ There are some laws that collect fees already, i.e., the Philippine Mining Act. All power-generating units pay Php2.50 for every megawatt produced. This is intended for environment and watershed rehabilitation, livelihood, rural electrification and community development. It would be additional levy on the part of the power sector since on the average they pay Php30 million annually to cover these services. It is suggested that the implementation of the National Environmental Users Fee System exclude the mining sector and power generation sector.

DENR Capability

- ❖ Industries must take part and help EMB to lobby for additional funds that may be used for the protection and rehabilitation of the environment.
- ❖ Is the DENR-EMB ready to implement the NEUFS? If so, what are its capabilities at this point? Has the DENR-EMB disseminated essential information regarding the NEUFS to various sectors?
- ❖ With the low human capital and insufficient resources available to DENR-EMB, the private sector, specifically the industries, should rally for the increase in their wages and resources, as these things might be able to strengthen their capability in environmental enforcement.
- ❖ The DENR has to develop the capability of coming up with the system wherein they can collect fees efficiently.
- ❖ It will take time to improve the capability of the DENR to do these tasks.

Mode of Payment

- ❖ Industries such as banana plantations are basically capable of paying the fees that are going to be charged by the NEUFS but not on a lump sum basis. Is there any way for these industries plantations to pay on installment?

Support to Industries

- ❖ In relation to the above issue, industries clamor for support from the DENR-EMB in terms of recommendations on the available technology. With the proper recommendations, industries will be able to monitor themselves in terms of environmental compliance to set standards and subsequently enable them to adjust and improve their facilities.

- ❖ There must be support provided for small companies. This may be at least in the form of technical assistance.
- ❖ The payment cap does not solve the problem of high fees charged on firms. It just gives an impression that the environmental users fee is a revenue generating law.

Issue on Legal Basis

- ❖ The National Environmental Users Fee System lacks legislative authority. Certain industry associations feel that PD 984 is not adequate as basis for this law. There is no provision that gives the DENR authority to implement market-based instruments.
- ❖ The implementation of the environmental users fee system needs an enabling law that only Congress can give.
- ❖ The environmental users fee system is considered as a tax. Only Congress, not the DENR, is authorized to issue taxes.
- ❖ At this point, there is no dedicated management fund that can be used to fund rehabilitation of degraded ecosystems. Fees collected through the National Environmental Users Fee System will go straight to the National Treasury with no assurance that it will go back for the DENR's use. It is strongly suggested that the DENR wait for the approval of the Clean Water Act before implementing the National Environmental Users Fee System.
- ❖ Based on the WB's Environment Sector Study: Philippines Towards an Improved Management of Environmental Impacts (1992), there is a great difference between the DENR's authority and that of the LLDA in the use of an economic instrument to improve water quality.

Appendix 2

Training Workshop on DENR-EMB's NEUFS December 11-13, 2003, DAP, Tagaytay City

Comments and Recommendations on the Draft IRR for NEUFS:

On LLDA Experience

Comments:

1. Since LLDA is performing well, why not just follow the procedures/guidelines they are using.
2. Since NEUFS will cover industries and commercial establishments, similar to LLDA, imposing a different model and different rate of charges will create animosity among these industries.

Suggestion: It is either we follow LLDA's example or LLDA should adapt EMB's proposed NEUFS IRR.

Other Comments

1. There should be additional members to the TWG team that would evaluate the NEUFS. Other regions should be invited as members.
2. Refrain from using/specifying specific field of expertise (e.g. engineers) in identifying personnel appropriate in doing NEUFS tasks. Instead, just say technical or key personnel.

Section 5

*"The application should be under oath by the Managing Head . . .and supported by such documents, information and data as may be required by the Regional Office **including but not limited to the following.** .."*

a. Comment: Large documentary requirements from firms applying for WW Discharge permit require longer time for Regional Office to assess and evaluate such documents. In such case, 30 working days (as provided in Section 7) may not be enough to process and approve the permit application. The relevant issue is what really are the necessary documents needed to evaluate the application for the WW discharge permit.

Suggestion: Let's delete the phrase "**but not limited to the following**" and clearly and explicitly identify other relevant documents required to evaluate the permit in addition to what are already listed (if there are still any).

b. Comment: Why require the permit applicant to submit the PCO accreditation considering that it is already DENR issuing such accreditation?

c. Comment: Rephrase the following statement "*Failure to submit the necessary requirements under Section 5 shall be sufficient ground for the disapproval of the application.*"

Section 7

*“The Regional Office shall act on the application . . . **within 30 working days** from receipt . . .*

Comments:

1. Don't put a specific deadline (i.e. 30 days) for the Regional Office to process and approve the permit application.
2. 30 days are enough if the requirements for application are clearly laid out and completely submitted by the applicant.

Section 10

Comments:

1. While for Regional Offices, they were required to act and work upon the application within 30 working days, but in the case of the Secretary acting on the appeal of the applicant, there was no specific deadline specified.
2. There is merit on not setting a specific deadline to the Secretary because what if there are 1,000 firms applying for appeal all at the same time, the Secretary will be greatly constrained by the set deadline.

Section 11

*“A Wastewater Discharge Permit is **valid for the period specified therein** . . .”*

Rephrase as such: A Wastewater Discharge Permit is valid for a minimum period of one year. . .

- More detailed discussion on the period of the validity of permit will be discussed in greater details in the Operational Manual.

Section 13

*“: **...If the applicant continues to discharge despite disapproval of application or suspension/revocation of a wastewater discharge permit, the appropriate courts shall immediately issue an Ex-parte Cease and Desist Order directing the discharger to discontinue from further discharging its wastewater into its immediate receiving water body or its tributaries or land resources, or stoppage of discharger's operations, and impose fines and penalties at existing rate applicable and provided for by law, without prejudice to criminal prosecution under P.D. 984, and other applicable laws.**”*

Comments:

1. Since the decision will be outside the domain of DENR-EMB, that implies a very tedious and long procedure, which creates adverse effect on both the industries and EMB's welfare.
2. DENR-EMB does not have resources (i.e. time and money) for litigations to iron out NEUFS problems with industries.

Suggestions:

1. Identify the specific violation (as enumerated in Section 12) committed by the permit holder and use this as the basis for penalizing (within the EMB mandate) the violator instead of allowing the situation to go up to the hands of Regional Trial Courts.
2. A team of legal experts should craft or rephrase the wordings of this section so that it won't have to go to the level of the Regional Trial Courts.

Section 18

“Commercial and industrial establishments whose average volumetric daily rate of wastewater discharge do not exceed 30 cubic meters per day are subject only to the administrative fee schedule”.

Comment: This is too limiting, a lot of industries located at NCR discharge less than 30 cu.m./day and these are even the major polluters.

- ❖ Inclusion of these small-scale industries imply that they also have to submit PCO/Self-Monitoring Reports as basis for computing the LBF. This also requires Regional Office to conduct compliance monitoring for these industries

“

$$LBF_i = \sum_{t=1}^4 (R_{BOD} \times L_{i, BOD}) \quad \text{if} \quad L_{i, BOD} > L_{i, TSS}$$

$$LBF_i = \sum_{t=1}^4 (R_{TSS} \times L_{i, TSS}) \quad \text{if} \quad L_{i, BOD} < L_{i, TSS}”$$

Comments:

1. In choosing which parameter (BOD vs TSS) should be used in computing LBF, why use as basis whichever is higher?
2. Why not just adopt BOD only, like what LLDA is doing?
3. According to LLDA, they are already exploring the inclusion of TSS in their NEUFS.
4. For sectors with inorganic type of waste (such as mining sector), TSS should really be used as the basis for computing LBF, BOD is not applicable.

Suggestion: The more important thing is to look at what is really the critical parameter to consider in terms of impacts. In which case, instead of choosing whichever is higher, classify the sectors and group them according to the critical parameter (either BOD or TSS).

On Issue regarding Presumptive vs. Actual Estimation of LBF

Comment: There is danger in using the actual estimation because that would mean collecting the LBF at the end of the year, after the discharge has been made. In case that the firm would close down at the middle of the year, they might act more negligently in the course of the remaining days of their operation since they do not have any

intention of paying at the end of the year and they will no longer be made accountable for it.

Suggestions/Options:

1. Use presumptive charging.
2. Use the actual charging.
3. Let's compromise, ask the firms to pay a down payment for their LBF.

Section 19. Cap for the Load-based Fee

There was a consensus NOT to place a cap in the payment of LBF.

Section 20. Automatic Adjustment of Fee Rates to Inflation

Comments:

1. It is a good measure to follow so that the rate of charge won't erode over time.
2. Use the national rate of inflation, not the regional rate.
3. Is there legal basis for this?
4. Annual is too frequent.

Suggestions:

1. Ask for legal opinion.
2. Don't adjust the rate every year, instead just follow the provision in Section 38 (i.e. evaluation and amendments, if any, every five years).

Section 35. Transitory Provisions

Comments:

1. Why was NCR selected as the priority region in immediately implementing NEUFS – it reflects discrimination?
2. Two years is too long, one year is enough to prepare other Regional Offices for the NEUFS implementation.

Suggestions:

1. Ask the Regional Office if they are already capable of implementing NEUFS, if not, ask when will they be ready. – Give them the discretion to decide if they are ready or not and if they want to immediately implement the NEUFS immediately or wait for two more years.
2. Instead of giving a specific provision that other regions should implement NEUFS after two years upon effectivity of the DAO, stipulate that all regions should be able to implement the NEUFS within two years of its effectivity. – this implies amendment of the signed DAO 2002-16.

Section 38.

“ . . .These rules and regulations will be subject to a formal review of auditing every five years from the adoption of this implementing rules and regulations (IRR). . . ”

Comment: This is a reasonable provision.

Appendix 3a
Position Paper of Chamber of Mines on EUF

Appendix 3b
Position Paper of PCAPI on
DENR-EMB National Environmental User Fee

Appendix 4

A Survey of International Experience with Environmental Funds

1. The Role of Environmental Funds

Environmental funds are institutions designed to channel revenues for environmental purposes (OECD, 1995). More than 40 economies in transition and developing countries have one or more environmental funds, organized at the national, regional, or local levels. Some funds support broad-based environmental and natural resource projects while others are narrowly focused funds that finance operations of a single park or protected area. Some funds have been created as units of government while others are independent legal entities such as trusts or foundations.

Environmental funds play two important roles in environmental and natural resource policy. First, environmental funds are a tool of environmental policy, providing financial resources for environmental and natural resource purposes. Second, environmental funds are institutions that can make a strategic contribution to environmental and natural resources policy.

Environmental funds, through their financial support, may address funding shortfalls in government conservation programs and provide a source of funding for organizations such as conservation and environmental NGOs with limited fundraising capabilities to cover operations and project costs. These two funding needs reflect the focus of “parks” and “grants” funds that have been established with the support of USAID and the Global Environmental Facility (GEF) to promote conservation and biodiversity objectives.

In countries with weak or developing capital markets, environmental funds may provide financing for environmental investments and business development at attractive (subsidized) financing terms for organizations with poor access to capital.² This type of support reduces polluters’ costs and creates incentives for facilities to address environmental problems ahead of compliance deadlines or compensate for weak environmental enforcement capacity that is pervasive in developing countries (Anderson and Zylicz, 1995).

As institutions, environmental funds can play an important role in strategic planning, cooperating with government agencies in the identification of priorities and the structuring of the fund’s disbursement policies to achieve priority goals and objectives. Funds can also help to develop capacity in the private sector and among NGOs to prepare projects and undertake financial planning. As will be discussed later in the paper, environmental funds often provide considerable scope for public participation in governance and their procedures are structured to promote transparency and accountability. Thus, funds may demonstrate these important principles and serve as a

² While such funding is attractive to investors, considerable attention has been focused on the potential for such funding to crowd out commercial financing or to present an obstacle to the formation of new capital market instruments (Peszko and Zylicz, 1998; Anderson and Zylicz, 1999). Ideally, the level of subsidized support for projects should only be high enough to induce the investor to undertake an investment that would otherwise not be undertaken or delayed.

catalyst for government agencies to accommodate public participation and access to information.

2. A Survey of Environmental Funds

This survey of environmental funds focuses on three major topics: the types of environmental funds that have been established, alternative sources of revenues used to capitalize funds, and the scope of disbursement activities.

2.1. Types of Environmental Funds

There are a number of ways that environmental funds can be classified to distinguish key differences. They can be defined in terms of the major uses of resources (e.g., environmental protection or investment, conservation, or parks) or in terms of their major source of funding (e.g., debt-for-environment swap). In this section, environmental funds are divided into three groups related to how their revenues are used for disbursements.

2.1.1. Endowment Funds

An endowment or trust is a fund that has the potential to generate an annual revenue flow in perpetuity through the investment of the amount of the endowment in income-earning securities and other financial assets. Typically, the endowment is generated from a bilateral grant or donations. The fund's trustees or executives set a capitalization target for the endowment. Until the fund's resources are equal to this target, income from investments is added to the endowment rather than used for projects. Once the capitalization target has been reached, the investment income is dedicated to disbursements and administration costs on a sustained basis.

Many of the endowments that have been established in the last decade have involved an initial grant from USAID or GEF that constitutes the major portion of the endowment. Box 2.1 describes many of the environmental endowment funds that have been established with capital provided by USAID and/or GEF. Typically, the investment return on these endowment funds is between 5% and 10%, providing annual income for operations and projects of between \$500,000 and \$1 million (or more; see Box 2.1) for the larger funds.

**Box 2.1 Illustration of an Endowment:
Foundation for the Phillipine Environment (FPE)**

The FPE was established in 1992 through the collective efforts of USAID/Manila, the WWF and the Philippine Development Forum, a consortium of NGOs. The endowment was valued at \$22 million, from two debt-for-nature swaps handled by the WWF. Under its “debt-for-development” policy, USAID supplied \$18 million of this amount. An additional swap from the Bank of Tokyo added \$0.12 million. The endowment exists in perpetuity, with no additional fund-raising requirement. Until 1997, it was invested in Philippine Treasury bills; now it is in a mixed portfolio with about 20 percent equity and 80 percent fixed income.

The Philippine Business for Social Progress (NGO) managed the foundation’s initial activities until staff was hired, while the WWF handled initial financial management. The FPE has a staff of 23, headed by the executive director and directors for program development and institutional development. Responsibilities for decision making are divided between the Board of Trustees and the Foundation’s management committee and the Board of Trustees. The 11-member Board of Trustees approves all grants, except “action grants.” Members must be nominated to the selection list by the regional advisory committees to be considered for membership. They come from a variety of organizations (two from each of the three geographic regions, one from an international NGO, and three at-large; one seat is reserved for a senior official from either the Department of Finance or the Central Bank, two are reserved for business and media representatives). The Foundation’s management committee is composed of the directors and the managers for finance, human resources and administration. They are responsible for day-to-day functions and make decisions on the smallest category of grants (Action Grants).

In 1994, the FPE adopted its first five-year strategic plan. It declares that the FPE’s mission is to support biodiversity conservation activities implemented largely by Filipino NGOs. The foundation also has a role as a catalyst and facilitator of communications and networking for improved capacity in the NGO community and with community groups.

Between 1992 and the end of 1996, the FPE funded 376 separate proposals for a total of \$7.2 million in grant funds. Four categories of grants have been issued: (1) Action Grants of \$5,000 and below for small projects and urgent needs; (2) Community-Based Grants designated for community-based projects in 33 priority sites around the country; (3) Responsive Grants for community-based projects outside the priority sites; and (4) Proactive Grants to support service projects initiated (usually) by FPE.

Grants often focus on activities including community dialogue and organizing, participatory resource management planning, liaison with local and other government officials, technical and capital inputs, project implementation, and monitoring and evaluation. Until recently, many focused on terrestrial conservation; today, due to a growing awareness of the importance of these areas, coastal and marine efforts are being supported as well.

In addition to the endowment funds listed in Table 2.1, eight national endowment funds have been established in South America, Central American and the Caribbean region

under the Enterprise for the Americas Initiative (EAI). The EAI has enabled these countries to reduce their U.S. debt by \$1.1 billion, with these endowment funds – structured to support environment and child survival – receiving resources of \$177.1 million (Page, 1999). Because the debt is forgiven over several years, some of these funds have not yet reached their capitalization target.

Depending on the conditionalities placed on these foreign grants (or other sources of revenue) by the recipient and/or donor governments, endowment funds may invest in either domestic or foreign securities and other financial instruments. As a general rule, a board of trustees guides the fund's investment policies and the fund's endowment is managed by an investment/asset manager rather than by staff of the fund.

Table 2.1. Endowment Funds

Fund Name	Established	Source of Funding	Funding
Bhutan Trust Fund for Environmental Conservation	1991	GEF	\$10.0 million
Cordillera Development Fund (Costa Rica)	1990	USAID	\$10. million
Ecological Trust Fund (Panama)	1995	USAID	\$8.0 million
Foundation for the Philippines Environment	1992	USAID	\$18.0 million
Fund for Natural Areas Protected by the State (Peru)	1992	GEF	\$5.2 million
Honduras Environmental Trust Fund	1993	USAID	\$10.0 million
Indonesia Biodiversity Foundation (KEHATI)	1995	USAID	\$21.5 million
Jamaica National Parks Trust Fund	1990	USAID	\$0.4 million
Madagascar National Environmental Endowment Fund	1996	USAID	\$6.0 million
Mexican Nature Conservation Fund	1994	GEF, USAID	\$36.0 million
Mgahinga-Bwindi Impenetrable Forest Conservation Trust	1995	GEF	\$4.3 million
Table Mountain Fund (South Africa)	1993	GEF	\$5.0 million
U.S.-Thai Development Partnership	1996	USAID	\$3.5 million

Sources: GEF, *Evaluation of Experience with Conservation Trusts*, 1998, p.4; and Page, K., *1998-1999 Update on USAID-Supported Environmental Endowments*, 1999, pp. 30-34.

2.1.2. Revolving Funds

Revolving funds are funds that disburse their working capital in the form of loans and equity investments. Assuming high repayment rates on loans and positive rates of return

on equity investments, the working capital “returns” to the fund as future revenues. Thus, the initial working capital is replenished over time.³

Two types of revolving funds can be distinguished. The most common model involves funds that receive revenues on a sustained basis and, by lending a portion of annual revenues, are able to increase annual revenues over time. Many of the national funds listed in Table 2.2 disburse a portion of their revenues in the form of loans or equity investments. Assuming that revenues from sources excluding loan repayments and investment earnings are constant over time, the working capital of the fund will increase as a larger proportion of disbursements are in the form of loans and investments. The best illustration of this principle is the National Fund for Environmental Protection and Water Management in Poland. This fund disburses 76% of its working capital in the form of loans (69.8%) and equity investments (6.2%). As a result, even though *other* revenue sources have been steady (mainly pollution fees and fines), annual revenues increased from \$266.7 million in 1993 to \$403.6 million in 1997. In 1997, loan repayments accounted for 37% of total revenues (OECD, 1999).

The second revolving fund model is represented by the National Pollution Abatement Facility (NPAF), established in Russia and capitalized principally by a World Bank loan. The NPAF provides loans for environmental projects drawing from its initial working capital, augmented by loan repayments. It does not receive revenue from pollution fees and fines, budget transfers, or other common sources of recurring revenue.

³ This definition of a revolving fund conforms to the conventional treatment in OECD publications. In the GEF’s evaluation of conservation trust funds (1998), a broader interpretation of a revolving fund is employed, albeit one that ignores disbursements, wherein a revolving fund is any fund that receives new revenues each year, whether from loan repayments, taxes, fees, or budget transfers. Under the GEF interpretation all of the funds listed in Table 2.2 would be considered revolving funds.

Table 2.2. Revolving and Non-Revolving Funds

Fund	Established	Revolving Disbursements (%)	Annual Working Capital (1997)
Russia - National Pollution Abatement Facility	1995	100%	\$0.09 million
Slovenia - Environmental Development Fund	1994	100%	\$20.4 million
Poland - National Fund for Environmental Protection and Water Management	1989	76.0%	\$403.6 million
Poland - Cracow Provincial Fund for Environmental Protection and Water Management	1993	74.6%	\$14.8 million
Russia - Federal Environmental Fund	1992	47.4%	\$18.5 million
Czech Republic - State Environmental Fund	1992	43.9%	\$167.1 million
Hungary - Central Environmental Protection Fund	1993	25.0%	\$81.0 million
Bulgaria - National Environmental Protection Fund	1993	23.3%	\$9.5 million
Bulgaria - National Trust EcoFund	1996	14.8%	\$5.2 million
Estonia - Central Environment Fund	1990	10.4%	\$7.7 million
Kyrgyzstan - Republican Environmental Fund	1992	7.2%	\$0.5 million
Belarus - Republican Environment Fund	1993	0%	\$5.1 million
Poland – EcoFund	1992	0%	\$33.6 million
Slovak Republic - State Environment Fund	1991	0%	\$31.0 million

Source: OECD, *Sourcebook on Environmental Funds in Transition*, 1999, pp. 14-17.

**Box 2.2 Illustration of a Revolving Fund:
Slovenia Environmental Development Fund**

The fund was established under the Environmental Protection Act of 1993 as a public legal entity and organized as a joint stock company. The fund began operations in late 1994 and adopted its procedures and conditions on disbursements in 1995. The fund's operations are managed by two boards: the Administrative Board consists of a president and four members appointed by the government and is responsible for setting annual financial and disbursement policies, adopting the Statute of the fund, and appoints the fund's director; the Supervisory Board consists of a president and nine members appointed by the National Assembly to 4-year terms and supervises the activities of the staff of the fund. The staff is headed by the Fund Director and includes three organizational units: the Office of the Director, the project preparation and evaluation department, and the department for supervision of project implementation.

2.1.3. Non-Revolving Funds

Non-revolving funds disburse their working capital as non-repayable grants. There are two main types of non-revolving funds:

- *Sinking or wasting* funds have a fixed amount of revenue to disburse and once this working capital is gone, the fund ceases operations. For example, the Polish EcoFund is a debt-for-environment swap, with debt-forgiveness revenues expected to accrue to the fund until 2012, at which point the fund would be dissolved unless new sources of revenue are proposed.
- *Sustained revenue non-revolving* funds receive revenues on an annual basis and disburse these revenues in the form of grants. The State Environmental Fund in the Slovak Republic receives revenues annually from the state budget and environmental charges and fines and disburses these resources as grants.

2.2. Revenue Sources

Funds depend on revenues for their working capital. Revenues may flow to the fund at frequent or regular intervals or as one-time or limited term transfers. Two types of revenues are considered in this section. First, extramural revenues are those revenues that flow from sources outside of the fund. Second, fund income sources are revenues that are generated by the investment activities of the fund, using its own working capital to earn a rate of return from interest-bearing accounts, investment earnings on the fund's endowment, and loans and equity investments in the environmental sector.

2.2.1. Extramural Revenues

Extramural revenues can be grouped into four categories; (1) transfers from the government budget; (2) earmarked revenues from environmentally related instruments; (3) donations; and (4) foreign grants and loans.

- **Budget Allocations** or transfers from government budgets can be from general revenues or special earmarks such as proceeds from privatization sales. These transfers may be made on an annual basis or limited in term. Generally, unless the amount and source are specified in legislation or other binding legal documents, funds must compete for revenues with other governmental and non-governmental institutions and programs. This requirement can provide an incentive for funds to demonstrate their value and their ability to be accountable for these revenues.
- **Earmarked revenues from environmentally related instruments** are usually transferred to funds by governments. The major difference between these environmentally related instruments and budget allocations is that the former may also generate environmental benefits. For example, pollution fees and fines, if set at rates comparable to the costs of abatement, can provide incentives for facilities to reduce pollution levels. Environmentally related instruments include pollution fees and fines, natural resource taxes, product charges, user fees, and permitting and licensing fees.

- **Donations** are contributions from individuals or companies directly to the fund. Typically, funds must allocate staff time and resources to increase and sustain donations.

Table 2.3. Extramural Revenue Instruments

Budget Allocations	
Description:	Transfer of state treasury resources to account of fund; may be general or earmarked revenues
Examples:	Budget allocations (Slovak Republic, Mexico); Proceeds from privatization sales (Czech Republic, Estonia)
Revenue Principle:	Political Prioritization
Sustainability Issues:	Government commitment to sustain support for fund expenditures
Non-Revenue Benefits:	Improved accountability, performance basis for sustained allocations
Pollution Fees and Fines	
Description:	Levies on air pollutant emissions, water pollutant discharges, waste disposal; fines on amounts exceeding allowable levels and often levied at higher rate than fees; fines for illegal or accidental discharges
Examples:	Air, water, and waste fees and fines (Polish National and Regional Funds, Russian National and Regional Funds); Marine damages (Egyptian Environmental Protection Fund); Land use fines (Slovenia)
Revenue Principle:	Damages Principle
Sustainability Issues:	Increase per unit rates and/or expand collection base to maintain revenues as pollution per facility declines
Non-Revenue Benefits:	If rates are high enough, may create incentives to reduce pollution or non-compliance violations
Natural Resource Taxes	
Description:	Levies on the consumption/extraction of renewable and/or stock resources
Examples:	Mineral extraction charges (Estonia, Polish National Fund)
Revenue Principle:	Benefits Principle
Sustainability Issues:	Renewable versus Stock resources; indexing of nominal tax rates
Non-Revenue Benefits:	May encourage improved efficiency, substitution of less expensive alternatives, recycling
Product Charges	
Description:	Levies on products that contribute to excessive levels of pollution or waste
Examples:	Fuel charges (Bulgaria National Fund, Hungary); Charges on packaging (Latvia); other product charges (Hungary)

Revenue Principle:	Damages Principle
Sustainability Issues:	Charge rate must be sensitive to changes in demand, GDP growth, and technological change
Non-Revenue Benefits:	If rates are high enough, may induce use of substitutes that create less pollution or waste
User Fees	
Description:	Fees assessed on users of parks and tourism facilities, environmental services such as water, wastewater and waste collection
Examples:	Tourism tax (Belize)
Revenue Principle:	Benefits Principle, Ability-to-pay
Sustainability Issues:	Depends on availability of substitutes
Non-Revenue Benefits:	Users may demand higher quality products (e.g., waste collection services, park facilities)
Permitting and Licensing Fees	
Description:	Fees assessed for the services provided by agencies issuing permits and licenses
Examples:	Administrative fees (Bulgaria National Fund); Permitting fees (new Romanian National Fund)
Revenue Principle:	Benefits Principle, Ability to Pay (if fee related to value of asset for which license required)
Sustainability Issues:	Maintaining fees at levels that cover costs of providing these services
Non-Revenue Benefits:	Facilities may demand improved regulatory process (e.g., fewer delays, improved review)

Table 2.3. Extramural Revenue Instruments (continued)

Donations	
Description:	Individual and corporate gifts
Examples:	Individual donations (Egyptian Environmental Protection Fund)
Revenue Principle:	Willingness-to-pay, ability to pay, Benefits Principle
Sustainability Issues:	Public awareness campaign, maintenance of collection sites, favorable tax treatment for large donations
Non-Revenue Benefits:	Creates fewer distortions in markets, mechanism for soliciting donations can increase public awareness
Grants	
Description:	Bilateral and multilateral assistance in form of grant or debt forgiveness; private sector or NGO debt forgiveness
Examples:	Grant for fund start-up (EU to Lithuania and Latvia); Endowment grants (GEG to numerous countries); Debt-for environment swaps (Switzerland to Bulgaria, U.S., France and Switzerland to Poland; EAI debt to LAC by U.S.); Private debt-for-environment swaps (brokered by WWF in Philippines)
Revenue Principle:	Political prioritization
Sustainability Issues:	Not sustainable, typically one-time or limited term
Non-Revenue Benefits:	May encourage more accountable and transparent procedures
IFI Loans	
Description:	Loan from World Bank or other IFI for initial capitalization of fund
Examples:	World Bank loans to set up NPAF in Russia and Slovenia Environmental Develop Fund
Revenue Principle:	Willingness-to-pay, ability-to-pay, political prioritization
Sustainability Issues:	Generally, not sustainable, typically one-time or renewable
Non-Revenue Benefits:	May encourage more accountable and transparent procedures

- **Foreign grants and loans** have been an important source of revenue, particularly start-up capital for endowments and revolving funds. One of the major benefits of foreign participation in the initial capitalization of funds is that funds are often required to adopt international best practices to ensure accountability and transparency of fund operations.

Table 2.3 provides an overview of these four types of extramural revenue instruments. For each instrument, a brief description and examples of funds that have used the instrument is provided. In addition, the revenue principle that is usually employed to support the revenue collection is noted. For several of these instruments, there may be obstacles that have to be overcome in order to ensure the revenues can be sustained over time. Finally, potential non-revenue benefits are identified for each instrument.

2.2.2 Fund Income

The second category of revenue sources – fund income – involves the use of the fund's working capital to generate additional income. Generally, fund income is generated by investing the working capital in interest-bearing accounts or other investment opportunities (earning higher rates of return), or by making disbursements to environmental projects in the form of loans or equity investments. While both types of activities are designed to generate income for the fund, this is a secondary goal for the disbursement options, which are designed to generate environmental benefits by supporting environmental projects and environmental businesses. Table 2.4 provides an overview of each of the revenue mechanisms that can generate fund income.

2.3. Disbursement

The disbursement of revenues for environmental activities is the defining characteristic of environmental funds. Often, the ability of funds to sustain revenues and receive the public's and government's support will depend on whether disbursements are viewed favorably in terms of the benefits associated with the projects receiving fund support. The discussion in this section is divided into two parts. First, an overview of alternative disbursement mechanisms is provided. Second, the types of projects that might be funded are described.

Table 2.4. Options for Generating Fund Income

Interest-Bearing Accounts	
Description:	Earnings on unspent fund balances in interest-bearing bank accounts; typically short-term rates apply for revolving and non-revolving funds to ensure resources are liquid
Examples:	Most environmental funds are able to earn income from bank accounts
Environmental Benefits:	None
Asset Management	
Description:	Investment of a fund's endowment, often in a portfolio combining financial instruments
Examples:	Conservation Trust Funds, other endowments
Environmental Benefits:	If portfolio stipulates investments in "green" funds or stocks
Loans	
Description:	Loans provided to fund applicants to finance pollution abatement and other environmental projects; typically, "soft" loans offered with favorable interest rates and other loan terms
Examples:	"Soft" loans (Polish National and Regional Funds, Russian NPAF, Slovenia Environmental Development Fund, Lithuanian and Latvian Environmental Investment Funds)
Environmental Benefits:	Access to "soft" loans strongly linked to potential of proposed project to generate environmental benefits
Equity Investments	
Description:	Fund takes an equity position in start-up environmental businesses, for example, development of local source of pollution control equipment
Examples:	Polish National Fund, Russian Federal Environmental Fund, Bulgaria National Fund
Environmental Benefits:	Indirect benefits may result if start-up companies can provide environmental goods and services at lower cost than foreign vendors

2.3.1. Mechanisms

There are five types of disbursement mechanisms that have been used by environmental funds. These are grants, "soft" loans, interest rate subsidies, loan guarantees, and equity investments. Of these five mechanisms, grants and soft loans are by far the most common forms of disbursement. Brief descriptions of each mechanism are provided below.

Grants The most attractive source of financing for environmental investments from the perspective of the facility is a grant. A grant represents a direct transfer of funds from the source to the recipient. It is transparent and does not require repayment by the recipient, although other conditions may be attached to the grant by the source (e.g., repayment if the facility does not apply the grant for the intended/contracted purposes). Virtually all conservation trust funds and most environmental funds disburse all or some of their resources as grants. Grants are simple to administer and involve little financial risk for the fund. Because they are so attractive from the recipient's perspective, they can be effective in leveraging other sources of project financing if they are used selectively to cover only a portion of project costs. However, for some types of projects (e.g., support for research, NGOs, education programs), it may be necessary to provide 100% of support because co-financing may be difficult to obtain. The major drawback of grants is the "moral hazard" sometimes associated with "free money" (OECD, 1999).

"Soft" Loans Soft loans feature loan terms and conditions that are more attractive than those prevailing in the commercial market. These loans are "softened" in one or more of the following ways: reduced interest rates, allowance for grace periods, and longer payback periods. In effect, all of these features can be viewed as subsidy elements. As noted earlier, soft loans generate financial returns and allow funds to "revolve" provided default rates are low and the real value of repayments is not eroded by inflation. Soft loans also address the moral hazard associated with grants and encourage greater financial discipline on the part of borrowers. However, soft loans also entail higher administration costs related to financial analysis of applications and management of repayments. Soft loans are used by many of the environmental funds in CEE countries. The degree of softening varies with some funds providing loan terms at rates close to commercial rates while others provide zero percent interest rates. In the case of the Polish National Fund, up to 50% of loan repayments may be forgiven if the applicant completes the project according to the proposed schedule and meets the technological standards of equipment installed.

Interest Rate Subsidies An interest rate subsidy is a special case of a direct grant. The commodity it is linked to is commercial capital. It takes the form of a rebate on the interest rate prevailing on the loan market for a given category of borrowers and projects. The rebate can be granted by the creditor or -- more typically -- by a third party such as an environmental fund or donor. The crucial difference between an interest rate subsidy and a grant is that the latter can be extended independently, or even in the absence, of additional financing. On the contrary, the former assumes that the project has already met financial and creditworthiness criteria leading to a lender's willingness to invest in it.

Loan Guarantees A loan guarantee is a mechanism by which a third party assumes a legal responsibility to compensate a lender if the borrower defaults on a loan. Theoretically, loan guarantees can be provided to any legal entity with the necessary financial resources deemed acceptable to the lender. Sovereign guarantees are provided by national governments. Banks and other financial institutions may also provide guarantees. Depending on the credit risk associated with the proposed loan, the guarantor may be required to reserve or hold only a portion of the loan amount. From an environmental fund's perspective, the provision of guarantees enables the fund to support a volume of investments that is four to five times the amount of resources required for the guarantee. Loan guarantees have been provided by the Czech State Environmental Fund, but other funds have not yet utilized this mechanism. In CEE

countries, facilities have often experienced difficulty in securing commercial loans to finance environmental investments, because the project and/or applicant fails to satisfy the lender's financial criteria. However, if the borrower can provide a loan guarantee, the lender may issue the risky loan.

Equity Investments For private enterprises, equity can be viewed as a source of capital that is used for a variety of purposes such as expansion of operations, modernization, or short-term debt financing. Environmental equity refers to capital that is earmarked for environmental purposes rather than general operations of the company. As a result, the equity may be available on more attractive terms than for other capital. Donors, IFIs, or environmental funds may channel funds to facilities in the form of equity such as purchase of stocks or other secured assets. This mechanism is most common for start-up businesses that plan to manufacture environmental control equipment or provide consulting services. A few CEE funds have made equity investments (e.g., Federal Environmental Fund in Russia and the Polish National Fund).

2.3.2. Types of Projects

The types of projects that may be supported by environmental funds can be delineated in two ways: (1) by environmental and natural resource categories (benefits); and (2) by the type of activity that receives funding. Most conservation trusts provide disbursements for one or more of the following categories: support for parks and protected area, habitat, biodiversity, or general environmental activities carried out by NGOs. In CEE countries, environmental funds primarily support projects to improve air and water quality, although some funds also support nature protection and biodiversity, solid and hazardous waste management, or deal with a variety of environmental accidents.

The types of activities that receive support from environmental funds are described in Table 2.5. Generally, CEE funds focus their disbursements on investments and devote only a small portion of disbursements to education and awareness, training, and research, while conservation trusts provide funding for management, NGO capacity, education and awareness, land acquisition, training, and research. Few funds have supported project preparation (e.g., to develop applications for IFI loans, GEF grants, etc.).

Table 2.5. Types of Natural Resource Activities Supported by Funds

Type of Activity	Description
Management support	Direct support for staff and equipment needed to manage parks, protected areas, restore habitats, provide complementary infrastructure (grants)
Land Acquisition	Purchase of land for parks and protected areas, habitat protection, buffer zones; could also include purchase of development rights to keep land in current undeveloped uses (grants mainly)
NGO Capacity	General support for staff, buildings, and equipment, capacity building of staff through training (grants)
Education and Awareness	Support for environmental education and awareness programs, administered by agencies, local governments, NGOs, universities, and schools (grants)
Research	Support for environmental research, typically to universities, research institutes, and NGOs (grants)
Training	Support for natural resources training to increase capacity of institutions and stakeholders (grants)
Habitat Restoration and Protection	May involve some capital and infrastructure investments, species propagation, etc.
Contamination Cleanup Investments	These cleanups involve removal of contaminated material from sites that may impact protected areas

3. Lessons Learned

Disbursement Policy Issues

While environmental funds can be beneficial in addressing shortfalls in public budgets and weaknesses in capital markets, these advantages may be negated by lack of attention to the guiding principles of **accountability** and **transparency** in disbursing fund resources. The discussion below reflects the best practices elaborated in the “*St. Petersburg Guidelines*” in *Environmental Funds in the Transition to a Market Economy* (OECD, 1995). These guidelines were prepared by the OECD and vetted with representatives of CEE environmental funds, donors, and IFIs at a workshop in St. Petersburg, Russia in 1994.

Accountability is demonstrated by a disbursement program designed to allocate funding to the highest valued (socially) or best environmental uses. There are several design issues that can increase accountability:

- **Clearly defined priorities** – Disbursement programs should be guided by a set of funding priorities developed collaboratively by the fund, environmental and other government agencies, and stakeholders. Typically, priorities should be set before the first disbursements are made, then updated on an annual or biannual basis. Disbursements should be evaluated in terms of criteria that include priorities, project quality and benefits, etc.

- **Environmental benefits and cost-effectiveness** – Environmental funds should require applicants to indicate the nature and (if possible) the magnitude of environmental benefits generated by proposed projects. In addition, applicants should be encouraged to achieve these benefits at lowest costs, thereby increasing the number of projects that can be supported and the level of aggregate benefits achieved.
- **Additionality** – to the extent possible, the support provided by funds should be in addition to resources that applicants can raise from other sources.⁴ Generally, it is difficult for a fund to determine whether its support is additional on a project-by-project basis. However, several design elements can be adopted that encourage applicants to request no more funding than they need (e.g., covering less than 100% of project costs, ranking projects higher that mobilize co-financing, setting funding ceilings on individual projects.
- **Project monitoring and evaluation** – Once projects are awarded, the fund must closely monitor implementation to ensure its resources are utilized for the purposes proposed and to determine if the project achieves its anticipated benefits.

Transparency in a fund's disbursement program is achieved by conducting the "project cycle" in an open, clear, and non-arbitrary manner. Design issues that promote transparency include the following:

- **Outreach/awareness campaign to publicize fund, application process** – Such a campaign also improves accountability by providing a larger pool of projects from which to select funded projects.
- **Project cycle procedures available for public review** – Applicants should have information on how to apply, the documents that should be submitted, the criteria that will be used to evaluate applications, and the selection process. In addition, applicants of funded projects should understand the requirements for submission of invoices, reports, and inspections. An illustration of the project cycle is provided in Table 3.1.
- **Open communications with applicants** – The fund should provide opportunities for applicants to submit questions about the application process. The fund should inform applicants of any deficiencies in their application packages and provide written notice of rejection/acceptance of applications following review and selection.
- **Annual report** – Funds should prepare annual reports to inform the public of the funds activities during the year. This report should provide information on the

⁴ This is a broader definition of additionality than is commonly used by GEF. GEF support is ideally focused on project components that yield public benefits over and above those that the project investor would receive. For example, while a facility might install pollution control to meet local environmental standards, investment to address non-regulated greenhouse gas emissions or achieve significantly greater pollution reductions than required by the standard would be viewed as additional.

number of projects accepted and rejected. Many funds also list the projects that were reviewed (accepted) during the year.

Table 3.1. Illustration of the Project Cycle: Polish EcoFund

Stage of Project Cycle	Applicant Action	Fund Action
Project Identification and Preparation	<ul style="list-style-type: none"> • Prepare Project Questionnaire • Submit to Fund • If accepted, prepare Application 	<ul style="list-style-type: none"> • Review Questionnaire in terms of eligibility criteria and fund priorities • Advise applicants; provide explanations for rejected projects
Appraisal and Selection	<ul style="list-style-type: none"> • Submit Application • Respond to additional information requests 	<ul style="list-style-type: none"> • Review applications for completeness • Evaluate in terms of selection criteria • Make recommendations to Supervisory Board • Select projects
Negotiation and Award of Financing	<ul style="list-style-type: none"> • Review proposed contract terms • Sign contract 	<ul style="list-style-type: none"> • Prepare and revise contract • Disburse funds
Monitoring and Implementation	<ul style="list-style-type: none"> • Implement project • Provide progress reports 	<ul style="list-style-type: none"> • Inspect project • Review progress reports
Post-implementation Evaluation	<ul style="list-style-type: none"> • No current requirements 	<ul style="list-style-type: none"> • No current requirements

Appendix 5

Guidelines for the Design of a National EUF System Communication Program

An important component of the NEUFS is the communication program targeted at various audiences. The communications program plan involves the following steps.

1) *Identify potential partners and their roles.*

DENR-EMB may decide to partner with a non-government organization for the communications program for the NEUFS if funds are available for their involvement. However, EMB can also do the communications program by itself through the Environmental Education Division that has the experience in launching, designing and targeting IEC campaigns.

2) *Define the problem: why the project is being developed?*

This describes what NEUFS is and why the government embarked on the program.

3) *Identify the primary target audiences*

In relation to #2, the primary audiences are the groups that EMB targets for behavioral changes. In the case of the NEUFS, they could be the heads of firms and Pollution Control Officers.

4) *Identify specific primary audience segments.*

The identification of specific primary audiences may include important variables such as vested interest, language, and policy. If, for instance, the IEC materials are targeted to managers, then the design and language of the materials would be different from materials for engineers, policy makers in the bureaucracy, NGOs and communities.

5) *Identify, if any, secondary target audiences*

These are audiences that tend to influence the primary audiences or support the NEUFS. Secondary audiences could be the LGUs, NGOs and communities that live around factories and who might be affected by pollution. They also have a stake in improving the quality of water bodies.

6) *Communication goals*

Goals specify the overall measurable behavioral changes of the primary target audiences. In the case of the NEUFS, this could be better compliance, reduction of pollution loads, or the installation of pollution control equipment in response to the new system.

7) *Communication objectives*

The communication objectives are the immediate steps to achieve the goals.

8) *Communication channels to reach the target audiences*

The choice of the communication channel depends on the best and practical way of reaching the target audiences. This could be simple letters explaining the new policy

and important information on the NEUFS addressed to managers of firms and Pollution control Officers (PCOs). Frequently Asked Questions (FAQs) and other NEUFS information could also be published in the internet for the general public. If the latter were used, there must also be a web-based system whereby visitors can send in comments. However, it would still be difficult to measure whether the target audiences are reached.

9) *Potential messages, materials and activities*

The potential messages would depend on the target audience. Managers may be interested not only on the overall scheme, but also on how it would affect their business. They may also be interested to know how, why, when, where and for how long is the system going to be in place. NGOs and communities may be more interested in how the program is going to affect overall environmental quality, or implications on job security if industries are affected.

10) *Evaluation framework*

An evaluation framework for the communications program should ideally be also in place so that the impact of the communications program can be measured.

11) *Program timeline*

A communications plan could be in various phases, targeting different audiences at each phase. The timeline or duration of the program, whether it is a single shot or multi-phased, is important.

12) *Budget*

There is no gainsaying that financial resources are required to run a communications program. The more complex and sophisticated the planned program, the larger would be the cost. This only means that planned communications program should match the resources available for it.

For the initial phase of the NEUFS implementation, while the communications program and resources for it are not yet in place, simple letters and fact sheets may be reproduced to initially inform the regulated community of the new system. The fact sheets should include the basic information on the NEUFS (goals, objectives, system of fee computation and collection, who will be included in the program, etc), as well as FAQs, contained in the NEUFS Operations Manual.

Appendix 6

Proposed Plan for the NUEFS Expansion

In principle, there is considerable number of substances which could be considered for inclusion in the charging system. The choice, however, must be based on the relevance of that substance in achieving specified objectives. Thus, some substances may be significant in some cases but not others. BOD is widely used as measure of the polluting potential of a discharge. As a result, BOD concentrations are fundamental to the health of a water body; therefore, it is a basic component of most charging schemes in developed and certain developing countries.

The current NEUFS considers only BOD and TSS for the next five years of implementation. This strategy is intended to simplify the initial implementation of the NEUFS and allow the staff of DENR-EMB to gain more experience through on-the-job training, acquire adequate laboratory facilities, and allow ample time for industries to make necessary adjustments in their wastewater treatment facilities. For this reason certain sectors and pollutants are excluded. For sectors, industries with volumetric rate of discharges below 30 cubic meter are initially excluded from the load-based fee, but are not exempt from getting a Wastewater Discharge Permit under the NEUFS. Domestic wastewater from households is also initially excluded from the system because of their large number and complexity of the issues involved. Among conventional pollutants, oil and grease is also not initial covered because of the paucity of information and lack of international experience on the use of EIs for this group of pollutants. Nonconventional pollutants such as ammonia (as N), chromium VI (hexavalent), COD, fluoride, nitrates, organic N, pesticide active ingredients (PAI), phenols, phosphorus (as P), and heavy metals are also not covered by the NEUFS.

The proposed action plan suggests steps by which the NEUFS can be extended to included either additional sectors or pollutants. It is recommended that the first extension phase after the first 5 years of implementation should cover additional sectors without including in the system additional pollutants. EMB must decide on how to handle industries with volumetric discharges below 30 cu.m. and households. The following information are needed:

Recommended Actions

Year 4-5 of NEUFS Implementation

1. Conduct a survey of firms and pollution inventory to be conducted by the EMB regional office in coordination with LGUs.

The partnership will enable Regional EMB Offices and LGUs to align their databases for both NUEFS and business permitting. It will also pave the way for involving LGUs in the NEUFS implementation to expand coverage to sectors that DENR-EMB has traditional not monitored

2. Assess and update current EMB databases, and examine how LGUs can access and align their own databases for more efficient and coordinated pollution management in an area.

EMB Central Office can initiate the development of the methodology for the survey and pollution inventory and develop proposals for funding either through government funding (EMB or LGU) or through grants from international funding institutions. It is recommended that the proposal development and implementation of the project be done after the second year of NEUFS. This should also give time for NCR and the regions to test the newly developed Environmental Information and Management System database and recommend possible improvements.

Year 5 of NEUFS Implementation

The NEUFS is due for review during the fifth year of implementation. The review should include a study on expanding the NEUFS implementation to include the sectors that have not been initially covered. The study should also include the following:

1. An assessment of the implementation of the NEUFS in the various regions, especially in the NCR, which should include the identification of indicators that could be used in the assessment and evaluation process, and the cost of monitoring and enforcement.
2. Review of the effectiveness of the load-base rate and payment cap in reducing pollution load from industries and in encouraging compliance to the revised permitting system.
3. Examine and design schemes for expanding the system to sectors not initially covered, specifically looking at the feasibility of LGUs implementing of the NEUFS.

Introduction of other pollutants into the system should only be looked into once the NEUFS has demonstrated success with BOD and TSS, and EMB has good indication that the environmental goal of the NEUFS of reducing the BOD and TSS loads is going to be attained. Expanding the number of pollutants without demonstrating success with the initial set will only increase resistance from the regulated community. In the meantime, nonconventional pollutants and potentially toxic substances can be managed using the regulatory standards.

Appendix 7

Framework for the Design of Effluent Trading and other Economic Instruments in Managing Water Pollution

Targeting Environmental Problems with MBIs		
Problem	Economic Instrument	Illustrative Countries
Water Extraction		
	Withdrawal charges — for surface and /or groundwater	U.S., Belgium, Denmark, Finland, France, Germany, Ireland, Netherlands, 11 Central and Eastern European Countries (CEECs)
Water Pollution		
	Wastewater effluent charges. Often levied on a proxy of emissions (e.g., basing the estimated volume of water discharged on some percentage of water consumed).	U.S., Australia, Belgium, Canada, France, Germany, Netherlands, Portugal, Spain, Malaysia, 13 CEECs.
	Wastewater treatment charges. Payment for actual services rendered.	U.S. and 17 other OECD countries, 8 CEECs
Air Pollution		
	Air emissions charges. Charges are usually levied on actual (measured) source emissions.	U.S., other OECD countries include Canada, France, Japan, Portugal, Sweden. 11 CEECs, China
Solid Waste		
	Waste user charges (levied on the user).	U.S., Japan, 16 other OECD countries. 10 CEECs
	Waste disposal charges (levied on the landfill or incinerator)	Australia, Austria, Belgium, Denmark, France, Germany, Italy, Netherlands
	Hazardous waste charges	U.S., Australia, Austria, Belgium, Finland, Portugal

Sources: OECD (1994, 1995, 1997), Klarer (1999), and US EPA (2001)

A Methodology for Selecting MBIs

Some economic instruments will be of greater interest and applicability than others, considering the precise economic, institutional, and legal context of the Philippines. A two-step screening process designed by Ruzicka et al (2002b) can help gauge the likely success of market-based instruments in response to environmental protection challenges. The two categories are: (1) the nature of the instrument itself, including its effectiveness, equity, and competitiveness implications; and (2) the specific social, cultural, political and institutional context in which the instrument would be applied (see below).

Economic efficiency and environmental effectiveness questions should explore whether the fee rate is structured properly and is set high enough to accomplish its incentive and/or revenue goals. Equity questions note whether the instrument is regressive (i.e., severely influencing the consumption patterns of lower- or fixed- income segments of society). Competitiveness questions explore how fees compare to neighboring economies and whether such differences might influence placement or trade. Note, however, that neither Speck (2001) nor Rock (2002) believes there is evidence that more stringent and costly environmental standards throughout one's jurisdiction impairs economic competitiveness.

Criteria Intrinsic to the Instrument

Economic efficiency or cost-saving potential
Environmental or resource management effectiveness
acceptability
Distributive/equity effects
infrastructure
Revenue raising potential
Institutional capacity
implementation
Technological change and innovation
nations
Effect on international competitiveness

Contextual Criteria

Political acceptability
Social and cultural

Geography and existing

Legal framework
Administrative ease of

Experience from other

While pollution charges, which is the basis for the NEUFS, is the most commonly used economic instrument for managing effluents, other types of EIs have been explored such as tradable permits for point sources and product charges for diffuse sources and substances that are shown to be harmful to the environment.

Application of Tradable Permits for Point Source Pollution

Tradable permits allow dischargers to buy and sell emission quotas within overall limits. The total permitted level of emissions of a particular substance is set at a level consistent with the quality objective for the water body. This total limit is divided among the relevant dischargers. In theory, tradable permits can also secure the achievement quality objectives in a cost-effective manner since dischargers whose pollution reduction costs are low would most likely install pollution control equipment and sell their rights to discharge to those for whom installation of such equipment would be more expensive. Although permits will most likely provide greater certainty in achieving environmental quality objectives than charges, it offers less certainty about cost of achieving the objectives because the 'price' of the permits emerges through trading.

There are several requirements for tradable permits to work, which EMB must examine and satisfy (UK Department of Environment, Transport and the Regions 1998).

i. Statutory basis for the scheme

One of the questions that need to be answered is whether the current environmental laws, in particular the National Pollution Control Law (PD 984), have provisions for the operation of tradable permit schemes. Legislations should include provisions on consents or authorizations for trading of units from a given discharge quotas,

reporting obligations for revision in quota for each consent, and entries into public registry.

ii. Nature of the trading area

The total load to be subject to a permitting scheme will have to be consistent with the environmental quality objectives for a particular water body or area. It would also be necessary to establish the maximum load to be discharged over a specified period of time, which would then act as the upper boundary for trading.

iii. Allocation of quotas

The scheme of allocating quotas will have to be identified. In theory, two initial allocation processes are available once the overall limit for the designated area has been established. First, quota can be allocated through **auction**. Auctioning entails initial revocation of existing permits and transfer rights via the tendering process to allocate available pollution loads between dischargers. Key to this process is a broad market so that the process cannot be manipulated.

Another way of initially allocating quotas is through what is called '**grandparenting**' where quotas are given to existing dischargers based on current actual discharges. While this will likely be more acceptable the process will have no immediate impact on established patterns of discharge, it may provide little incentive to an active market and could perpetuate what could possibly be existing inefficient allocation of discharges.

iv. Limits on trading

While individual quotas may be increased or decreased, they may at no time exceed the total limit established for any specified period.

v. Regulation of trading

Provided that quotas and maxima are not breached, participants would be expected to make their own trades without intervention or prior approval from the regulator. The prospect of profitable business for intermediaries is expected to facilitate trading. Regulators, however, expect to be notified about the trades. When the need to reduce the total limit or quota exists, the regulator can intervene in the market via direct regulation, i.e., overriding quota, or by purchasing permits.

vi. Entry and exit

If the consenting regime remains the framework, new dischargers would need to apply for consents. Unless the regulator has spare permits or unallocated quotas for sale to new entrants, it would be necessary to demonstrate that there are sufficient permits held (or anticipated) in the market and that holders of permits are allowed to make a discharge. Otherwise, holding permits would be of little value if there was no possibility that the regulator would allow a discharge.

Exit of dischargers ought to be less problematic by simply selling permits when they are no longer needed. The regulator may buy the permits for later sale to new entrants or to dischargers who would wish to expand output.

Application of tradable permit schemes should also satisfy the following conditions (UK Department of Environment, Transport and the Regions 1998);

1. There must be sufficient existing and prospective dischargers to avoid anti-competitive practices such as permit hoarding.
2. There should be significant differences in marginal abatement costs between dischargers so that there is sufficient scope for innovatory practices in reducing pollution.
3. Trading should be possible without creating pollution “hot spots” or areas where there is not enough water mixing so that localized breaching of quality objectives occurs.

The Logistical Difficulties of Tradable Permits

The sheer logistics and technical capacity required to administer a tradable permit system are prohibitive in many countries. Basically, says Anderson (2002), they represent an administrative nightmare. “These requirements are considerably more challenging than the requirements for emission fees. Not only is greater precision of measurement desired (since sources will be buying and selling these quantities), but determining initial allocations, tracking needs, and whether to allow banking creates additional regulatory burdens. While the United States has considerable experience with emission trading, there are relatively few other examples elsewhere in the world. Tradable permits require—

A legal and regulatory framework, including the delineation of the roles and responsibilities of regulators, emission sources, and others parties;

An overall cap on emissions and a decision of which sources to include;

The determination of emission quotas;

Timing and spatial decisions, such as how long the program will run, whether credits can be saved in one period and used in subsequent periods, and whether there will be adjustments to account for differences in the environmental impact of emissions from different locations;

The mechanism for measuring emissions; and

Tracking and enforcement requirements.

Application of Product Charges for Non-point Sources

Diffuse or non-point sources of pollution are those sources which are not clearly defined such as run-off from agricultural land and urban areas, and pollution arising from disposal of wastes. A system of **product charges** may be imposed on substances that are shown to be harmful to the environment when used in either consumption or production, or when they are subject to disposal. Product charges are used in Finland and Norway for lubricant oils. Some common product charges include charge on batteries, fertilizers and pesticides, non-returnable containers, and oil products. The US has a general feedstock charge on industries using chemicals and other hazardous materials in production process in order to finance the ‘Superfund’ for cleaning up abandoned hazardous waste sites (Panayotou 1998).

The aim of product charges is to encourage substitution of such toxic or hazardous products or substances by less harmful alternatives. The effectiveness of the scheme, however, depends on the following factors:

1. The substance or product concerns must be used in substantial quantities. When the use of a toxic or harmful product or substance is limited, direct stricter control may be more appropriate.
2. A less harmful alternative must exist for their substitution or there is scope for processes to be continued without significant disruption if use of the product as input is reduced.
3. The extent to which the price signal is effective is stimulating substitution.
4. The scale of benefits to be achieved by the reduction in use or disposal of the product must be greater than the potential cost of the product charge.

Recommendations:

The following studies are recommended to assess the applicability of various economic instruments to control or manage certain pollutants.

1. Pollution inventory

In the proposed requirements to expand the NEUFS, a pollution inventory was also proposed. Knowledge on the types, extent, receiving media, and dischargers of certain pollutants is important in identifying which pollutant is critical and the type of management is required. It is possible that direct regulation and control may be more appropriate in managing a pollutant.

2. Survey and assessment of economic instruments, e.g., product charges, differential taxes, and subsidies, already in use (although not necessarily thought of as means to manage pollution) and their effect on managing pollution.
3. A more detailed study of proposed economic instruments, particularly the use of effluent trading, and its potential impacts on industries. The detailed study should also look at the capital market and implications of capital scarcity and high discount rates for the selection of a scheme.

The study should include an assessment of the regulated community or industries in terms of number of firms, scale of production, and types of ownership and control. The composition of the industries based on scale of production (many large scale or many small scale), degree of competition (oligopolistic or monopolistic), and ownership and control (public or private enterprises) will help regulators decide on the most appropriate instrument.

Potential impacts of a scheme on the regulated community, environmental objectives, and costs of administration, monitoring and enforcement should also be part of the study. If the cost of administration, enforcement and monitoring is very high, then the scheme may not be appropriate or inefficient.