

# State Financial Transfers in Environmental Protection: The Case of Vietnam

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## **Abstract**

*This paper examines the practice and the effectiveness of the instrument of state financial transfers to the business sector in the implementation of investment in the field of environmental protection through Environment Protection Funds. Focusing on the case of Vietnam Environment Protection Fund, we found that the instrument of state financial transfers including grants, soft loans, accelerated depreciation allowances, tax incentives, and subsidies have propensity for lack of effectiveness due to creating insufficient incentives and increasing burden on the State budget. The application of market-based instruments is more effective but in Vietnam the rate of this figure is only 1% for market-based instruments while most of its budget (99%) spends on soft loans projects. Therefore, the recommendations are proposed to reduce the instruments of state financial transfers and foster use of market-based instruments in environmental protection activities for the sustainable development.*

**Keywords:** State financial transfers, environment protection, market-based instruments, market-based polices, Vietnam.

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## 1. Introduction

Environmental protection has attracted a great deal of concern from local authorities, national government and international institutions. Among these, developing countries and low-income countries are most likely to be affected by environmental effects, such as air and water pollution, hazardous waste and more recently, climate change. Where the standards of living are unsatisfactorily low, the exploitation of natural resources is the engine of growth as restricting economic activities to protect the environment has very limited appeal. For developing countries, such as Vietnam, there is an urgent need to integrate environmental and economic policies.

In 1993, the World Bank (WB) assisted the Vietnamese Government in developing a strategic action plan for environmental management at national level. Since then, the state has supported many more environmental protection activities across the whole country than ever before. In 2002, the Vietnam Environment Protection Fund (VEPF), a state financial organization, was established to receive finance from the Government to support the restoration of environment and coordinate, manage finance of important environment programs and projects. Moreover, the Clean Development Mechanism (CDM) gives supports, grants and also provides loans at favorable interest for environmental project owners.

Despite many of its advantages, the introduction of the state financial transfers (SFTs) faces a lot of challenges. Vietnam's experience with financial transfers for environmental practices is still limited. First and foremost, the government promises to subsidize a large

amount while its budget is quite tight. Second, some decrees regarding incentives and supports for environment protection activities are inconsistent and ambiguous. Last but not least, if the enterprise wishes to access the favorable conditions, it has to go through numerous procedures and process, which is time-consuming and frustrating. Thus, this lack of experience is one crucial reason why we need to learn from the lessons of other nations.

The next section provides definition and analytical framework, whilst the third section considers the practices of SFTs across countries by reviewing literature. The fourth section is focused on investigating the implementation of state financial transfer for environmental protection in the case of Vietnam. Finally, the main findings are summarized in the conclusion and some suggestions are put forward for the application of proper instruments. It should be useful to improve the efficiency of using financial resources in order to support the implementation of corporate investment projects in the field of environmental protection.

## 2. Analytical framework and some definitions

The analytical framework employed in this research is represented in Figure 1, where the investigation process includes four main steps from the literature review to international practices and the case of Vietnam.

First of all, from theoretical frameworks in literature we review economic instruments and market-based instruments for environmental protection policies with particular focus on Public Expenditure Instruments (PEIs). In the second stage, we investigate the applied PEIs and the effectiveness in both developed and de-



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cannot bear the financial burden. Another common expenditure instrument is subsidies which are annual payments as part of environmental contracts. If grants are non-refundable support, subsidies are the sum of money in which the government can provide to support businesses so as to offset operating costs over a lengthy time period. Other PEIs are tax breaks and special assistance (e.g, insurance, low-interest loans, depreciation write-off, rent rebates).

RGIs include taxes, charges, and fees. These, to some extent, can be thought of as the “price” to be paid for polluting. FGIs have both an incentive impact and a revenue impact. However, their effects on environment protection are generally too low (Obirih-Opareh et al., 2010). One type of RGIs is charges, which are the price which users have to pay for environmental services. The second type is taxes, which are levies imposed upon polluting products in either the production phase or the consumption phase. Because RGIs are simply a source of state financial transfers, we will not deeply analyze these types of instruments.

BNIs represent a relatively new class of instruments within the policy area, the most common of which is the deposit-refund system (Obirih-Opareh et. al, 2010). Deposit refund-systems are a combination of a tax-on-product consumption and a rebate when the product or its packaging is returned for recycling. Their applications are limited for recycling of glass bottles, cans and other containers. Therefore, the practice of Budget Neutral Instruments (BNIs) is much smaller than that of PEIs and RGIs.

### **3. The implementation of SFTs in environmental protection across countries**

State financial transfers primarily involve the use of subsidies which come in the form of grants, tax credits, direct payments or low interest loans. Essentially, these offer financial incentives against polluting the environment to individuals, companies or industries (Roth, 2001). Besides, according to Bernstein (1993), subsidies include grants, low interest loans, and tax incentives that act as incentives to polluters to change their behavior or reduce the costs of pollution abatement to be borne by polluters, both private and public.

#### ***3.1. The experience of developed countries***

Many countries, such as Slovakia has offered environmental subsidies since 1991. In Italy, subsidies for motor vehicles were introduced in 2007. In Holland, subsidies were given for electricity creation, including biomass installation and offshore wind generation (ILO, 2011). In the United States, subsidies and tax preferences are more commonly used than in the EU, with a view to encourage the efficient use of energy. Evidences suggest that the application of subsidies at an early stage leads to further technological development, encourage diffusion of renewable technologies and improve the application of taxes and charges (EEA, 2005). However, in practices, many subsidies for environment protection are inefficient (Hahn and Stavins, 1992). The reasons for this are that, first and foremost, subsidies are inevitably a trade-off between environmental and economic growth. Many producers invest too much in controlling and dealing with pollution (reducing pollution more than the minimum level is inefficient). Furthermore, another drawback of using subsidies is that it leads to “windfall profits” (OECD, 1989). Subsidies are

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not completely transferred to lowering the cost of reducing pollution; they are used in part to lower individual cost and in turn, to increase individual profits.

### *3.1.1. Grants*

Grants are the first type of PEIs on the list. They are more popular tools in developed countries than developing countries. Grants are given for education, construction, electricity and energy. In terms of education, Pennsylvania Department of Environment Protection (DEP) gave education grants of up to \$750 in 2010 to encourage school, university, country conservation districts together with other non-profit companies and business to develop and examine current environmental problems such as air quality, water shake, wetland, and conservation. By the virtue of the Pennsylvania Education Environment Act, understanding about green fields is expected to grow up to 25%. In terms of energy, the Power Shift Programme, launched in the UK in 1996, offers grants to buyers of clean-fuelled vehicles, including vehicles running on natural gas, liquefied petroleum gas and electricity (EEA, 2005). Also, grants are offered to British operators of commercial vehicles and public operators. The first and second rounds of Bio-Energy Infrastructure Scheme were launched in the UK in 2000 and 2003 to provide grants which would stimulate the use of small-scale biomass supplier fuel for heating and the generation of electricity. In Canada, the Office of Energy Efficiency at Natural Resources Canada offers a slate of federal grants and incentives under its Eco-energy Retrofit program to homeowners, businesses, large industries and public institutions to help them invest in energy- and pollution-saving up-

grades. In terms of agriculture, there are several programs in Queensland, Australia, in which the Gold Coast City Council offers a range of grants to conservation agreements and associated incentives (Robinson, 2002). One of them is the “environmental weed control rebate”, which covers the cost of weed control but not declared weeds. Another program in Ipswich City is the Nature Conservation Agreement, a grant equivalent to 100% of general rates and material assistance to rezone to rural conservation precinct.

In The Netherlands, environmentally beneficial products or techniques are eligible for grants and loans to assist in their manufacture or implementation. Financial aid can also be obtained for certain projects promoting the development, application and demonstration of environmentally sound projects (Jenkins and Lamech, 1992). These projects should include the development of new machinery, systems or techniques which have the effect of reducing or eliminating pollution.

In France, river-basin agencies may provide financial assistance in the form of grants or loans in addition to any other assistance that may be obtained from, for example, the government, region or department. The total amount of assistance must not exceed 80 per cent. Grants are the most common form of financial assistance. Where loans are involved, they are generally for a period of 10-125 years and the interest rate is lower than the market rate. In the Seine-Normandie river basin, for example, the interest rate is equal to half the rate of the Credit Local de France (Bernstein, 1997).

### *3.1.2. Tax incentives*

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Tax incentives involve tax credits or accelerated depreciation for industrial investments in equipment to abate or control pollution. These incentives may also take the form of special tax reliefs for firms that adopt management practices and production technologies that minimize the release of environmental pollutants (Bernstein, 1993).

#### *Tax credits*

Tax credits are available for investment in environmentally friendly equipment. Investment tax credits are specific tax preferences directed towards the purchase of capital goods and services. Most investment tax credits, which have operated through the corporate tax mechanism, are based on the purpose price of capital assets (Jenkins and Lamech, 1992). In Europe and the United States, special tax provisions are widely used to increase energy efficiency in environmentally friendly house equipments, buildings, vehicles and heating systems (ILO, 2011). Examples of state incentives include; U.S members of the public receive tax credits for replacing windows and installing insulation around the house and tax rebates for purchasing a hybrid car or hooking up a solar hot water heater; New Jersey businesses get a 100 percent tax credit when engaged in manufacturing wind-energy equipment; Italy introduced tax credits for biomass heating systems in 2001. If properly structured, tax incentives reduce production costs and move a country towards a sustainable energy future (Hymel, 2012).

The Corporation Tax Law in Korea provides the basic operative guidelines for taxation. There is a direct investment tax credit of three percent (or ten percent for equipment made in Korea) of the value of the investment

(Bernstein, 1997). This credit is restricted to those resident or domestic corporations investing in one of the following (Tax Exemption and Reduction Control Law Arts.71 and 18):

- facilities for increasing productivity,
- energy-saving facilities,
- anti-pollution facilities,
- facilities for preventing industrial hazards, and
- other specified facilities.

In Taiwan, available investment tax credits range from five to 20 percent of the investment on equipment or technologies use for production automation, pollution control, personnel training or the establishment of international brand names (Jenkins and Lamech, 1992). However, a minimum investment of NTS 600,000 is required in the particular taxable year. The total amount of credit allowed in a given year is limited to 50 percent of the corporate income tax payable in that year. In the case of exceeding the mandated limitation, the credit may be carried over for a period of four years. According to the Enforcement Rules of the Statute for Upgrading Industry, the credit is graduated as follows:

- 20 percent for pollution control equipment procured domestically.
- 15 percent for pollution control equipment procured abroad, and
- Five percent for pollution control technologies procured either domestically or abroad.

These credits are available only for funds spent on pollution control equipment of technologies within five years from the effective date of the statute.

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The investment tax credits are also given in Netherlands for any environmental protection investment. Credits ranging from three to 15 percent, depending on the type of asset, are available for investments in pollution control or investments for implementing environmental policies (International Bureau of Fiscal Documentation, 1991).

In Canada, the investment tax credits are offered for the purchase of manufacturing and processing machinery, which may include pollution abatement and control equipment. Actual investment tax credits are taken against the cost of certain assets and expenditures and vary depending upon the taxpayer, activity, region and year involved (Jenkins and Lamech, 1992).

#### *Accelerated depreciation*

Capital asset depreciation is a cost of doing business. Under accelerated depreciation, purchasers of depreciable assets are accorded tax benefits, permitting them larger deductions in the initial years of asset operation. The total units of deductions available for accelerated depreciation are the same as under a normal depreciation regime (Jenkins and Lamech, 1992). Accelerated depreciation allowances are provided under the Income Tax Act and are used to apply in developed countries. In Singapore, the capital expenditure on the qualifying energy efficient or energy-saving equipment can be written off or depreciated in one year instead of three years (National Climate Change Secretariat, 2005). Capital assets including equipments, supplies and installation costs are eligible for accelerated tax allowance.

The Netherlands' Vervroegde Afschrijving van Milieu-investeringen (VAMIL) scheme provides favorable depreciation rates for se-

lected technologies that have been approved by the government. In the United States, a 50% accelerated depreciation allowance is available for qualified reuse and recycling property and qualified cellulosic biofuel plant property (OECD, 2010).

In Canada, accelerated depreciation for pollution control investments on water and air was commissioned before 1974. Properties acquired after 12 November 1981 may be depreciated by claiming a maximum capital cost allowance of 25 percent in the year of acquisition, 50 percent in the second year of ownership and 25 percent in the third year. Therefore, a depreciable property that was acquired primarily for the purpose of preventing, reducing or eliminating water or air pollution from eligible pre-1974 operations can usually be written off over three years (Jenkins and Lamech, 1992). Eligible capital that generates clean energy or conserves energy is eligible for accelerated depreciation at 50% per year on a declining basis.

A "special initial depreciation" method for pollution control equipment is applied in Japan. By employing this method, a certain percentage of the acquisition costs of eligible assets may be deducted once during the year when the assets are first placed in used (Jenkins and Lamech, 1992). Examples of the amount of the special initial depreciation allowed are as follows (Special Tax Measuring Law Art.43):

- qualified facilities to prevent pollution: 25 percent of acquisition cost,
- qualified plants equipped with special anti-pollution devices and qualified energy-efficient plants: 18 percent of acquisition cost, and
- certain energy-saving machinery: 18 percent of acquisition cost.

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The special initial depreciation may be accounted by reducing the book value of the assets, thus decreasing the amount of depreciation in future years. On the other hand, these amounts may be credited to a special depreciation reserve account, in which case book value is not reduced and ordinary depreciation may be taken on the basis of the higher value (Jenkins and Lamech, 1992).

In Taiwan, according to the Income Tax Law Art.51 (1990), investments in pollution control equipment could be straight line depreciated over a period of two years. The present Statute for Upgrading Industry allows the depreciation of certified investments to be accelerated by up to half the number of years of normal service life, as specified in the Income Tax Law. To elaborate, depreciation of the machinery and equipment of specifically designated industries may be accelerated by one half the numbers of years of service life of fixed assets as prescribed in the income tax law (Taxation in the Republic of China, Ministry of Finance, 1991).

In France, both straight-line and declining balance depreciation are available, yet, straight-line depreciation is usually used for most plant and machinery. Rates for machinery range from 10 to 20 percent. Accelerated depreciation is available for certain assets, including pollution control equipment. Immovable installations for the purification of water and air can be depreciated by 50 percent straight-line in the first year (Jenkins and Lamech, 1992).

According to the German Income Tax Law, Einkommensteuergesetz, provides accelerated depreciation or initial expensing provisions for assets used for pollution control. Accelerated depreciation is allowed for personal and im-

movable assets serving the purposes of environmental protection (air pollution, water pollution, noise protection, etc). There is an initial allowance of 60 percent, followed by an annual depreciation rate of 10 percent until full amortization.

Under these schemes, accelerated depreciation allowances encourage greater investment in physical capitals. Efficient equipment consumes less energy and emits fewer pollutants into the environment. Hence, a business can enjoy the benefit of accelerated depreciation of capital expenditure and contribute to a better environment. Nevertheless, like tax incentives, grants and subsidies, accelerated depreciation allowances are taken from state budgets and their costs and benefits are critical in determining policy choice. Accelerated depreciation allowances alone are inadequate in bringing about immediate impacts; they need to be in harmony with and used in combination with other market-based instruments.

### *3.1.3. Environmental soft loans*

Environmental soft loans can be recognized as a type of government subsidy. Environmental soft loans are expected to have the same impacts as the subsidy that is provided in accordance with emission reduction, although they are legally different in a strict sense. Environmental soft loans help achieve an efficient level of emission in the long-term when a subsidy stimulates a firm to innovate its technologies and involve it in diffusion activities that reduces emission.

However, as mentioned by Mori Akihisa (2005, p.4), “these advantages cannot be realized without costs. Environmental soft loans, in particular, and government subsidy in general,

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contradict the Polluter-Pays Principle. It will also distort resource allocation in the capital market, choice of environmental technology, investment decision and international trade (OECD, 1975). This occurs especially when real interest rate is negative. In addition, it may suffer from moral hazards that arise from ineffective emission reduction (Kemp, 1997): government can make only incomplete monitoring on what kind of activities firms spend it after it has provided subsidies. The cost of government failure may become bigger than that of missing market when the government cannot play this role.”

Thus, environmental soft loans were evaluated to promote pollution control investment not because they granted huge volume of subsidy, but because they eased financial constraint of the firms.

### ***3.2. The experience of developing countries***

In developing countries, most subsidies are poured into electricity, energy, fossil fuels and agriculture. For example, encouraging the household use of oil products can reduce pressure on forests in poor rural areas of developing countries otherwise dependent on firewood. In India, Indonesia, Thailand and Vietnam, subsidies on oil products and electricity can reduce indoor air pollution because they encourage a shift away from traditional biomass fuels, such as wood, straw, crop residues and dung.

Subsidies supporting for new renewable and energy-efficient technologies help reduce emissions of greenhouse gas and other pollutants depending on how the subsidies are structured and market condition (United Nation Foundation). Recently, subsidies in developing countries, especially China, India, Morocco

and Botswana have gradually removed or lessened and shifted towards environment subsidies. As many subsidies promote economically inefficient and environmentally unsound practices, removing them may have a significant effect on reducing emissions (ILO, 2011). For instance, Indonesia’s subsidies exacerbate pollution, especially with regards particulates and lead. Reducing subsidies would free up resources to support the poor in more effective ways. Another example is in Bangladesh, Thailand and Nepal: In these countries, water subsidies encourage farmers to treat water as an unlimited resource even though it is indeed scarce. Discarding water subsidies would save government revenues and increase national welfare (Panayotou, 1994).

In addition, Lin and Jiang (2011) concluded that energy subsidies in China amounted to CNY 356.73 billion in 2007, equivalent to 1.43% GDP. Beginning in 1980, the Chinese government switched from financing systems with grants and subsidies to providing loans. This offsets the increase in demand and consumption for oil and coal. As a result, irrigation water is priced more closely to what it actually costs, and problems associated with overuse and inefficient distribution have diminished. Subsidy is not the only way to solve environment problems. How subsidy is applied is critical to how effective it is in meeting policy objectives and its cost. However, not all economic-supporting subsidies are bad. Some of them help reduce emissions of greenhouse gas and other pollutants depending on how they are structured and market condition (United Nation Foundation). For example, encouraging the household use of oil products can reduce pres-

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sure on forests in poor rural areas of developing countries otherwise dependent on firewood.

In summary, subsidies are not the only way to solve environmental problems. How subsidies are applied is critical to how effective they are in meeting policy objectives and their cost.

### *3.2.1. Grants*

In Thailand, partial grants and low interest loans are made available from the Environment Fund to local administrations and private businesses required to set up treatment facilities. Other subsidies include the reduction of import duties to no greater than 10 per cent for equipment used for any treatment facilities. During 1984-89, however, only 130.9 million baht (US\$ 5.14 million) worth of waste-water treatment equipment was imported under this incentive (Bernstein, 1997).

### *3.2.2. Tax incentives*

#### *Tax credits*

In developing nations, an attempt to boost the domestic demands for environmentally friendly products and encourage energy-efficient industries has made more tax breaks for environments over the last few years. To illustrate, China's Ministry of Finance stated that there would be a refund of 50% of the value added tax on the sale of electricity produced using solar energy from October 1, 2013 to December 31, 2015 (Swire, 2013). In India, wind-farm owners continued to receive tax depreciation benefit and an increase in alternate generation-based subsidies. Furthermore, regarding eco-friendly vehicles, Indonesia's car makers enjoy a reduction of sales tax as low as zero percent for green cars, which can reduce fuel consumption and use other alternative energy

sources. More specifically, eco-friendly vehicles utilize a variety of engines, such as advance diesel/gasoline, biofuel, hybrid and gas, with efficient energy consumption. Likewise, South Korea's Ministry of Knowledge Economy announced that buyers of electric cars would get a tax breaks of up to KRW 4.2m (USD 3,625) (Swire, 2013).

Similar to the developed countries, developing nations have achieved the same results with tax incentives, which encourage efficient energy consumption and in turn, better the environment. However, industrial economies enjoy twice the tax revenue while subsidizing tax provisions for long-term projects in poor countries may be impractical. Thomson Reuters Foundation estimated that developing countries lose more than \$138 billion annually to corporate tax breaks and tax exemption alone. To meet these challenges, policymakers in these countries will have to get their policy priorities right and have the political will to implement the necessary reforms (Tanzi and Zee, 2001).

#### *Accelerated depreciation*

According to Stacey et al. (2012), a modification of the Income Tax Law, the Accelerated Depreciation for Investments with Environmental Benefits (*Depreciación Acelerada para Inversiones que Reportan Beneficios Ambientales*), was approved by the Mexican Congress to favor new investments in renewable energy. Under this new fiscal regime, which came into effect in 2005, companies that invest in machinery and equipment for power generation using renewable sources may be reimbursed by up to 100% of the total investment in a single year. (If a company is

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unable to use the full amount of the tax rebate in the first year, they may use the remainder in subsequent years.) Mexico provides a 95% depreciation allowance in the first year for capital investments in solar, wind and geothermal energy (KPMG, 2007).

The Malaysia government introduced several fiscal incentives to promote improved environmental management by manufacturing industries during the 1990s, including accelerated depreciation allowances in pollution-control equipment and facilities for storing, treating and depositing of toxic and hazardous waste. The initial and annual allowances are “accelerated”, in that they are twice as large as depreciation allowances for ordinary industrial investments. Hence, they allow firms to write off environmental management investments more quickly (Blackman, 2010).

In India, under the domestic income-tax law, companies involved in renewable energy such as solar and wind were provided with accelerated depreciation at 80 percent. However, the government has restricted the accelerated depreciation of 80 percent to windmills installed on or before 31 March 2012. Windmills installed after 31 March 2012 will be eligible for depreciation of 15 percent instead of 80 percent on the written-down value method. It may be noted that 80 percent depreciation is still available for solar power projects. Further, power companies have been provided with an option to claim depreciation under the straight-line method (KPMG, 2012).

### *3.2.3. Environmental soft loans*

Environmental soft loans were introduced in the Air Pollution Control Act in China in 1995, in the Clean Water Program in Indonesia

in 1989, and in the National Environmental Quality Act (NEQA) in Thailand in 1992.

In Indonesia, the Environmental Impact Management Agency (BAPEDAL), with support from Japan, has established a five-year US\$ 103 million soft loan programme for industrial organizations investing in waste treatment. Loans are made available on a first-come, first-served basis and are for a period of between two and 30 years with a grace period of one to five years and an average interest rate of 14 per cent per year (well below market lending rates). The loan programme should facilitate the implementation of the Government’s PROKASH, or clean rivers programme (Bernstein, 1997).

In the Environmental Protection Promotion Plan (EPPP) in Thailand, the total amount of BOD reduction was estimated to be 3,369 tons (Sasaki, Hayashi and Takagi, 2001). The authors evaluated that firms chose appropriate pollution control technology, even though there was no established technical standard for environmental technologies and the Industrial Financial Corporation of Thailand had little, if any capacity for technical appraisal.

A Green soft loan is a soft financing mechanism offered by the Environmental Investment Fund of Namibia. This is a financial service that integrates environmental sustainability while promoting economic development. The main goal of this product is to provide incentives for businesses to reduce their impact on the environment by adopting eco-friendly practices and operations. Here follow a number of features of Namibia’ soft loan as following (Environmental Investment Fund of Namibia, 2012):

- Ring-fenced for green related funding: The

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Green Soft Loans provides credit for environmental or green-related enterprises.

- Maximum loan: Provides credit up to N\$ 4 million per applicant.

- Subsidized interest fee: interest rate is charged at a subsidized fee of prime minus 5.5%.

- Long payback and settlement periods: Grace period permissible up to eight (8) months with a maximum 10 years repayment period.

Promotes green enterprises: Applications are assessed on merit comprising of social and economic development impact, high environmental impact, and financial return.

#### **4. Implementation of SFTs in environmental protection policy in Vietnam**

##### ***4.1. Current situation and demand for funds***

Despite the achievements in economic and social development over the past decade, Vietnam has to face serious environmental issues. Unofficial research shows that environmental pollution causes an economic loss up to over 12% GDP. According to a report on environment status, solid waste is on an increase gradually, from 180% on average in the period of 2003-2010 to the prospect of 200% in 2015. The solid waste weight is estimated to be more than 44 million tons a year.

At present, the current operational waste water treatment factories have the total capacity of 565,000 cubic meters per day in the urban areas. Currently, about 60% of the one million cubic meters of waste water from industrial zones are dumped directly to the sea, rivers and lakes without any treatment. Underground water, surface water and sea water are being polluted with chemicals, irons and oil. Numerous

industrial areas, traditional villages and health facilities have not figured out any viable solutions to deal with the collection of waste water. Therefore, Vietnam is now faced with the serious challenges of environment pollution in the process of industrialization and the national sustainable development.

According to the Ministry of Natural Resources and Environment, the rate at which industrial zones, export processing zones dispose of waste and waste water in accordance with defined standards is only 40.3% of the whole economy (see Table 1). This is an alarming figure for the environmental problems at industrial and export processing zones. If the authorities are unable to solve these problems, Vietnam is likely to face the risk of becoming an industrial waste landfill in the future. This will mean that the state budget must spend larger amounts of its budget in order to tackle the problems of environmental pollution and degradation. Additionally, the economy will also suffer from negative externalities and this will ultimately affect sustainable economic growth in the long term.

The figures from Table 1 imply that there are very different from provinces, and also reflects the interest of local authorities for environmental problems. The policies of authorities in the South may focus on sustainable development, and then the environmental standards in accordance with the economic development policy. As displayed in Table 1, the rate at which industrial zones and export processing zones dispose of waste and waste water in accordance with defined standards amounts to over 90% in Binh Duong and Dong Nai, and 100% in Ho Chi Minh city whereas the average rate in the

**Table 1: The number and the rate at which industrial zones and export processing zones dispose of waste and waste water in accordance with defined standards**

| Indicators      | The number of industrial zones / export processing zones | The number of industrial zones / export processing zones disposing of waste and waste water in accordance with defined standards | The rate at which industrial zones and export processing zones dispose of waste and waste water in accordance with defined standards |
|-----------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Total</b>    | <b>258</b>                                               | <b>104</b>                                                                                                                       | <b>40.3%</b>                                                                                                                         |
| Bac Giang       | 5                                                        | 1                                                                                                                                | 20.0%                                                                                                                                |
| Bac Ninh        | 8                                                        | 3                                                                                                                                | 37.5%                                                                                                                                |
| Ha Noi          | 11                                                       | 4                                                                                                                                | 36.4%                                                                                                                                |
| Hai Duong       | 10                                                       | 4                                                                                                                                | 40.0%                                                                                                                                |
| Hai Phong       | 4                                                        | 2                                                                                                                                | 50.0%                                                                                                                                |
| Hung Yen        | 9                                                        | 2                                                                                                                                | 22.2%                                                                                                                                |
| Vinh Phuc       | 6                                                        | 3                                                                                                                                | 50.0%                                                                                                                                |
| Da Nang         | 6                                                        | 2                                                                                                                                | 33.3%                                                                                                                                |
| Ba Ria Vung Tau | 12                                                       | 4                                                                                                                                | 33.3%                                                                                                                                |
| Binh Duong      | 20                                                       | 18                                                                                                                               | 90.0%                                                                                                                                |
| Dong Nai        | 22                                                       | 20                                                                                                                               | 91.0%                                                                                                                                |
| Ho Chi Minh     | 15                                                       | 15                                                                                                                               | 100%                                                                                                                                 |
| Long An         | 20                                                       | 6                                                                                                                                | 30.0%                                                                                                                                |

Source: Ministry of Natural Resources and Environment, *The Environment Report 2010*.

North is just under 40%.

Through the lack of effective policies awards industrial and export processing zones on environmental protection, these sectors have mainly contributed to the increase in waste. The environmental monitoring stations showed that not only have hazardous solid waste reached high levels of harmful emissions from economic zones, industrial and export processing zones have also been measured at a very high level. On average, the content of harmful substances in the air is approximately 0.0282 mg/m<sup>3</sup> atmo-

sphere for No<sub>2</sub>, over 0.0517 mg/m<sup>3</sup> and 3.2339 mg/m<sup>3</sup> atmosphere respectively for So<sub>2</sub> and CO, and the content of lead at around 0.00053 mg/m<sup>3</sup> atmosphere. The rate of disposed solid waste is 75%, even the rate of disposed hazardous waste is only 16.7%. Besides, the disposed percentage of hazardous medical solid waste is 90% across six geographical regions (see Table 2 and Figure 2).

During the last decade, the fiscal instruments are usually applied by the Government have included measures such as providing grants for a

**Table 2: Hazardous waste indicators in some provinces and the whole country**

| Indicators/Sectors            | The amounts of solid waste (1000 m <sup>3</sup> ) | The amounts of disposed solid waste (1000 m <sup>3</sup> ) | Rate (%) |
|-------------------------------|---------------------------------------------------|------------------------------------------------------------|----------|
| Total                         |                                                   | 19                                                         | 75%      |
| Thanh Hoa                     | 2.95                                              | 2.07                                                       | 70%      |
| Nghe An                       | 0.83                                              | 0.58                                                       | 70%      |
| Ha Tinh                       | 0.56                                              | 0.39                                                       | 70%      |
| Quang Binh                    | 0.08                                              | 0.06                                                       | 70%      |
| Quang Tri                     | 0.3                                               | 0.21                                                       | 70%      |
| Hazardous waste               | 900                                               | 150                                                        | 16.7%    |
| Medical solid waste           | 50.4                                              | 45.4                                                       | 90%      |
| Hazardous medical solid waste | 10.8                                              | 9.72                                                       | 90%      |

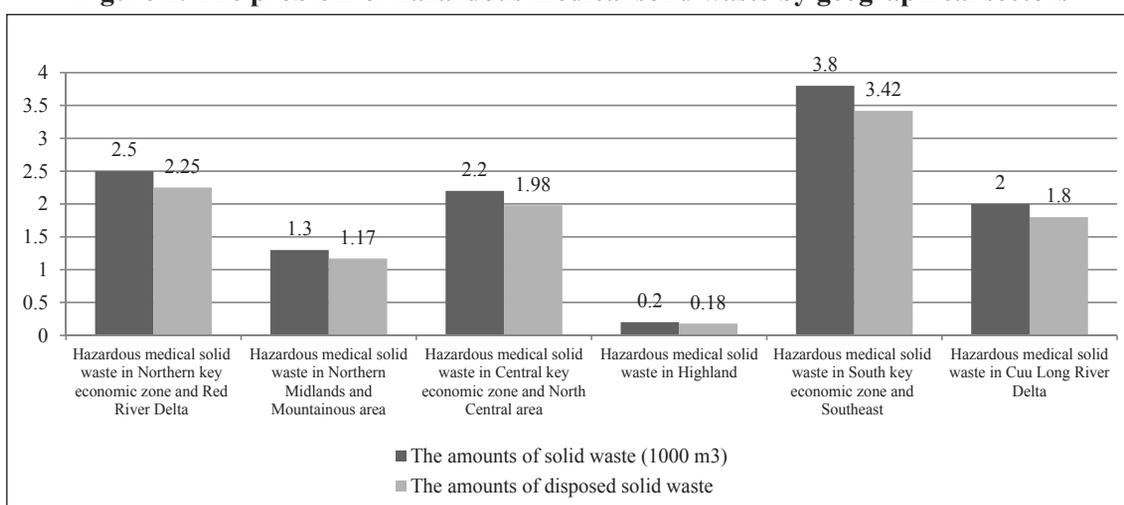
Source: Calculating by the authors from MONRE's Environment Report in 2010.

significant number of R&D projects, education and awareness-raising programs. Several environment-oriented taxation programs have recently been considered for application (e.g. tax reduction for import and/or installation of clean technology, tax on forest and mineral resource-

es, etc.), while the many subsidies on chemical fertilizers and pesticides have been reduced. This trend is consistent with the general tendency that employs more the market-based instruments across countries.

PEIs or SFTs are appropriate ways to lim-

**Figure 2: The problem of hazardous medical solid waste by geographical sectors**



Source: Calculating by the authors from MONRE's Environment Report in 2010.

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it pollution and environmental degradation in Vietnam for the first stage of the process of transition to market economy. More recently, the government has shed much concern on environment management for sustainable development. The lack of detailed research and policy impact evaluation of economic instruments, in particular public expenditure instruments, in fact, leads to the implementation process of those instruments meeting difficulties and low efficiency. Moreover, very few market-based instruments have been applied effectively for environment protection. It is a fact that market-based instruments have not been applied in a large number of fields, including conservation of biology diversification. Thus, it is essential to investigate SFTs in environmental protection policies and integrate them into sustainable economic development policies.

#### ***4.2. Legal framework of SFTs for environment protection***

Since Doi Moi in 1986, Vietnam began to concern itself with environmental protection issues. This effort was demonstrated by participation in international processes such as the Conference of Environment and Development at the United Nations Rio de Janeiro in 1992 and built up a system of laws and policies related to environmental protection. Recently, the Government of Vietnam has paid more attention to environment protection. It has created an effective action plans and strategies on national scale such as; national plans for environment and sustainable development (NPESD) (1991), National Strategy on Environment until 2010 and orientations for 2020 (2003), Vietnam sustainable development strategies in the 2011-2020 period (2012); and in a range of legal doc-

uments such as: Environment Protection Act (1993, 2005); Environment Protection Tax Law (2010) and other policies and measures to protect the environment. However, environmental protection in Vietnam has brought about limited improvement. Not only the government but also the residents and business sectors need to put more effort to preserve the environment in the coming years.

PEIs may be an appropriate measure to limit pollution and environmental degradation in Vietnam. The Fiscal Policies intended for environmental protection are also a popular approach including in environmental policies over the world. These are, for example, as preferential interest loans, Interest subsidy after investment, funding, the Clean Development Mechanism (CDM), subsidies for products environmental protection; collateral environmental restoration in the mining, Official Development Assistance and loan escrow. These mechanisms are specifically provided in the legal documents.

The Environmental protection Law in Vietnam (2005) applied some common environmental protection principles to development projects such as: precautionary, pollution control and polluter pays principle. Article 5 of this law specifies state policies on protection of the environment consisting of granting land and tax incentives and providing financial support to environmental protection activities and environmentally-friendly products. In addition, Vietnam Environmental Protection Fund also provides a number of regulations and mechanisms of fiscal transfer. On Decision No. 24/QD-HDQL, Environmental Protection Fund's Management Board of Vietnam promulgates

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the regulation on loans with preferential interest rates and loan interest rate support. The Decision states that environmental protection projects<sup>1</sup> will be able to borrow a maximum of 70 % compared to total investment and maximum interest rate will not exceed 50 % interest rates for commercial loans. In 2013, the loan interest rate was 5.4 %.

On funding mechanism, according to Decision No. 24/QĐ-HĐQL of Environmental Protection Fund of Vietnam, the amount of funding will not exceed 50% of the total cost of investment. Objects are funded in education projects to raise awareness of the environmental protection; waste treatment and improve the environment projects and the projects related to technology transfer and cleaner production. To receive funding, the investor must have a counterpart fund amounting to at least 50% of the total cost of investment to perform the project.

On the price subsidies mechanism, Decision No. 04/2009/NĐ-CP provides incentives and support in terms of land, capital, tax and charge exemption, price subsidies and support for sale of products arising from environmental protection activities. The project will be supported for investment in building infrastructure; for ground clearance and payment of compensations therefore; in terms of land use levy and land rent; incentives for investment capital raising; enterprise income tax incentives; import duty and export duty incentives; charge and value-added tax incentives. The project will also be supported with 50% of the freight for transportation of wastes from their sources to treatment facilities; 50% of the price of power for production.

Regulations for regeneration, environmen-

tal restoration and upgrading escrow, restoring the environment to the mining activities come under Decision No 18/2013/QĐ-TTg of the Vietnam Prime Minister. The decision specifies that ice crystal deposits with a total cost of items are performed in the environmental projects of improvement and restoration.

On Clean Development Mechanisms, decision No.130/2007/QĐ-TTg on a number of finance mechanisms and policies of investment projects under the Clean Development Mechanism (CDM) states that the preferential fields of CDM projects all be of emissions reductions areas. The projects receive supports of in terms of tax and land including enterprise income tax incentives, import duty and export duty incentives, value-added tax incentives and exemption from land use fees and land rent fees.

#### ***4.3. Problems in the implementation of SFTs in Vietnam***

In Vietnam, the state policy of financial support to the business sector in the implementation of environmental protection investment is mainly through Environmental Protection Funds (EPFs) which have been established by the state agencies. Regarding the organizational form of EPFs, there are two main levels: national and local EPFs. The financial source of funds comes mainly from the state budget based on management and supervision of the Ministry of Finance (MOF) and MONRE. However, it is not decentralized clearly between state management on environmental protection and EPFs' operation. The National Fund for Environmental Protection comes under the MONRE (known as Vietnam Environment Protection Fund and abbreviated

**Table 3: Number of projects and loans by sectors at the end of 2013**

| No  | Sectors                                                                                                                                              | Amounts in Contracts (VND) | Number of projects |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------|
| 1   | Industrial waste treatment (waste water and solid waste) in industrial zones                                                                         | 573,723,660.000            | 50                 |
| 2   | Waste water and gas treatment                                                                                                                        | 266,036,160.000            | 76                 |
| 2.1 | <i>Environmental pollution treatment in units under the Decision 64</i>                                                                              | 43,194,960.000             | 13                 |
| 2.2 | <i>Waste water treatment in factories and establishments</i>                                                                                         | 198,703,700.000            | 28                 |
| 2.3 | <i>Pollution Treatment in Craft Villages</i>                                                                                                         | 15,637,500.000             | 32                 |
| 2.4 | <i>Handling cement dust and other particulate matters</i>                                                                                            | 8,500,000.000              | 3                  |
| 3   | Residential waste treatment                                                                                                                          | 86,490,500.000             | 5                  |
| 4   | Deployment of clean technologies, environmentally friendly technologies, energy-saving technologies; producing products for environmental protection | 137,599,900.000            | 31                 |
| 4.1 | <i>Deployment of clean technologies, environmentally friendly technologies, energy-saving technologies</i>                                           | 40,799,900.000             | 23                 |
| 4.2 | <i>producing products for environmental protection</i>                                                                                               | 96,800,000.000             | 8                  |
| 5   | Waste collection socialization                                                                                                                       | 41,962,200.000             | 13                 |
|     | <b>Total</b>                                                                                                                                         | <b>1,105,812,420.000</b>   | <b>175</b>         |

Source: Calculating by the authors from VEPF's statistics in 2014.

as VEPF, see next section for more details). The VEPF's president is the Deputy Minister of the MONRE while the local EPFs under the Provincial People's Committee and the chairman of the EPFs is the Vice Chairman of the Provincial Population's Committees.

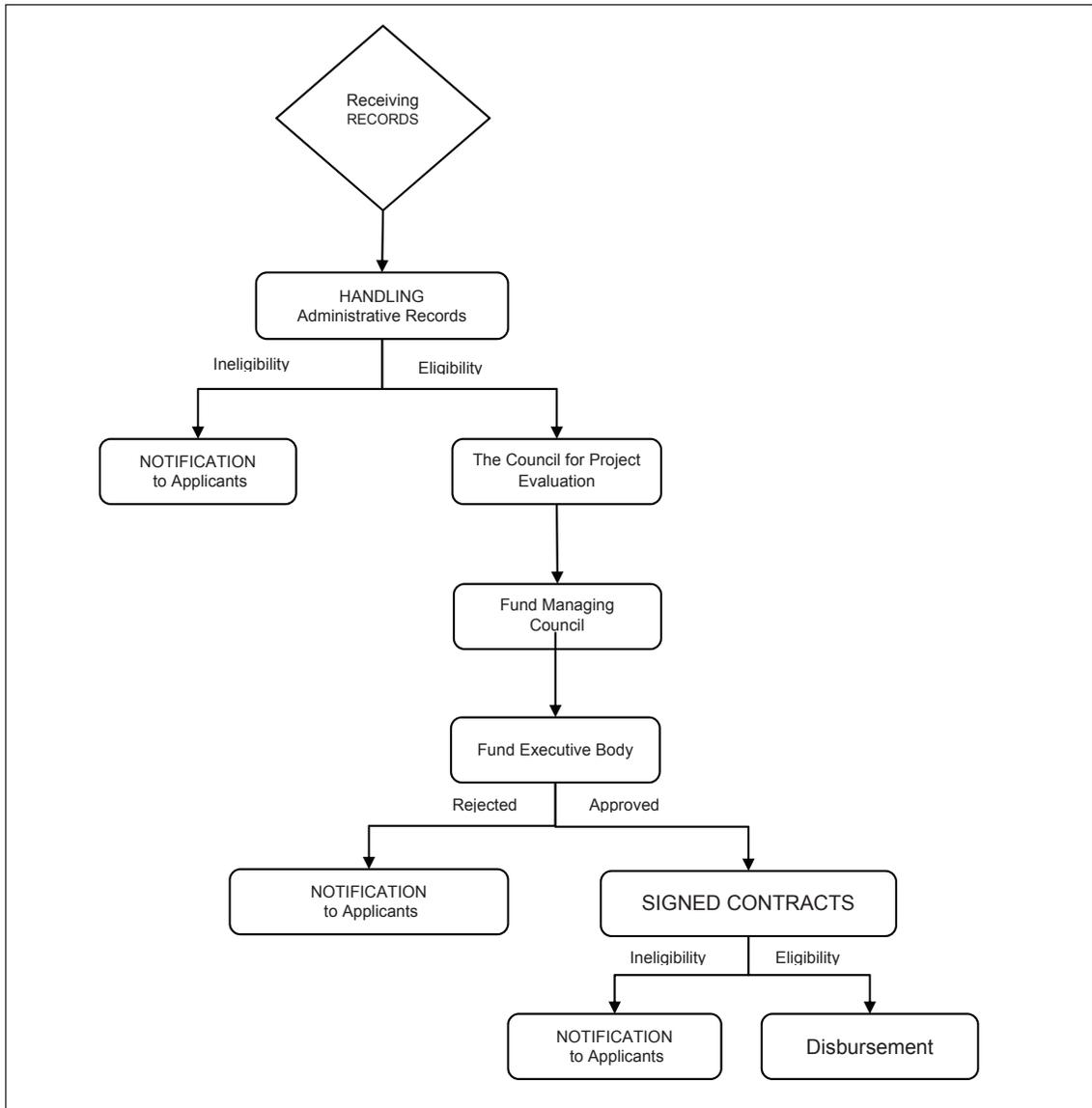
Since the VEPF was established, many environmental protection projects have been supported and implemented across the country. These focus on five priority areas; industrial waste treatment, hazardous waste-water and -gas treatment, household/residential waste treatment, developing new clean technologies, environmental friendly, waste collection socialization (see Table 3). Concerning the forms of support, the EPFs may loan with preferential interest rates; finance projects; subsidize products of CDM projects; or receive deposits for environmental restoration in mineral exploitation. Nonetheless, the main form has applied for loans with preferential interest rates. The preferential loans usually have low interest rates and businesses, for example, can borrow at preferential interest rates of 5.4% per year for loans in 2013 and 3.6% per year for loans in 2014.

Although the VEPF has made a positive contribution to the financial support for business sector, there were also some limitations.

*First of all*, raising capital sources is still limited, originally from the state budget. Because funding possibilities are limited, the number of firms which may have access to preferential loans is not significant. For example, only 23 projects had the opportunity to access these funds in 2012 (The Annual Report of VEPF, 2012).

*Secondly*, the project selection criteria are not

**Figure 3: The process of record review**



Source: Ba Ria – Vung Tau Environment Protection Fund.

clear. The guide is just general oriented criteria and not based on specific metrics. Although Congress has enacted the Law on Environment Protection, there are still many shortcomings in the implementation process.

Article 66 in the recent Draft of the Environmental Protection Law (Amendment) regulating to planning on environmental protection for new establishments, for example, states:<sup>2</sup> (i) for the new establishments: envi-

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ronmental protection planning was planned for the first time at the time this Law officially come into in effect; (ii) for the operating establishments: environmental protection planning was planned for the first time at the time this Law officially came into effect. However, this would cause some certain problems for operating businesses in access to capital (possibly because new construction planning does not meet the requirement of funds due to lack of necessary infrastructure or not being in the priority categories).

*Thirdly*, administrative processing time for records is relatively long. Even if we discount the time which the funds or the banks take to monitor and appraise mortgage assets, the firms must still laboriously go through five official administrative stages before receiving financial support (see 3).

*Fourthly*, ambiguous management mechanism. On the one hand, the fund as an administrative unit is managed by the MONRE which is responsible for implementing national and sector objectives on environmental protection. On the other hand, the fund also acts as a normal financial fund.

*Fifthly*, overlapping management between national and local EPFs. While VEPF under the management of the MONRE focuses on the projects following national targets, the local EPFs administrated by the provincial People's Committee may not concentrate on environmental protection objectives. Instead, they can focus on other local socio-economic development in short run by reducing environmental standards, for example, to attract foreign direct investment (FDI).

*Finally*, the local EPFs can only support a

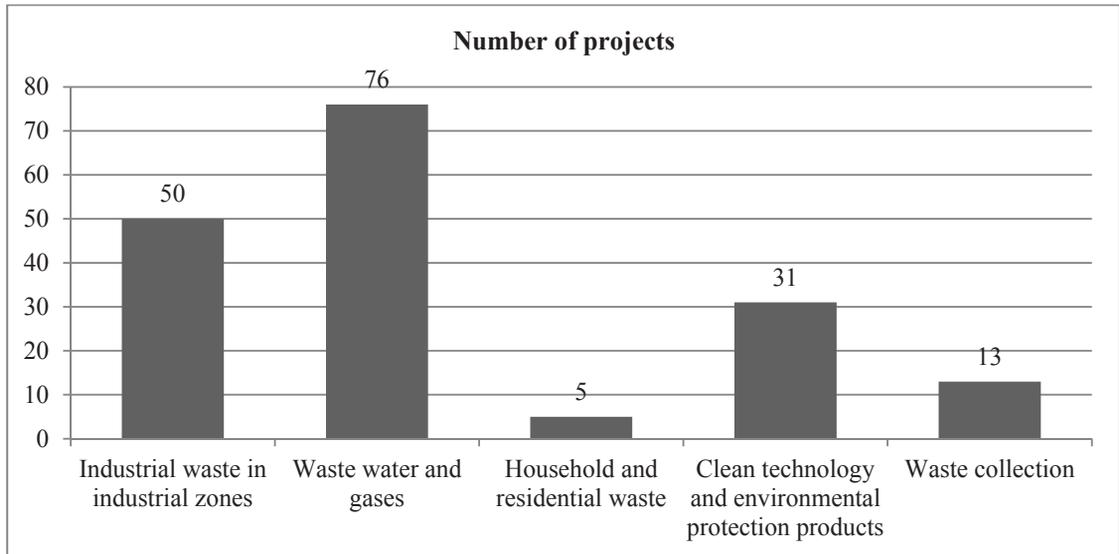
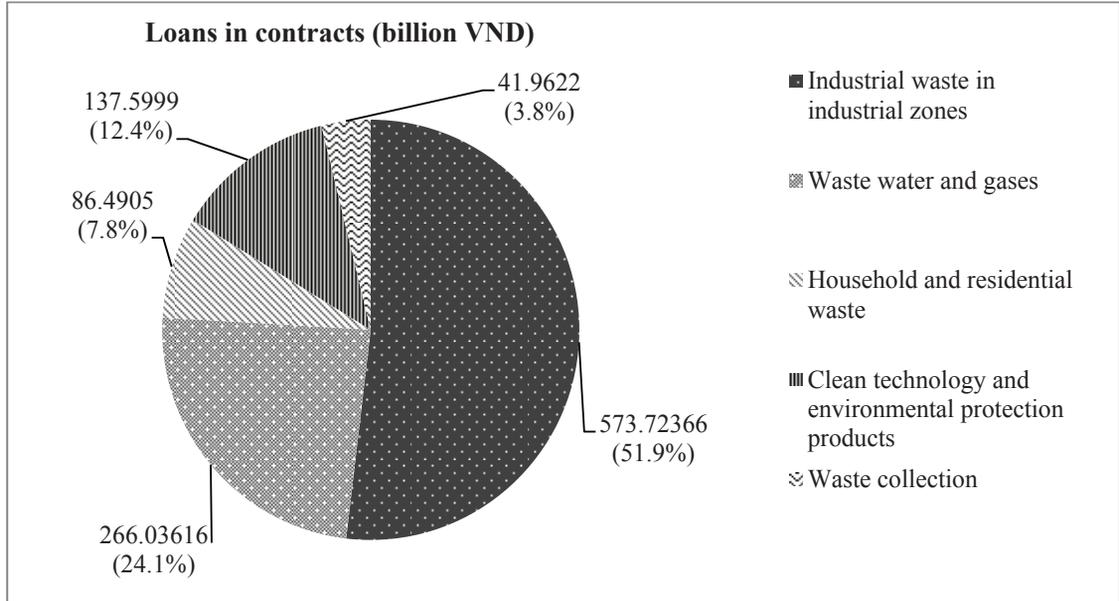
small number of certain projects or businesses. This is due to limited financial and human resources, with a charter capital ranging from only several billions of VND to several tens of billions of VND, only have enough possibilities to support for a few certain projects or businesses. Therefore, EPFs representative for existing environmental policies do not create enough incentives to encourage investment in private sector for environmental protection.

#### ***4.4. The implementation of SFTs: Investigating the case of VEPF***

As mentioned above, Vietnam has constructed the legal framework of financial transfer mechanism in environmental protection. However, it seems that the implementation of this mechanism has proven ineffective. This problem can be identified through analyzing the case of the Vietnam Environmental Protection Fund. According to Decision No. 82/2002/QD-TTg, VEPF was set up "in order to mobilize capital from organizations and individuals at home and abroad; and receive the State's investment capital sources to support environmental protection programs and projects as well as activities and tasks nationwide." It is a State-run financial institution intended to provide financial support for the business sector in the field of environmental protection.

VEPF was founded in 2002 with an initial charter capital of 200 billion VND by Decision No. 82/2002/QD-TTg. The capital was raised to 500 billion VND in 2008. It has contributed to environmental protection through receiving capital sources mainly from the state budget including compensations for environmental damage and the deduction of 50% of environmental protection charges as prescribed by laws; and

**Figure 4: Projects for loans under priority sectors by sectors from 2004-2013**

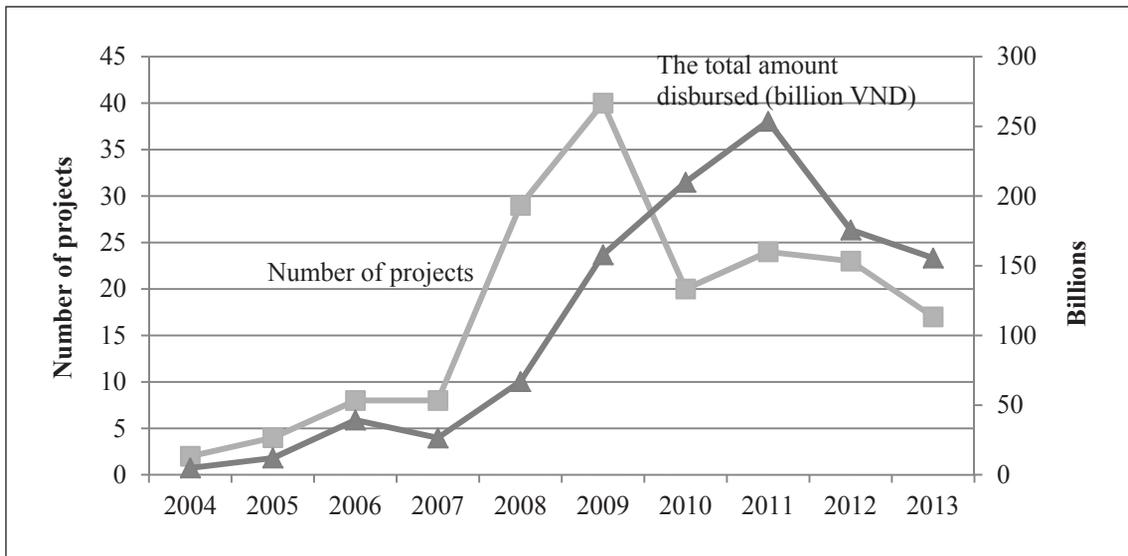


Source: Calculating by the authors from VEPF's statistics in 2014.

other sources such as sponsors, contributions, commissions from domestic and international organizations, individuals to support finance for environment protection activities. Their

support instruments include soft loans, interest rate support, clean development mechanism (CDM), price subsidies for environment protection products, deposits for environmental

**Figure 5: Projects for loans under priority areas from 2004-2013**



Source: Calculating by the authors from VEPF's statistics in 2014.

restoration in mineral exploitation and ODA and entrusted loans. Yet it is a fact that few activities have been implemented according to the VEPF report for 2011-2012 including soft loans, funding, and CDM projects.

First, regarding *soft loans*, a large proportion of VEPF's budget has been spent on these activities (accounting for 99%).<sup>3</sup> From 2004 to 2013, 175 projects had supported preferential interest rates loans. Almost half of them (76/175 projects) are the waste-water treatment projects of trade villages and factories. The number of industrial waste treatment projects were financed are 50 projects in the industrial zones; but the industrial waste treatment project is the majority if computing for total amount disbursed budget, because the waste treatment system in industrial zones requires greater cost than in factories or trade villages.

Notably, the projects on the application of

clean technologies and environmental protection products are important areas but it has not seen significant financial support. These fields have fewer projects and funding lower than other domains. Waste and sewage treatment are output treatment while clean technologies and environmental protection product projects implement the treatment environmental protection in the early stages as well as all of the production line. It helps firms not only by saving costs but also by removing pollutants immediately during the options input stage. Therefore, the amount of investment in clean technologies and environmental-protection-products projects will be more effective in environmental protection than in waste-treatment projects.

In addition, the number of projects has significantly reduced since the recent crisis, and the total amount of disbursed budget has also decreased considerably since 2011. It is interesting to note that the changes in total amount

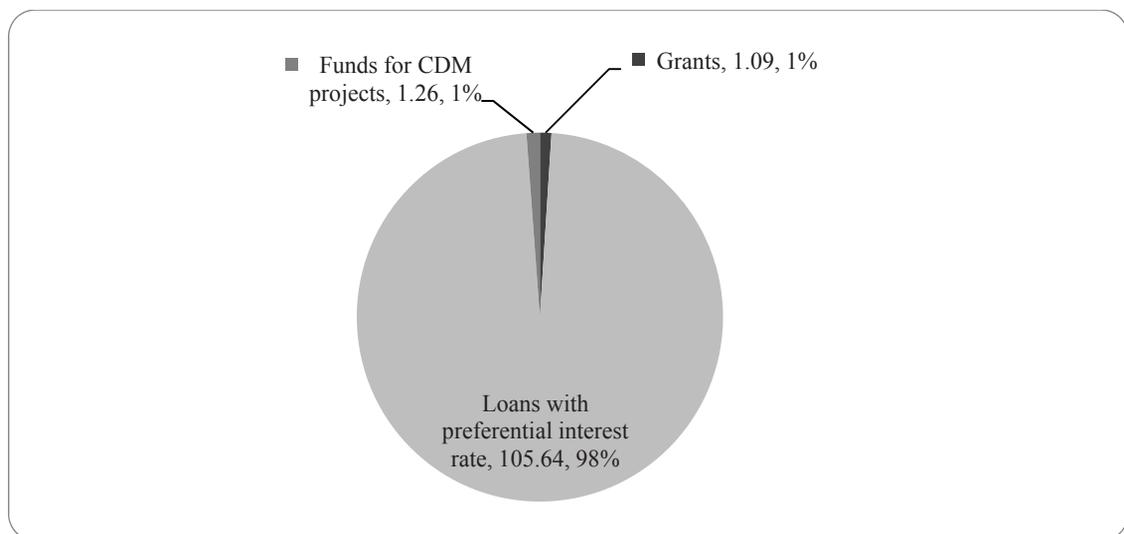
of soft loans do not directly correspond to the changes in number of projects. There were 40 projects in 2009 but the total disbursed budget was lower than in 2011 (with 24 projects) (see, Figure 5). Only a small amount of capital (a few hundred millions) was needed while year 2011 saw projects on sewage treatment in industrial zone financed by up to ten billions. This would seem to indicate that the soft loan projects are gradually shifting from small scale projects in trade villages to projects in industrial zones with larger investment capital.

According to the above analysis, 98% of VEPF's budget was spent on soft loan projects (Figure 6). The fund may make itself running great risks of the operations because it receives primarily capital sources from the state budget. If it continues to support soft loans activities, it is likely that the burden state budget would increase and long-term liabilities for enterprises may arise. What is more, this support form

does not bring a great performance in environmental protection. Application of this instrument would therefore be a waste of financial resources.

The other interested sector of VEPF is Clean Development Mechanism (CDM)<sup>4</sup>. Investment in CDM projects not only helps developing countries to reduce the level of greenhouse gas emissions but also brings benefits to the countries in technology transfer and promotes the process of sustainable development. With its advantages, CDMs increasingly attract attention in both developed and developing countries. CERs have become a commodity which be exchanged importantly in the international market. Vietnam is also a developing country with the potential to implement CDM projects. In 2013, the number of approved and operated CDM projects was 37 projects with a total volume of CERs of VND 13.8 million. The registered projects focused on energy produc-

**Figure 6: Structure funding for operations in 2012**



Source: Calculating by the authors from the VEPF's annual report in 2012.

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**Table 4: Revenue and expenditure from CDM projects (Billions VND)**

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| Indicators                               | 2011  | 2012 | Total |
|------------------------------------------|-------|------|-------|
| Fees obtained from selling/transfer CERs | 13.17 | 0.5  | 13.67 |
| Financial Support for CDM                | 0.41  | 1.26 | 1.67  |

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Source: *VEPF (2011); VEPF (2012)*

tion (renewable energy/nonrenewable energy). However, most CDM projects are unilateral, which means that the organizations and domestic enterprises invest in CDM projects with their own capital. Although this reduces the effects of CDM in receiving foreign investment capital and technology transfer, it brings large revenue sources in selling or transferring CERs for enterprises who were bold enough to invest in CDM. Funding of CDM projects in 2011 was VND 0.41 billion and up to VND 1.26 billion in 2012. Fees collected in the process of transferring and trading CERs is estimated to be 2.5 billion USD. This shows an upward trend in the financial transfer for CDM projects.

While funding for these projects increases the burden on the State budget, the application of market-based instruments provides benefits and revenues through fees collection from the sale and transfer of CERs. In the case of Vietnam, the comparison of correlation between the collected fees and budget spending supporting CDM projects expressed much lower revenue than the expenditure (Table 4). The surplus would be invested back into environmental protection activities. In addition, Vietnam is situated in Asia Pacific areas with vibrant trade market of CERs and is also one of 10 potential countries for the implementation of CDM. This will foster Vietnamese businesses as well as

foreign investors invested in CDM.

The evidences from VEPF activities in 2011-2012 revealed that the use of PEIs seems to be decreasing while economic instruments are being increasingly applied to environmental protection activities. This is consistent with experience from other countries that PEIs may not be effective and force enterprises to rely on the loan amount of the state. Meanwhile, the application of economic instruments (collateral environmental restoration and CDM) and market-based instruments in particular bring benefits to countries. The market-based policies, the design of which was designed based on price signals in the market, directly impact on the cost and benefit of enterprises in environment protection and this, in turn, encourages enterprises to use cleaner production technologies, thus improving production lines to lower environmental costs. It implies that VEPF should focus more on the use of market-based instruments.

However, switching to the employment of market-based instruments does not mean skipping loans with preferential interest rates. VEPF needs to continue supporting the implementation of clean technologies and environmental protection products but it is necessary to apply more market-based instruments. Funding for these projects will encourage business re-

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**Table 5: VEPF operating results for 2011 and 2012**

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| Indicators                                         | 2011     |                            | 2012     |                            |
|----------------------------------------------------|----------|----------------------------|----------|----------------------------|
|                                                    | Projects | Total money (VND billions) | Projects | Total money (VND billions) |
| Preferential interest loans                        | 24       | 253,59                     | 23       | 105,64                     |
| Subsidies                                          | 3        | 3,06                       | 2        | 1,09                       |
| Interest subsidy after investment                  | 1        | 0,19                       | -        | -                          |
| Collateral environmental restoration in the mining | 26       | 10,91                      | 43       | 31,72                      |

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Source: VEPF (2011); VEPF (2012)

search and development of clean production technologies. This also save costs and protect the environment. In order to increase the efficiency of resources, there must be clear legal regulations and transparent administrative procedures. There must also be transparency and quality controls in the monitoring process as well as in assessing the impact of the project on the environment.

## 5. Conclusion and policy application

### 5.1. Conclusion

In this paper, we examine the practice and the effectiveness of the instrument of state financial transfers to the business sector in the implementation of investment in the field of environmental protection through Environment Protection Funds. Focusing on the case of Vietnam Environment Protection Fund, we found that the instrument of state financial transfers including grants, soft loans, accelerated depreciation allowances, tax incentives, and subsidies have propensity for lack of effectiveness due to creating insufficient incentives and increasing burden on the State budget. In addition, the international evidences indicate that the application of market-based instruments

is more effective. In Vietnam, the percentage of market-based instruments used, however, is only 1% while most of its budget (99%) spends on soft loans projects. Therefore, the following recommendations are proposed to foster use of market-based instruments in environmental protection activities for the sustainable development.

### 5.2. Policy application

It should be kept in mind that the application of complementary instruments in environmental policies, fiscal instrument in particular, is not without caveats, and should, in each case, be carefully designed and evaluated.

*First and foremost*, the development policies need to move towards sustainable development in the long run. This entails that environmental policies should be integrated with economic policies in the process of industrialization. Moreover, environmental issues arising from this process need to be considered along with its negative externalities. The economic policies aim to encourage investment and develop industrial zones and export processing zones by lowering environmental standards defined: the areas of foreign direct investment in particular,

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are not guaranteed sustainable development for the local economy as well as the whole country. Because of this, the local authorities should choose the set of economic policies integrated with environmental policies to promote domestic investment and attract foreign direct investment. All the investment projects should be required to ensure full implementation of the prescribed environmental standards.

*Secondly*, environmental policies should be integrated into sustainable development policies and intended to use more market-based instruments in particular. The nature of State Financial Transfers is Public Expenditure instruments. Considering the overall economy, it is the form of direct/indirect transfers from the public sector to the private sector and therefore is not economically beneficial due to positive effects suppressed by the negative externalities. On the other hand, fiscal instruments do not create strong enough incentives to encourage businesses making decision to innovate and invest in environmental protection. They should actually be employed in the early stages of the development process only. The market-based instruments are thus recommended for application in the existing environmental policies.

*Thirdly*, the management system and the operation mechanism of EPFs are inadequate, especially the managing and operating: There are two main drawbacks; limited funding dependent on the state budget and ineffective management mechanisms. To solve these issues in the operation of the EPFs, it is essential to establish an effective managing mechanism, separate from the function of management, administration and operation, and to create sustainable funds in the long run whose reve-

nues are less dependent on the state budget and management practices under the market mechanism.

*Fourthly*, the implementation of mechanisms and policies encourage businesses, organizations and individuals involved in the field of environmental protection. Furthermore, the government should encourage organizations and individuals both at home and abroad to form the private environmental protection fund. Creating a preferential environment is necessary for the implementation of investment incentives, encouraging businesses, organizations, and venture capital funds to invest in the field of environment and sustainable development, such as environmental pollution treatment, recycling, innovating technology, and seeking new sources of energy.

*Fifthly*, the application of market-based instruments, on the one hand, will help the EPFs to reduce national budget pressure; on the other hand, it will generate additional revenues for the treasury of EPFs. In turn, a healthy budget helps the operation of EPFs to be more efficiently and invest in riskier projects, such as the use of clean energy or looking for new sources of energy, etc. In addition, the use of market-based instruments can also help share the financial burden of environmental problems amongst businesses. Moreover, it also creates incentives that make businesses more proactive in selecting tools aimed at environmental protection goals, and then creating higher economic efficiency.

Based on Vietnam's international experiences and practices, it needs to establish a sustainable financial systems and employing more market-based instruments in environmental

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protection activities at present. Specifically, it needs to be focused on two following missions:

- Building an effective system of taxes, charges and fees for environmental protection. Taxes, fees, construction fees must be based on the basic principle, Polluter-Pays Principle. It means that the polluter must bear the cost of measures to reduce the pollution due to the damage caused to society or the level (standard) of pollution permitted is exceeded. According to this principle, all those whose activities have negative impacts on the environment are required to pay fees. The environmental charge would have the added effect of encouraging the production and business establishments treating waste before releasing it into the environment. The level of taxes and fees will be included in the state budget and funds reallocated for environmental protection funds freehold.

- There are the authorization of emission and discharge permits and presently forming market trading discharge and discharge permits. Accordingly, businesses which have the volumes of discharge and/or emissions lower than specified thresholds can completely transfer these licenses to other businesses who have needs; and they can utilize the proceeds to offset the cost of processing waste or expand their production scale. This will also partially reduce the burden of the business demand of funds for environmental protection funds. It is a fact that there are a large number of existing businesses with the volumes of discharge and emission beyond standards (located in the EPFs' objectives). These businesses may consider buying the permits from other businesses (not in the supporting objects of EPFs) and therefore be

less dependent on concessional loans from the EPFs.

However, the application of economic instruments in the field of environmental protection should be implemented with a clear framework and objectives; well-defined field of operation; simple mode of operation; acceptability; integration with sectoral policies; manpower and cost of implementation; assessment of economic and distributive consequences; conformity with general principles of national and international trade, fiscal and environmental policy (OECD, 1991).

### ***5.3. Limitation and further research***

This study focuses on analyzing financial transfers from the state to business sector in the implementation of investment in the field of environmental protection. The evidence from the analysis of international experience and the practice of Vietnam shows that this instrument is economically ineffectual. This is because it is funded directly from the state budget (public expenditure instrument), and does not create strong enough incentives for businesses to want to participate in environmental protection. Since then, we believe that policy should aim to reduce these instruments in the future and move towards the application of market-based instruments.

Due to certain constraints, in this paper, there are issues which have not covered completely. The first of which is that we have only focused on the case study of Vietnam Environmental Protection Fund. On the other hand, due to the limitations of data and information sources the financial mechanism and sustainability of the EPFs have not analyzed carefully. Because of this, we cannot neither make policy recommen-

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dations on financial allocation mechanisms nor suggest effective measures for the management and operation of EPFs.

We expect that the analysis of these issues will be supplemented and clarified in further research through the collection and analysis of data from 64 local environment protection funds under the 64 provinces, cities across the

country. We can also expect that the implementation of an in-depth study of the current status, trends and application of market-based instruments in the field of environmental protection in Vietnam. If all these expectations should be implemented, the findings must be making important contributions not only in terms of policy, but also academically.

### Acknowledgements

We would like to express our sincere thanks to the editors and anonymous reviewers for their critical review and constructive comments. We are also indebted to Dinh Thi Kim Chung and Do Quynh Anh for language revision and supporting materials to publish this paper.

### Notes:

1. The priority areas for loan in 2013 included: Waste treatment (industrial parks, factories); wastewater, emissions treatment (objects under Decision 64, factories and handicraft village); municipal waste treatment; deployment clean technologies, environmentally friendly, energy-saving, production of environmental protection products and socialization garbage collection.
2. This issue is not mentioned in the Law No. 52/2005/QH11 on Environment Protection in effect. It is complemented in the recent amendment draft submitted by MONRE to replace for the Law on Environment Protection No. 52/2005/QH11 dated November 29, 2005.
3. VEPE, the annual report in 2011/2012.
4. CDM is a mechanism which first appeared in the Kyoto Protocol in 1997 – it is one of three mechanisms for reducing emissions of greenhouse gases. The CDM allows organizations, state enterprises and private enterprises in developed countries to invest in reducing emissions of greenhouse gases projects in developing countries to receive credit are “Certified Reduced Emissions - CERs”.

### References

- Bernstein, J.D. (1993), ‘Alternative Approaches to Pollution Control and Waste Management: Regulatory and Economic Instruments’, *Urban Management Program Discussion Paper Series*, No. 3. Washington, D.C.: World Bank; available at <http://ww2.unhabitat.org/programmes/ump/documents/UMP3.pdf>
- Bernstein, J.D. (1997), ‘Water Pollution Control - A Guide to the Use of Water Quality Management Principles’, Published on behalf of the United Nations Environment Programme, the Water Supply & Sanitation Collaborative Council and the World Health Organization by E. & F. Spon, available at [http://www.who.int/water\\_sanitation\\_health/resourcesquality/watpolcontrol.pdf](http://www.who.int/water_sanitation_health/resourcesquality/watpolcontrol.pdf)
- Blackman, A. (2010), *Small firms and the environment in developing countries*, RFF Press Book.
- EEA [European Environment Agency] (2005), *Market-based instruments for environmental policy in Europe*, EEA Technical Report, No. 8/2005.
- Environmental Investment Fund of Namibia (2012), website <http://www.eifnamibia.com/>
- Hahn, R.W. and R.N. Stavins (1992), ‘Economic Incentives for Environmental Protection: Integrating

- 
- Theory and Practice', *The American Economic Review*, Vol. 82, No. 2, pp. 464-469, available at <http://www.jstor.org/stable/2117445>
- Hymel, Mona L. (2012), 'Environmental Tax Incentives in the United States: Will Recent Market Incentives Reduce the U.S.'s Dependence on Oil?', *Market Instruments and Sustainable Economy*, Ana Yábar Sterling, et al., eds., 2012; Arizona Legal Studies Discussion Paper No. 13-17. Available at SSRN: <http://ssrn.com/abstract=2233970>
- ILO [International Labour Organization] (2011), 'Green policies in the EU: A review', *EC-IILS Joint Discussion Paper Series*, No. 14.
- Jenkins, G.P., and Lamech R. (1992), *Fiscal policies to control pollution: International experience*, International Bureau of Fiscal Documentation.
- KPMG (2007), *Taxes and Incentives for Renewable Energy*, Available at [www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/Taxes-Incentives-Renewable-Energy.pdf](http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/Taxes-Incentives-Renewable-Energy.pdf)
- KPMG (2012), *Taxes and incentives for renewable energy*, available at <http://www.kpmg.com/lu/en/issuesandinsights/articlespublications/pages/taxes-and-incentives-for-renewable-energy-2012.aspx>
- Lin, B., and Jiang, Z. (2011), 'Estimates of energy subsidies in China and impact of energy subsidy reform', *Energy Economics*, Volume 33, Issue 2, pp. 273–283.
- Mori Akihisa (2005), 'Environmental Soft Loan Program in Asian Countries: Lessons for Foreign Environmental Assistance', available at [http://www.webmeets.com/files/papers/ERE/WC3/808/EnvSoftLoan\\_amori.pdf](http://www.webmeets.com/files/papers/ERE/WC3/808/EnvSoftLoan_amori.pdf)
- National Climate Change Secretariat (2005), 'Energy Efficiency Improvement Assistance Scheme (EASe) in 2005', Retrieved from [http://app.e2singapore.gov.sg/Incentives/Energy\\_Efficiency\\_Improvement\\_Assistance\\_Scheme.aspx](http://app.e2singapore.gov.sg/Incentives/Energy_Efficiency_Improvement_Assistance_Scheme.aspx)
- Obirih-Opareh, N., Salu, E., Attua, E. M., Ocansey, F., Newman, E. (2010), 'Action Plan for Sustainable Consumption and Production in Ghana: Research and Education', Sustainable Development Action Plan (SDAP), Ghana.
- OECD (1989), *Economic Instruments for Environmental Protection*, Paris.
- OECD (1991), *Environmental Policy: How to Apply Economic Instruments*, Paris.
- OECD (1995), *Integrating Environment and Economics: The Role of Economic Instruments*, Paris.
- OECD (2010), *Taxation, Innovation and the Environment*, OECD Publishing.
- Panayotou, T. (1994), 'Economic instruments for environmental management and sustainable development', United Nations Environment Program, *Environmental Economics Series Paper*, No. 16.
- Robinson, J.J (2002), 'Environmental value transfer: an application for the southeast Queensland waterways', *Water, Science and Technology*, Vol 45, No 11, pp. 91–100.
- Roth, K. (2001), 'Policy Options for Environmental Pollution Control', *Sustainable Energy ESD166J*, available at [http://web.mit.edu/10.391J/www/proceedings/Pollution\\_Roth2001.pdf](http://web.mit.edu/10.391J/www/proceedings/Pollution_Roth2001.pdf)
- Sasaki, T., Hayashi, K., and Takagi K. (2001), *Environmental Protection Promotion Program in Thailand*, Japan Bank for International Cooperation (ed.), Post Evaluation Report, pp. 36-39.
- Stacey, D., Houdashelt, M., and Helme, N. (2012), 'Case Study: Mexico's Renewable Energy Program - A Step-by-Step Approach for Overcoming Barriers to Renewable Energy Deployment', Produced for the Mitigation Action Implementation Network (MAIN), available at [http://ccap.org/assets/Case-Study-Mexicos-Renewable-Energy-Program\\_CCAP\\_Jan-2012.pdf](http://ccap.org/assets/Case-Study-Mexicos-Renewable-Energy-Program_CCAP_Jan-2012.pdf)
- Swire, M. (2013), 'China Provides Tax Break For Solar Manufacturers', Retrieved from [http://www.tax-news.com/news/China\\_Provides\\_Tax\\_Break\\_For\\_Solar\\_Manufacturers-62231.html](http://www.tax-news.com/news/China_Provides_Tax_Break_For_Solar_Manufacturers-62231.html)
- Tanzi, V., and Zee, H. (2001), 'Tax Policy for Developing Countries', *Economic Issues*, No.27, International Monetary Fund.
- VEPF [Vietnam Environment Protection Fund] (2011), *Annual Report in 2011*, available at <http://www.vepf.vn/tin-tuc/bao-cao-thuong-nien/bao-cao-thuong-nien-286.html>
- VEPF [Vietnam Environment Protection Fund] (2012), *Annual Report in 2012*, available at <http://www.vepf.vn/tin-tuc/bao-cao-thuong-nien/bao-cao-thuong-nien-286.html>
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