



EUROPEAN TECHNICAL ASSISTANCE PROGRAMME FOR VIETNAM  
(ETV2)  
Ministry of Planning and Investment, Ministry of Finance and  
Ministry of Science and Technology in partnership with the  
European Commission



# Interim Report

## Environmental Priorities for Vietnam and Assessment of Current Environmental Levies in Vietnam

Component 1: Fiscal Policy and Legal Advisory Services  
Activity C1-POL2: Design the Scheme for the Collection of Environmental  
Protection Taxes and Levies

Compiled by:  
*Michael Mehling (ISTE1b)*

With support from:  
*Lê Van Ái (NSTE), B?ch Th?Minh Huy?n (NSTE), Nguy?n Đ?nh Chi?n (NSTE)*

July 2008

# Table of Contents

Table of Contents .....	2
A. Introduction.....	5
1. Background: Socioeconomic Change and the Environment in Vietnam .....	5
2. Legal and Institutional Framework of Environmental Policy in Vietnam .....	6
3. Exploring New Approaches: Economic Instruments of Environmental Policy.....	10
4. The Mandate for Environmental Fiscal Reform in Vietnam.....	14
5. Structure of this Report.....	17
B. Environmental Priorities for Vietnam .....	18
I. Overview .....	18
II. Inland Water Pollution .....	20
6. Overview .....	20
7. State of Inland Waters.....	21
8. Sources of Pollution.....	22
III. Solid Waste .....	24
1. Overview .....	24
2. Household Waste .....	25
3. Hazardous Waste.....	27
IV. Marine Water Pollution .....	28
1. Overview .....	28
2. Sources of Marine Water Pollution.....	29
V. Air Pollution.....	31
1. Overview .....	31

2.	Sources of Air Pollution .....	32
VI.	Biodiversity Loss .....	35
1.	Overview .....	35
2.	Causes of Biodiversity Loss .....	35
VII.	Land Degradation.....	37
1.	Overview .....	37
2.	Causes of Land Degradation .....	38
VIII.	Environmental Priorities in the Near-Term .....	40
IX.	Environmental Priorities in the Medium- and Longer Term .....	42
C.	Environmental Fiscal Measures in Vietnam: An Assessment .....	44
I.	Fiscal Measures with Environmental Relevance .....	44
1.	Taxes .....	44
a.	Land Use Tax .....	44
b.	Natural Resource Tax.....	46
c.	Excise Tax .....	47
d.	Corporate Income Tax .....	47
2.	Fees and Charges.....	48
a.	Waste Water Charge .....	49
b.	Mineral Exploitation Charge .....	51
c.	Petrol and Oil Fee.....	52
d.	Other Charges, Fees and Tolls .....	53
	Box: Local Fees and Charges implemented by the People's Councils .....	1
II.	Implementation and Effectiveness of Existing Measures .....	57
1.	Overview .....	57

a.	Benefits .....	58
b.	Shortcomings .....	58
2.	Taxes .....	60
a.	Land Use Tax .....	60
b.	Natural Resource Tax.....	60
c.	Excise Tax .....	61
d.	Corporate Income Tax .....	61
3.	Charges, Fees and other Levies.....	62
a.	Waste Water Charge .....	62
b.	Mineral Exploitation Charge .....	64
c.	Petrol and Oil Fee.....	65
d.	Other Fees and Levies.....	66
III.	Recommendations for Improvement and Reform .....	66
1.	Reform or Substitution?.....	69
2.	Promoting Environmental Incentives .....	69
3.	Improved Use of Revenue .....	71
4.	Distributional Impacts and Competitive Distortions .....	72
D.	Bibliography.....	73

# A. Introduction

## 1. Background: Socioeconomic Change and the Environment in Vietnam

Described by the World Bank as “one of the best-performing developing economies in the world”,<sup>1</sup> the Socialist Republic of Vietnam is undergoing sweeping transformation from a planned economy to a globalized, market-based economy. Accompanying this process has been dramatic economic expansion, with real gross domestic product (GDP) growth at 8.4% in 2005, 8.2% in 2006, and estimated at 8.5% in 2007, affording Vietnam the second-highest growth rate in Asia over the past decade.<sup>2</sup> While a crucial precondition of the foregoing development, this rapid growth is also placing a heavy burden on the environment, potentially undermining the sustainability of Vietnam’s continued economic success and even threatening to offset many of its benefits for wide segments of the Vietnamese population.<sup>3</sup>

As the Vietnamese move away from traditional agricultural livelihoods to become a modern industrialised nation, embracing intensive agri-, silvi- and piscicultural practices and a thriving manufacturing sector for expanding domestic consumption and exports to international markets,<sup>4</sup>

---

<sup>1</sup> World Bank, “Vietnam: Laying the Foundation for Steady Growth”, February 2007, available on the Internet at: <[siteresources.worldbank.org/intvietnam/overview/21594788/ida-vietnam.pdf](http://siteresources.worldbank.org/intvietnam/overview/21594788/ida-vietnam.pdf)> (last accessed 1 June 2008).

<sup>2</sup> International Monetary Fund, *Vietnam: Country Report No. 07/387* (Washington, D.C.: IMF, 2007), p. 4; Helen H. Qiao, *Vietnam: The Next Asian Tiger In the Making*, Goldman Sachs, Global Economics Paper No. 165 (Hong Kong: Goldman Sachs, 17 April 2008), p. 5; Central Intelligence Agency, “World Factbook: Vietnam”, May 2008, available on the Internet at: <[www.cia.gov/library/publications/the-world-factbook/geos/vm.html](http://www.cia.gov/library/publications/the-world-factbook/geos/vm.html)> (last accessed 1 June 2008).

<sup>3</sup> For an overview of the main environmental pressures and their causes, see Asian Development Bank, “Viet Nam: Country Environmental Analysis”, 2005, available on the Internet at: <[www.adb.org/documents/assessments/country-environmental/vie/country-environmental-analysis.pdf](http://www.adb.org/documents/assessments/country-environmental/vie/country-environmental-analysis.pdf)> (last accessed 1 June 2008); Ministry of Natural Resources and the Environment (MoNRE), *State of the Environment Report of Vietnam* (Hanoi: MoNRE, 2005), pp. 5 *et seq.*; World Bank, National Environment Agency and Danish International Development Assistance (DANIDA), *Vietnam Environment Monitor 2002* (Hanoi: World Bank *et al.*, 2002), especially pp. 20-29.

<sup>4</sup> Industrial production grew from 20 to 37 percent of GDP between 1990 and 2000, and is expected to grow by 17,1% in 2007 alone; it is explicitly export oriented, with manufactured exports rising from about 6% of GDP in the 1990s to almost

individual lifestyles are rapidly shifting, including a broad trend towards urbanisation, motorisation and a general rise in the demand for consumer goods and energy. Accompanying these typical developments for any transition economy are worrisome environmental impacts caused by increases in the discharge of industrial effluent and sanitary waste water, rising quantities of domestic and industrial waste, emissions of air pollutants from industrial processes and transportation, and contamination of soil, groundwater and watercourses through widespread use of agricultural chemicals and other hazardous substances. Habitat loss is endangering Vietnam's unique and rich biological diversity, and even tourism, which is experiencing unprecedented growth as Vietnam's formerly inaccessible cultural and natural heritage attracts rising numbers of foreign tourists every year, is placing a heavy strain on coastal waters and marine biodiversity.<sup>5</sup>

## **2. Legal and Institutional Framework of Environmental Policy in Vietnam**

Vietnam has not been idle in addressing these challenges. Environmentally relevant legislation can be traced back to the early years of the Democratic Republic of Vietnam,<sup>6</sup> and was elevated to a constitutional objective in the Constitution of 1980, which declared environmental protection a duty

---

one-third in 2002, a trend aided by trade liberalization agreements and Vietnamese accession to the WTO, see World Bank, "Vietnam Country Environmental Analysis: Draft Concept Paper", January 2007, available on the Internet at: <[http://siteresources.worldbank.org/intepregtopenvironment/resources/vietnam\\_cea\\_concept\\_note.doc](http://siteresources.worldbank.org/intepregtopenvironment/resources/vietnam_cea_concept_note.doc)> (last accessed 1 June 2008).

<sup>5</sup> In 1990, approximately 250,000 foreign tourists visited Vietnam, which increased to 1,716,000 by 1997. By the year 2010, the United Nations Environment Programme forecasts that there will be about 25 million tourists, both domestic and foreign, United Nations Environment Program (UNEP), Department of Environment at the Ministry of Natural Resources and Environment, and Norwegian Agency for Development Cooperation (NORAD), "State of the Environment in Vietnam 2001", December 2001, available on the Internet at: <[www.rrcap.unep.org/reports/soe/vietnam](http://www.rrcap.unep.org/reports/soe/vietnam)> (last accessed 1 June 2008).

<sup>6</sup> See, *inter alia*, Decree No. 142/SL of 21 December 1949 of the Government of the Democratic Republic of Vietnam, stipulating the control and recording in writing of violations of forest protection regulations.

binding on all state agencies, enterprises, cooperatives, and citizens.<sup>7</sup> When the VIII<sup>th</sup> National Assembly adopted the current Constitution of the Socialist Republic of Vietnam on 15 April 1992, it again included a strong reference to environmental protection, broadly stipulating that “[a]ll acts likely to bring about exhaustion of natural wealth and to cause damage to the environment are strictly forbidden.”<sup>8</sup>

A rapid succession of legislative and institutional developments followed, underscoring the importance accorded to environmental issues by the Vietnamese government and legislature. In 1993, a National Environmental Agency was established under the Ministry of Science, Technology and Environment (MOSTE) with a view to implementing and enforcing environmental policies and measures throughout Vietnam. Soon after, on 27 December 1993, the IX<sup>th</sup> National Assembly passed the first general Law on Environmental Protection of Vietnam,<sup>9</sup> which entered into force on 10 January 1994 and was further operationalised by a government decree.<sup>10</sup> It consisted of 55 Articles arranged in 7 Chapters, and formally defined a number of environmental terms and concepts, specified tasks and procedures for state administration of environmental protection, defined obligations to prevent, combat and remedy environmental degradation, and set out basic principles for international cooperation in

---

<sup>7</sup> Constitution of the Socialist Republic of Vietnam, adopted on 19 December 1980, Article 36, available on the Internet at: <[vnthuquan.net/truyen/truyen.aspx?tid=2qtqv3m3237n1nqn4n0n31n343tq83a3q3m3237nvn&cochu=>](http://vnthuquan.net/truyen/truyen.aspx?tid=2qtqv3m3237n1nqn4n0n31n343tq83a3q3m3237nvn&cochu=>) (last accessed 1 June 2008).

<sup>8</sup> Constitution of the Socialist Republic of Vietnam, adopted on 15 April 1992, available on the Internet at: <[www.vietnamembassy-usa.org/learn\\_about\\_vietnam/politics/constitution](http://www.vietnamembassy-usa.org/learn_about_vietnam/politics/constitution)> (last accessed 1 June 2008), Article 29: “State organs, units of the armed forces, economic and social bodies, and all individuals must abide by State regulations on the rational use of natural wealth and on environmental protection. All acts likely to bring about exhaustion of natural wealth and to cause damage to the environment are strictly forbidden.”

<sup>9</sup> Law on Environmental Protection of 27 December 1993, available (in unofficial translation) on the Internet at: <[sunsite.nus.edu.sg/apcel/dbase/vietnam/primary/viaenv.html](http://sunsite.nus.edu.sg/apcel/dbase/vietnam/primary/viaenv.html)> (last accessed 1 June 2008). In its Preamble, it expressly refers to “Article 29 and Article 84 of the 1992 Constitution of the Socialist Republic of Vietnam” as its legislative basis, and specifies that the “environment is of special importance to the life of humans and other living creatures as well as to the economic, cultural and social development of the country, the nation and mankind as a whole.”

<sup>10</sup> Government Decree No. 175/CP of 18 October 1994 on Guidance for the Implementation of the Law on Environmental Protection.

environmental matters. Also, for the first time, it specified penalties for violations of environmental law.<sup>11</sup>

Alongside this cornerstone of environmental legislation, the government also proceeded to adopt a series of more specific, issue- or sector-focused laws, regulations and decrees,<sup>12</sup> and also responded to the increased need for administrative capacity and environmental expertise with further institutional changes. By way of a decree of 11 November 2002, for instance, the government established a Ministry of Natural Resources and Environment (MONRE), with an ample mandate relating to “management over the land, water resources, minerals, environment, meteorology, hydrology, measuring and mapping in the national scope.”<sup>13</sup> It comprises a number of departments, agencies, and other institutes, including the Department of Environment (DOE), Department of Environmental Impact Assessment and Appraisal (DEIA), and the Vietnam Environment Protection Agency (VEPA). At the subnational level, Departments of Natural Resources and Environment (DONREs) have been established in the provinces, Divisions of Natural Resources and Environment in the districts, and land administration and environmental management cadres in the communes.<sup>14</sup> Regional Environmental Protection Branches created under the auspices of the Vietnam Environment Protection Agency

---

<sup>11</sup> Nowadays complemented by Decree No. 121/2004/ND-CP of 12 May 2004 on Sanctioning of Administrative Violations in the Field of Environmental Protection and several specific decrees, for instance Decree No. 150/2004/ND-CP of 29 July 2004 prescribing the Sanctioning of Administrative Violations in the Field of Minerals.

<sup>12</sup> Vietnam has adopted many legal documents on sustainable management of natural resources, such as the Law on Forest Protection and Development (1991, revised in 2004), the Land Law (1993, revised in 2003 with Law No. 13/2003/QH11), the Mineral Law (1996), the Petroleum Law (1993, revised in 2000), the Law on Water Resources (1998), and countless implementing ordinance and decrees. Most of these regulations focus on civil relations concerning the exploitation and use of environmental elements; regulate rights and responsibilities of organizations and individuals in protecting and developing environment elements; and stipulate measures to protect and prevent uneconomical use or exhausting/damaging environment elements.

<sup>13</sup> Socialist Republic of Vietnam, Government Decree of 11 November 2002 Specifying the Functions, Responsibility, Authority and the Organizational Structure of the Ministry of Natural Resources and Environment, Index No. 91/2002/ND-CP, Article 1, available on the Internet at: <[www.wepa-db.net/policies/law/vietnam/decreed\\_no91\\_2002.htm](http://www.wepa-db.net/policies/law/vietnam/decreed_no91_2002.htm)> (last accessed 1 June 2008).

<sup>14</sup> MoNRE, *supra*, note 3, p. 69.



(VEPA) provide specific support to the central and highland region, the Southeast Delta region and the Southwest Delta region.

In the wake of this important institutional measure, the government also adopted a National Strategy for Environmental Protection (NSEP).<sup>15</sup> Promulgated in December 2003, this Strategy identifies three general objectives of Vietnamese environmental policy for the period between 2001 and 2010:

- to continue preventing and controlling pollution;
- to protect, conserve and sustainably use natural and biodiversity resources; and
- to start improving environmental quality in urban, industrial and rural areas.

A National Environmental Action Plan for 2001 to 2005 (NEAP) complemented the Strategy and prioritised the actions required to maintain and improve environmental conditions in Vietnam during the first five years of the decade 2001 to 2010. Ambitious strategic objectives have moreover been adopted for the period up to 2020.<sup>16</sup>

After twelve years of implementation, the Environmental Protection Law of 1993 necessitated a general revision to reflect the rapid advances in economic development, industrialisation and modernisation, and international integration. Accordingly, a new Environmental Protection Law was

---

<sup>15</sup> National Strategy for Environmental Protection to 2010 and Vision toward 2020.

<sup>16</sup> By 2020, certain key objectives should be achieved, including:

- 80% business and production establishments should have obtained environmental certification, e.g. under ISO 14001 certificate;
- 100% of urban, industrial and processing zones shall be equipped with environmentally adequate facilities for waste water treatment;
- a waste recycling industry shall have been created, with the ambition of recycling 30% of collected waste;
- 100% urban population and 95% rural population shall have access to clean water;
- 48% of forest coverage shall be on natural soil;
- 100% of exports and 50% of domestic consumer goods shall have been certified in accordance with the environmental standard ISO 14021.

passed on 29 November 2005 by the National Assembly to supersede the earlier law,<sup>17</sup> and took effect on 1 July 2006. Compared to the Environmental Protection Law of 1993, the new law has been expanded both in scope and regulatory density, with 136 Articles spread out in 15 Chapters. Regarding the governing scope and subjects of application, the 2005 Environmental Protection Law provides for environmental protection, policies and measures and resources for environmental protection, as well as the rights and obligations of organizations, households and individuals in environmental protection.<sup>18</sup> It applies to state agencies, organizations, households and individuals at home, overseas Vietnamese, and foreign organizations and individuals that conduct activities within the territory of the Socialist Republic of Vietnam.<sup>19</sup> While failing to introduce legal standing for individuals affected by environmentally relevant decisions, this law introduces important new aspects into Vietnamese environmental law, including a licensing system for hazardous waste producers, public access to environmental information, and expanded rules on environmental impact assessment (EIA) and strategic environmental impact assessment (SEIA).<sup>20</sup> Again, the government issued a decree to further guide the implementation of the law.<sup>21</sup>

### **3. Exploring New Approaches: Economic Instruments of Environmental Policy**

Despite these remarkable achievements, promoting environmental protection from the mere periphery to a central policy concern in little more than a decade, the environmental situation in Vietnam has

---

<sup>17</sup> Law on the Protection of the Environment of 29 November 2005, No. 52-2005-QH11, available on the Internet at: <[www.dpi.hochiminhcity.gov.vn/invest/html/Law-on-Environment.html](http://www.dpi.hochiminhcity.gov.vn/invest/html/Law-on-Environment.html)> (last accessed 1 June 2008).

<sup>18</sup> *Ibid.*, Article 1.

<sup>19</sup> *Ibid.*, Article 2.

<sup>20</sup> See Brad Jessup, "Vietnam Changes its Environmental Laws", Freehills Environment Quarterly Editorial February 2006, 7 March 2006, available on the Internet at: <[www.freehills.com.au/publications/publications\\_5648.asp](http://www.freehills.com.au/publications/publications_5648.asp)> (last accessed 1 June 2008).

<sup>21</sup> Government Decree No. 80/2006/ND-CP of 9 August 2006 on Guidance for the Implementation of the Law on Environmental Protection.

continued to deteriorate, in some instances dramatically.<sup>22</sup> Progress in achieving the objectives set out under the Environmental Protection Law of 2005 and the National Strategy for Environmental Protection of 2003 has been slow due to insufficient monitoring and enforcement capacities at all levels. As the World Bank has noted, there is a “fundamental lack of environmental integration at planning and programmatic levels, especially in public investment planning process and in regional plans for land and resource use.”<sup>23</sup>

Moreover, current awareness of the expected environmental impacts of sustained economic growth, and the mechanisms for stakeholders to hold government agencies accountable for their performance, are weak or insufficient. Efforts to deregulate economic activities and switch to a system of greater autonomy, based on a simple registration process rather than lengthy permitting procedures, have been constrained by insufficient supervision capacities.<sup>24</sup> Ultimately, this has resulted in a trajectory of environmental degradation so pronounced that “growing tension between environmental constraints and industrialization demands” has been identified as one of the main risks to continued economic growth in an April 2008 report by the generally moderate investment bank Goldman Sachs.<sup>25</sup>

Against this backdrop, it stands to reason that conventional environmental regulation has, for the time being, reached limitations in its capacity to effectively address the current challenges faced in Vietnam. While serious efforts are evidently needed to ensure better implementation and enforcement

---

<sup>22</sup> For a more detailed synthesis of current environmental challenges, see *infra*, Section B of this Report, “Environmental Priorities for Vietnam.”

<sup>23</sup> World Bank, *supra*, note 4.

<sup>24</sup> Takuji Yano and Nguyen Van Phung, “Environment-Related Taxes in Vietnam”, in Quach Duc Phap and Eiji Tajika (eds.), *Final Report of the Joint Research Program on the Vietnamese Tax System* (Tokyo: Hitotsubashi Daigaku, 2005), p. 172.

<sup>25</sup> Quiao, *supra*, note 2, p. 28: “Rapid industrialization and urbanization is testing the boundaries of Vietnam’s environmental capacity, especially in the vicinity of large cities such as Hanoi and Ho Chi Minh City. Some small-scale protests against potential pollution from new factories and the elimination of green space have been organized. Until the government tightens the environmental protection code and implements it rigorously, the battle over resources between industrial usage and civil consumption will likely continue.”

of existing environmental legislation, this also gives rise to the question whether additional instruments and alternative approaches are called for to complement the current policy framework. Unsurprisingly, the Vietnamese government has already declared its intention to explore new options for environmental policy,<sup>26</sup> reflecting a wider trend in environmental regulation across the globe.<sup>27</sup> Overall, this trend has seen increased deployment of economic incentives and other flexible instruments.<sup>28</sup>

Generally, the category of economic instruments comprises a variety of different instruments, such as subsidies, markets for tradable pollution rights and environmental taxes.<sup>29</sup> No single instrument among these is necessarily superior to another, and overall, economic instruments cannot altogether replace traditional approaches to environmental regulation. But economic instruments do offer a number of advantages that have prompted their inclusion in the policy frameworks of both advanced industrial nations and developing or transition economies. The expedience and feasibility of their deployment can vary greatly, however, depending on the circumstances in any given case.

What such instruments promise – as opposed to more conventional forms of environmental regulation – is a shift in the allocation of resources towards activities which are both environmentally sound and

---

<sup>26</sup> See, e.g., MoNRE, *supra*, note 3, p. 71: “There has been a huge lack of legal documents to legalize the application of economic tools in environmental protection”.

<sup>27</sup> For a catalyst of this ongoing trend in environmental policy, see Principle 16 of the Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26/REV. 1 (1993), which states that “[n]ational authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution with due regard to the public interest and without distorting international trade and investment.” A seminal overview of available instruments and strategies had been previously compiled by the Organization for Economic Cooperation and Development, *Economic Instruments for Environmental Protection* (Paris: OECD, 1989), *passim*.

<sup>28</sup> According to a definition by the Organization for Economic Cooperation and Development, economic instruments of environmental policy are “instruments that affect costs and benefits of alternative actions, open to economic agents, with the effect of influencing behaviour in a way which is intended to be favourable to the environment”, see OECD, *Environmental Policy: How to Apply Economic Instruments* (Paris: OECD, 1991), p. 117.

<sup>29</sup> See generally OECD, *Economic Instruments for Environmental Protection* (Paris: OECD, 1989), *passim*.

economically attractive. By incorporating the real costs of pollution into the prices of goods and services, economic instruments can help internalise environmental costs. At the same time, however, they are generally thought to offer greater cost efficiency than traditional policy instruments, because they grant flexibility to polluters and encourage pollution reduction where abatement activities can be implemented in the most cost efficient way. Finally, certain economic instruments may yield useful revenues for environmental investments or general government expenditure.

All this yields support to the assumption that economic instruments can be ultimately more compatible with economic priorities by integrating environmental concerns directly into the incentive structure facing producers and consumers; this, in turn, makes them attractive for countries seeking rapid, but environmentally sustainable growth, such as Vietnam.<sup>30</sup> A general perception that bureaucracy is still too inefficient, legislative processes slow and cumbersome, and the regulatory framework unable to successfully tackle the sweeping changes of recent years<sup>31</sup> further strengthen the case for economic instruments in Vietnam, where legislators are strongly oriented towards markets and deregulation, seeking to streamline government intervention and make it more effective at reduced cost, promote technological innovation, encourage private investment, and reduce distortions in fiscal systems.

Conversely, the deepening of market economy structures and the transformation of state-owned enterprises provide a stronger incentive for economic actors to respond to market signals.<sup>32</sup> But economic instruments need to be implemented with caution, taking into account administrative limitations that may render their implementation ineffective, and ideally avoiding burdens that exceed the financial capacity of those they apply to. Ultimately, thus, an appropriate design becomes vital in determining whether the introduction of economic instruments for environmental protection in Vietnam proves successful or a failure.

---

<sup>30</sup> For instance, Article 4(1) of the Environmental Protection Law, *supra*, note 17, states that “[e]nvironmental protection must co-ordinate harmoniously with economic development and ensure social progress in order to achieve national sustainable development.”

<sup>31</sup> The Economist, “A Special Report on Vietnam”, 26 April 2008, p. 4-5, 8: “bureaucracy, corruption, poor regulation, a feeble legal system and a creaking infrastructure.”

<sup>32</sup> Yano *et al.*, *supra*, note 24, p. 201.

#### 4. The Mandate for Environmental Fiscal Reform in Vietnam

An centrepiece in the arsenal of economic instruments for environmental policy are environmental taxes and similar pricing mechanisms, such as fees and charges. While these are not necessarily the most effective means to raise revenue, nor necessarily the best approach to protecting the environment, they have the advantage of contributing to both objectives at the same time.<sup>33</sup>

Seeking to harness this “dual dividend”, the Law on Environmental Protection of 2005 provides that “organizations, individuals and households producing and trading in some kinds of products that exert long-term adverse impacts on the environment and human health shall be liable to an environmental tax.”<sup>34</sup> According to this provision, the government shall submit to the National Assembly for approval a list of products and production and business activities subject to the environmental tax and applicable tax rates. But the Law on Environmental Protection also specifies other economic instruments for adoption in Vietnam, including:

- environmental protection charges: organisations and individuals discharging waste into the environment or engaging in activities causing adverse impacts on the environment shall be subject to a duty to pay environmental protection charges. The Ministry of Finance has the prime responsibility for and must coordinate with the Ministry of Natural Resources and Environment in formulating and submitting to the government regulations on environmental protection charges;
- natural resource exploitation and restoration funds: organisations and individuals exploiting natural resources must place deposits for environmental improvement and rehabilitation at a credit institution operating in Vietnam or at the environmental protection funds of the place where natural resources are exploited. The law authorises the Prime Minister to promulgate regulations on this matter;
- environmental protection funds: environmental protection funds are financial institutions

---

<sup>33</sup> World Bank, *Environmental Fiscal Reform - What Should be Done, and How to Achieve It* (Washington, D.C.: IBRD, 2005), p. 108.

<sup>34</sup> See Article 112 of the Environmental Protection Law, *supra*, note 17.

established at central and local levels and in all branches and domains to support environmental protection activities. The financial resources for such funds come from the State budget, environment protection fees, compensation for environmental damage, administrative monetary penalties, and contributions from domestic and foreign organisations and individuals.

By way of a decision adopted on 6 December 2004, the Prime Minister had already stated that an environmental protection tax law would be presented to the National Assembly by 2008:

*An Environment-Related Tax Law will be summated to the diet before the end of 2008, which imposes taxes on goods and services polluting the environment. The tax base will be decided on each product and service which pollutes the environment. The revenue of this tax is used only for special purposes of environmental protection, and not approved to cover any other needs of the state budget.*<sup>35</sup>

Revenue of this tax shall be used only for the special purpose of environmental protection, and not be allocated to other purposes in the state budget. According to the Plan for Tax System Reforms and Modernization in the Period 2005-2010,<sup>36</sup> moreover, the environmental protection tax law will regulate all subjects engaged in activities which cause environmental pollution, based on the principle that the taxable amount shall be equivalent to or higher than the extent of environmental damages created. Accordingly, the tax base is to be decided individually for each of the products and services which pollute the environment. Also in the plan is a stipulation that the environmental protection tax

---

<sup>35</sup> Prime Minister, Decision No. 201/2004/QD-TTg of 6 December 2004, approving the “Tax Reform Strategy Toward 2010” with the objective of introducing new tax items, including anti-dumping, anti-subsidy, anti-discrimination, environment, asset and property taxes, and amending or supplementing the current tax items, increasing the proportion of domestic revenues in taxable revenues in order to promote the integration process, extending the direct tax, and increasing the proportion of the direct tax in the tax revenue. The overall objectives of this strategy are to ensure financial resources for national modernization and industrialization, contribute to social equity, develop a rational taxation policy system consistent with and relevant to a market-based and internationally integrated multi-sector economy, and modernize the tax administration. The taxation policy should be an instrument for the State in the management and regulation of the economy at the macro level in order to mobilize all resources, promote productivity, foster exports, attract investments, push technological innovation, enhance economic structure transformation, sustain high economic growth and stabilize and raise living conditions.

<sup>36</sup> See Section III(1)(a) of the attachment to Decision No. 1629/QD-BTC of 19 May 2005 by the Minister of Finance, “On the Promulgation of the Plan for Tax System Modernization and Reforms in the Period 2005-2010.”

law should be designed to create the legal framework for an intensification of environmental protection and improvement, mitigating environmental pollution and damages, generating more income to the state budget, ensuring simplicity, clarity, transparency, and publicity, and approximating international common practices of environmental taxation.<sup>37</sup>

Pursuant to the foregoing strategy, the new environment protection tax system will focus on the following issues:

- governing scope: the tax system will cover all subjects engaged in the production, processing, use or storage of goods and services causing environmental pollution; it will develop concrete and clear criteria for taxable objects which are goods and services related to such activities;
- tax calculation base and tax rate: the tax obligation must be equal or higher to the loss incurred by the environmental pollution caused by the product or service; transparent guidance on the ensuing requirements for tax subjects will be provided to avoid undue impacts on the investment environment;
- tax administration: tax collection will be administered in accordance with each category of environmental pollution (production, processing, storage, use); administration of the environmental tax will be co-ordinated with the administration of environmental pollution.

More recently, on 21 November 2007, the adoption of an Environmental Protection Tax Law was included in the official programme of the XII<sup>th</sup> Legislative Programme of the National Assembly (2007-2011).<sup>38</sup>

Clearly, the foregoing mandate, embedded in a larger process of economic reform dating back to 1986 and the approval of *Doi Moi*, presents a unique window of opportunity for the introduction of

---

<sup>37</sup> *Ibid.*, Section III(2.9).

<sup>38</sup> National Assembly of the Socialist Republic of Vietnam, National Assembly Resolution 11/2007/NQ-QH12 dated 21 November 2007 on the XII<sup>th</sup> Legislative Programme of the National Assembly (2007-2011), Annex 1: Law and Ordinance Projects Belonging to the XII<sup>th</sup> Legislative Programme of the National Assembly (promulgated through Resolution No.11/2007/QH12), A. Official Programme, I. Economic Issues, No. 15: “Law on environmental protection tax” (*Lu?t thu? b?o v? môi tru?ng*).



innovative mechanisms to address the environmental challenges currently facing Vietnam. But this opportunity raises substantive and institutional challenges of its own: substantively positioned at the interface of environmental and fiscal policy, the successful elaboration and implementation of an environmental tax involves complexities beyond the ambit of more conventional areas of taxation, while also calling for expertise in tax policy usually not found in those government bodies purely focused on environmental policy. Accordingly, environmental fiscal reform is an exercise that transcends conventional institutional responsibilities; being a largely new initiative, moreover, the Vietnamese legislator can only draw on past experience with relevant instruments to a very limited extent by drawing on the implementation of existing taxes and charges, such as the natural resource tax, petroleum and oil taxes and fees, and waste water charges. But such isolated measures differ conceptually from a comprehensive environmental fiscal reform, rendering targeted capacity-building efforts an urgent priority in the short-term.

## **5. Structure of this Report**

With a view to enhancing the capacity of the Vietnamese legislator to develop and implement a comprehensive environmental tax law, the European Technical Assistance Programme for Vietnam (ETV 2), through its Component 1 on Fiscal Policy and Legal Advisory Services, is currently providing technical assistance to the host institution for this legislative mandate, the Ministry of Finance. In cooperation with the Tax Policy Department (TPD), the relevant activity (C1-POL2: Assess, Design and Draft Environmental Protection Tax Law) is geared towards reviewing the current system of taxes, fees and charges related to environmental protection in Vietnam and providing input on common international practice with environmental fiscal reform. Such information will help improve the current system while serving as the basis for designing a modern and comprehensive environmental tax law. As a vital part of this activity, the following report sets out environmental priorities such measures must address, assesses existing environmental charges and taxes, and synthesizes current international practice to infer recommendations for Vietnam.

## **B. Environmental Priorities for Vietnam**

### **I. Overview**

Located in Southeast Asia, Vietnam has a rich and highly diverse environment due to its unique geographical conditions, including a varied climate and topography.<sup>39</sup> Its territory covers 329,560 km<sup>2</sup>, of which 325,360 km<sup>2</sup> are land area, and 4,200 km<sup>2</sup> are water surface. Extending longitudinally over 1,650 km from the North to the South, Vietnam borders on China, Laos, and Cambodia. At its widest point, it measures some 600 km, and at the narrowest a mere 50 km. Without counting an extensive network of islands, Vietnam has a coastline of 3,440 km along the eastern coast of the Indochinese Peninsula, bordering on the Gulf of Thailand, Gulf of Tonkin, and South China Sea. Topographically, Vietnam ranges from equatorial lowlands – with flat delta areas including the Red River Delta in the north and the Mekong Delta in the south – to higher temperate plateaus and cooler elevated areas. Approximately 75% of the Vietnamese territory are mountainous and hilly, with the highest peak – Fan Si Pan – reaching 3144m in northwest Vietnam. As for climate, the country lies in the intertropical zone, characterised by tropical climate in the south and monsoonal climate in the north. Local conditions thus vary from cold winters in the northernmost hills to the perennial warmth of the subequatorial Mekong Delta. Vietnam's young and multi-ethnic population is estimated to reach 86,116,559 inhabitants for July 2008, with average population growth forecast at 0.99% annually in 2008.<sup>40</sup>

As in other Southeast Asian nations, however, the environment of Vietnam is under considerable stress from rapid economic growth and rising human pressure on relatively scarce natural resources.<sup>41</sup>

---

<sup>39</sup> Many general assessments of the environment in Vietnam have been compiled to date; these include Asian Development Bank, *supra*, note 3; MoNRE, *supra*, note 3; World Bank, *supra*, note 3; UNEP *et al.*, *supra*, note 5.

<sup>40</sup> CIA, *supra*, note 2.

<sup>41</sup> For an overview of environmental pressures facing Southeast Asia, see Asian Development Bank, *Environments in Transition: Cambodia, Lao PDR, Thailand, Viet Nam* (Manila: ADB, 2000), and more recently for all of Asia, Asian Development Bank, *Asian Environment Outlook 2005: Making Profits, Protecting Our Planet – Corporate Responsibility for Environmental Performance in Asia and the Pacific* (Manila: ADB, 2005).

Urbanisation,<sup>42</sup> industrialization,<sup>43</sup> motorisation<sup>44</sup> and intensive farming are all resulting in negative impacts, such as air pollution, water pollution, and noise pollution, with pollution “hot spots” centred around urban and industrial centers like Ho Chi Minh City and Hanoi. Land use pressures are resulting in severe deforestation, soil erosion, sedimentation of rivers, flooding in the deltas, declining fish yields, and pollution of the coastal and marine environment. Less than 30% of the country remains forest-covered, and what remains is under threat from population pressure and the growth of industry. Although Vietnam still has diverse wildlife, it is in precipitous decline because of the destruction of habitats, illegal hunting and pollution. And finally, the use of Agent Orange by the United States in the Vietnam War has had a lingering effect on Vietnam in the form of persistent environmental contamination that has increased the incidence of various diseases and birth defects. Altogether, future economic growth and substantial investments in infrastructure may therefore significantly threaten the environmental sustainability of Vietnam’s development.<sup>45</sup>

A report compiled by the United Nations Environment Program (UNEP), the Department of Environment at MONRE, and the Norwegian Agency for Development Cooperation (NORAD) in 2001 identified six key environmental issues in Vietnam: land degradation, forest degradation, loss of biodiversity, water pollution, air pollution and solid waste management.<sup>46</sup> Interviews and information

---

<sup>42</sup> According to UNEP *et al.*, the urban population has increased from 19% of total population in 1986, to 20% in 1990 and 23.5% in 1999. As forecasted, it will be 30 - 33% in 2010 and increasing to almost 40 - 45% by 2020, see UNEP *et al.*, *supra*, note 5.

<sup>43</sup> While in June 1996 there were only 16 industrial zones their number increased to 66 by June 1999, see UNEP *et al.*, *supra*, note 5.

<sup>44</sup> UNEP *et al.* estimate that Ho Chi Minh City only had 494,000 motorcycles and 49,000 cars in 1990, a figure that grew to 1,298,000 motorcycles and 195,000 cars by 1997; it further estimates that, on average, 1 motorcycle exists for every 2 persons living in Ha Noi and Ho Chi Minh cities, see UNEP *et al.*, *supra*, note 5.

<sup>45</sup> World Bank, “Vietnam: Environment”, 1 February 2007, available on the Internet at: <[web.worldbank.org/wbsite/external/countries/eastasiapacificext/vietnamextn/0,,contentmdk:20266331~isurl:y~pagepk:141137~pipk:141127~thesitepk:387565,00.html](http://web.worldbank.org/wbsite/external/countries/eastasiapacificext/vietnamextn/0,,contentmdk:20266331~isurl:y~pagepk:141137~pipk:141127~thesitepk:387565,00.html)> (last accessed 1 June 2008).

<sup>46</sup> UNEP *et al.*, *supra*, note 5.

provided by the Ministry of Natural Resources and Environment confirm this catalog of environmental challenges, albeit in a different order of priority.<sup>47</sup> Grouped in the perceived order of priority, the main challenges are: inland water pollution, solid waste management, marine water pollution, air pollution, loss of biodiversity and land degradation. Each of these issue areas is further addressed below, both with a more detailed assessment of the main environmental pressures and their social and economic causes. By way of conclusion, short-, mid- and long-term environmental priorities are briefly discussed in the final segment.

## II. Inland Water Pollution

### 6. Overview

Inland Water includes surface and ground water sources. Surface water is mainly distributed in systems of rivers, streams, natural lakes and reservoirs, ponds, canals and urban drainage systems, marshes, and paddies; whereas groundwater is a natural water layer flowing underground through many soil and stone layers of different geological structures.<sup>48</sup> Regarding surface water, Vietnam has a dense river network, with altogether 2360 rivers possessing a length of more than 10 km, a large part of which originate in catchments in other countries. Eight rivers in Vietnam constitute large basins with a catchment area of 10,000 km<sup>2</sup> or more. The total annual runoff is 835 billion m<sup>3</sup>, but water shortages are aggravated in the dry season, when the runoff is only 15 to 30% of this total. Still, the rivers traversing Vietnam provide an abundant supply of water amounting to roughly 255 billion m<sup>3</sup> annually, of which only 53 billion m<sup>3</sup> are actually used. Likewise, groundwater resources are abundant, with the total potential exploitable reserves estimated at nearly 60 billion m<sup>3</sup> per year, but less than 5% of the total reserves are exploited for the country as a whole.<sup>49</sup>

---

<sup>47</sup> Personal information from Ms. Lê Minh Toàn, Senior Official of Department of Environment, Ministry of Natural Resources and Environment, obtained between 14 and 25 April 2008.

<sup>48</sup> See MoNRE, *supra*, note 3, pp. 15.

<sup>49</sup> Still, local over-exploitation has resulted in falling water tables in certain areas, contributing to further land subsidence and salinity intrusion, especially in the Mekong River Delta; see, generally, Ministry of Environment and Natural Resources (MoNRE), World Bank, and Danish International Development Assistance (DANIDA), *Vietnam Environment*

## 7. State of Inland Waters

Water resources are a primary input for a huge array of human needs and economic activities. These include domestic and industrial water use, irrigation, agriculture, recreation, bathing and transport. Water resources in general and surface water in particular are among key determinators to socio-economic development of a state or a territory. Water resources also help sustain the integrity of the ecosystems and natural processes that serve important ecological and hydrological functions upon which communities and globally important biodiversity depend. Overall, the degradation of Vietnam's water resources as a result of declining water quality is a growing problem in urban and economic development areas, where households and industrial enterprises are using rivers, lakes, wetlands and canals as waste sinks. This is especially acute in the population and economic centres of the North and South.<sup>50</sup> But water quality is poor in nearly all downstream areas, notably in river basins, small rivers and canals in urban areas. Surface water pollution, in rivers, lakes, and canals, in cities continues to increase.

River water is the major source of water used for commercial and domestic purposes. Water quality in rivers is generally deteriorating, however, with serious pollution notably downstream.<sup>51</sup> Water pollution at three river basins, the Cau, Nhue-Day and Saigon-Dong Nai river basins, poses a particularly urgent problem, prompting their treatment as priority challenges.<sup>52</sup> Water quality

---

*Monitor 2003: Water* (Hanoi: MoNRE et al., 2003), pp.14 et seq.

<sup>50</sup> Ministry of Natural Resources and Environment (MoNRE), World Bank, and Danish International Development Assistance (DANIDA), *Vietnam Environment Monitor 2006: Water Quality in Viet Nam – With a Focus on the Cau, Nhue-Day and Dong Nai River Basins* (Hanoi: MoNRE et al., 2006), p. xi; serious water pollution problems have been thus found in Ha Noi, Ho Chi Minh, Hai Phong, Viet Tri and Bien Hoa.

<sup>51</sup> Monitoring results for surface water of rivers in the North have shown that none qualifies as a source for domestic use. For instance, the chemical oxygen demand (COD), which determines the amount of organic pollutants found in surface water, has been measured at 10–13.7 mg/litre in the Red River section from Dien Hong to Viet Tri T-junction, a value that is 2.37 times in excess of applicable standards; likewise, biological oxygen demand (BOD) has been found to be 15.3 mg/litre, or 3.83 higher than standards, see UNEP et al., *supra*, note 5.

<sup>52</sup> See, more amply, MoNRE et al., *supra* note 50; MoNRE, *supra*, note 3, pp. 49 et seq.

monitoring along some points of the major rivers shows that the levels of biological oxygen demand (BOD<sub>5</sub>) and Ammonia/Nitrogen (N-NH<sub>4</sub><sup>+</sup>) exceed permitted standards by a multiple factor.<sup>53</sup> Also, the levels of total suspended solids (SS) recorded in rivers, lakes and the main canal systems – causing turbidity – exceed permitted standards for water used for domestic purposes by a multiple factor.<sup>54</sup> Rivers in the central region are somewhat less affected, although their surface water also generally fails to meet the requirements for household and drinking water. In the South, the content of dissolved oxygen (DO) has been decreasing since 1997, while the chemical oxygen demand (COD) is on the increase. Oil contamination has been encountered at an alarming rate, far exceeding the standard permitted for water for domestic use. Hydrogen sulfide (H<sub>2</sub>S) concentrations in mud also remain high.

Water pollution in urban areas remains alarming as surface water sources, such as the lakes, ponds, canals and small rivers in large cities including Ha Noi, Ho Chi Minh, and Hai Phong, and Hue, is also alarming, with pollutants including suspending solid waste, NO<sub>2</sub>, NO<sub>3</sub>, COD and BOD, the concentrations of which frequently exceed applicable standards for surface water used for other than domestic uses<sup>55</sup> by a factor of 5, 10 or even 20.<sup>56</sup> Most lakes in inner city areas are eutrophicated.

## 8. Sources of Pollution

Pollution of inland water in Vietnam is primarily a consequence of industrial, commercial and domestic waste water discharged directly into water bodies without prior treatment. An environmental assessment report delivered by the Economic and Budgetary Committee of the Hanoi Municipal People's Council shows that only 6 out of 15 local industrial and processing zones, and 36 out of 105 local hospitals and medical centres, are equipped with standard waste water treatment facilities. Old industries installed before 1975 are mainly medium and small-scale industries that are equipped with

---

<sup>53</sup> MoNRE et al., *supra* note 49, p. 22.

<sup>54</sup> For instance, turbidity in the Thao river, in Lao Cai province, was recently measured at 20.100 g/m<sup>3</sup>, in the Da river, in Lai Chau province, 13.900 g/m<sup>3</sup>, and in the Lo river, in Ha Giang province, at 17.700 g/m<sup>3</sup>.

<sup>55</sup> So-called Category B under the Surface Water Quality Standard TCVN 5942-1995 classification, reprinted in MoNRE et al., *supra*, note 52, pp. 69 *et seq.*

<sup>56</sup> MoNRE et al., *supra* note 49, p. 23.

backward technologies and scattered throughout the country. A survey conducted in 2001 found that around 90% of the old enterprises do not have wastewater treatment systems, and the older industrial zones also do not have any common effluent treatment plants;<sup>57</sup> a more recent survey suggests that only 4.26% of industrial waste water is treated to mandatory specifications.<sup>58</sup>

Likewise, wastewater from municipal areas is almost entirely discharged into rivers without prior treatment.<sup>59</sup> Waste water discharged from hospitals into the environment without any form of treatment or treatment that meets minimum environmental standards forms a major pathway for the spread of waterborne diseases. Survey results show that up to 62.3% of hospitals are not currently equipped with proper treatment facilities for waste water; and the remaining 37.7%, although equipped, do not have the capacity to provide the required treatment quality.<sup>60</sup> Many of these hospitals own waste treatment facilities (such as multi-level bio-filtering device and biological ponds) that which have been in operation for more than thirty years and are degraded. Moreover, hospital occupancy generally exceeds the specified capacity, further undermining treatment quality.<sup>61</sup>

Finally, intensive farming practices and the exploitation of natural resources are major causes of local contamination of surrounding water surfaces and groundwater. For instance, coal mining processes and exploration and exploitation of petroleum result in large quantities of waste water, including leaked drilling fluid, humus, and seam water is leaked, with discharges of heavy metals such as zinc, aluminium, copper, and mercury into surface waters and the open sea. Non-point source pollution is caused by land clearing and development and runoff containing agricultural chemicals. Agricultural chemical are used by a high proportion of the population and on large land areas. Most of pesticides

---

<sup>57</sup> UNEP *et al.*, *supra*, note 5.

<sup>58</sup> MoNRE, *supra*, note 3, p. 15.

<sup>59</sup> MoNRE, *supra*, note 3, p. 15.

<sup>60</sup> At present, 109 hospitals with daily waste water volume discharged of 17,000 m<sup>3</sup>, and the measured concentrations of hazardous substances in this water has typically been between 100–1000 times in excess of permitted levels. Among these hospitals, only 85 are equipped with waste treatment facilities, which are degraded and overloaded.

<sup>61</sup> See MoNRE, *supra*, note 3, pp. 15 *et sqq.*

used are of high toxicity level and some chemicals classified as prohibited or of restricted use are available. The application of chemicals is usually far greater than recommended, levels of exposure are unnecessarily high, and most farmers have little awareness of the negative impacts of pesticide use and do not have proper protective measures and storage facilities, washing their equipment in river or lakes.<sup>62</sup> Hydropower generation causes flooding in farmlands, and dam construction and river blockage create new ecological systems, undermining the biodiversity and increasing the risks of riverbed erosion or water contamination.

### III. Solid Waste

#### 1. Overview

Given the unprecedented economic growth in recent years, waste generated from households, industries, commercial enterprises, and hospitals in Vietnam is expected to increase rapidly over the next decade.<sup>63</sup> In 2002, for instance, the amount of domestic solid waste was on average 0.6 to 0.9 kg/person/day in large cities and 0.4 to 0.5 kg/person/day in smaller urban towns. By 2004, that figure had increased to 0.9 to 1.2 kg/person/day and 0.5 to 0.65 kg/person/day in large and smaller urban areas,<sup>64</sup> evidencing the dramatic growth – projected at 10-16% annually – in waste volumes generated in Vietnam.<sup>65</sup> Vietnam produces over 15 million tonnes of waste each year from various sources. More than 80 percent (12.8 million tons/yr) is from municipal sources, including households, restaurants, markets, and businesses. Industries generate over 2.6 million tonnes of waste (17 percent) each year, making it the second most significant source. About 160,000 tons/yr (1 percent) of Vietnam's waste is considered hazardous, including hazardous healthcare waste from hospitals; toxic or flammable waste

---

<sup>62</sup> MoNRE *et al.*, *supra*, note 52, pp. 20 *et seq.*

<sup>63</sup> For an excellent overview, see Ministry of Environment and Natural Resources (MoNRE), World Bank, and Canadian International Development Agency (CIDA), *Vietnam Environment Monitor 2004: Solid Waste* (Hanoi: MoNRE, 2004).

<sup>64</sup> MoNRE, *supra*, note 3, p. 37.

<sup>65</sup> According to a different study, the average quantity of solid waste generated from towns and cities was 16,237 tons/day in 1996, 19,315 tons/day in 1997, and 22,210 tons/day in 1998, see UNEP *et al.*, *supra*, note 5.



from industrial processes; and, pesticides and pesticide containers from agriculture.<sup>66</sup>

Solid waste management in urban and industrial areas has been inefficient and insufficient. If the general industrial growth rate is 15%, the growth rate of industrial solid waste will be 15–20%, and will double after 5–7 years. In many urban and industrial areas, hazardous waste is not separated and is disposed in landfills along with domestic waste. In most cities and industrial zones, landfill sites for solid waste lack correct sanitation or are poorly operated and maintained, resulting in contamination of groundwater and surface water by leachate, emissions of air pollutants and odours, vermin, public health problems from gases and emissions, waterborne diseases and dust and noise.<sup>67</sup> Given the lacking waste collection capacities and low public awareness of environmental sanitation, indiscriminate littering is still common. In many areas, self-disposal methods—such as burning or burying waste, or dumping in rivers, canals, and open fields—is common.<sup>68</sup> Medical solid wastes are collected under contracts signed between medical centers and environmental companies up to a load of 90%.

## 2. Household Waste

Household waste generally accounts for the largest part of solid waste in urban areas, on average accounting for 60% to 70% of total solid waste, but occasionally amounting to 90% or more of the overall waste fraction. Components of household waste are mostly harmless, including organic matter, textiles, metals, glass, paper, ceramics, and construction and garden material. Few components are hazardous, for instance batteries, mercury thermometers, household pesticides, and certain detergents and solvents used domestically. The total volume of household waste reached 13 million tonnes in 2004, and is estimated to reach 20 million tonnes in 2020. On average, the proportion of waste collected in urban areas has increased from 55 per cent in 2002, to 65 per cent in 2003, and to 72 per cent in 2004.<sup>69</sup> Despite this encouraging trend, collection efficiency is still very low,<sup>70</sup> and treatment of

---

<sup>66</sup> MoNRE *et al.*, *supra*, note 63, p. 6.

<sup>67</sup> ADB, *supra*, note 3, p. 2.

<sup>68</sup> MoNRE *et al.*, *supra*, note 63, p. 8.

<sup>69</sup> In general, larger cities in Vietnam collect a larger percentage of their waste (76 percent) than smaller cities (70 percent),

waste is not satisfactory due to lacking collection facilities and poorly designed dumping sites. In effect, most dumping sites do not meet minimum sanitary requirements, lacking adequate liners in the bottom and along the walls, mechanisms to collect leachate, control or gas systems, and a cover layer or fence.<sup>71</sup>

Most domestic waste is not sorted at source, but rather is collected and transported to dumping sites as a mixture of different types of waste. According to the National Strategy on Solid Waste Management up to the year 2020, the main methods for treatment of solid waste will be sanitary land filling and composting. The aim is to construct the controlled sanitary waste landfills with a life of more than 20 years. Recycling and reuse waste is common, driven by an informal network of waste pickers at landfills, informal waste collectors, and waste buyers.<sup>72</sup> However, these activities only contribute to reducing 13 to 20 per cent of total waste, and are not systematic or coordinated.<sup>73</sup> The main focus of investment in recycling and reducing domestic waste is in the construction of factories which produce fertilizers and soil conditioner from organic waste.<sup>74</sup> Due to a lack of detailed surveys on the acceptance of micro-biological fertilizers by the public, and the low sorting capacities of these factories, their operational effectiveness has not been high.

---

while in rural areas collection rates are typically less than 20 percent, and nine out of ten of the poorest urban households do not receive solid waste collection service, see MoNRE *et al.*, *supra*, note 63, p. 8.

<sup>70</sup> A 2001 survey found inconsistencies in the technologies used for collection and transportation, with a mix of different approaches including manual collection of solid waste from streets and public locations with manual sweeping and loading into handcarts for transportation to transfer stations, and collection by handcarts or collection vehicles of solid waste from households, UNEP *et al.*, *supra*, note 5.

<sup>71</sup> UNEP *et al.*, *supra*, note 5.

<sup>72</sup> MoNRE *et al.*, *supra*, note 63, p. 7.

<sup>73</sup> Recovery for recycling and reuse mainly occurs through scavengers who collect plastic, paper, metal and glass. Waste picking activities tend to be completely spontaneous without any form of organisation and management, see UNEP *et al.*, *supra*, note 5; according to MoNRE, *supra*, note 3, p. 41, the recovery rate is closer to 10-12%.

<sup>74</sup> MoNRE, *supra*, note 3, p. 42.

### 3. Hazardous Waste

Solid hazardous waste mainly arises from industry, craft villages and hospitals. The largest sources of hazardous waste are industries (130,000 tons/yr)<sup>75</sup> and hospitals (21,000 tons/yr of hazardous healthcare waste).<sup>76</sup> Additionally, agricultural sources produce approximately 8,600 tonnes of pesticides and contaminated pesticide containers each year.<sup>77</sup> Industrial solid waste makes up about 15-26 % of municipal solid waste. Of the industrial solid waste, about 35-41 % of solid waste are hazardous. Composition of industrial solid waste is very complex, depending on the raw materials, technological processes and final products of each production centre and its related services.<sup>78</sup> A report by the Environmental Department at the Ministry of Natural Resources and Environment (MONRE) shows that the average volume of solid hazardous waste generated each year is around 152,000 tons, of which 60,000 tonnes are from light industry, 45,000 tonnes from chemical industry, 26,000 tonnes from mechanical and metallurgy industry, 10,000 tonnes from medical services, 5,000 from urban domestic waste, and 2,000 tonnes from food, electrical and electronic waste. Hazardous waste is concentrated in key economic hubs such as Hanoi, Hai Phong, Quang Ninh, HCM City, Dong Nai, Ba Ria – Vung Tau, Quang Nam, Da Nang, and Quang Ngai. The average annual volume of solid waste

---

<sup>75</sup> Industrial hazardous waste is discharged during industrial manufacturing processes, and primarily originate in the mechanical industries, such as the automobile industry, steel accessories, electronics, and steel manufacturing.

<sup>76</sup> Waste from the healthcare sector originates in medical clinics, and typically consists of paper, organic substances, metal and glass pharmaceutical containers, human organs and parts, bottles, PE bags, PP, PVC, plastic injection needles, swabs, and other solid wastes. Relatively harmless medical waste (comparable to household waste in hazardousness) accounts for 80% to 83%, while hazardous medical waste accounts for 17% to 20%, depending on classification. Total medical solid wastes throughout the country amounted to approximately 100,000 tonnes in 2004 (with relatively harmless waste accounting for 80,000 tonnes, and hazardous waste for 20,000 tonnes), a figure that is estimated to exceed 200,000 tonnes by 2010 (with harmless waste constituting approximately 180,000 tonnes and hazardous waste approximately 30,000 tonnes).

<sup>77</sup> MoNRE *et al.*, *supra*, note 63, p. 7.

<sup>78</sup> Throughout the country, industrial solid wastes totalled approximately 2.8 million tonnes in 2004, of which regular waste accounted for 2.7 million tonnes and hazardous waste for approximately 100,000, depending on classification. These quantities are forecast to grow to about 3.5 million tonnes by 2010, of which regular waste will account for about 3 million tonnes and dangerous waste for 500,000 tonnes, UNEP *et al.*, *supra*, note 5.

discharged in Southern economic hubs is about 80,332 tons, three times as much as of Central economic hubs. The total amount of hazardous solid waste generated from craft villages throughout Vietnam is about 2,400 tonnes per year. Craft villages in northern provinces discharge about 2,200 tonnes of hazardous waste per year; in particular villages in Bac Ninh Province generate 1,150 tonnes per year, in Ha Tay Province 350 tonnes per year, Hanoi 300 tonnes per year, and Hung Yen Province 230 tonnes per year.<sup>79</sup> Craft villages which recycle iron, plastic, copper and aluminium generate the most hazardous solid waste. Hospital solid waste constitutes the smallest proportion of waste compared to domestic and industrial sources. The total amount of hospital solid waste that needs to be treated was estimated to be about 34 tonnes per day nationwide in 2005, of which one third was concentrated in Hanoi and Ho Chi Minh City.<sup>80</sup>

## IV. Marine Water Pollution

### 1. Overview

Viet Nam has 29 coastal provinces (out of a total of 63 provinces) with 3,260 km of coastline dominated by the Red River Delta to the north and the Mekong River Delta to the south.<sup>81</sup> The coastal zone extends 10 km or more inland, up to the point of the tidal influence on rivers, streams, and wetlands.<sup>82</sup> Some 300,000 ha of tidal marshes associated with the delta are mangrove forests.<sup>83</sup> A significant level of economic activity occurs in these coastal and marine areas. Many of Viet Nam's valuable wetland resources—on which much of its agriculture and fisheries activities depend—occur in the coastal zone. Coastal water pollution is shown in several parameters, of which the most

---

<sup>79</sup> MoNRE, *supra*, note 3, p. 39; in 2004, total solid waste discharged by craft villages amounted to 770,000 tonnes, of which more than 2,000 tonnes of waste was hazardous. By 2010, these figures are projected to reach 1.5 million tonnes, of which 5,000 tonnes will be hazardous waste.

<sup>80</sup> MoNRE, *supra*, note 3, p. 39.

<sup>81</sup> MoNRE et al., *supra* note 50, p. 15.

<sup>82</sup> For a more detailed description of wetlands, mangroves, coral reefs and other coastal and marine ecosystems, see MoNRE et al., *supra* note 50, p. 20.

<sup>83</sup> ADB, *supra*, note 41, p. 32.

important are the concentration of suspended solids (SS), turbidity, contents of nitrite and nitrate ( $\text{NO}_2^-$  and  $\text{NO}_3^-$ ), phosphate content, heavy metals, oil content and coliform indicators.<sup>84</sup> Monitoring data shows that, while offshore water has good quality, the water in coastal areas is highly polluted.

Pollution from oil, heavy metals and suspended solids has been found to exceed permitted levels in many near-shore marine areas.<sup>85</sup> Environmental sanitation on beaches has still not been improved, which is having negative impacts on the tourism development. Aquaculture in mangrove forest areas and on the sand has developed without due consideration for its adverse environmental impacts on the marine and coastal environments. The concentration of  $\text{NO}_2^-$  in the Red River and Mekong River estuaries consistently exceeds permitted limits for aquaculture. In the north, measured  $\text{NO}_2^-$  levels usually exceed permitted standards for coastal bathing water. In the central coastal areas,  $\text{NO}_2$  levels also exceed permitted levels during the rainy and flood seasons. Likewise, both in the north and south, monitored parameters for oil pollution typically exceed permitted levels for aquaculture and bathing beaches.<sup>86</sup> Coliform pollution has been recorded in the central and southern coastal areas. According to annual environmental monitoring data, the concentration of coliform bacteria in these areas consistently exceeds permitted limits. Sensitive coastal wetlands, particularly estuaries and tidal mud flats, risk degradation of water quality, sediment quality and aquatic resources as well as loss of total area. Tam Giang – Cau Hai lagoon in Thua Thien – Hue Province is in particular danger of a rapid decline in total area as well as a depletion of existing natural eco-systems.

## **2. Sources of Marine Water Pollution**

A major source of marine water pollution are urban activities along the coast. Population growth is accompanied by increased production, aquaculture, fisheries and tourist activities, all of which generate an increasing amount of solid and liquid waste discharged into rivers and the sea. Concentrated industrial activities in coastal areas are also responsible for a large part of the current

---

<sup>84</sup> MoNRE, *supra*, note 3, p. 22.

<sup>85</sup> For statistical data on marine pollutant concentrations, refer to MoNRE, *supra*, note 3, p. 23.

<sup>86</sup> For example, the oil pollution off the coast of Da Nang and Rach Gia is four times higher than permitted levels.

challenges faced with marine water pollution.<sup>87</sup> During the past few years, the development of industrial zones has expanded and developed rapidly. This in turn has been followed by an indiscriminate discharge of waste, which adversely impacts the environment. Often local in scope, but no less serious in its detrimental consequences, is pollution arising from fisheries and aquaculture. The number and capacity of off-shore fishing vessels is increasing annually and this in itself is the cause for an increase in fisheries exploitation which leads in turn to an exhaustion of marine biological resources and greater threats to the marine environment.<sup>88</sup>

Adding to these sources are pollutants stemming from maritime transportation and oil spills. Wastewater and residues of fish and marine products from fishing ports are a major source of organic pollutants in coastal waters, while other marine ports are served for coal, oil and general products. About 772,000 tonnes of oil are estimated to leak into the East sea from crude oil exploitation per year, while between 1995 and 2002, at least 35 major oil spill incidents occurred in the sea, resulting in an estimated discharge of 92,000 tonnes of oil into the coastal and marine environment.<sup>89</sup> Pollution also stems from mineral exploitation, especially coal mining in QuangNinh and Coastal mineral sand exploitation.<sup>90</sup> One of the fastest growing causes of marine water pollution, finally, is coastal tourism: the tourism sector is developing rapidly and the number of guests visiting tourist resorts is increasing by 10 to 15 per cent annually.<sup>91</sup> This has led to an increase in the volume of waste generated from resorts and cruise boats, putting further pressure on the marine and coastal environments.

<b>River</b>	<b>Zn</b>	<b>As</b>	<b>Cd</b>	<b>Ci</b>	<b>Cu</b>	<b>Pb</b>	<b>Hg</b>	<b>COD</b>	<b>Oil and oil products</b>
<b>Thai Binh</b>	2.300	4.000	25	1.100	600	1.000	1.5	45.700	2.100

---

<sup>87</sup> MoNRE, *supra*, note 3, pp. 20 *et sqq.*

<sup>88</sup> MoNRE et al., *supra* note 50, p. 24.

<sup>89</sup> MoNRE et al., *supra* note 50, p. 25.

<sup>90</sup> For details, see MoNRE, *supra*, note 3, p. 21.

<sup>91</sup> MoNRE, *supra*, note 3, p. 21

<b>Hong Ha</b>	8.500	13.000	100	4.000	1.900	3.100	3	46.400	3.000
<b>Dong Nai</b>	2.500	3.500	-	800	500	6.000	6	99.600	2.400
<b>Cuu Long</b>	9.050	8.000	85	6.000	2.100	4.700	-	52.000	-

Total dangerous wastes discarded into the sea by major rivers in Vietnam  
(measure unit: tonne/ year) *Source: ETV2/C1-POL2/NSTE1, Aug. 2007*

## V. Air Pollution

### 1. Overview

The air quality remains relatively good in Vietnam, especially in rural and mountainous areas. However, concentrations of dust are becoming an urgent problem in urban and industrial areas. Most urban areas in the country are polluted by dust, and in many places dust pollution has reached alarming levels. Rapid economic growth, particularly in manufacturing and construction industries, plus an unprecedented boom in motorized traffic and increased urbanization have led to serious environmental problems in urban areas. Average dust concentration in the air in large cities like Hanoi, Ho Chi Minh, Hai Phong and Da Nang is two to three times higher than permitted standards. On average, dust concentrations exceed acceptable limits by a factor of 1.3 to 2. Higher dust content is found in places such as Ho Chi Minh City, Bien Hoa and Da Nang, where it has been measured at 2–3.5 times the mandatory levels. Similarly, the dust content indicator in Hai Phong and Hanoi is 1.5–2.5 times above the standards. At road junctions, dust concentrations can be up to five times higher than permitted levels, and at construction sites, dust concentrations exceed permitted levels by 10 to 20 times.<sup>92</sup>

The air quality in rural areas remains good, except in some craft villages. Air in craft villages is mainly polluted by smoke from kilns using coal and wood, which discharge dust and toxic gases, such as carbon monoxide and sulphur dioxide into the air. In most urban centres, including Hanoi, Ho Chi Minh, Da Nang and Hai Phong, the average value of SO<sub>2</sub>, CO, NO<sub>2</sub> concentration is lower than or approximates the acceptable limit.<sup>93</sup> In some areas near industrial zones, however, measured

<sup>92</sup> For this statistical data, see MoNRE, *supra*, note 3, p. 25.

<sup>93</sup> Cities with high SO<sub>2</sub> content include Ho Chi Minh City, Bien Hoa, Vung Tau, Hai Phong, and Ha Noi with average daily

concentrations of SO<sub>2</sub> at times exceed the acceptable limit.<sup>94</sup> Average daily NO<sub>2</sub> and CO<sup>95</sup> concentrations in the urban atmosphere at traffic crossings has been found to be near to or in excess of allowed limits.<sup>96</sup> Air pollution monitoring data in Ho Chi Minh, Ha Noi and Quang Ninh show that lead pollution was not found in the streets, but lead concentrations in large traffic junctions have been measured close to the permitted limits. The direct consequences of these pollutants are increased infection of respiratory diseases such as tuberculosis, bronchitis, lung cancer, asthma among population in the polluted areas. Air pollution also results in acid rain, which can cause corrosion and damages to construction materials, cultural structures and tools, necessitating significant expenditures for repair and maintenance.

## 2. Sources of Air Pollution

Industrial production and manufacturing remains a major source of air pollution. Old, small and medium-sized industrial establishments established before 1975 usually contain outdated technologies.<sup>97</sup> Only some factories have their own dust filters and most do not treat the emission of

---

content of 0.05 – 0.07 mg /m<sup>3</sup>. The average SO<sub>2</sub> content for remaining cities in the country lies in the range of 0.03–0.06 mg/m<sup>3</sup>.

<sup>94</sup> For example, daily average concentrations of SO<sub>2</sub> measured in 1997 reached 0.407 mg/m<sup>3</sup> (1.4 times the permitted standard at the time) in residential area near Hai Phong cement plant. In areas near Tan Binh industrial complex (Ho Chi Minh city), SO<sub>2</sub> concentration exceeded by 1.1 to 2.7 fold the permitted standard, see UNEP *et al.*, *supra*, note 5.

<sup>95</sup> Pursuant to the TCVN 5937-2005 standard, CO average concentrations during 8 hours may not exceed 10 mg/m<sup>3</sup>.

<sup>96</sup> For instance, in Dinh Tien Hoang-Dien Bien Phu cross-road ( Ho Chi Minh City), the daily average value of NO<sub>2</sub> content measured was 0.255 mg/m<sup>3</sup>, which was 2.55 times the permitted standard, and CO content was 15.46 mg/m<sup>3</sup>, which was more than three times the permitted standard. In Da Nang steel plant area, the daily average value (1999) of NO<sub>2</sub> content was 0.11 mg/m<sup>3</sup>, which is 1.1 times the permitted standard, and CO content was 12.2 mg/m<sup>3</sup>, which is 2.44 fold the permitted standard. In Thuong Dinh industrial zone (Ha Noi) in 1999, CO content was 7.2 mg/m<sup>3</sup> that is 1.4 times the permitted standard; in Hai Phong cement plant in 1999, CO concentrations were 9.42 mg/m<sup>3</sup>, which is 1.88 times the permitted standard, see UNEP *et al.*, *supra*, note 5. These measurements date back to 1999, and values are likely to have increased further since with the rapid expansion of motorized traffic; recent measurements of average daily NO<sub>2</sub> content in the air in big urban intersections of Hanoi has found these 0.1 mg/m<sup>3</sup> higher than applicable limits.

<sup>97</sup> MoNRE, *supra*, note 3, p. 24



toxic gases. Old industrial facilities are widely distributed and many are located in inner city areas. New industries are concentrated in industrial zones, where environmental impact assessments are mandatory and pollution is thus less severe.<sup>98</sup> Still, large plants, such as thermal power stations and construction material factories are located outside industrial zones.<sup>99</sup> Coal and heavy oil are often used as fuel in thermal power stations, which supply roughly 60% of total electric energy output in Vietnam; as a result, these plants emit enormous volumes of dust and SO<sub>2</sub> gas, along with CO, CO<sub>2</sub>, and NO<sub>2</sub>, causing severe pollution of ambient air.<sup>100</sup> Other major sources of air pollution are the cement and construction materials industry, metallurgical industry, and chemical industry. Small handicraft facilities are also local sources of air pollution. Generally, toxic gas emissions are left untreated in smaller facilities.

Another major source of air pollution is transport, which is responsible for an estimated 70% of air pollution in urban areas.<sup>101</sup> The number of motorized vehicles, particularly automobiles, motorcycles, motorbikes and domestic water transport vehicles, has been increasing at the phenomenal pace of 9-10%, and closer to 20% for registered motorcycles and motorbikes.<sup>102</sup> Before 1980, 80-90% of the urban population relied on bicycles for mobility. Presently, this figure has likely reversed, with the same percentage using motorcycles or cars. Motorized transport not only results in emissions of dust, exhalant petrol, hydrocarbons, CO, NO<sub>2</sub>, and SO<sub>2</sub>, but also of harmful lead.<sup>103</sup> Traffic emissions have therefore become a major source of air pollution, especially in large cities such as Hanoi, Ho Chi Minh City, Da Nang and Hai Phong.

Meanwhile, rapid urbanisation is occurring all over the country, with a corresponding increase in the

---

<sup>98</sup> UNEP *et al.*, *supra*, note 5.

<sup>99</sup> MoNRE, *supra*, note 3, p. 24.

<sup>100</sup> UNEP *et al.*, *supra*, note 5.

<sup>101</sup> MoNRE, *supra*, note 3, p. 24.

<sup>102</sup> UNEP *et al.*, *supra*, note 5.

<sup>103</sup> MoNRE, *supra*, note 3, p. 24, box 2.10.

construction of roads, houses and bridges. Urban construction causes serious dust pollution. Activities such as digging up of soil, dumping of soil, demolition of old buildings, and transportation of building materials all generate serious dust pollution for the environment. Measured results show that 60-70% of dust volume in urban air is powdered soil and stone whirling from surface of land and roads and originating from construction activities.<sup>104</sup> In addition, a strong emphasis is placed on investing in infrastructure for transportation such as roads, bridges, sea harbours and airports. The construction of this infrastructure contributes to levels of air pollution. Other sources of air pollution in Vietnam include forest fires and emissions from neighbouring countries.

Based on data collected in 2005 and forecasts for 2010, emissions of air pollutants from the electrothermal industry, the cement and building material industry, the fertiliser industry, transportation and households have been broken down as follows:

- dust is generated mostly by the cement, building materials and ceramics industry (up to 50%), followed by the thermoelectric sector (up to 23,8%) and transportation (dust from motor exhaust accounts for 2,5%, not including street dust). Dust generated by all other industries and households accounts for only 13%.
- SO<sub>2</sub>: is generated mostly by the thermoelectric sector (up to 40,3%), followed by the cement, building materials and ceramics industries (31,4%). Cooking activities account for 10,7%, and the production of fertilisers and chemicals for 9%, while transportation and other sources generate fairly small amounts .
- NO<sub>x</sub>: the three largest sources of NO<sub>x</sub> emission are transportation (accounting for 30,6%), the thermoelectric sector (accounting for 28%) and the cement, building materials and ceramics industry (up to 26%). The remainder originates from other industries and household activities.
- CO: the biggest source of CO gas is transportation (accounting for 51%), followed by the thermoelectric sector with 15%, the cement, building material and ceramic industries with 13,8%, and other industries and household activities with less than 10%.
- NM VOC gas: emissions of NM VOC from transportation account for up to 84%, all other industries and household activities only contribute 16%.

---

<sup>104</sup> UNEP *et al.*, *supra*, note 5.

## VI. Biodiversity Loss

### 1. Overview

Vietnam, a tropical monsoon country, is considered one of the most biologically diverse countries in the world.<sup>105</sup> An abundance of forest, wetland and marine ecosystems – the result of a varied topography and climate – have endowed Vietnam with a rich diversity of species of fauna and flora.<sup>106</sup> Currently, however, this unusual diversity is under serious threat. Natural ecosystems have been seriously affected and endangered. Diversity has declined on all levels from the species to genes. The number of wild animals decreases with each passing year, especially the rare and endangered species. If current trends persist, one of the most unique and fragile environmental resources of Vietnam, its biodiversity, could become permanently depleted, with palpable effects for the economy. Biodiversity plays an essential role in sustaining many of the country's economic sectors, including forestry, fisheries, agriculture, tourism and industry. It provides stability and resilience to the economy, while also creating opportunities for increased productivity, new areas of enterprise and income generation. Biodiversity is also the foundation for the livelihoods and well-being of some of the poorest, most isolated and most vulnerable communities in the country.<sup>107</sup>

### 2. Causes of Biodiversity Loss

The causes for the loss of biodiversity include habitat destruction and loss stemming from indiscriminate land use changes, unsustainable exploitation and utilization of biological resources, illegal wildlife trade, the invasion of harmful alien species, environmental pollution, forest fires,

---

<sup>105</sup> Statistical data suggest that Vietnam possesses 6.5% of the world's species, see MoNRE, *supra*, note 3, p. 32.

<sup>106</sup> For a general overview, see Ministry of Environment and Natural Resources (MoNRE), World Bank, and Swedish International Development Cooperation Agency (SIDA), *Vietnam Environment Monitor 2005: Biodiversity* (Hanoi: MoNRE *et al.*, 2005); Ministry of Environment and Natural Resources (MoNRE), *State of the Environment Report: Biodiversity* (Hanoi: MoNRE, 2005).

<sup>107</sup> MoNRE *et al.*, *supra*, note 106, pp. 13 *et seq.*

wildlife trade and poor management.<sup>108</sup> The conversion of forests and wetlands into agriculture and aquaculture and extensive urbanisation and infrastructure development have destroyed ecological systems and natural landscapes, a main cause of shrinking biological diversity. Moreover, poverty leads to unsustainable exploitation of natural resources. Currently, 70% of the population depends directly on biological resources for their livelihoods, and biodiversity continues to be exploited in an unsustainable manner. The following activities are the most significant causes for the over-exploitation of biological resources:

- over-fishing and use of destructive fishing methods;
- indiscriminate exploitation of timber and non-timber forest products;
- uncontrollable hunting and trafficking of wild animals.

An increasingly serious threat to Vietnamese biodiversity stems from alien species introduced from abroad, displacing native species of flora and fauna. Over the past two decades, many alien species have been introduced to Vietnam which have had a harmful impact on the indigenous ecosystems and threaten biodiversity. The extreme and uncontrollable spread of these species has had adverse impacts on the environment and biodiversity as they dominate, kill and deplete local species and genetic sources, destroy crops, decrease agricultural productivity and even affect human health.<sup>109</sup>

As in other countries, pollution from various sources has also become a major threat to biodiversity. It causes death and infertility, reduces the size and structure of plant and animal populations, and damages habitats and living environments. Waste water with a high concentration of nutrients has led to the phenomenon of “algal blooms” in lakes, endangering the living environment of many aquatic species. The increased discharge of high levels of nutrients to the coastal environment has led to the phenomena of red and green tides occurring in coastal zones. Oil spills have seriously polluted coastal marine waters and heavily impacted sensitive ecosystems such as mangrove forests, tidal flats, estuaries, coral reefs, sea grass and coastal aquatic population.

Natural disasters and forest fires, finally, add to the pressures on Vietnamese biological diversity.

---

<sup>108</sup> MoNRE, *supra*, note 3, pp. 32 *et seq.*

<sup>109</sup> UNEP *et al.*, *supra*, note 5.

Damage and loss caused by forest fires directly cost hundreds of billions of dong each year, excluding the negative impacts on the living environment, depletion of biodiversity and destruction of landscapes. A typical example is the U Minh Thuan forest fire in 2002, which caused serious damage and loss to local biodiversity. Likewise, natural disasters have serious impacts on biodiversity in different ways, including; destruction of the living environment, a reduction in available habitats, reduction in the number of aquatic species, and damage to nutrition and water sources. These impacts cause changes to the characteristics, nature and behaviour of some species; cause modification in some species.

## VII. Land Degradation

### 1. Overview

Vietnam has 32,932,456 ha of land area, three quarters of consists of mountains and midlands. Rivers, streams and plain rocky mountains without forest coverage occupy 1.3 million ha, whereas continental territory occupies 31.2 million ha.<sup>110</sup> Land degradation has been defined as low fertility of soils, imbalance in nutrients due to erosion, leaching, abandoning, flooding, rapid decay and mineralization of soil organic matter, and landslides.<sup>111</sup> In Vietnam, it appears to be a prevailing trend throughout the country. Soil degradation has been increasing, both in speed and degree, and has exhausted many areas and even led to desertification in some parts of Vietnam. Accordingly, Vietnam is currently experiencing soil erosion, chemical degradation, drought, desertification and physical soil degradation, increased landslides, salinisation and acidification, emergence of swamps and inundation, and soil pollution.<sup>112</sup> Overall, degraded land thus accounts for nearly 50% of the total land area of the country.<sup>113</sup> Much of the land degradation results from natural and socio-economic conditions and

---

<sup>110</sup> MoNRE, *supra*, note 3, p. 28.

<sup>111</sup> UNEP *et al.*, *supra*, note 5.

<sup>112</sup> For greater detail, see UNEP *et al.*, *supra*, note 5.

<sup>113</sup> Monitoring data over the past several years has revealed that over 50% of natural area for the whole country (including 3.2 millions ha of plain area and 13 millions ha of highland) should be identified as “degraded soils”, see UNEP *et al.*, *supra*, note 5.

deforestation. Survey data reveals that the degradation is a general trend for large areas, especially for hilly and mountainous regions, where the ecological balance has been most seriously destroyed as compared to the other regions. At present, three-fourth of Vietnam's land territory is hilly, mountainous, of which only 29.7% is covered with forest and plants. Combined with non-preventive farming, this has caused soil runoff and erosion, reducing and degrading soil fertility. Soil pollution, another main cause of land degradation, is mainly caused by arbitrary and excessive use of chemicals and pesticides. Efforts to rehabilitate soil quality, however, remain limited to small areas.<sup>114</sup> Consequences of land degradation in Vietnam include loss of productivity, depletion of fauna and flora, and reduction of agricultural land per capita. In terms of the estimated monetary loss on account of land degradation, water erosion and leaching accounted for more than half, salinisation, acidification, drought and water logging<sup>115</sup> for about one third and decline in soil fertility for the rest.<sup>116</sup>

## 2. Causes of Land Degradation

Aside from natural causes, a number of human activities directly contribute to land degradation. They include unsuitable agricultural land usage and harmful practices, deforestation and removal of natural vegetation, absence or bad maintenance of erosion control measures, and improper crop rotation. In

---

<sup>114</sup> Improvement would be needed for 0.82 million ha of acid sulphate soils, 0.54 million ha of aerosols, 2.06 million ha of degraded exhausted grey-soil, 0.5 million ha of leptosols, 0.24 million ha of mangrove saline and strong saline soils, 0.47 million ha of gleysols and histosols, and 8.0 million ha of soils with thin depth in mountainous areas, UNEP *et al.*, *supra*, note 5.

<sup>115</sup> The consequences of flood inundation and water logging are very serious on humans and precious natural resources. For example, two floods in 1999 occurred in the southern central coast claimed 711 lives and caused economic loss estimated at more than US\$ 235 million. Besides, millions of tonnes of soil from the hilly and mountainous regions was eroded and flowed into rivers, streams, plains and the sea, see UNEP *et al.*, *supra*, note 5.

<sup>116</sup> Soil salinisation and acidification are major threats to the development of sustainable agriculture over a large area of 3.0 million hectares, particularly in the Mekong River delta, northern and central coast of Vietnam; estimates of the economic loss caused by land degradation have placed these at more than US\$ 700 million by comparing yields from traditional cultivation practices such as shifting and extensive cultivation (approximately adopted in the total area of 2.6 million ha) in degraded and undegraded land, see UNEP *et al.*, *supra*, note 5.

1943, Vietnam possessed about 14.3 million hectares of forests that comprised 43% of the country's natural land area. By the beginning of 1999, however, the total area of forested land dropped to only 9.6 million hectares (28.8% of total country's area), of which natural forest was estimated at 8.2 million hectares and forest plantation at 1.4 million hectares.<sup>117</sup> Water erosion has been dramatically enhanced due to this decrease in natural vegetation cover on steep slopes of mountains and hills. In some cases, moreover, the use of saline or acidic water for irrigation in coastal areas of the Mekong river delta has led to salinisation and acidification. Excessive extraction of water (for irrigation, urban and industrial use) from rivers and other surface water sources has reduced downstream availability and in certain cases caused incursion of sea water, resulting in salinisation.

In many cases, soils have been polluted by used water contaminated with chemicals and municipal wastes. Industrial activities, including infrastructure development and urbanisation, waste handling, and transportation, are also contributing to land pollution.<sup>118</sup> Mostly, however, soil pollution and is a result of improper agricultural practices. Fertilizers used for agricultural purposes are increasing both in number and in variety of fertilizers,<sup>119</sup> and tend to accumulate in the soil, resulting in its acidification, increased toxicity and mineralisation. Chemical fertilizers are mainly used for rice, vegetables, long-term industrial trees and fruit trees. Fertilizer use exerts pressures on the agricultural and rural environments in the following three ways:<sup>120</sup>

- Incorrect use of fertilizers is ineffective;
- There is an imbalanced use of fertilizers with a bias towards nitrogenous fertilizers;
- The quality of fertilizers is currently low. Aside from the fertilizers officially imported and

---

<sup>117</sup> The causes for this high level of deforestation in Vietnam are complex and manifold. These include forest fires, over logging, war damage in the years before 1975, shifting cultivation, collection for fuel wood, grazing of livestock and extension of shrimp farms. Since 1990, plantation forestry has partly contributed to controlling deforestation in Vietnam; see MoNRE *et al.*, *supra*, note 106, p. 22.

<sup>118</sup> UNEP *et al.*, *supra*, note 5.

<sup>119</sup> According to a recent count, more than 1,420 different fertilizers had been introduced to the Vietnamese market, with a majority imported from abroad, see MoNRE, *supra*, note 3, p. 28.

<sup>120</sup> MoNRE, *supra*, note 3, p. 28.

managed by the Government or produced by domestic industries, many fertilizers are illegally imported or produced by small scale facilities. Their quality is not guaranteed, and may negatively affect the environment.

Likewise, the use of pesticides – including insecticides, fungicides, raticides and herbicides – has increased markedly.<sup>121</sup> Such pesticides are very harmful for the biosphere, remaining in the soil and water for long periods of time, with detrimental effects for both undesirable and useful species as well as human health.<sup>122</sup>

## VIII. Environmental Priorities in the Near-Term

Drawing on the foregoing assessment and information provided by the Department of Environment, Ministry of Natural Resources and Environment between 14 and 25 April 2008,<sup>123</sup> environmental priorities in the near term are all directly linked to the current socio-economic and demographic changes witnessed in Vietnam. Continued rapid growth in the industrial and manufacturing sectors, dramatic increases in urbanisation<sup>124</sup> and motorisation, rising demand for consumer goods and resource consumption, and further intensification of agri-, silvi- and aquacultural practices will exacerbate many of the environmental challenges listed above, necessitating expedited and sufficiently ambitious responses. Accordingly, while Vietnam faces a number of serious environmental challenges, the greatest pressures arising from these socio-economic and demographic trends will lie in the area of water resources management, waste management, and air pollution. Broadly speaking, therefore, policy efforts in the near term must ensure:

- adequate treatment of waste water from industrial sources through adequately monitored and enforced effluent and water quality standards;

---

<sup>121</sup> MoNRE, *supra*, note 3, p. 29, reporting annual increases in use of up to 100%.

<sup>122</sup> MoNRE, *supra*, note 3, pp. 30-31, citing food poisoning, among other negative impacts.

<sup>123</sup> Toàn, *supra*, note 47.

<sup>124</sup> The rate of urbanisation is expected to increase from the existing 31% to 52% in 2010, and 65% in 2020, see MoNRE *et al.*, *supra*, note 52, p. xii.



- adequate treatment of sanitary waste water from domestic and commercial sources, with comprehensive coverage of all urban and rural areas;
- adequate collection, treatment and disposal of residential and commercial solid waste, with comprehensive coverage of all urban and rural areas, and systematic sorting, recovery and recycling processes in urban and commercial areas;
- adequate collection, treatment and disposal of hazardous waste, with mandatory notification and collection procedures for hazardous waste from commercial and industrial sources;
- improved management of chemical substances used in industry, commerce, agriculture and aquaculture, including monitoring the entire lifecycle of the substances from producer or importer to final use or disposal;
- improved management of emissions from industrial and commercial processes through adequately monitored and enforced emission and air quality standards;
- improved management of tailpipe emissions from commercial and private motorised transport through adequately monitored and enforced technology and fuel standards.<sup>125</sup>

In many cases, appropriate environmental standards have already been adopted, but are insufficiently implemented due to a general lack in administrative capacities for monitoring, supervision and, as needed, enforcement. On the level of institutional arrangements and capacity, progress has been slow due to weak commitments from sectoral agencies, low awareness in local departments and officials, and capacity challenges at all levels.<sup>126</sup> There is a lack of environmental integration at planning and programmatic levels, especially in the public investment planning process and in regional plans for land and resource use. In addition, awareness on the expected, negative environmental impacts of sustained economic growth, and the mechanisms for stakeholders to hold government agencies

---

<sup>125</sup> These priorities are broadly in line with the five environmental objectives set out in the National Environmental Action Plan for 2005 to 2010 adopted by the Ministry of Natural Resources and Environment, see Pham Huu Nghi, “Five Major Goals in Environmental Protection Set for 2005-2010”, in Institute for Global Environmental Strategies (IGES) (ed.), *2005 Top News on the Environment in Asia* (Hayama: IGES, 2005), p. 75, available on the Internet at: <[enviroscope.iges.or.jp/modules/envirolib/upload/424/attach/english.pdf](http://enviroscope.iges.or.jp/modules/envirolib/upload/424/attach/english.pdf)> (last visited on 1 June 2008).

<sup>126</sup> MoNRE, *supra*, note 3, pp. 69-70.

accountable for their performance is weak.<sup>127</sup> Adequately addressing the foregoing environmental priorities will require, in particular as regards institutional arrangements and procedures for data collection and storage in accordance with consistent and harmonised protocols, systematic and accurate data analysis, improved availability and diffusion of data, and generally strengthened monitoring and enforcement capacities at all levels.<sup>128</sup>

## IX. Environmental Priorities in the Medium- and Longer Term

When assessing environmental priorities in the medium- and longer term, different challenges acquire relevance compared to the most urgent near-term challenges outlined in the foregoing section. While improved management of water resources, air pollution, transport and waste are all immediate priorities due to current socio-economic trends and already exceeded environmental capacities, other challenges will gain currency as the broader population becomes more affluent, economic and political priorities change, and Vietnam commits itself to specific efforts under binding international agreements. In this regard, the development of environmental policies in countries that have undergone a similar transition from economies heavily based on traditional forms of agriculture to modern industry- and service-based economies can serve as useful guidance.

Such experience suggests that land degradation, deforestation and loss of biological diversity will attract increasing attention, not merely as consequences of more immediate socioeconomic and environmental priorities, but as important challenges in their own right. With increasing state funds allocated to environmental protection measures in these areas and more urgent environmental challenges such as water pollution, air pollution and waste management largely under control, more urgently needed resources will become available to address long-term environmental problems such as land degradation and biodiversity loss. At the same time, international commitments entered by the Socialist Republic of Vietnam will demand increased domestic efforts as the economic situation in

---

<sup>127</sup> Cf. the institutional shortcomings identified at the National Environmental Conference of 22 April 2005, MoNRE, *supra*, note 3, p. 73.

<sup>128</sup> Specifically, staff capabilities need to be improved, monitoring systems need to be modernized and expanded, and research institutions should be better integrated to the monitoring and information management system, see MoNRE *et al.*, *supra*, note 5, pp. 37-38.

Vietnam improves, incurring a binding obligation to step up measures in the area of species protection, land and ecosystem management, biotechnology regulation, and exploration of more sustainable or even organic agri-, silvi- and aquacultural practices.

Similarly, international cooperation to mitigate greenhouse gas emissions and climate change is likely to evolve in the medium term, with developing countries – which have, to date, not been subject to quantified mitigation commitments – adopting binding obligations in return for increased technology transfer and capacity building as well as access to a rapidly growing carbon market. Accordingly, programs to improve the energy efficiency of buildings, appliances and motorised vehicles, incentivise the switch from fossil fuels to renewable or low-carbon sources, and other mitigation policies and measures will become increasingly important over time. Due to its geographic circumstances, including a long coastline and heavy settlement and economic activities in lowland areas prone to flooding and natural disasters, adaptation to the negative impacts of global warming will also become a rapidly growing priority in the medium and long term.

Broadly speaking, environmental policymakers in Vietnam will also have to identify approaches to better integrate further economic development with environmental objectives, thereby ensuring long-term sustainable growth. This will entail creating incentives for changed individual behaviour, involving communities and citizens more fully in the policy-making process, further improving institutional effectiveness by mainstreaming environmental protection into sectoral ministries and agencies, and diversifying financial sources for the implementation of priority programs by increasing involvement of and contributions from the private sector, for instance through user charges, resource pricing, and more effective use of environmental funds.<sup>129</sup>

---

<sup>129</sup> MoNRE *et al.*, *supra*, note 5, p. 37.

## **C. Environmental Fiscal Measures in Vietnam: An Assessment**

### **I. Fiscal Measures with Environmental Relevance**

While Vietnam has yet to implement a comprehensive environmental tax reform,<sup>130</sup> it has already enacted a series of fiscal measures with relevance for the protection and use of natural resources and the environment. Specifically, these are land use and natural resource taxes, and fees and charges assessed on environmentally relevant activities such as waste water discharge, mineral exploitation or producing, importing and refining petroleum products. Also, environmental incentives have been included in excise taxes, corporate income taxation, and other taxes on commercial activities, as well as in a number of charges on a wide variety of activities. For purposes of this assessment, the notion of “fiscal measures with environmental relevance” is not strictly delineated, comprising all fiscal measures that are charged on the use of the environment by economic actors, otherwise may benefit environmental protection efforts, or simply have a sufficient nexus to environmental protection to merit inclusion in this section. In accordance with the accepted nomenclature for fiscal instruments, taxes – which are compulsory, unrequited payments to the general government – will be dealt with separately from fees, charges and other compulsory levies imposed in return for a particular benefit or service.

#### **1. Taxes**

##### *a. Land Use Tax*

The Law on Agricultural Land Use Tax was issued on 10 July 1993 by the National Assembly, and entered into force on 1 January 1994, replacing an earlier Ordinance on Agricultural Tax.<sup>131</sup> Agricultural land use taxation applies to the use of state-owned land by Vietnamese individuals and

---

<sup>130</sup> On the respective mandate, see *supra*, Chapter A.

<sup>131</sup> Compared with the earlier Ordinance, the Law introduces several new elements, such as: classification of land as a basis for tax collection; a reduction in tax rates by 30%; annual collection and tax measured on the basis of rice harvested, and fixed within a ten year period, and collection in monetary form rather than agricultural produce. Under special circumstances, the tax may be collected in rice as decided by the President of the People’s Committee at the provincial and local level.

enterprises<sup>132</sup> for agri- and silvicultural purposes by virtue of a conferred land use right. Agricultural Land Use tax applies to land used for agricultural production, including: (i) cultivating land, (ii) land with water surface used for aquaculture, (iii) forest land. Land assigned for agricultural use<sup>133</sup> but left unused is still subject to the Agricultural Land Use Tax. The tax base for the Agricultural Land Use Tax are land acreage, land category and tax rate, measured by kilogram of rice over an acreage unit of that category of land.<sup>134</sup> Tax exemptions are provided for the following cases:

- bare mountainous land used for agriculture and forestry production, land in protective forest and forest of specific purpose;
- explored land used for annual cultivation (generally a five-year exemption, with seven-year exemptions for explored land in mountainous areas, damp land, and land into which the sea is encroaching) and long-term cultivation (during basic construction and three years after the first harvest; six more years of exemption is further granted to land in the mountainous areas, damp land, and land into which the sea is encroaching). For timber and long-term, one-time harvest plants, the tax is collected upon harvest;
- re-cultivated land used for long-term cultivation, land formerly cultivated on an annual basis, but transformed into long-term cultivated land, and land used for fruits, throughout basic construction and three years after the first harvest;
- explored land benefitting from investments from the state budget is entitled to tax reductions and exemptions in compliance with specific regulations by the government;
- households moving to newly-explored land areas for agricultural production purposes are entitled to tax exemptions within the regulated period and two more years. If the assigned land is being used for agricultural purposes, the tax exemption lasts three years upon assignment;

---

<sup>132</sup> Foreign organisation and individual investors in Vietnam using agricultural land already subject to land rental in accordance with the Foreign Investment Law are exempted from the Agricultural Land Use Tax.

<sup>133</sup> In other words, land for which a land use right has been granted.

<sup>134</sup> Tax rates are levied in monetary terms based on the paddy price, which is based on the profitability of the use of the land (presented by land categories used for agricultural land use purposes) and the convenience in using the land, such as the land site and infrastructures, see Yano *et al.*, *supra*, note 24, p. 173.

- in the event of disaster and diseases that cause damages to crops, the Agricultural Land Use Tax can be reduced or waived for households regarding the affected crop.

Moreover, in the context of its policy on easing the tax burden for farmers, as permitted by economic conditions, the National Assembly on 17 June 2003 introduced Resolution 15/2003/QH11 on the reduction and exemption of Agricultural Land Use Tax for land use within specified quotas. As regards revenues, the agricultural land use tax is aimed at creating revenue for the state budget, encouraging effective land use and contributing to the budget for preservation and protection of land as well as the environment.

*b. Natural Resource Tax*

On 30 March 1990, the National Assembly's Standing Committee issued the Ordinance on Natural Resource Tax to stimulate the efficient and economical use and extraction of natural resources. On 16 April 1998, a new Ordinance on Natural Resource Tax was issued to provide some amendments to the 1990 Ordinance. This Ordinance imposes a tax on organizations and individuals conducting natural resource extraction in Vietnam. Under the Ordinance, natural resource extraction comprises the extraction of metal and non-metal minerals, petroleum, gas, wild forest products, wild aqua products, water and other natural resources. Currently, the Natural Resources Tax is assessed based on the actual volume of tradable natural resources extracted, their taxable price, and a tax rate. Tax rates are categorized as follows:

- metal minerals: 1-5%, with the exceptions of gold: 2-6% and precious earth: 3-8%;
- non-metal minerals: 1-5%, with the exceptions of precious stone: 3-8% and coal: 1-3%;
- petroleum: 6-25%;
- gas: 0-10%;
- wild forest products: 1-40%;
- wild aquatic products: 1-2%, with the exceptions of holothurian, abalone and pearl: 6-10%;
- water: 0-5%, with the exceptions of natural mineral water, natural purified and canned water: 2-10%, and natural water used for hydrogen power production: 0-2%;
- other minerals: 0-10% with the exception of bird's nests: 10-20%

Revenues are allocated in their entirety to the state budget.

*c. Excise Tax*

The Law on Excise Tax was introduced in 1990, and amended and supplemented twice in 1993 and 1995. In 1998, the National Assembly introduced a new Law on Excise Tax to replace the 1990 Law, and a number of articles and provisions were further amended in 2003 and 2005. Excise is assessed on specific goods with a view to restraining the consumption of products which are detrimental to health the environment, or which represent luxury goods and services. Aside from generating revenue, thus, they are meant to deter consumers from using harmful products and facilitate participation in the profits of luxury or scarce goods. Some products which are potentially detrimental to the environment and health upon consumption, such as cigarettes, fuel, and automobiles, are subject to a high excise tax rates (5-seat or less automobiles: 80%, 6-15 seat automobiles: 50%, 16-24 seat automobiles: 25%; filter cigarettes: 45-65%, non-filter cigarettes: 25%; fuel and fuel preparations: 10%).

*d. Corporate Income Tax*

The current Corporate Income Tax Law was introduced on 17 June 2003 and has been in effect since 1 January 2004. In order to encourage enterprises to improve their environmental performance, corporate income tax law provides two sets of incentives. First, enterprises are permitted to deduct all expenses relating to investments made for the prevention and remediation of environmental pollution; machinery and equipment used in the process of processing waste water are classified into groups of fixed assets classified as subject to fast depreciation mechanisms. Second, production units investing in new innovative technology to upgrade machinery and reduce pollution are subject to generous investment incentives. Specifically, the following environmentally relevant provisions apply:

- businesses that invest in a production line, expand their business scope, acquire technologies and improve the environment are entitled to an exemption from corporate income taxation levied on the additional income generated by the additional investment and a 50% reduction for up to 7 years thereafter;
- commercial sectors active in the area of environmental protection listed in the Corporate Income Tax Law as entitled to investment privileges (List A) benefit from corporate income tax reductions

and exemptions for a range of activities.<sup>135</sup>

Preferential treatment is also offered to enterprises which move from residential areas to industrial parks.

## 2. Fees and Charges

An Ordinance on Fees and Charges, promulgated by the National Assembly Standing Committee on 28 August 2001,<sup>136</sup> regulates the competence to impose, and the collection, remittance, management and use of charges and fees.<sup>137</sup> It defines charges as “sums of money to be paid by organizations or individuals for services provided to them by other organizations or individuals”, and fees as “sums of money to be paid by organizations or individuals for state management works performed in their services by state bodies or authorized organizations”, with each further specified in the list of charges and fees issued together with the ordinance.<sup>138</sup>

As for environmentally relevant charges and fees, the Ordinance lists a number of including:

- a. fees and charges for the issue of permits and licenses, for the certification of compliance with
- 

<sup>135</sup> These include, *inter alia*:

- forest planting, long-term cultivation on wilderness land and bare mountains, land exploration, salt production, and aquaculture in unexploited areas;
- constructing solar power, wind power, and biomass facilities;
- investing in the construction of drainage system;
- applying new biological technologies in biological fertiliser and insecticide production, waste collection and processing, pollution solving, waste and disused material recycle;
- applying technologies in using or manufacturing machines and appliances that consume biomass, wind, solar, thermal, and tide power.

<sup>136</sup> Ordinance on Charges and Fees No. 38/2001/PL-UBTVQH10 of the Standing Committee of the National Assembly of 28 August 2001.

<sup>137</sup> See Article 1 of Ordinance on Charges and Fees No. 38/2001/PL-UBTVQH10, *supra*, note 136.

<sup>138</sup> See Articles 2 and 3 of Ordinance on Charges and Fees No. 38/2001/PL-UBTVQH10, *supra*, note 136.



- environmental standards, and for issuing reports assessing environmental effects;
- b. environmental protection charges on a range of commercial and industrial activities.

Items in category (a) are levies covering the costs of public services, whereas levies within the ambit of group (b) attach a price to polluting behaviour. Environmental fees and charges are regulated in greater detail by Decree 57/2002/ND-CP, dated 3 June 2002,<sup>139</sup> which guides the implementation of the Ordinance. An annex to this Decree sets out a detailed list of charges and fees to be implemented in Vietnam, and specifies a number of charges “in the domain of science, technology and environment.”<sup>140</sup> Overall, this segment lists 25 different charges, including four “environmental protection charges”:

- environmental protection charge for wastewater;
- environmental protection charge for exhaust gases from using coal and other fuels;
- environmental protection charge for solid waste;
- environmental protection fee for noise pollution;
- environmental protection fee for airports, stations, and ports;
- environmental protection charge for mineral exploitation.<sup>141</sup>

Not all of these charges have already been implemented, although several are under preparation. Existing environmental protection charges and other environmentally relevant fees and charges already enacted in Vietnam are described in greater detail below.

*a. Waste Water Charge*

On 13 June 2003, the Government adopted Decree 67/2003/ND-CP providing for the implementation

---

<sup>139</sup> Decree No. 57/2002/ND-CP of 3 June 2002, detailing the Implementation of the Ordinance on Charges and Fees; last amended by Decree No. 24/2006/ND-CP of 6 March 2006, amending and supplementing a number of articles of Decree No. 57/2002/ND-CP of 3 June 2002.

<sup>140</sup> See List Entry X in Annex A to Decree 57/2002/ND-CP of 3 June 2002.

<sup>141</sup> Items 1.1 to 1.4 in Entry X of Annex A to Decree 57/2002/ND-CP of 3 June 2002.



STT	Pollutant found in waste water		Fee collection (VND/kg of pollutants)	
	Name	Symbol	Minimum	Maximum
1	Chemical Oxygen Demand (COD)	A <sub>COD</sub>	100	300
2	Total Suspended Solids	A <sub>TSS</sub>	200	400
3	Mercury	A <sub>Hg</sub>	10.000.000	20.000.000
4	Lead	A <sub>Pb</sub>	300.000	500.000
5	Arsenic	A <sub>As</sub>	600.000	1.000.000
7	Cadmium	A <sub>Cd</sub>	600.000	1.000.000

The waste water effluent charge yields revenue for the state budget. Part of the collected charge is retained by the agencies or units collecting the charges to cover their expenses for the assessment, sampling and analysis of waste water, including periodic or random inspection, and for collection of the charge. The central budget receives 50% of the remaining revenue, which is added to the operation capital of the Vietnam Environmental Protection Fund.<sup>146</sup> Local authorities receive the other 50% to be used for environmental protection, new investment projects, sewerage, dredging, and repair and maintenance of local water drainage systems.

*b. Mineral Exploitation Charge*

On 9 November 2005, the Government promulgated Decree 137/2005/ND-CP providing for the implementation of a mineral exploitation charge with the following requirements. The mineral exploitation charge is levied on minerals which have a pronounced environmental impact, are extensively mined and benefit from convenient exploiting conditions, such as: stone, feldspar, gravel, clay, gypsum, sand, earth, coal, natural mineral water, and ilmenite (titanium ore). Rates of the environmental protection charge for mineral exploitation are specified as an absolute amount per unit of mineral product at the place of exploitation:

---

<sup>146</sup> See Prime Minister Decision No. 82/2002.

No.	Mineral	Unit	Tax level (VND)
1	Stone	m <sup>3</sup>	
a	Stone for making cement, industrial minerals and construction materials	m <sup>3</sup>	2.000
b	Ashlar facing stone and handicraft stone (granite, gabro stone, marble, etc.)	m <sup>3</sup>	500.000
2	Feldspar	m <sup>3</sup>	20.000
3	Gravel	m <sup>3</sup>	4.000
4	Clay	tonne	1.500
5	Plaster	tonne	2.000
6	Sand		
a	Construction sand, yellow sand	m <sup>3</sup>	2.000
b	Glass sand	m <sup>3</sup>	5.000
7	Earth		
a	Earth for coverage	m <sup>3</sup>	1.000
b	Earth for clinker	m <sup>3</sup>	5.000
8	Coal		
a	Coal	tonne	6.000
b	Peat	tonne	2.000
9	Natural mineral water	m <sup>3</sup>	2.000
10	Mineral Titanium	tonne	30.000

Payers of this charge are organizations and individuals that exploit the foregoing minerals. Revenues from this charge are allocated in their entirety to local budgets and used to support environmental protection activities in localities where mineral exploitation is conducted, including:

- preventing and limiting harmful impacts on the local environment where mineral exploitation activities take place;
- tackling environmental degradation and pollution due to mineral exploitation;
- studying mineral resources and planning appropriate means of exploitation for these minerals;
- sanitation, preservation and improvement of the local landscape.

*c. Petrol and Oil Fee*

On 26 December 2000, the Government issued Decree 78/2000/NĐ-CP providing for the

implementation of a petrol and oil fee, which entered into force on 1 January 2001.<sup>147</sup> In principle, the fee is levied on petrol and different petroleum-based fuels and lubricants imported into and consumed in Vietnam, specifically automobile petrol, solvent naphtha (industrial petrol), airplane petrol and other types of petrol, diesel oil, kerosene, fuel oil, lubricant and other types of oil (excluding cooking oil), and lubricating grease. Subjects of this fee are organizations and individuals who import (even as mandatory importers), manufacture or process oil and petrol products liable to the fee for export or for sale in Vietnam. Petrol and oil charges are one-time payments collected upon sale or distribution of imported petrol and oil (including the mandatorily imported petrol and oil), manufacture, processing (including manufacture for domestic consumption), or export, mandatory export and sale to other organizations and individuals. The base for levy the charge is the consumed volume in Vietnam with specific rates as follows:

- petrol of all types, including petrol for automobiles, airplanes, industrial production, and other types: VND 500/litre.
- diesel oil: VND 300/litre.

Currently, the fee is not being applied to paraffin, heating oil, and lubricants. Payers of this levy are obliged to declare and pay the charge to the state budget. All revenue from the fee is directed to the state budget and utilized in accordance with the current Law on the State Budget. Generally, international experience has shown that levies on fuels and lubricants are able to generate significant revenue, both in developing and developed countries. In Vietnam, however, revenues from the Petrol and Oil Fee have remained modest.<sup>148</sup>

*d. Other Charges, Fees and Tolls*

On 20 January 2005, the Ministry of Finance issued Decision No. 08/2005/QĐ-BTC regulating the collection, payment, management and usage of veterinary fees and charges. Foreign and domestic

---

<sup>147</sup> See also Ministry of Finance Circular 06/2001/TT-BTC of 17 January 2001 guiding the implementation of Decree 78/2000/NĐ-CP, and Ministry of Finance Circular 70/2002/TT-BTC of 19 August 2002 guiding the amendment of and supplementing Circular 06/2001/TT-BTC.

<sup>148</sup> Yano *et al.*, *supra*, note 24, p. 173.

organizations and individuals requesting competent state authorities to conduct veterinary work are liable to pay veterinary fees and charges in accordance with this decision.<sup>149</sup> The authorities collecting these fees and charges are entitled to retain 90% of the collected amount to cover management and collection expenses; the remaining 10% shall be remitted to the State budget in the corresponding chapters, groups, sub-groups, items and sub-items of the State budget nomenclature.

On 17 November 2003, the Ministry of Finance issued Circular 110/2003/TT-BTC regulating the rates, payment procedures, management and use of fees and charges in the area of plant protection and quarantine, and management of chemicals used on plants. According to this Circular, foreign and domestic organizations and individuals engaged in plant protection and quarantine as well as in the management of chemicals used on plants are subject to these fees and charges. There are 11 fees prescribed in this circular, including, for instance, fees for granting licenses and import certificates for insecticide production and trading.<sup>150</sup> Rates are prescribed in a table, and the authorities collecting these fees and charges are entitled to retain 20% of the collected fees and 80% of the collected charges for designated purposes; the remainder shall be remitted to the state budget in the corresponding chapters, groups, sub-groups, items and sub-items of the state budget nomenclature.

Fees and charges for fisheries resources conservation are regulated by Ministry of Finance Decision 20/2000/QĐ-BTC dated 21 February 2000 and Circular 77/2000/TT-BTC of 25 July 2000. Payers of these fees and charges are domestic and foreign organizations and individuals engaged in aquaculture activities after the grant of operation permits and inspection of fishing facilities, and after an

---

<sup>149</sup> Such fees and charges include: a fee for granting permits for animal quarantine, slaughter control and veterinary hygiene inspection; a fee for granting licenses for veterinary medicine production and trading; a fee for granting a veterinary business license; a charge for preventing epidemics in animals; a charge for veterinary diagnoses; a charge for parasite tests; a charge for quarantining animals and their products; a charge for controlling slaughter and inspecting veterinary hygiene; a charge for testing veterinary medicine for animals; and a charge for appraising conditional agriculture business.

<sup>150</sup> Charges prescribed in this circular relate to the appraisal and quarantine of plant protection chemicals, including the appraisal of conditional agricultural business; appraisal of quality of plant protection chemicals; registration for inspection, sampling and quarantine of quality of import/export plant protection chemicals; quarantine of residues of plant protection chemicals; and test of new plant protection chemicals, as well as quarantine of plants.

assessment of product quality by a state agency as stipulated in the law. 25 fees for the grant of permits are prescribed in this decision, with rates varying in accordance with the services accorded.<sup>151</sup> Authorities in charge of collecting fees and charges for fisheries resources conservation – consisting of the Department of Fisheries Resources Conservation under the Ministry of Fisheries, the Division of Fisheries Resources Conservation, and local fisheries centres – are entitled to retain 40% of the overall amount of fees and charges collected to cover the expenses of assessment and collection. The remainder (60%) must be remitted to the state budget, and is earmarked for fisheries resources conservation as specified in approved projects by a responsible agency.

A fee for the granting and extension of environmental standard certificates is regulated in the Ministry of Finance Circular 60/1998/TT-BTC of 13 May 1998. According to this circular, organizations and individuals granted an environmental standard certificate by a state environment management agency, or in possession of such a certificate and wishing to extend it, are obliged to pay this fee. Business establishments obliged to conduct environmental appraisal and prepare environmental impact reports are subject to a fee of VND 300,000 per certificate, and for its extension of VND 150,000 per certificate per extension; business establishments obliged to make a list of their business activities affecting the environment are subject to a fee of VND 150,000 per certificate, and for each extension of VND 80,000 per certificate.

---

<sup>151</sup> Such charges are comprised of charges for the inspection of safety of means and equipment, the inspection of veterinary hygiene of aquatic resources, a quarantine charge, a test charge and charges for the inspection of the quality of aquatic resources.

### **Box: Local Fees and Charges implemented by the People's Councils**

On 30 July 2003, the Ministry of Finance issued Circular 71/2003/TT\_BTC guiding the implementation of fees within the authority of provincial People's Committees. This Circular was invalidated on 12 November and replaced by Circular 97/2006/TT-BTC dated 16 October 2006 guiding charges and fees within the authority of provincial People's Councils and centrally run cities. Some of these charges and fees are relevant to environmental protection, notably:

*A charge for appraisal of environmental impact assessment reports* is collected to cover part or the entirety of expenses for the appraisal of environmental impact assessment reports and for the collection of the charge. Charge rates are dependent on local conditions and correspond to the size and sector of the project or the complexity of appraisal work, but the maximum rate must not exceed VND 5,000,000 per report. In case of appraisal for additional environmental impact assessment reports, the charge rate must not exceed 50% of the rate applicable to the official report.

*A sanitation charge* is collected to cover part or the entirety of investment expenses for the collection and treatment of waste in localities, such as operation expenses of units collecting garbage, transporting, or treating garbage according to the technical process prescribed by competent agencies. Charge rates vary according to paying subjects, and are capped at a maximum of VND 3,000/person/month or VND 20,000/household/month for individuals and households, VND 100,000/unit/month for petty business households, schools, kindergartens, and working offices of enterprises, administrative and non-business agencies, VND 200,000/establishment/month or VND 160,000/m<sup>3</sup> of waste for shops, hotels and restaurants, depending on size, and VND 160,000/m<sup>3</sup> of garbage for factories, hospitals, production establishments, markets, railway stations and car terminals. For construction works, the charge rates may be based on waste volumes or a percentage of the work construction and installation value, but must not exceed VND 160,000/ m<sup>3</sup> of garbage or 0.05% of the work construction and installation value. For hazardous waste, which requires strict observance of regulations on waste collection, transportation and treatment, provincial level People's Councils shall prescribe the charge rates for each specific case in accordance with local conditions.

*A charge for natural disaster prevention and mitigation* is levied on production and business establishments and households in localities to serve natural disaster prevention and combat work in localities. Charge rates are dependent on subjects and environmental impact levels. For business and production establishments conducting activities without negative impact on environment, the maximum charge rate must not exceed VND 100,000/year. For business and production establishments conducting activities with directly negative impact on environment, such as natural resource or mineral exploitation, the applicable charge rate may be higher but must not exceed VND 1,000,000/year. For households, the maximum charge rate must not exceed VND 5,000/household/year.

*A fee for the grant of permits for exploration, exploitation and use of ground water or surface water and for discharge of wastewater into water sources or irrigation works* is collected from persons who are granted by competent state agencies permits for exploration, exploitation and use of ground water or surface water and for discharge of wastewater into water sources or irrigation works in accordance with law. Fee rates must not exceed VND 100,000/permit. For the cases of extension or adjustment of contents of permits, the maximum fee rate must not exceed 50% (fifty per cent) of that applicable to the first-time grant of permits.



With a view to the objectives enshrined in the Law on Forest Development and Conservation, the Ministry of Finance and the Ministry of Agriculture and Rural development (MARD) jointly issued Circular 80 TC/TCT of 21 December 1996, which stipulates the collection and payment of fees for the appraisal of business operation conditions and for granting wood and forest product exploitation permits. Subject to payment of these fees are organizations and individuals active in the manufacture and processing of lumber and other forest products applying for an appraisal of their production facilities and a permit by an authorized agency. The appraisal fee is VND 500,000 per enterprise, and the permit granting fee (including initial granting, renewal or change of permit) is VND 100,000 per permit. For the time being, the fee collection bodies are entitled to retain 50% of the total fee revenue to cover their collection expenses. The remaining fee revenue is destined for the state budget.

On 31 December 2007, finally, the Ministry of Finance issued Circular 96/1997/TT-BTC stipulating procedures for the collection and payment of a fee for granting mineral extraction permits. This Circular was invalidated on April 8, 2005 and replaced by Circular 20/2005/TT-BTC dated 16 March 2005. According to this Decree, domestic and foreign organizations and individuals granted mineral extraction permits are obliged to pay this fee for mineral surveys, exploration, and exploitation (including full extraction). The fee rates for granting mineral extraction permits are specified as follows: for mineral survey permits: VND 1,000,000/permit; for mineral exploration permits: VND 2,000,000/permit; for mineral exploitation permits: VND 4,000,000/permit; for mineral full extraction permits: VND 500,000/permit; for processing permits: VND 2,000,000/permit. Different rates apply for the mere renewal of permits already conferred. Administrative bodies in charge of the collection of this fee are empowered to retain 20% of total fee revenue to cover the costs of collection.

## II. Implementation and Effectiveness of Existing Measures

### 1. Overview

As the foregoing section has shown, fiscal instruments with relevance for the environment have already been implemented at various levels in Vietnam through a series of taxes, fees, and charges. Of these, some have also succeeded to varying degrees in promoting more sustainable behaviour and business practices. Altogether, however, fiscal instruments in Vietnam have not proven as effective in their environmental policy objectives as decision makers might have hoped, due to a number of reasons. Both the positive effects and weaknesses are briefly explained below, followed by a more in-

depth analysis of the experiences made with select instruments.

*a. Benefits*

Generally, fiscal instruments have not necessarily exerted a direct influence on the behaviour of economic actors, but they have been successful in elevating overall awareness about environmental issues and the importance of sustainable business practices. Large industrial polluters, in particular, have become more conscious of the detrimental effects of their activities, and may have started to explore opportunities to reduce their environmental impact through – *inter alia* – deployment of more advanced technologies and active measures to reduce pollutant discharge. Mostly, this is has been a result of assigning a price to environmental pollution, thereby creating an economically relevant incentive to both private and corporate actors.<sup>152</sup> While the level of rates imposed has a strong influence on the effectiveness of this price signal, even a low or moderate rate already becomes a factor in corporate planning and strategy. A second important benefit relates to the revenue side. Public budgets for environmental policy implementation, including the generation of capacities to address growing environmental pressures in the areas of water pollution, waste management and air pollution, are currently under great strain. Although rates are still not sufficient to cover the actual costs of all required public services, such as adequate sewage treatment, solid waste collection and disposal, and monitoring and enforcing pollutant standards, the taxes and charges currently implemented have already yielded urgently needed revenue, part of which is regularly earmarked for environmental policy purposes.<sup>153</sup>

*b. Shortcomings*

Despite the general benefits outlined above, the environmental fiscal measures currently applied in Vietnam still tend to suffer from a number of shortcomings. Altogether, while the Ordinance on Fees

---

<sup>152</sup> In essence, this is the reflects the objective of internalizing previously external costs of pollution borne by society at large, and thus implementing the “polluter pays” principle. Still, as argued in the next section, current rates in Vietnam are still a long way from internalizing the full environmental costs of polluting behavior.

<sup>153</sup> For further discussion, see below, Chapter II. 2. and 3.

and Charges<sup>154</sup> goes at least some way towards creating a broader framework for environmental levies, Vietnam still lacks a coherent and systematic policy on environmental fiscal instruments. A number of legal documents set out environmentally relevant taxes, charges and fees at the national and local level, but these are fragmented and generally very specific in scope. Conceptual differences in the purpose and function of taxes and charges become blurred, and rate payers face difficulties in establishing the link between these various fiscal burdens and the objective of securing a cleaner, healthier environment. In the documents themselves, environmental objectives are often not clearly defined and communicated. Due to the comparatively low rates and a design commonly geared more towards generation of revenue than altering environmentally detrimental behaviour, the foregoing measures have had an altogether limited impact on the environmental performance of subjects from which they are collected.

Importantly, current pollution charges are static, and are typically based on concentrations exceeding certain national or local pollution standards. As a result, polluters may respond by diluting effluents rather than minimising their discharge, rendering the instrument a perverse incentive. By only penalising pollution in excess of certain standards, moreover, the scheme approximates a regulatory measure.<sup>155</sup> Where rates are static rather than dynamic, small, low-income or low-capacity point sources (such as households or craft villages) may be affected in inequitable ways relative to large polluters. On the revenue side, moreover, a major part of the revenue from charges and fees is retained by the agencies levying these instruments. With current rates, the amount of revenue thus retained is often insufficient to cover even these administrative costs, that is, the costs of monitoring compliance and determining the basis for assessment, collecting revenue, and distributing it in accordance with the statutory purpose; consequently, part of the administrative costs still has to be covered by the central budget. Rates should ideally be sufficient to cover abatement costs, such as treatment and disposal services provided by local governments. And finally, institutional coordination among the relevant national and local authorities is still largely in need of improvement, with shortages in monitoring and

---

<sup>154</sup> See Ordinance on Charges and Fees No. 38/2001/PL-UBTVQH10, *supra*, note 136, and Decree No. 57/2002/ND-CP of 3 June 2002, *supra*, note 139; currently, only about one half of the fees and charges listed in the annex to this decree has already been implemented.

<sup>155</sup> Yano *et al.*, *supra*, note 24, p. 197.

enforcement capacities at all levels and a general lack of technical expertise.

## 2. Taxes

### a. *Land Use Tax*

As currently implemented, the Land Use Tax cannot be categorized as a true environmental tax, given that it is not directly imposed on environmental pollution as such. Its purpose is primarily to encourage economic and effective land use, and simultaneously ensure equity in the contributions to the State Budget from organisations and individuals using land.<sup>156</sup> Still, by being levied on agricultural production activities, this tax does possess a certain environmental relevance because of the inevitable environmental impacts of agriculture. Overall, the Land Use Tax has served, to some extent, to promote more effective use of agricultural land and transform crop structures. Still, the environmental aspect of the land use tax could be defined more clearly, and the basis for its assessment could easily be amended to provide stronger incentives for environmentally sustainable agricultural practices. Rates may be defined to reflect variations in regional development and density, and extend beyond agricultural land to also include urban areas.

Environmental impacts could be better internalised by compiling a list of activities practised and facilities installed (or absent) on the land in question, multiplying current rates by a factor determined in accordance with the typical environmental impact of each activity and installation. Thus, production of fertiliser- and pesticide-intensive crops or soil coverage due to urbanisation and infrastructure construction could both be penalised with a slightly increased Land Use Tax. Such a factor should be low, however, as it would prove a fairly blunt means of internalising environmental impacts and thus only sets a fairly static incentive. Currently, at any rate, the Land Use Tax is geared towards encouraging further land use and exploitation, providing very limited incentives to limit such activities or engage in more sustainable approaches.

### b. *Natural Resource Tax*

As enacted, the Natural Resources Tax Ordinance aims at: (i) ensuring budget revenue, (ii)

---

<sup>156</sup> Yano *et al.*, *supra*, note 24, p. 172.

contributing to the economical, reasonable and effective protection, exploration and use of natural resources, and (iii) contributing to environmental protection.<sup>157</sup> On a very broad level, the introduction and application of the Natural Resource Tax has had the positive effect of promoting more efficient exploitation of natural resources while generating revenue for environment protection and development purposes. Unfortunately, the application of this tax is again characterised by a number of shortcomings. Currently, rates applied under the Natural Resource Tax are not differentiated in accordance with resource quality or exploitation and transportation conditions, and are not calculated so as to account for corporate reserves generated through the exploitation of natural resources. Moreover, the tax is based on the selling prices of natural resources, an approach that does not reflect environmental objectives or account for the environmental impact of a particular extraction technology. Consequently, the tax is not truly mobilising the environmental incentives an appropriately designed Natural Resource Tax could provide for more sustainable extraction practices.

*c. Excise Tax*

Experience in recent years has shown that any adjustment in excise tax rates has a distinctly noticeable effect on the consumption of taxable goods in Vietnam, thereby helping to limit the consumption of environmentally detrimental commodities. In part, this can be explained by the comparatively high rates applied to luxury products and products with detrimental effects on human health and the environment. Conceptually, however, excise taxes are still geared towards generating revenue for the central budget. While they clearly influence consumption patterns, this effect is blunt and does not provide differentiated incentives, for instance through higher rates for cars without catalysts. Accordingly, achievement of an environmental objective and regulation of activities with negative consequences for the environment and human health are not genuine objectives of excise taxes.

*d. Corporate Income Tax*

As a direct tax assessed by way of a percentage of corporate income, corporate income taxation has a direct impact on corporate net income. Depending on their specific design, corporate income taxes can thus create strong incentives and thereby affect corporate behaviour. Accordingly, corporate income

---

<sup>157</sup> Yano *et al.*, *supra*, note 24, p. 173.

taxation offers an attractive vehicle to motivate better environmental performance and a shift to more sustainable practices by corporations. In Vietnam, the corporate income tax has, to some extent, encouraged enterprises to reduce environmental pollution in order to benefit from preferential tax rates. Nevertheless, sustainable business practices and pollution minimisation are not encouraged clearly enough to realise the full potential of corporate income taxation as a powerful environmental incentive. In absolute terms, the incentives currently set out in the Corporate Income Tax Law still fall short of actual costs incurred by introducing more sustainable processes and investing in more advanced technologies. Strategic decisions taken by corporate boards tend to focus on near-term profits, thereby lessening the effectiveness of the incentives currently in place. Moreover, enforcement of corporate income taxation is still weak, with evasion often a viable and all too frequently practiced option.

### **3. Charges, Fees and other Levies**

#### *a. Waste Water Charge*

As with the foregoing instruments, one of the most palpable effects of the waste water charge has been creation of greater awareness in individuals, households, enterprises and other institutions as to their responsibility for environmental protection. Although it is difficult to measure such effects and altogether impossible to trace clear causal pathways, the waste water charge is generally perceived as having influenced behaviour towards reduced waste water generation. More specifically, the charge imposed on industrial waste water, which is calculated in accordance with pollutant concentrations and effluent volume, provides a straightforward incentive to process industrial effluent and reduce its pollutant charge. Importantly, this charge avoids the mistake of merely basing its rates on concentrations without also taking into account volumes, an approach that can exert a perverse incentive to use greater water quantities in order to dilute effluent concentrations. Moreover, rates are already payable at very low concentrations, not only when specified concentrations are exceeded; inclusion of thresholds would stifle the economic incentive and largely render the charge a regulatory measures.<sup>158</sup>

---

<sup>158</sup> Yano *et al.*, *supra*, note 24, p. 197.

By contrast, the charge applied to household waste water is incorporated into the price of clean domestic water, at best promoting more economical use of water by individuals and households. For reasons of monitoring capacity, however, it is also difficult, if not impossible, to implement a load-based charge for domestic households;<sup>159</sup> accordingly, international practice also generally reflects a tendency to opt for flat or volume-based rates, rather than rates based on pollutant concentrations.

On the revenue side, the waste water charge has been yielding relevant contributions to the state budget. In 2004, the total revenue collected through this charge was 71.8 billion VND, in 2005 186.1 billion VND, and in the first half of 2006, 55.3 billion VND. By far the largest part of these revenues stems from charges on domestic waste water, while industrial effluent discharge merely contributing between 10% and 20% of the overall revenues collected. Regionally, these revenues are concentrated in large urban areas, with Ho Chi Minh City accounting for 16.9 billion VND in 2004 and 80.1 billion VND in 2005, and Hanoi contributing 19.8 and 19.03 billion VND, respectively.

Accordingly, application of the waste water charge has yielded considerable additional funds for local budgets earmarked for environmental protection activities, new investments, drainage dredging, and overhaul of the local drainage system.<sup>160</sup> But once the costs of implementation are subtracted, the remaining sum remains entirely inadequate to cover the actual costs of necessary sanitation measures and establishment and maintenance of vital infrastructures. Ho Chi Minh City alone spent 82 billion VND in 2005 on cleaning and overhauling the drainage system, a sum exceeding the aggregate revenue collected through application of the waste water charge. This suggests that rates are still too low, leaving ample room for further increases.<sup>161</sup>

Partly funded with the revenue from the waste water charge, the Vietnamese Environmental Protection Fund (VEPF) has provided loans at concessional interest rates and sponsored investment projects in environment protection. Between 2004 and 2006, the Fund provided concessional loans to 13 projects, with an approved capital in excess of 35 million VND disbursed to a variety of activities. Beneficiaries

---

<sup>159</sup> Yano *et al.*, *supra*, note 24, p. 175.

<sup>160</sup> For details, see *supra*, C.I.2.a).

<sup>161</sup> Yano *et al.*, *supra*, note 24, p. 175.

include the Lao Cai cement company, Thanh Cong environmental services cooperative, Xuan Mai Environment Company, Ha Tay KimBai Beer company, and the Dung Quat infrastructure development company. In the same time frame, moreover, the fund sponsored environmental projects in different areas of Vietnam, including Nam Dinh and Thanh Hoa provinces and other areas of Southern Central, with a total capital in excess of 600 million VND. Although such projects and initiatives in the provinces and cities are generally small in scale, the availability of capital at preferential rates has helped create favourable conditions for the development and application of other economic measures.

On the negative side, it can be observed that some localities have been delaying the application of the waste water charge, or have faced significant capacity challenges in its collection. Also, the amount of fees collected has been altogether lower than estimated. Most provinces and cities in the focus basins are collecting the fee, with initial exceptions including Hai Duong, Bac Kan, Ha Tay and Ninh Binh. Due to limited technical and administrative capacities, the collection of the charge on industrial waste water effluent remains constrained and does not reach the potential this instrument could otherwise achieve.

*b. Mineral Exploitation Charge*

Although the types of minerals extracted vary from location to location, all ten minerals falling within the scope of the mineral exploitation charge under Decree 137/2005/ND-CP are currently subject to levying in practice, with extraction of construction materials (such as earth, sand, stone, gravel) at the local level forming the main part of pertinent activities. Local governments largely agree that, as a new instrument, the fee has helped identify appropriate subjects for the charge and is fostering a sense of financial responsibility towards the government in affected industries. As such, this charge has thus created a fertile basis for expanding fee collection to other minerals and extracting activities. In its application to date, moreover, the environmental fee on mineral exploitation has generated considerable revenue for local re-investment into measures to address environmental impacts following from exploitation activities. Aggregate revenue collected in 44 provinces and central cities in 2006 exceeded 328 billion VND. Adding to the benefit of significant revenue generation, the charge has also encouraged its subjects to explore improved management techniques for mineral exploitation. Meanwhile, local authorities have been encouraged to improve the administration of mineral exploitation within their jurisdiction.



Still, a number of shortcomings remain in the implementation of this charge, requiring further study. For one, the charge is currently only applied to a limited catalogue of 10 minerals, creating inequity and limiting its ability to change corporate and individual behaviour. As the implementation of this charge becomes a matter of routine for implementing authorities, an expansion of its scope should be considered to ensure that responsibility for environmental rehabilitation extends equally to other relevant extraction activities, such as metal and crude oil exploitation. Moreover, the level of this charge might be excessive for some minerals relative to their current market prices, and exceeds the levels currently assessed under the Natural Resources Tax. Additionally, mineral prices are far from uniform across different extraction locations, yet the fee is levied at the same flat rate throughout the country. In order to further improve the implementation of this charge, it might become necessary to draw on extensive cooperation by responsible agencies and organisations to elaborate a new decree revising, amending or replacing the current Decree 137/2005/ND-CP.

*c. Petrol and Oil Fee*

Systematically, petrol and oil fees have had the character of a tax because their revenue does not serve to fully compensate the cost of measures counteracting air pollution, instead contributing to the general state budget. In Vietnam, fees on petroleum and oils are applied as indirect taxes because they are included in the sales price of these products; as a result, it is difficult to quantify the environmental effects flowing from their application, although they clearly impact demand the result in decreased consumption levels as prices increase.<sup>162</sup> As with the foregoing instruments, the petroleum and oil fees have helped create an incentive to utilise natural resources – in this case fuels and lubricants – more economically, thereby helping reduce the discharge of environmental pollutants such as SO<sub>2</sub>, CO and NO<sub>x</sub>, and of greenhouse gases such as CO<sub>2</sub> and fostering greater public awareness of the important objective of environmental protection. At the same time, the revenues they yield can be applied to various social priorities, including environmental protection services and measures by the government.

Still, the rates of these fees are not differentiated in accordance with the pollutant or carbon content of each petroleum product, thereby only creating a general incentive to reduce consumption, but not leveraging the potential to mobilise a shift from more polluting to cleaner fuels and lubricants. Being

---

<sup>162</sup> Yano *et al.*, *supra*, note 24, p. 174.

imposed as an absolute amount, moreover, the fee does not take into account changes in crude oil prices. Additionally, the fee liability is comparatively low, resulting in a fairly weak incentive for energy saving and environmental protection.

*d. Other Fees and Levies*

Some other levies, although not specifically designed to influence behaviour, have also proven important sources of revenue for environmental protection purposes. Such charges include, for instance, the charge for environmental impact assessment (EIA) procedures and the compilation of an environmental impact assessment report.<sup>163</sup> Generally, the environmental benefits of such fees are largely limited to fostering overall environmental awareness and better understanding of individual and collective responsibilities for compliance with environmental requirements. In many cases, their collection can help improve monitoring, examining and inspection capacities of state authorities, an important prerequisite for more effective enforcement of regulatory and economic measures of environmental policy.

### III. Recommendations for Improvement and Reform

As the foregoing section has sought to illustrate, environmentally relevant levies currently applied in Vietnam suffer from a number of weaknesses that curtail their effectiveness as instruments to guide behaviour in environmentally desirable ways and provide incentives for improved collective or individual environmental performance. Although many of the taxes, fees and charges discussed here succeed in yielding revenue for the state budget and, in some cases, for specific environmental purposes, they thus only tend to leverage one of the twin effects offered by environmental fiscal instruments. Altogether, there remains significant potential to strengthen the behavioural incentives following from existing levies. At the same time, a number of additional fees and charges with environmental relevance have been proposed or are under preparation in accordance with Ordinance

---

<sup>163</sup> Since 1994, new investments and existing projects are required to conduct an environmental impact assessment and compile an EIA report. The report is part of the prerequisites for an approval of the project operation or the granting of a permit. of environmental permit. Specific problems encountered in the practical application of this levy have included insufficient consideration of this fee in budget projections for state funded projects.

on Charges and Fees No. 38/2001/PL-UBTVQH10.<sup>164</sup> Moreover, in the process of a broader environmental fiscal reform, transformation of current charges and fees levied by local governments into taxes accruing to the central budget may be considered, necessitating an appropriate roadmap and guiding principles. Drawing on the shortcomings identified above, this section therefore formulates a number of tentative proposals for the improvement of existing and future fiscal measures with environmental relevance.

Application of fiscal instruments for environmental purposes is still a relatively new concept in Vietnam. Still, despite being an economy in transition, Vietnam stands to benefit from increased application of environmental fiscal instruments. As a resource-rich country, natural resource pricing measures, such as taxes for forests and fisheries exploitation, can become a central source of revenue and help avert severe damage to the natural environment, which in turn will compromise the long-term economic prospects and livelihoods of those depending on environmental services for income. Reforms of product subsidies and taxes are also an important option to consider, as are more ambitious cost recovery measures, such as user charges on energy and water, to reduce the strain on public budgets and improve the provision of public services. Finally, as administrative capacities improve, Vietnam should consider pollution charges to offset the detrimental impacts of rapid industrialisation,

---

<sup>164</sup> Fees and charges under consideration include, *inter alia*:

- a charge for emissions from the utilization of coal and other fuels;
- a charge for solid waste;
- a charge for airports, stations and ports;
- a charge for the exploitation of petroleum, fuel and other minerals;
- a charge for the use of radiation safety services;
- a charge for the appraisal of radiation safety;
- a charge for the appraisal of conditional scientific, technological and environmental businesses;
- a fee for granting permits for wood and forest product exploitation;
- a fee for granting permits for special transportation of precious forest animals;
- a fee for granting permits for special transportation of precious forest plants;
- a fee for granting permits for the discharge of waste water into water sources and irrigational works;
- a fee for granting certificates for the registration of radiation sources and radiation machines;
- a fee for granting certificates for the registration of radiation storage locations.

such as industrial pollution and air and noise pollution arising from motorised traffic.

Currently implemented instruments already seek to leverage some of this potential, although rates are usually too low to effect significant behavioural change, and their application is insufficiently monitored and enforced due to lacking administrative capacities. Moreover, they allow for no or little differentiation between environmentally preferable and environmentally undesirable behaviour alternatives, constraining the incentive effect. Still, they have served a valuable purpose as a learning experience both for implementing agencies and the rate-paying public.<sup>165</sup>

Needless to say, the elaboration and implementation of new fiscal instruments will again raise a number of complexities, requiring careful consideration of the economic, social and legal circumstances under which they are applied. Frequently, the adoption of new and untested levies can be obviated by incorporating or strengthening environmental incentives in existing levies, avoiding lengthy preparation and legislation procedures. Whenever new levies are inevitable, their subsequent implementation can be rendered significantly more effective if they are designed in a manner that is transparent, pragmatic and operationally feasible. Altogether, any new fiscal burden should therefore aim at the fundamental principles of fiscal neutrality, conceptual simplicity, and fairness to ensure a high level of acceptance by rate payers.<sup>166</sup>

Generally, the measure of success for any environmental fiscal instrument must lie in its ability to promote several desirable objectives simultaneously:

<b>Fiscal benefits</b>	<b>Environmental benefits</b>
Revenue mobilisation	Pollution prevention and improved natural resource management
Reduced distortions	Mobilisation of funds for investment in pollution control and safe disposal of waste
Reduced drains on public finances	Mobilisation of funds for enforcement activities

---

<sup>165</sup> Yano *et al.*, *supra*, note 24, p. 176.

<sup>166</sup> Yano *et al.*, *supra*, note 24, p. 202.

*Source: Organization for Economic Cooperation and Development (OECD), Environmental Fiscal Reform for Poverty Reduction (Paris: OECD, 2005), p. 12.*

Moreover, rates should ideally be set at the meeting point of marginal cost of abatement and marginal social cost of environmental damage. But typically, stakeholder interests and economic realities will prompt inclusion of detailed provisions on rates, exemptions and abatements, precluding the desired level of operational simplicity. Political pressures and lagging capacities tend to prevent calculation of rates based on the theoretical ideals set out by environmental economics. With a view to these constraints, the following recommendations seek to balance theoretical recommendations and factual circumstances in a rapidly developing economy, setting out tentative suggestions for discussion when designing and amending environmental fiscal instruments in Vietnam.

## **1. Reform or Substitution?**

General experience shows that new fiscal burdens are, as a rule, opposed by ratepayers. Reforming existing taxes will therefore prove easier than introducing entirely new fiscal concepts. Where new measures are inevitable, concerted efforts to build acceptance and inform stakeholders are therefore absolutely crucial if the political and institutional challenges facing such measures are to be overcome. A key step lies in analysing the political context and identifying likely winners and losers in order to anticipate the incidence of costs and benefits from a proposed reform, informing the design of compensatory or mitigation measures for the losers, and devising ways of building broad-based support for reform, which will help ensure the reforms are successfully implemented.

## **2. Promoting Environmental Incentives**

Instruments of environmental pricing currently applied in Vietnam, this translates into the following general recommendations. Additionally, a reform of existing or introduction of new instruments should consider the following guidelines:

- most importantly, charges imposed on waste water and, in the future, on solid waste and air pollutant emissions need to be increased to reflect the actual costs of abatement. Rates are generally too low to recover the actual costs of the service provided, such as waste water collection and treatment, requiring significant subsidies and threatening a vicious circle where shortages of funds for maintaining affected infrastructures degrade the quality of the service, in

turn lowering the willingness-to-pay and hence future revenues (“low-level equilibrium trap”);

**Box: Avoiding the “Low-level Equilibrium Trap”**

An innovative approach in the city of Conakry in the West African state of Guinea shows how creative financing can help break out of the vicious circle described above. In 1987, the government water utility functioned very poorly, and the quality of services in Conakry was low. The government decided to attract the private sector, an approach that had worked well in the Ivory Coast. The problem was clear — no private company would be interested in a contract when revenues were only a fraction of the costs. To address this problem, the private operator was assured of sufficient revenues by a combination of (initially low, but rising) revenues from users and (initially high, but declining) subsidies from the government (largely paid out of credit from a development agency). They used a time-bound, transparent “transition subsidy” to improve services, and then raised tariffs for the improved service.

*Source: World Bank, Environmental Fiscal Reform - What Should be Done, and How to Achieve It (Washington, D.C.: IBRD, 2005), p. 48*

- where possible, environmental pricing should be differentiated in accordance with environmental impact or performance (for instance imposing higher vehicle registration rates on vehicles without a catalyst or leaded fuel), dynamic, and take into account the substitutability of undesirable behaviour or inputs, i.e. the availability of viable alternatives (affordable vehicles with catalysts; unleaded fuel);
- environmental pricing instruments should take into account geographic and temporal circumstances: addressing air pollution in certain urban “hot spots” with a general fee on fossil fuels is blunt and largely ineffective, whereas a combined approach of road or congestion pricing with environmentally differentiated tax rebates on unleaded and low sulphur fuels and vehicle registration or ownership charges differentiated in accordance with the environmental performance of the vehicle will prove far more effective;
- where environmental pricing instruments are to be charged based on pollutant concentrations, they should take into consideration the total amount of pollutants, or else they may create a perverse incentive to dilute emissions and thus waste resources (the current waste water charge for industrial effluents avoids this perverse incentive);
- where environmental pricing instruments are to be imposed on the discharge of pollutants, the instrument should not only apply to emissions in excess of certain threshold values or environmental standards, as this counteracts the economic incentive and partly renders the instrument a measure of command-and-control regulation (the current waste water charge for

industrial effluents avoids this shortcoming);

- where capacity constraints prevent – generally preferable – direct application of environmental pricing to the undesirable pollutant or behaviour, as is frequently the case with small polluters and nonpoint-source pollution (e.g. households, transport), pricing may still be possible by adopting an upstream rather than a downstream approach, for instance by targeting particular inputs or products (fuel, hazardous chemicals), ideally such closely connected to the undesired environmental impact;
- in a situation of high inflation, the environmental incentives arising from price-based instruments can be significantly compromised. While this may be counteracted to a limited extent only, indexing the instrument to inflation rates can help reduce said effect;
- finally, in transition economies with high level of state-owned enterprises, fiscal burdens arising from environmental pricing are frequently passed on to consumers without prompting environmental innovation at the source of pollution; this may be addressed through privatisation and safeguarding effective competition, although such choices involve a range of complexities and simultaneous objectives the need to be taken into account.

### **3. Improved Use of Revenue**

Generally, public finance doctrine suggests that allocation of revenues from price-based instruments for predetermined purposes (earmarking) is undesirable, as it limits flexibility to reallocate funds a needed over time, and fails to take into account changing circumstances and priorities. Still, partial earmarking of the proceeds from environmental pricing instruments to monitoring and enforcement activities can be justified to ensure predictable financing for these activities; in such cases, however, international experience suggests that funds are used more effectively if allocated to the local (regional and municipal) level than if they are channelled centrally, since local authorities have the best understanding of their own financing needs.

Likewise, “revenue recycling”, which involves returning part of the proceeds to ratepayers, may help generate public acceptance and support for environmental pricing. In such cases, however, financial reflows need to discriminate between good and bad performers, and discourage continuous bad practice. Finally, revenues from environmental pricing instruments should be managed in line with standard budget management procedures, relating to fiscal discipline, efficient allocation of public funds, operational efficiency, accountability, transparency and comprehensiveness of the budget.

Where revenues are used to encourage investment in environmentally preferable equipment and methods, this should be strictly time-bound.<sup>167</sup> Currently, a significant portion of the revenue from environmental levies applied in Vietnam is allocated to specialised funds, notably the Environmental Protection Fund. This is not altogether negative, but should be subject to careful scrutiny as to the operation and effectiveness of this fund.

#### **4. Distributional Impacts and Competitive Distortions**

Deploying instruments of environmental pricing will typically affect a number of stakeholders, including poor and vulnerable groups, general households, small-, medium- and large-sized enterprises, civil society, governmental agencies, and political decision makers. Acceptance of such instruments can largely depend on their impact on poor and disadvantaged elements of society as well as on the competitiveness of domestic industry.

- in a competitive global economy, new or increased fiscal burdens on manufacturing sectors which are particularly susceptible to foreign competition may necessitate a careful evaluation of impacts and inclusion of suitable abatement provisions or even “revenue recycling”, as described in the preceding section;
- to avoid economic hardship for particularly sensitive groups of ratepayers, revenue neutrality can be achieved by simultaneously lowering other fiscal or financial burdens (such as employment and labour costs) and allocating revenue to compensate for undesirable distributional impacts or ease the costs of transition;
- alternately, such groups can benefit from reduced rates and rebate programmes; perverse incentives and freerider effects can be avoided through careful design, for instance by providing low-income ratepayers with a rebate voucher rather than an outright exemption, thus avoiding an incentive to waste resources or pollute indiscriminately.

---

<sup>167</sup> See World Bank, *Environmental Fiscal Reform - What Should be Done, and How to Achieve It* (Washington, D.C.: IBRD, 2005), pp. 27 *et seq.*



## D. Bibliography

- Asian Development Bank *Asian Environment Outlook 2005: Making Profits, Protecting Our Planet – Corporate Responsibility for Environmental Performance in Asia and the Pacific* (Manila: ADB, 2005).
- Asian Development Bank “Viet Nam: Country Environmental Analysis”, 2005, available on the Internet at: [www.adb.org/documents/assessments/country-environmental/vie/country-environmental-analysis.pdf](http://www.adb.org/documents/assessments/country-environmental/vie/country-environmental-analysis.pdf) (last accessed 1 June 2008).
- Asian Development Bank *Environments in Transition: Cambodia, Lao PDR, Thailand, Viet Nam* (Manila: ADB, 2000).
- Central Intelligence Agency “World Factbook: Vietnam”, May 2008, available on the Internet at: [www.cia.gov/library/publications/the-world-factbook/geos/vm.html](http://www.cia.gov/library/publications/the-world-factbook/geos/vm.html) (last accessed 1 June 2008).
- The Economist “A Special Report on Vietnam”, 26 April 2008.
- Institute for Global Environmental Strategies (IGES) *2005 Top News on the Environment in Asia* (Hayama: IGES, 2005), available on the Internet at: [enviroscope.iges.or.jp/modules/envirolib/upload/424/attach/english.pdf](http://enviroscope.iges.or.jp/modules/envirolib/upload/424/attach/english.pdf) (last visited on 1 June 2008).
- International Monetary Fund *Vietnam: Country Report No. 07/387* (Washington, D.C.: IMF, 2007).
- Jessup, Brad “Vietnam Changes its Environmental Laws”, Freehills Environment Quarterly Editorial February 2006, 7 March 2006, available on the Internet at: [www.freehills.com.au/publications/publications\\_5648.asp](http://www.freehills.com.au/publications/publications_5648.asp) (last accessed 1 June 2008).
- Ministry of Natural Resources and Environment (MoNRE), World Bank, and Danish International Development Assistance (DANIDA) *Vietnam Environment Monitor 2006: Water Quality in Viet Nam – With a Focus on the Cau, Nhue-Day and Dong Nai River Basins* (Hanoi: MoNRE et al., 2006).

Ministry of Natural Resources and the Environment (MoNRE) *State of the Environment Report of Vietnam* (Hanoi: MoNRE, 2005).

Ministry of Environment and Natural Resources (MoNRE), World Bank, and Swedish International Development Cooperation Agency (SIDA) *Vietnam Environment Monitor 2005: Biodiversity* (Hanoi: MoNRE et al., 2005).

Ministry of Environment and Natural Resources (MoNRE) *State of the Environment Report: Biodiversity* (Hanoi: MoNRE, 2005)..

Ministry of Environment and Natural Resources (MoNRE), World Bank, and Canadian International Development Agency (CIDA) *Vietnam Environment Monitor 2004: Solid Waste* (Hanoi: MoNRE, 2004).

Ministry of Environment and Natural Resources (MoNRE), World Bank, and Danish International Development Assistance (DANIDA) *Vietnam Environment Monitor 2003: Water* (Hanoi: MoNRE et al., 2003).

Organization for Economic Cooperation and Development *Environmental Fiscal Reform for Poverty Reduction* (Paris: OECD, 2005).

Organization for Economic Cooperation and Development *Environmental Policy: How to Apply Economic Instruments* (Paris: OECD, 1991).

Organization for Economic Cooperation and Development *Economic Instruments for Environmental Protection* (Paris: OECD, 1989)

Qiao, Helen H. *Vietnam: The Next Asian Tiger In the Making*, Goldman Sachs, Global Economics Paper No. 165 (Hong Kong: Goldman Sachs, 17 April 2008).

United Nations Environment Program (UNEP), Department of Environment at the Ministry of Natural Resources and Environment, and Norwegian Agency for

Development Cooperation (NORAD) “State of the Environment in Vietnam 2001”, December 2001, available on the Internet at: <[www.rrcap.unep.org/reports/soe/vietnam](http://www.rrcap.unep.org/reports/soe/vietnam)> (last accessed 1 June 2008).

World Bank “Vietnam: Laying the Foundation for Steady Growth”, February 2007, available on the Internet at: <[siteresources.worldbank.org/intvietnam/overview/21594788/ida-vietnam.pdf](http://siteresources.worldbank.org/intvietnam/overview/21594788/ida-vietnam.pdf)> (last accessed 1 June 2008).

World Bank “Vietnam: Environment”, 1 February 2007, available on the Internet at: <[web.worldbank.org/wbsite/external/countries/eastasiapacificext/vietnamextn/0,,contentmdk:20266331~iscurl:y~pagepk:141137~pipk:141127~thesitepk:387565,00.html](http://web.worldbank.org/wbsite/external/countries/eastasiapacificext/vietnamextn/0,,contentmdk:20266331~iscurl:y~pagepk:141137~pipk:141127~thesitepk:387565,00.html)> (last accessed 1 June 2008).

World Bank “Vietnam Country Environmental Analysis: Draft Concept Paper”, January 2007, available on the Internet at: <[http://siteresources.worldbank.org/inteapregtopenvironment/resource/s/vietnam\\_cea\\_concept\\_note.doc](http://siteresources.worldbank.org/inteapregtopenvironment/resource/s/vietnam_cea_concept_note.doc)> (last accessed 1 June 2008).

World Bank *Environmental Fiscal Reform - What Should be Done, and How to Achieve It* (Washington, D.C.: IBRD, 2005).

World Bank, National Environment Agency and Danish International Development Assistance (DANIDA) *Vietnam Environment Monitor 2002* (Hanoi: World Bank *et al.*, 2002).

Yano, Takuji, and Nguyen Van Phung “Environment-Related Taxes in Vietnam”, in Quach Duc Phap and Eiji Tajika (eds.), *Final Report of the Joint Research Program on the Vietnamese Tax System* (Tokyo: Hitotsubashi Daigaku, 2005), pp. 167-216.