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MITIGATION OF ENVIRONMENTAL IMPACTS RELATED TO FOREIGN DIRECT INVESTMENTS (FDIs) IN VIETNAM

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CONTENTS

EXECUTIVE SUMMARY

The Ministry of Industry and Trade (MOIT) of the Socialist Republic of Vietnam (Vietnam) has requested assistance from the European Trade Policy and Investment Support Project (EU-MUTRAP) in order to review the environmental impacts of ventures financed in whole or in part by foreign direct investment (FDI) and develop policy guidance for the mitigation of such impacts.

The starting point for Vietnam's framework for environmental protection is the National Strategy on Environment Protection to 2020, with Visions to 2030. This was approved by Prime Ministerial Decision 1216/QĐ-TTg of 5th September 05, 2012[1]. This opens with two important principles:

- Environment protection is vital to human beings; the Strategy on Environment Protection is an indispensable component of the Socio-economic Development Strategy and the Sustainable Development Strategy; environmental protection must facilitate sustainable development in order to meet the demands of the current generation while preserving the potential and opportunities for future generations; investment in environmental protection is investment in sustainable development.
- Development must observe the laws of nature, harmonise with nature and be environmentally friendly; economic development should be appropriate to the ecological features of a certain region, produce a minimum of waste, especially carbon, and strive for a green economy.

These principles are significant because they lay the policy foundation for sustainable development by ensuring that economic development, social development and environmental quality are kept in balance. This is the fundamental driver of the policy recommendations contained in this report.

Legislation is the primary instrument by which Vietnam seeks to implement the National Strategy on Environmental Protection. Legal provisions of relevance to environmental protection are contained in numerous pieces of legislation. This establishes the legal basis of the regulatory framework through which to mitigate the environmental impacts of the business sector in general, which includes those sub-sectors in which FDI plays a part. In 2005 Vietnam issued a common Law on Investment, since when there is no differentiation between domestic

[1] http://www.chinhphu.vn/portal/page/portal/English/strategies/strategiesdetails?categoryId=30&articleId=10051159

and FDI businesses in terms of investment policy. There is no differentiation either in regard to environmental regulation of businesses. The most important legislation for the purposes of this report is the Law on Investment 2014, the Law on Environmental Protection 2014, the Law on Environmental Protection Tax 2010, the Mineral Law of Vietnam 2010 and the Law on Corporate Income Tax 2008. There are many additional Decrees and Circulars (e.g. Decree no. 179/2013/NĐ-CP of 14th November 2013 regulating sanctions against administrative violations in the field of environment protection, presently under revision).

Vietnam's primary environmental legislation is sound. The Law on Environmental Protection 2014 contains provisions relating to environmental impact assessment (EIA) that are substantially in alignment with corresponding provisions in EU legislation[2,3], these providing the main mechanism for the assessment and mitigation of environmental impacts from all FDI-financed and domestic activities. The implementing regulations, however, require strengthening and in some cases complete revision: provision for post-EIA monitoring[4] and revision of the Decree on environmental sanctions being two specific examples that have been the subjects of work by EU-MUTRAP on behalf of MONRE. Furthermore MONRE and those of its regional offices that were questioned for a previous assignment[5] report that they lack the institutional capacity to implement effectively many aspects of Vietnamese environmental law, especially those provisions that have been introduced more recently (e.g. EIA and post-EIA monitoring). Therefore, while an analysis of FDI inflows may be desirable, the more immediate and urgent requirement (particularly with regard to the EU-Vietnam Free Trade Agreement) is to quantify and address the deficiency in institutional capacity of environmental regulatory institutions.

During this assignment, a number of FDI companies were interviewed. All of the results obtained need to be interpreted with caution, because:

- The number of companies interviewed constitute only a very small subset of FDI companies in Vietnam;
- That subset was confined to a very limited geographic area within the country;
- In the absence of a similarly constituted survey of non-FDI companies, it is not possible to ascribe any of the observations to FDI involvement or to comment on the statistical

[2] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0092
[3] Institute for Environmental Science and Development, Ho Chi Minh City
[4] EU-MUTRAP INVEN-8
[5] EU-MUTRAP INVEN-8

significance of inferred differences between the set of FDI companies and the non-FDI companies.

The reports prepared during this assignment by the PMU experts lead to the conclusion that while FDI-financed ventures have had impacts upon the environment, some of which have been significantly detrimental, it cannot reasonably be demonstrated that FDI involvement *per se* has contributed to such impacts being any worse than they would have been if the same activities had been conducted using only internal Vietnamese sources of investment. FDI inflows have certainly led to increased economic activity. A proportion of that economic development has taken place in sectors where the cost of labour and resources is low, which have greater potential for environmental impact than hi-tech sectors. Nevertheless, the environmental impacts occur because (a) there is economic development in potentially polluting sectors and (b) the implementation of environmental regulatory mechanisms to mitigate impacts is less than adequate. In other words, the connection to FDI inflows is circumstantial rather than causal. The main FDI inflows come from South Korea, Japan and Taiwan. Environmental protection regulations in both South Korea and Japan are more rigorously enforced than in Vietnam. Japan has earned a reputation for exporting its environmental problems by moving "dirty" production facilities to other countries of south-east Asia[6]. Nevertheless, the interviews conducted during this study lead to the conclusion that Japanese and Korean FDI companies are generally well informed of Vietnamese environmental requirements and have the best records of compliance. Taiwanese and Chinese FDI companies have the same level of awareness and record of compliance as Vietnamese private companies. It has also been noted that a significant number of Chinese and Taiwanese companies violate environmental regulations. Two observations are appropriate. Firstly, it would be unwise to draw too general a conclusion on the basis of such a small sample size. Secondly, even if it could be shown that Chinese and Taiwanese companies are responsible for many cases of non-compliance, more effective implementation of Vietnamese environmental law remains the only legally admissible way of mitigating the impacts for as long as Vietnam's investment policy remains one of non-discrimination.

Levels of awareness among FDI companies vary greatly from company to company; furthermore the level of regard for environmental responsibility varies also. However, in order to draw any meaningful conclusion from this, it would be necessary to determine the variability of these parameters in a typical selection of wholly Vietnamese-owned companies. For the time

[6] http://aboutjapan.japansociety.org/content.cfm/nature_and_the_environment_in_postwar_japan

being, it cannot be concluded that FDI involvement predisposes a company to being either more or less environmentally responsible. From a policy formulation perspective, it would be sensible to assume that there would be variation in any set of companies and that the way to address this would be to ensure effective enforcement of environmental legislation.

The site visits required in the Terms of Reference (ToR) have however highlighted certain difficulties with the effective regulation of enterprises that operate within industrial zones. This is relevant to the present assignment because it is quite common for FDI enterprises to operate in this manner. In these cases it is the operator of the industrial zone that provides basic environmental infrastructure for the benefit of the enterprises that operate within its boundaries on the basis of a contractual agreement. This report provides some suggestions for dealing with this situation, based upon best practice for environmental licensing in other countries. The regulatory interface, between an enterprise operating within an industrial zone, on the one hand, and the environmental regulatory authorities, on the other hand, is more complicated than in the case of an enterprise operating on its own site. There need to be two environmental permits: the first between the regulatory authority and the industrial zone operator; the second between the regulatory authority and the enterprise; moreover these need to be consistent with each other and with the contract between the industrial zone and the enterprise, in order to ensure that all environment-related responsibilities, liabilities and rights (of any nature whatsoever) are assigned unambiguously and exclusively to either the industrial zone or the enterprise.

The following policy actions are now recommended.

1. Rationalisation of environmental permits and contracts for enterprises operating within industrial zones. The aim is to ensure effective regulation, transparency and clear accountability. This should apply to all industrial zones regardless of whether or not FDI is involved. Note that it may be necessary to make amendments to the legislation governing the procedures for applying for, processing and granting environmental permits, in order to legitimise changes needed. If carried out thoroughly and in a properly considered manner, the process would circumvent the possible need for a single institution to oversee the three types of legal agreement involved in the process. It is suggested that a standard model contract between an industrial zone operator and an enterprise operating in an industrial zone should be drawn up. Acceptance of this model should become a qualifying condition for being granted permission to establish and operate an industrial zone. The model contract will need to contain optional provisions that would come into effect in the case that an

enterprise wishes to subcontract the handling of its waste to an external contractor or to sell it to a third party, providing always that such waste is handled in accordance with the requirements of applicable Vietnamese Law.

2. Quantifying the 'institutional resource gap' between what exists and what is needed. This is an essential precursor for a wide range of institutional strengthening measures (including implementation planning for the EU-Vietnam trade agreement) besides being relevant to the present assignment. At the moment the gap can be described only in qualitative terms: it is known that a gap exists (because the Ministry of Natural Resources and Environment has stated this to be the case); and some of the consequences of that gap have been described by the technical assistance that MONRE has already requested from EU-MUTRAP; but a much more specific description is needed as the basis for a change management plan. The aim is to describe the gap in quantitative terms by assessing what resources exist at present, in which institutions, what is their present workload on what tasks; this is then compared with the same information in relation to the workload required to implement effectively all environmental regulatory functions (including those that are of a transitional nature) in order to identify what institutional and related budgetary changes may be necessary for the framework to function effectively. (The implementation of the EU-Vietnam trade agreement is a case in point.) Roles and Responsibility Analysis (RACI) is an essential tool for this, being the starting point for institutional development planning and communications planning. The work burden associated with the effective regulation of FDI enterprises would need to be a part of the overall work demand in this analysis. The analysis should include also an evaluation of the role of the industrial zone management board in assisting enterprises to improve their environmental performance. (At present the IMB's role is defined but it has not been allocated the budget necessary to fulfil that role.)
3. Developing and implementing an institutional development plan (IDP) for ensuring that the necessary resources are available in the appropriate institutions, to implement Vietnamese environmental law effectively (including the regulation of FDI enterprises and industrial zones). This should include the industrial management board also the communications linkages between it and environmental authorities. One of the aims of this work component should be to resolve overlaps or gaps in function between, for example, the environmental guard, provincial environmental agencies, the industrial management board, the people's committees and so on.

4. Develop an objective-driven environmental monitoring programme, particularly for air quality. The aim of this is to specify the purposes for which environmental monitoring is required, agree the *quality of information* required for each purpose, and then define what type of monitoring programme is necessary in order to yield the required quality of information. Although it is tempting to 'import' monitoring specifications from other countries, the reality is that Vietnam needs a monitoring programme that offers an achievable compromise between the quality of information, the availability of human resources, the cost of equipment and resource deployment and laboratory analytical capability. This is not a straightforward logistical planning task. It is recommended that consideration be given to this as a stand-alone consulting assignment.
5. Screening for FDI ventures. In order to ensure that FDI activities are subjected to the same degree of scrutiny for the purposes of environmental impact assessment (EIA) as internally-financed activities, it is suggested that the MOIT introduces a screening mechanism that alerts environmental regulatory authorities to all significant FDI projects ("significance" would be determined in the same way as for internal Vietnamese projects). All proposed foreign investment into projects of a nature that would require EIA under Vietnamese Law needs to be subject to screening, and potential investors need to be made aware of that, ideally through investment advice provided by Vietnamese Embassies and Consulates.
6. Implement measures to encourage responsible environmental management by enterprises. Any proposal that local authorities should accept responsibility – even in the interim – for providing training and capacity-building for enterprises needs to be tempered by reality: they do not have sufficient resources to conduct their existing responsibilities as effectively and as comprehensively as necessary. Imposing this extra duty upon them would merely add to the problem. Nevertheless, it is not unreasonable that local authorities should act as *the channel* through which information is made available to enterprises. Such information should be available via the internet and might take the form of advisory bulletins, best practice guidelines, invitations to participate in up-coming consultations when appropriate and so on. A particular need has been identified for information relating to the identification of emission sources at each stage of production, including materials storage and the potential for emissions arising from by-products of the manufacturing process. The portal through which enterprises gain access to this information should be part of a more

comprehensive system that enables enterprises to keep themselves properly informed of regulatory and other requirements.

7. Due diligence support. The aim of this measure is to provide information to potential foreign investors in advance of committing to invest, so that they can be as aware as reasonably possible of aspects of Vietnam's environmental regulatory framework that might have a bearing upon investment decisions. It is suggested that this should take the form of a non-technical booklet with a title such as, for example, *'Vietnamese Environmental Law: A Guide to Your Rights and Responsibilities as an Investor'*. It is possible that some information of this nature is already available through organisations such as the Vietnam Chamber of Commerce and Industry (VCCI). Therefore this measure might reduce to the relatively straightforward task of collating that information and publishing it in a single document (assuming that is not already available).

The need to balance the demands of policy implementation with the availability of resources remains the key factor that ultimately will determine the effectiveness of any policy implementation plan; and the implementation planning for the environmental requirements arising from the EU-Vietnam trade agreement is no exception. Consequently measures 2, 3 and 4 as listed above must be regarded as of the highest priority and of relevance to all environmental policy implementation in Vietnam. In that context there will need to be an effective and ongoing dialogue between the MOIT and the Ministry of Natural Resources and Environment (MONRE).

1 INTRODUCTION

The Ministry of Industry and Trade (MOIT) of the Socialist Republic of Vietnam (Vietnam) has requested assistance from the European Trade Policy and Investment Support Project (EU-MUTRAP) in order to review the environmental impacts of ventures financed in whole or in part by foreign direct investment (FDI) and develop policy guidance for the mitigation of such impacts.

This report has been compiled in large measure on the basis of information contained in the following additional reports, which have been prepared by the Vietnamese experts assigned to work on this task:

- Study Report entitled *"Vietnamese regulatory framework and its implementation to mitigate environmental impact of FDIs in Vietnam"* (Author: Nguyen Manh Hai, Central Institute for Economic Management, Vietnam) (included here as Annex 1)
- Study Report, with appendices, entitled "FDI-related environmental impacts in Viet Nam and measures implemented to mitigate these impacts" (Author: Tran Toan Thang, Central Institute for Economic Management, Vietnam) (included here as Annex 2)

At the start of this work the international experts reviewed the approaches adopted by other countries in regard to the mitigation of environmental impacts from FDI-financed ventures. The countries specifically considered were:

- The United Kingdom, chosen because of the large extent of readily available information from various government and government agency websites.
- South Korea, chosen because of its FDI interest in Vietnam, also because EU-MUTRAP recently conducted an analysis of its legal requirements for environmental regulation[7].
- Japan, chosen because of its FDI interest in Vietnam, also because EU-MUTRAP has conducted an analysis of its government's international co-operation requirements in regard to environmental assessment[8].
- Myanmar, chosen because it is the subject of a recently completed and detailed assessment of FDI impacts upon the environment[9], also because of its proximity and similarity to Vietnam in terms of its development status.

[7] INVEN-8 PE2
[8] INVEN-8.
[9] Asian Development Bank.

- The Republic of Moldova, chosen because it is a former Soviet Republic with an economy in transition, which has fairly recently signed a Deep and Comprehensive Free Trade Agreement with the European Union, and where the problems being encountered are structurally not dissimilar to those now faced by Vietnam.
- Thailand, chosen because its environment is under similar pressures to that of Vietnam on account of an imbalance between economic development and environmental regulatory implementation capacity.

Recent developments in China, concerning discrimination between wholly Chinese companies and companies with a foreign involvement, occurred after completion of the analytical phase of this study. The situation there remains fluid. Nevertheless we have attempted to take account of China in drawing our conclusions.

Perhaps not surprisingly, there are very, very few countries that treat FDI-financed ventures any differently than internally-financed ventures. All developing countries that are in receipt of finance from international financing institutions such as the World Bank, the European Commission and the Asian Development Bank make no distinction between domestic and FDI enterprises in terms of environmental regulation. (The same is true at present for Vietnam.) This follows the examples of the European Union and South Korea, among others. Vietnam's existing practice of not discriminating between domestic and FDI enterprises is therefore in line with international best practice.

In all developing countries there is the pressure to develop the economy by encouraging FDI, which is understandable. The outcome depends very much upon the ability of the environmental regulatory framework to develop at the same pace as the economy. As long as there are sufficient resources (as in the newer Member States of the European Union), the environment does not suffer as a consequence of the FDI inflows and the economic development that results. However, if the rate of economic development exceeds significantly the rate of development in the environmental regulatory framework, then environmental quality always suffers. This was true of Indonesia in the 1980s and 1990s, where environmental water quality was the most obvious casualty and it continues to be true in the large cities of India, such as Mumbai, where industrial waste handling and surface water quality in overcrowded areas continue to be a major challenge. Among Vietnam's closer neighbours, China provides a superb example of what happens when economic development proceeds much more quickly than environmental development: here it is the air quality in Beijing that is the most high-profile casualty. Thailand

and Malaysia experience ongoing problems for the same reason, with waste management and water quality management being the main issues in Thailand and deforestation the most high-profile issue in Malaysia.

The most recent and well-documented analysis of FDI impacts in a developing country of south-east Asia has been made by the Asian Development Bank (ADB) with reference to Myanmar[10], where FDI is helping to drive rapid economic growth at a rate that exceeds by a considerable margin the rate of development in the implementation of the country's environmental regulatory framework. The ADB reports that *"the scale and pace of economic development presents a massive challenge to sustainable development in the country. Although Myanmar's natural environment remains in relatively good condition due to the country's long isolation from external markets, the negative impacts of rapid and poorly planned economic development are on the rise. Forest and biodiversity losses in Myanmar are near the highest in Southeast Asia, while water and air pollution and soil damage are among a growing suite of emerging environmental problems."* The ADB, the World Bank and the Japanese International Cooperation Agency (JICA) have supported the strengthening of Myanmar's framework for environmental impact assessment (EIA). The objective has been to restore as far as possible the balance between economic development and environmental development, in order to make the outcome more sustainable.

"Bad practice" should be distinguished from "erroneous practice": very few countries deliberately engage in activities that they know to be unsustainable and detrimental to their environments. (One exception is Uganda, where natural land cover is being systematically and drastically stripped to provide land for agriculture in the expectation that it will drive economic growth[11].) Much more commonly, a country pursues economic development as a priority in the erroneous belief that the environmental regulatory framework can be addressed as resources permit. With that in mind, therefore, the experiences described above highlight the following principles of good, erroneous and bad practice:

- It is good practice not to discriminate between FDI and domestic activities with regard to environmental regulation. This practice is almost universally applied, including also in Vietnam. In principle, therefore, Vietnam's present practice in this respect does not need to change.

[10] Safeguarding Myanmar's Future: Environmental Impact Assessment - http://www.gms-eoc.org/news/safeguarding-myanmar-s-future-environmental-impact-assessment#sthash.kCX0Wqci.dpuf

[11] Levison Wood, "Walking the Nile", Simon & Schuster, 2015.

- It is bad practice to regulate FDI activities in any way differently to domestic enterprises. This is not the case in Vietnam nor are there any proposals to do it. This has been the unofficial practice in certain African countries (e.g. Zimbabwe) where it has had the effect of reducing FDI inflows effectively to zero.
- It is good practice also to regulate economic development while putting more resources into the implementation of the environmental regulatory framework. This helps to maintain parity between economic development and environmental development. Examples are the ADB's development strategies in the countries where it works (e.g. Myanmar), the European Union, the United States of America and the United Nations policies on sustainable development. Vietnam appears not to do this at present, therefore the adoption of this as a policy would be a helpful step towards sustainable development.
- It is erroneous practice to encourage economic development without at the same time putting in place the environmental regulatory capacity to apply environmental laws effectively at all stages of economic development. Vietnam has the environmental laws in place; it now needs to put in place the institutional capacity to implement these effectively.
- It is erroneous practice also to allocate public sector budgets to the environmental sector that are significantly less than those allocated to economic development sectors. This is a common error made by governments of developing countries (e.g. the Republic of Moldova) based upon the erroneous perception that sustainable development is a rich country's luxury. Vietnamese regulatory authorities themselves admit that their resources are insufficient for the effective implementation of Vietnam's environmental laws. This suggests a need to shift the balance of public sector budget allocations in favour of the environment sector.

Vietnam's present situation, therefore, can be summarised as follows:

- Vietnam's present practice, of not discriminating between FDI and domestic enterprises, is not only in line with the approach of almost all other countries but also makes sense from an environmental regulatory point of view.
- The development of Vietnam's environmental regulatory implementation capacity lags some way behind its economic development. This imbalance needs to be addressed.

The approaches adopted in the other countries that have been studied, in particular the European Union, South Korea, Myanmar and Thailand, now form the basis of the policy recommendations in this report. Any activity that is conducted on Vietnamese territory, regardless of how that activity is financed, must be conducted strictly in accordance with applicable Vietnamese Law. The statistical correlation of FDI in Vietnam with levels of pollution is a function of the type of industry and the way in which enterprises are operated; the way in which those enterprises are financed is irrelevant. Consequently one cannot conclude that poor environmental quality is the consequence of FDI. This is easy to appreciate if one looks at the problem in the following terms: If one looks at a particular enterprise that is financed in whole or in part by FDI, and an exactly equivalent enterprise that is financed wholly from internal investment, and assuming that both enterprises are managed in exactly the same way, is there any scientific or technological reason why the FDI-financed venture should have any greater environmental impact than the internally-financed venture? Clearly the answer must be 'no', because both enterprises are subject to Vietnamese Law and bound by its requirements.

It is recognised by the Ministry of Natural Resources and Environment (MONRE) that the implementation of EIA and post-EIA monitoring in Vietnam is weak, despite the enabling legislative provisions being in place. The reason for that is a straightforward mismatch between the implementation workload required to fulfil the law, on the one hand, and the actual institutional capacity of Vietnam's environmental regulatory authorities, on the other hand. The solution, therefore, lies in bringing institutional capacity into line with the demands of the law. Once that is done, Vietnam's environmental regulatory institutions will be able to regulate effectively both FDI-financed activities and its own internally-financed activities.

It follows that the first steps in addressing the problem must be:

- to quantify the workload demands for implementing effectively Vietnam's existing EIA and other environmental regulatory requirements; and
- to develop a plan for bringing environmental regulatory capacity into line with those demands.

If this does not solve completely the environmental issues associated with FDI-financed enterprises, it will certainly go a long way towards doing so.

Based upon the experience of Myanmar, Thailand and China in recent years, there is one further recommendation that would promote sustainable development in Vietnam. It is recognised that economic development is taking place in Vietnam. At the same time Vietnam's environmental

legislative framework has been strengthened, but institutional capacity to implement this effectively has not kept pace with the economic development. In order to establish the conditions for sustainable development, economic development and environmental quality need to be kept in balance. That could be done by speeding up improvements in the environment, by slowing down economic development or a combination of the two. In the short-term, developments in the environment sector are constrained by available institutional resources. It would be beneficial to regulate economic development while strengthening environmental regulatory capacity, in order to bring the two more into balance with each other. The policy can be stated simply as prioritising longer-term sustainable development over shorter-term unsustainable economic development.

2 INTERVENTION LOGIC FOR MITIGATING FDI-RELATED ENVIRONMENTAL IMPACTS

2.1 INCENTIVES TO INVEST AND THE EFFECTS OF THESE

According to the VCCI, the main incentive for foreign investment for the time being is the relatively low cost of both labour and natural resources. The commercial advantage accruing from this is greatest in those sectors that employ the most low-end labour and/or require the most natural resources, such as garments, textiles, food processing, chemicals and metal products. Unfortunately these are the sectors that, with or without foreign investment, tend to be associated with environmental pollution. This gives rise to a perception that pollution is associated with FDI, whereas in fact pollution is associated with the industrial sectors whose cost structures make them attractive targets for FDI.

There have also been suggestions (not quantified and anecdotal) that Vietnam may be regarded by some foreign investors as a 'pollution haven', i.e. a country in which polluting activities can be conducted with less associated commercial risk than in other countries. Among the countries with significant FDI involvement in Vietnam, Japan is the one whose track record most suggests that this might be a consideration. Japanese attitudes toward nature and the environment still appear contradictory to many observers. Japan hosted the 1997 Kyoto Conference on global climate change and has been active in promoting international adoption of the Kyoto Protocol. Grass-roots environmental groups have flourished in Japan in recent years and many Japanese corporations are world leaders in the development of environmentally sensitive technologies. At the same time, Japan still has a reputation as an 'eco-outlaw', exporting many of its environmental problems to other countries (for example, by moving dirty production facilities to Southeast Asia) and engaging in many questionable environmental practices (including whaling, the trade in ivory, deep-sea dumping of toxic waste, and drift net fishing). Environmentalists also criticise Japan's aggressive public works programmes (which led to the paving of many watersheds over recent decades) and forestry policies (which have weakened forest diversity through monoculture plantations). It is not easy to understanding how the Japanese venerate nature while still systematically exploiting the environment, yet the Japanese are hardly alone among the residents of industrialized nations (including the United States) in professing a love for nature while simultaneously pursuing environmentally unsustainable lifestyles.

India was regarded for some time as a country in which industrial activities could be conducted with less attention to environmental management than in other countries: the 1984 Bhopal disaster was a direct result of such irresponsible management[12]. It seems likely that the Gobi Desert in Mongolia is viewed in the same way by mining companies keen to exploit the country's mineral resources. Even certain EU Member States have experienced certain problems of this nature, resulting in, for example, the 2000 Baia Mare cyanide spill (Romania), in which there was a leak of cyanide into the Someş River by the gold mining company Aurul, a joint-venture of the Australian company Esmeralda Exploration and the Romanian government.

If Vietnam is viewed in this way, then it is certainly not because Vietnam's environmental laws are any less stringent than they need to be, particularly in regard to environmental impact assessment (EIA). Nevertheless it must be conceded that the implementation of this environmental regulatory framework is less effective in Vietnam than the law itself suggests. It would seem somewhat short-sighted for a foreign investor to go to the trouble of establishing a presence in Vietnam based upon a risk scenario that remains valid only for as long as regulatory implementation remains weak. Furthermore investors from countries whose regulatory implementation is significantly more effective that Vietnam's are unlikely to risk their corporate reputation by engaging in activities of questionable environmental business ethics. Based upon these arguments, therefore, the suggestion by the VCCI regarding the cost incentive, as described above, is both logical and reasonable.

One may assume, therefore, that cost of meeting environmental regulatory standards is of only secondary relevance to foreign investors. This means that measures to make regulation and enforcement more effective in practice are unlikely to deter foreign investors significantly from involvement in Vietnam, while at the same time mitigating the environmental impacts of the business sectors in which FDI predominates at present. The benefits, therefore, are significant; the economic risk, meanwhile, is small. Vietnam provides incentives for investments that are able to demonstrate the potential for a beneficial impact on the environment[13]. The Law on Environment Protection No. 55/2014/QH13 dated 23/6/2014 provides the necessary legal framework for ensuring that proposed activities (both domestic and FDI) are subject to both environmental screening and environmental impact assessment; furthermore an earlier EU-

[12] Government of India and the State Government of Madhya Pradesh.
[13] Law on Investment 2014.

MUTRAP study[14] concluded that the EIA provisions in the law are substantially in line with corresponding European Union legislation. Vietnam's environmental legislation, therefore, gives potential foreign investors no reason to assume a commercial advantage based upon the 'pollution haven' argument. Annex 1 provides more specific details on these and other legislative provisions in Vietnam.

2.2 PRE-INVESTMENT DUE DILIGENCE

Any foreign investor will always conduct due diligence studies prior to investing, although the scope of these varies enormously. The foreign investor would normally have a business plan for its intended venture in Vietnam, with projected month-by-months income and expenditure streams. The resulting cash flow forecast would indicate the level of capitalisation needed. However the cash flow and hence the level of capitalisation is often highly dependent upon the assumptions made in the business plan being valid. Such assumptions will often include the time needed to apply for and obtain environmental permits (which is one of the reasons that foreign investors often favour operating from established industrial zones in Vietnam – it removes one source of uncertainty from the risk equation). If due diligence studies reveal that the granting of such permits is often subject to delays for indeterminate reasons (as would be the case in any country where environmental regulatory authorities have limited human resources) then an investor might consider that a significant disincentive. The report on environmental issues (Annex 2) provides further details on issues of this nature in regard to permits and business planning.

It is therefore in Vietnam's interest to increase the level of resources for environmental regulatory authorities. Not only would this address the issue described in 2.1 above, with regard to better implementation, but also it would provide greater confidence to foreign investors with regard to the robustness of the assumptions on which their business plans are based.

More sophisticated environmental regulatory systems need not prove to be an economic disincentive for investors, as long as the institutions involved can demonstrate clearly that they have the resources to deal with regulatory processes strictly in accordance with published performance indicators. This leads to the paradoxical conclusion that weak implementation, far from attracting investment on the 'pollution haven' principle, acts as a disincentive because of the increased level of uncertainty that it represents.

[14] INVEN-08, Le Trinh, Director, Vietnam Environmental Science and Development Institute, Ho Chi Minh City.

2.3 THE LEGAL SITUATION

2.3.1 Introduction

Legislation is the most immediately obvious of all the various types of instrument that are used for the implementation of policy. However there is more to this issue than just the law that applied in Vietnam: in fact there are three legal frameworks that are relevant to the selection and design of policy instruments for mitigating the environmental impacts of FDI.

2.3.2 Vietnamese law and jurisdiction

Vietnamese law includes the whole of its environmental legislation and regulatory framework. It applies without discrimination to all activities that are conducted on the territory of the Socialist Republic of Vietnam. How those activities are financed is irrelevant. It follows that all FDI-financed enterprises in Vietnam are subject to Vietnamese law in precisely the same way as a Vietnamese-financed enterprise of the same nature operating under the same conditions.

Therefore it is Vietnamese law and the effectiveness of its implementation that are of greatest relevance in the environmental regulation of FDI. The corollary to this is that Vietnamese law cannot realistically be expected to provide a mechanism for regulating the conduct of a foreign investor in the country of origin or in any other location outside of Vietnamese jurisdiction.

Law No. 55/2014/QH13 of 23rd June 2014 on Environment Protection entered into force on 1st January 2015. It represents a significant advance over its predecessor dating from 2005, introducing compliance requirements applicable to businesses in relation to the protection of the environment. Under the new law, an environment impact assessment is required for all investment projects which (i) are subject to the approval of the National Assembly, the Government or the Prime Minister, or (ii) involve wildlife sanctuaries, national parks, historical-cultural monuments, world heritage sites, biosphere reserves or classified beauty spots or (iii) may cause a negative impact to the environment.[15]

The Law specifies that environmental protection should be in harmony with economic development, social protection, biodiversity protection and adapting to climate change. (The Law does not define what precisely is meant by “in harmony with”. However the contextual references to economic development, social protection, biodiversity protection and adapting to climate change imply that the over-arching aim is sustainable development. Consequently “in

[15] www.lexology.com, legal update, January 2015

harmony with" may be interpreted by reference to the sustainable development knowledge platform of the United Nations, at sustainabledevelopment.un.org) The law states that protecting the environment is the responsibility of all agencies, organisations, households and individuals; that organisations and individuals that benefit from the environment are responsible for providing financial support for environmental protection activities; and also outlines the 'polluter-pays' principle. It recommends that the development and use of clean and renewable forms of energy be encouraged in order to reduce emissions of greenhouse gases (GHG) and protect the ozone layer. It also requires that a road map is to be developed, so that Vietnam may take part in global GHG mitigation activities that are appropriate with respect to the country's socio-economic circumstances and the international treaties to which Vietnam is a signatory. It requires also the development of a National Environmental Protection Plan to assess current environmental status and make forecasts of environmental status and climate change.

The key point to note concerning the 2014 Environment Protection Law is that EIA is the primary mechanism for regulating the environmental impacts of potentially polluting activity. EU-MUTRAP has conducted a comparative analysis of the requirements in Vietnamese law for environmental impact assessment (including its follow-up) with the corresponding requirements derived from international best practice[16]. This concluded that:

- The EIA provisions in the 2014 Environment Protection Law are substantially in alignment with corresponding provisions in the law of other countries, most notably that of the European Union (relevant in relation to the EU-Vietnam Free Trade Agreement).
- The legal requirements for environmental management planning in connection with EIA are rarely followed in sufficient detail by project owners; furthermore regulatory authorities lack the resources and, in some cases, the expertise to assess environmental management plans sufficiently critically. In consequence, post-EIA monitoring requirements are rarely specified in sufficient detail; also, regulatory authorities lack the resources to monitor sufficiently projects by developers that do not take the initiative proactively to ensure compliance with environmental management plan criteria.
- Although Vietnamese project developers and companies frequently fail to act in accordance with international best practice, the fault lies with the companies themselves and not with Vietnamese law. Furthermore, it is a lack of environmental regulatory

[16] EU-MUTRAP, INVEN-8, 'Improving the monitoring of environmental impact assessment reports', Preliminary analysis of concordance, 3rd September 2014

institutional capacity that enables companies to act in the way that they do without being successfully prosecuted or otherwise held to account.

This leads to the conclusion that the problem is not with the 2014 Environment Protection Law but rather with its implementation. MONRE is in the process of revising certain of the implementing Decrees (e.g. Decree No. 179/2013/ND-CP of the Government dated 14th November 2013 on regulations on the administrative sanctions for violation in environmental protection regulations), recognising that the administrative burden of enforcement needs to be brought more into line with the institutional resources that are actually available. Two other EU-MUTRAP studies[17] have concluded that environmental regulatory institutional capacity is the critically limiting factor, particularly at regional level.

In summary, therefore, Vietnamese environmental law contains all of the fundamental provisions needed to mitigate the environmental impacts of FDI. The problem lies in the implementation of those provisions, specifically with the lack of environmental regulatory institutional capacity.

2.3.3 Other national law and jurisdiction

A foreign investor is bound by the laws in the country of origin. In certain cases (e.g. European Union) these impose a duty of care upon the investor. If the conduct of an FDI-financed enterprise in Vietnam gives reason to suspect that such duty of care might not have been exercised, then Vietnam cannot intervene directly. Due diligence studies are part of such duty, consequently it would be in Vietnam's interests to facilitate such studies through provision of guideline information for investors.

South Korea

South Korea's environmental legislative framework[18] and the system of sanctions for environmental violations that it contains have been reviewed in a separate EU-MUTRAP report[19]. Aspects of South Korean are more severe than European Union equivalents: for example, the more severe violations of environmental requirements are punishable by custodial sentences of significant duration. Nevertheless, South Korean law is based essentially upon the 'polluter pays' principle, with project owners and enterprises being entirely responsible for

[17] INVEN-8 and INVEN-8 PE2

[18] Korean Ministry of Environment (http://eng.me.go.kr/eng/web/index.do?menuId=28&findDepth=1) also Act No. 6094 of 31 December 1999 (amended) on Special Measures for the Control of Environmental Offences

[19] INVEN-8 PE2, Support to the revision of legal acts on sanctions for violations of environmental protection provisions, Analysis of international best practice, Stuart Brown, 10 November 2015

ensuring compliance with environmental provisions and liable for all costs and reparations in the event of non-compliance. South Korea has negotiated a bilateral trade agreement with the European Union, one of the conditions of which is that South Korea should comply with various aspects of EU environmental law. Consequently South Korea's environmental protection framework is closer to that of the European Union that one might imagine, although the laws themselves are structured differently. South Korean companies have a duty of care in regard to foreign investments.

Japan

Japan has an extensive set of laws relating to environmental protection[20]. The most fundamental of these is Law No.91 of 13th November 1993, otherwise known as The Basic Environment Law. This starts by establishing the following three basic principles of environmental policy:

- The blessings of the environment should be enjoyed not only by the present generation but also protected for the benefit of future generations.
- A sustainable society requires that the environmental impact of human activities is minimised.
- Japan should contribute actively to global environmental conservation through international cooperation.

It then defines the responsibilities of each actor in the society, i.e. central government, local governments, corporations and the people, requiring them to make efforts to protect the environment through fair sharing of burden and cooperating with each other. Based on these principles and responsibilities, the Law establishes the other main instruments of Japanese environmental policy. In addition to regulatory measures traditionally taken for pollution control and nature protection, the Law prescribes the following measures, among others:

- Environmental consideration in policy formulation
- Establishment of the Basic Environment Plan which describes the directions of long-term environmental policy (this Plan was established on 16 December 1994)
- Environmental impact assessment for development projects
- Economic measures to encourage activities for reducing environmental load
- Improvement of social infrastructure such as sewerage system and transport facilities

[20] http://www.env.go.jp/en/coop/pollution.html

- Promotion of environmental activities by corporations, citizens and NGOs, environmental education, and provision of information
- Promotion of science and technology
- International cooperation for global environmental conservation

One of the most striking aspects of Japanese environmental law is the emphasis that places on the sharing of burdens and cooperation within society. This principle is implied in, for example, the consultative procedures contained in EU law pertaining to EIA and in similar laws in other jurisdictions; but in Japanese law the principle is more frequently and more expressly stated. Perhaps this is not surprising, given the central importance in Japanese society of social relationships and responsibilities.

Taiwan

Taiwan has had in place procedures for environmental impact evaluation since the introduction of the Environmental Impact Assessment Act in 1994[21]. Superficially this resembles the Vietnamese 2014 law, but although project implementation monitoring is required (EIA Act, Article 18), there does not appear to be a requirement that the project developer prepare a monitoring plan during the EIA process. It is possible, therefore, that a Taiwanese investor in Vietnam would need to be made aware of the environmental management planning provisions in Vietnamese law and the liabilities attaching to these. Because of the immediate impact on an already overcrowded (and highly degraded) environment, the greatest attention of the Taiwan government so far has been placed on improving water quality standards, on improving standards of toxic waste disposal and on general solid waste management issues. The 1991 Water Pollution Control Act stipulates daily fines for individuals or companies found to be polluting waterways. Water pollution control measures were strengthened in 1994 with the passage of two additional Acts governing ocean effluent standards and waste water management. New companies or those entering into new projects must ensure adequate treatment of both solid and liquid wastes and submit their management control programs to public scrutiny as part of the environmental impact screening procedures.

All companies managing toxic substances or which discharge waste water, gas or other industrial waste are responsible for managing their waste products and are required to file plans with the EPA for the proper disposal of their output. Individual companies are then assigned deadlines for the establishment of proper disposal systems and management programs. Provided

[21] eialaws.elaw.org/content/taiwan

a company meets its deadline for action, no penalty is levied. However, for companies which have not submitted such a plan and which are found to be polluters, the penalties can be severe. Companies or individuals found dumping hazardous waste resulting in loss of life can be sentenced to imprisonment for life.[22]

Comparisons with Vietnam

The subset of Vietnam's primary environmental legislation that is of relevance to mitigating the environmental impacts of FDI is comparable with that of South Korea and Japan. Vietnam's ability to implement this domestically, however, is limited relative to the capabilities of South Korea and Vietnam, for two reasons:

- Vietnam's secondary environmental legislation is still undergoing development, particularly with regard to monitoring and environmental sanctions;
- Vietnam's institutional capacity is more budget-constrained than is the case in either South Korea or Japan.

It may be assumed, therefore, that investors from South Korea and Japan will be used to an environmental regulatory regime that is at least as rigorous as that of Vietnam.

Taiwan's primary legislation for environmental impact assessment is less rigorous than its Vietnamese equivalent, particularly with regard to environmental management planning and the monitoring of environmental impacts by project developers. Implementation in Taiwan also has problems: until recently, Taiwan's environmental protection administration appeared to be fighting a losing battle to control environmental impacts. Despite a number of legislative and administrative remedies, concern for economic development at minimal costs resulted both in a failure of proper infrastructure planning as well as lax enforcement of any form of pollution control measures. This situation is now changing but it will take Taiwan many years to clean up. In many areas the environment has been degraded to such an extent that damage is likely to be permanent. It is difficult to say whether Taiwan's situation is either significantly worse or significantly better than Vietnam's in this respect: although the problems are similar, the combination of factors that gives rise to them differs in the two cases. It is probably safe to conclude that a Taiwanese FDI company in Vietnam would have roughly the same level of environmental awareness as an equivalent Vietnamese company.

[22] www.virtual-asia.com/taiwan/taiwan-s-environmental-protection-legislation-air-quality-standards-industrial-effluent.htm

2.3.4 Bilateral international agreements

Bilateral international agreements include such things as bilateral trade agreements between Vietnam and another country, between Vietnam and ASEAN and between Vietnam and the European Union. Although such agreements may be modelled on the World Trade Organization's (WTO's) General Agreement on Tariffs and Trade (GATT), Vietnam is of course within its rights to insist that a requirement for the other party's investors to demonstrate environmental duty of care and due diligence is included as a provision.

Vietnam needs to take care that this requirement is not overlooked by negotiators who may be more concerned with economic and trade issues than with sustainability of development. A full review of the environment chapter of the EU-Vietnam Free Trade Agreement is now needed, with a view to assessing its resources demands for implementation planning purposes. Proposals to address this need are being developed by EU-MUTRAP at the time of writing (1st March 2016). Environmental chapters of similar EU free trade agreements elsewhere[23] have used the WTO GATT as the starting point and define what types of activities may be conducted by:

- Foreign companies that do not set up a trading subsidiary within Vietnam but who send representatives from time to time to conduct business activities in Vietnam;
- Foreign organisations that set up a trading subsidiary or other business entity in Vietnam;
- Vietnamese companies that wish to trade abroad or to export products.

The permitted activities are further qualified by being bound (i.e. subject to certain qualifying criteria) or unbound (i.e. freely permitted). Unbound activities are generally those that present no risk to either the environment or environmental regulatory institutions; the criteria associated with bound activities are designed to ensure that no risk arises as long as the criteria are respected. Such respect would be considered an integral aspect of the duty of care.

2.4 INDUSTRIAL ZONES

As already noted, FDI enterprises operate not infrequently from industrial zones. The site visits required in the Terms of Reference (ToR) included discussions with a representative of the local industrial zone management board in Bac Ninh. This highlighted certain difficulties with the effective environmental regulation of enterprises that operate within industrial zones. This issue is worth discussing at length because our research suggests not only that it is a problem also in

[23] EU-South Korea Free Trade Agreement (2011); EU-Moldova Deep and Comprehensive Free Trade Agreement (2014)

several other countries but also that solutions vary considerably from country to country. Consequently there is no uniquely identifiable "best practice" for such a situation, but rather a series of options, each of which has both advantages and disadvantages.

Typically the operator of the industrial zone provides basic environmental infrastructure for the benefit of the enterprises that operate within its boundaries on the basis of a contractual agreement. Annex 2 provides further details. A number of issues arise:

- How should the industrial zone and the enterprises within it be treated for the purposes of environmental permitting?
- How should responsibilities and liabilities be apportioned in regard to regulating the environmental impact of the zone as a whole and in particular for the purposes of prosecution in the event of a violation?
- What would be an appropriate mechanism for enabling an enterprise to sell its waste on the open market to anyone other than the industrial zone operator? (Two essential features of such a mechanism would be the assured segregation of the waste to be sold and a means of opting out of the waste management aspects of the contract with the industrial zone operator.)
- What would be an appropriate mechanism for enabling an enterprise to employ an external waste management contractor (for recycling and/or disposal of waste) and how would this affect the apportionment of liability?

The approaches adopted in different countries for the purposes of environmental regulation vary between regarding industrial zones as totally integrated, on the one hand, and assigning all liabilities (including contingent and consequential liabilities) to the enterprises based on an industrial zone, on the other hand. For the purposes of this report, the term "tenant" will be used to refer to an enterprise based on an industrial zone, this being one of the terms used in the United States of America in such a situation.

The totally integrated approach raises a number of issues[24]. The concept of site-wide or "umbrella" permitting is ambitious, but has certain attractive features. In principle it could ease the burdens of environmental management for companies as well as for regulators, which is a significant consideration for Vietnam at this stage in its development. This would make site-wide environmental management of materials and energy flows feasible, support the sense of collaboration among tenants on an industrial zone and provide a performance challenge. In

[24] Lowe, E. "Eco-industrial park handbook", Chapter 7, "Eco-industrial policy", Indigo Development, 2001.

many cases it might require clusters within the zone for different levels of environmental burden. However, the apportionment of liability is problematic. For example: would the tenants be jointly liable in the event of non-compliance by any one of them individually of any plant under the permit? Would it make sense to group together large and small tenants, that between them might have very different levels of potential exposure to liability? Various options for resolving these difficulties have been proposed in the USA:

- Constituting an industrial zone as an integrated environmental regulatory "association", which tenants of the zone would be required to join as a condition of their tenancy agreement. Through the association, each tenant would pay a weighted up-front cost and monthly fee based on its level of regulated releases. Some of the regulatory association's funds could then be leveraged against future environmental liabilities. When considering joint liability, the association could exercise the authority to fine or remove tenants if they remain in non-compliance.
- A second option would be to design umbrella permits as administrative structures that leave potential liabilities in the hands of each tenant. The tenants would establish limits for the group as a whole, with distribution of these limits negotiated among those under the permit. However this approach could prove problematic if such negotiations remain inconclusive.

The Association's management would then be responsible for administration, monitoring environmental performance, handling regulatory reporting and providing feedback to tenants. One aim of such a system would be to reduce time devoted to regulatory issues by both tenants and regulators. As long as the environmental performance for the Association complies with regulatory requirements and internal self-imposed targets (arrived at through negotiation), tenants would have flexibility in managing individual performance. At the same time, peer pressure rather than external policing would provide the motivation to bring non-complying tenants into compliance.

The integrated approach is consistent with the 'polluter pays' principle only if 'the polluter' is defined to be the industrial zone itself. The apportionment of liabilities for compensation between tenants, when appropriate, would need to be handled at the association agreement level, based upon similar principles.

Denmark provides the best and most well-known example of a solution to the problem, which is not dissimilar to the integrated approach described above. An excellent discussion of the case of the industrial district at Kalundborg in Denmark is provided by Ehrenfeld and Gertler[25]. The Kalundborg example is often referred to as an "industrial ecosystem" or "industrial symbiosis" because of the many links among the tenants. The authors conclude that the key factor in its success has been a series of independent, economically driven actions. This suggests the possible use of economic incentives in Vietnam for enterprises that agree to work together in such a way. Such an approach is now being adopted by Indonesia, which offers incentives for companies operating in industrial zones, in a new regulation that was officially issued on 28th December 2015.[26] This serves as a legal basis for the issuance of more detailed ministerial regulations that will set out incentives for industrial zone operators and tenants. The environmental regulatory approach appears still to be under development.

While the integrated approach described above is attractive from a theoretical point of view, it is probably too ambitious for Vietnam at its present stage of development. Nevertheless, the principles are worth stating in order to provide direction for Vietnam's future environmental regulatory development in regard both to industrial zones and integrated environmental permitting.

Ehrenfeld and Gertler admit in their paper that the Kalundborg example may not be easily transferable to a "green field" development. This is an important consideration for Vietnam, whose continued development will depend to some extent upon newly established industrial zones that encourage industrial growth. At the start of an industrial zone's existence, it is important to have in place a regulatory and contractual framework that provides operational and financial stability for existing tenants while allowing the flexibility for new tenants to become established. In this respect, the approaches of the UK and South Korea may be more useful for Vietnam in the short-to-medium-term.

This would involve making tenants individually liable for the consequences of their actions, with environmental permits that apply individually. This has the advantage of clarifying considerably the apportionment of liability, but it would impose a greater regulatory workload upon the regulatory authorities. In view of Vietnam's limited environmental regulatory resources, this must be regarded as a significant consideration.

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[25] John Ehrenfeld and Nicholas Gertler (1997). "Industrial Ecology in Practice: The Evolution of Interdependence at Kalundborg". Journal of Industrial Ecology, **1**(1).

[26] www.thejakartapost.com/news/2016/01/07/new-regulation-aims-attract-investment-industrial-zones.html#sthash.EAaQBn4A.dpuf

Vietnam's industrial zones are analogous to the United Kingdom's business parks and industrial estates. In the UK, the environmental regulation of these is absolutely clear: the enterprise is responsible and liable for everything except the communal services; furthermore, in case the enterprise breaches the conditions imposed by the industrial park's operator for access to the communal services, then the enterprise assumes consequential liability. In other words, at no point can the enterprise pass liability unconditionally to the park's operator, and the 'polluter pays' principle applies absolutely. The UK Environment Agency enforces this principle.[27] Korea has effectively encouraged private sector participation in infrastructure investment, including collective wastewater treatment in industrial zones. In Korea, promoting private sector participation has a legal basis. The law of private sector participation (1994) included environmental infrastructure. Under this law, a number of sewage treatment facilities have management contracts with the private sector. Korea succeeds in regulating environmental performance of industrial zones by ensuring that zone operators take responsibility only for services that easily be contracted out by enterprises operating in a zone: waste water treatment is a good example.

In summary, therefore, the regulatory interface, between an enterprise operating within an industrial zone, on the one hand, and the environmental regulatory authorities, on the other hand, is more complicated than in the case of an enterprise operating on its own site. There need to be two environmental permits: the first between the regulatory authority and the industrial zone operator; the second between the regulatory authority and the enterprise; moreover these need to be consistent with each other and with the contract between the industrial zone and the enterprise, in order to ensure that all environment-related responsibilities, liabilities and rights (of any nature whatsoever) are assigned unambiguously and exclusively to either the industrial zone or the enterprise.

Vietnam's existing procedures for environmental permitting and monitoring appear to assume a bipartite relationship between the regulatory authority, on the one hand, and the enterprise, on the other hand. It is possible, therefore, that some legislative amendments may be necessary in order to allow the kind of tripartite permitting arrangement described above. However, this requires clarification.

[27] Environment Agency publications: Enforcement and sanctions statement (LIT 5197), Policy 1429_10 (previously EAS/8001/1/1), Version 3; Enforcement and Sanctions – Guidance (LIT 5551), Version 4; Offence Response Options (LIT 9052), Version 9

2.5 IMPLEMENTATION CAPACITY

There are four issues that need to be taken into account when discussing Vietnam's institutional capacity for implementing environmental legislation.

- Firstly, there are in fact a sufficient number of institutions for the purposes of effective implementation; furthermore the structures (as opposed to the resource capabilities) of these are, broadly speaking, fit for purpose. In consequence it is not necessary to consider creating new institutions or substantially changing the organisational structures of existing institutions.
- Coordination between institutions (environmental guard, management board, regional departments of environment and higher level authorities) is not as effective as it needs to be. This makes it more difficult and time-consuming for enterprises to locate the sources of information that they need in order to fulfil their statutory duties for environmental protection.
- The level of staffing in regional institutions and the level of technical capability need to be reviewed; inquiries to date suggest the need for significant institutional strengthening.
- It appears that to date there has been no estimate made of the human resource work effort required to implement effectively all of the periodic and ad hoc tasks arising from the provisions contained in Vietnamese environmental law. Until that is done, there is no benchmark against which to plan in quantitative terms what institutional strengthening measures are needed.

The EU-MUTRAP project has carried out an assignment (INVEN-8) for MONRE in which it became apparent that the institutional capacity of environmental regulatory institutions at district level is insufficient for the effective implementation of Vietnam's legislation governing the processes of EIA and post-EIA monitoring. Supplementary inquiries conducted in Bac Ninh for the present study not only confirm that to be the case but reveal a more general lack of the institutional capacity needed to implement environmental legislation effectively.

A subsequent study by EU-MUTRAP for MONRE in relation to a review of environmental sanctions (INVEN-8 PE2) has shown that the environmental regulatory resources that the United Kingdom allocates to environmental regulation are at least an order of magnitude greater than those allocated in Vietnam. While one needs to be careful when drawing conclusions from a direct comparison of two such very different country situations, it is reasonable to conclude

nevertheless that Vietnam's environmental regulatory framework is significantly under-resourced.

Another way of stating the problem, which helps in identifying a way forward, is as follows. Vietnamese environmental law imposes a range of duties (of both a recurring and *ad hoc*) nature upon regulatory authorities. The workload needed to put each duty into practice can be estimated; hence the total workload needed to implement environmental law can be estimated. This total workload exceeds the work capacity of existing regulatory institutions. Effective implementation requires that the work capacity of existing regulatory institutions is brought into line with the estimated total workload needed.

It follows that if one were to add to the environmental legislative responsibilities without first addressing the shortfall in institutional capacity, the effect would be negative rather than positive.

A second aspect of this is the need to strengthen regulatory authorities' capabilities in regard to environmental monitoring. There is a widely-held perception around the world that environmental monitoring these days is done mainly by means of hi-tech instrumentation. In reality, monitoring remains a fairly labour-intensive activity. The parameters that can most readily be measured by fixed or portable instrumentation are not necessarily those that are of greatest relevance to pollution control. Water pollution control in particular continues to rely heavily even in countries like the UK upon samples that are collected manually, transported to a laboratory and analysed. Laboratory analytical capacity; the human resources for manual sample collection, storage and transport; and the quality assurance procedures that need to be applied to these activities are critically important parts of an environmental regulatory framework. Given the inherent variability of the vast majority of environmental indicators, sizeable data sets are required if one is to draw any statistically significant conclusions from the data. Inquiries suggest that the lack of capacity is most acute in regard to air quality monitoring, which is particularly important on industrial zones in order to establish culpability in case of pollution incidents.

2.6 ESTABLISHING CAUSE AND EFFECT

The premise of this assignment is that FDI leads to environmental impacts that need to be mitigated. The studies that are reported in Annex 2 demonstrate that FDI has been a significant factor in the development of certain sectors of the Vietnamese economy. They demonstrate also that the comparatively low cost of Vietnamese labour and resources confers more of a

commercial advantage in certain low-tech industries than in high-tech sectors; and that the low-tech sectors in which FDI predominates are those that would in the normal course of events tend to have a greater environmental impact than other sectors.

In the course of the last three decades, Vietnam has promoted strongly policies aimed at socio-economic development and poverty alleviation, through increased industrialisation. The rapid industrialisation from the early 1990s until now has been one of the key drivers in transforming Vietnam from a low-income to a middle-income country. These developments, however, have come at a price and Vietnam now faces a number of environmental challenges. According to Vietnam's State of the Environment Report published in 2010 by MONRE, it is estimated that environmental pollution in Vietnam has resulted in a total economic loss equivalent to at least 1.5% to 3% of gross domestic product (GDP). These issues must be addressed, with the mobilisation of the necessary resources, if the goals set out in the "National strategy for environmental protection to 2010 and vision to 2020" are to be realised. MONRE's report identifies the following major environmental problems, among others, in Vietnam:

- Water pollution in river basins such as the Cau, Nhue-Day and Dong Nai is significant due to the discharge of untreated or inappropriately treated waste water from industrial clusters/zones, manufacturing establishments, households, urban services and mining activities in the headwaters, leading to surface water contamination downstream.
- Pollution in industrial zones is of significant concern. FDI accounts for a major proportion of investment in industrial and economic zones. By March 2015 there were 295 industrial zones, occupying 84kha of land. In total to 2014, industrial zones attracted 5,573 FDI projects, with total investment registered at $85.5 billion of which around $49 billion was implemented. Economic zones, of which there were fifteen, attracted 247 FDI projects, with $37 billion registered and $13.5 billion implemented. Economic zones located in Vietnam's border districts attracted 70 FDI projects, with $0.7 billion registered. Manufacturing sectors accounted for 90% of the total FDI registered in industrial and economic zones.
- A significant volume of waste water is discharged from industrial zones without proper treatment. The total rate of waste water production is estimated to be about 620,000m^3/day. 70% of waste water is discharged directly to receiving water bodies without any form of treatment, resulting in widespread surface water pollution. The river basins most affected are the Cau and the Nhue-Day I the north, and the Dong Nai in the south.

- Solid waste from industrial clusters/zones is also increasing rapidly in terms of both its quantity and its potential for harm. Alongside this there remain weaknesses and problems linked to the collecting, segregating and treating of solid waste in accordance with applicable environmental standards, especially with regard to the management and transport of hazardous waste and the registration of facilities to handle this.

Industrial pollution is more concentrated in some regions and sectors than in others. The largest industrial outputs and the most significant polluting emissions come from the Red River Delta and the southeast. The main sources of industrial airborne pollutants in Vietnam are the manufacturing sub-sectors of non-metallic products (producing building materials), food, metal products, wood and paper products, and furniture. The main contributors to water pollution are:

- food processing, being the main source of biochemical oxygen demand (BOD);
- furniture, food processing and products based on paper, non-metals wood (including forestry), being the main sources of total suspended solids (TSS);
- textiles, food processing, chemical products and motor vehicle, being the main sources of hazardous chemicals.

FDI inflows are distributed across various sectors as shown in Table 1.

Table 1. FDI inflow by sector (%, cumulative to end 2014)[28]

	Projects (%)	Registered Investment (%)
Manufacturing	55.03	53.16
Real estate	2.59	21.28
Hotels and restaurants	2.2	4.71
Construction	6.51	4.31
Electricity and water supply	0.59	4.19
Transport	2.38	1.55
Agriculture	3.22	1.47
Mining	0.52	1.43
Waste treatment	0.2	0.56
Others	26.76	7.34

[28] MPI, 2014

It is reasonable to assume that the environmental impacts of FDI will to some extent be inversely proportional to technological level. The rate of FDI inflow into high-tech and medium-tech sectors is increasing (see Annex 2 for further details and references). This suggests that FDI is becoming more environmental friendly over time.

According to an investigation conducted by VCCI and USAID/VNCI in 2012:

- 67% of FDI companies in Vietnam were at the time operating in sectors with low added value;
- only 5% of FDI projects were operating in high-tech sectors such as ICT;
- a further 5% and 3.5% respectively of FDI projects were operating in scientific and technological services and financial or insurance businesses, those being the sectors requiring high quality labour and having less environmental impact.

For the time being, the main motivating factor for foreign investors in Vietnam is the low cost of labour and the ready availability of natural resources. The sectors in which this factor is most significant are, unfortunately, those that have the greater potential for environmental impact, such as garment and textile manufacture, food processing, chemicals and metal products.

Clearly, therefore, FDI inflows in those sectors have increased the level of economic activity, which in turn has increased the risk of environmental impact. However it can reasonably be assumed that if the same increase in the level of economic activity had resulted solely from domestic investment, the risk of environmental impact would have increased by the same amount. The cause of the increased environmental risk, therefore, is the increased economic activity, and not the fact that FDI has contributed to that increase.

It follows that the regulatory mechanism to mitigate the environmental impacts of FDIs is the same as the regulatory mechanism to mitigate the environmental impacts of any type of investment: namely, the environmental impact assessment provisions of the 2014 Environment Protection Law.

2.7 ENTERPRISE SUPPORT AND THE ‘POLLUTER PAYS’ PRINCIPLE

During the conduct of this study, certain of the representatives of FDI enterprises that were interviewed expressed a desire for some form of support, in order that they might more effectively manage the impact of their business upon the environment. The purpose of this section is to consider what form that support might take.

There is one aspect of EU environmental law implementation that has no equivalent in Vietnam: the provision of guidance regarding the best available techniques for industry in regard to controlling emissions. This is relevant to the present subject for the following reasons:

- Encouraging industry to adopt recognised techniques makes a significant contribution to reducing impacts upon the environment and reduces the enforcement workload upon regulatory authorities.
- FDI companies that have access to such guidance can build these considerations into their pre-investment planning, thereby giving Vietnamese authorities greater assurance that the enterprise will be managed in an environmentally responsible way once in operation.
- In view of Vietnam's relatively limited institutional capacity, it makes sense to build as much as possible upon experiences elsewhere.

In the European Union, the implementation of the Industrial Emissions Directive (2010/75/EU) is supported by a range of reference documents (known as 'BREFs') describing the best available techniques for various types of industry. To date BREFs have been prepared and published for the following:

- Ceramic manufacturing industry
- Common waste water and waste gas treatment / management systems in the chemical sector
- Emissions from storage
- Energy efficiency
- Ferrous metals processing industry
- Food, drink and milk industries
- Industrial cooling systems
- Intensive rearing of poultry and pigs
- Iron and steel production
- Large combustion plants
- Large volume inorganic chemicals – ammonia, acids and fertilisers
- Large volume inorganic chemicals – solids and others industry
- Large volume organic chemical industry
- Manufacture of glass

- Manufacture of organic fine chemicals
- Non-ferrous metal industries
- Production of cement, lime and magnesium oxide
- Production of chlor-alkali
- Production of polymers
- Production of pulp, paper and board
- Production of speciality inorganic chemicals
- Refining of mineral oil and gas
- Slaughterhouses and animals by-products industries
- Smitheries and foundries industry
- Surface treatment of metals and plastics
- Surface treatment using organic solvents (including wood and wood products preservation with chemicals)
- Tanning of hides and skins
- Textiles industry
- Waste incineration
- Waste treatment
- Wood-based panels production

A very significant amount of work has gone into the preparation of those documents, which in principle are as applicable in Vietnam as in the European Union in terms of the guidance that they provide, subject to revision to take account of Vietnam's specific circumstances. All can be downloaded from the website of the European Commission's Joint Research Centre, Institute for Prospective Technological Studies, at http://eippcb.jrc.ec.europa.eu/reference/

Given that environmental regulatory authorities are resource-constrained for the time being, it is probably impractical to suggest that they should become more actively involved in providing training to enterprises for the purposes of environmental management. Nevertheless, if it were thought appropriate that they should do so, the 'polluter pays' principle might offer a way of addressing the associated costs.

The 'polluter pays' principle is incorporated into the 2014 Environment Protection Law. It is the basic economic paradigm that underlies the international approach to environmental management. It was reaffirmed in the 1992 Rio Declaration, Principle 16 of which states that

"National authorities should endeavour to promote the internalization 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". It is mentioned, recalled or otherwise referred to in both Agenda 21 and the World Summit on Sustainable Development (WSSD) Johannesburg Plan of Implementation.

The core idea is that companies or consumers are liable for the cost of the negative externality that they create. The principle is usually understood to refer to environmental costs, but it could be extended to any external cost. Furthermore, the principle does not need to be restricted to actions leading to actual pollution: it can be extended to mean that a legal person judged to be in breach of environmental law in any way that leads to an actual or a social cost should be liable for meeting that cost. Seen from a different perspective, it means that the person in breach of law is required to indemnify and hold harmless the society affected against any financial consequence of that breach. This requires that the culprit should be liable *in full* for the total social cost of failure to comply with the law. (Social cost is the sum of private cost and external cost, which includes environmental cost.)

The practical implementation of the 'polluter pays' principle involves two considerations for which the legal framework as a whole must make provision:

1. Total social cost almost certainly needs to be determined on a case-by-case basis, because no two cases are sufficiently identical to permit any other approach. In order to quantify total social cost (including environmental cost), some authority or government agency needs to be mandated to calculate the external costs of an incident and then given the authority to ensure that the polluter pays this.
2. It is not inconceivable that a polluter may not be able to afford to pay the full social cost. The legal framework must then make provision for allowing the polluter the right of appeal, based upon a predetermined set of affordability criteria; if the appeal is upheld, then the legal framework needs to make provision for payments to be staged over time or, in extreme cases, for other ways to be found for meeting the total social cost. This is likely to be a significant consideration for Vietnam at its present stage of economic development, particularly if the polluter is an enterprise that employs (directly or indirectly) a significant proportion of the adult population in the area affected.

The ‘polluter pays’ principle is relevant to the regulation of all enterprises, including those with FDI financing. All actions that a regulatory authority has to address in response to a breach of the law are clearly a direct consequence of the breach, for which the legal person (i.e. the enterprise) being in breach is solely responsible. However there is another aspect to this in the present case: it would not be unreasonable to extend the principle to mean that any costs incurred by regulatory authorities in providing pro-active training to the staff of an enterprise should be covered by the enterprise itself. In other words, the enterprise pays to the regulatory authority a fee for training, in exactly the same way as would be the case if a commercial trainer were to be employed.

2.8 INTERVENTION STRATEGY

Based upon the foregoing, the key areas for intervention need to be as follows:

1. Rationalisation of environmental permits and contracts for enterprises operating within industrial zones.
2. Quantifying the extent to which environmental regulatory capacity needs to be increased in order to match the demands of duties imposed by law in order to be able to implement these effectively.
3. Design and implement an institutional development plan, to take environmental regulatory institutions from where they are at the moment to where they need to be in order to implement the law effectively.
4. Develop an objective-driven environmental monitoring programme, particularly for air quality.

There are in addition various supplementary measures that could be considered in order to facilitate aspects of the FDI process, notably:

- Measures to encourage responsible environmental management by enterprises
- Due diligence support and
- Screening of FDI proposals.

All of these are developed in the next chapter of this report.

3 POLICY RECOMMENDATIONS

3.1 POLICY INTRODUCTION

The recommendations that are now made, if adopted and implemented in a properly planned and coherent manner, will contribute to mitigating many of the environmental regulatory problems that Vietnam faces, of which the environmental impacts from FDI-financed enterprises are a part. The work effort, the associated cost and the period of time required for the purposes of implementing these recommendations fully are substantial, but this needs to be seen in the proper perspective. There are no 'quick fix' solutions to any of Vietnam's environmental problems. Furthermore, the addressing of any one of the problems will require actions that at the same time will contribute significantly to addressing most of the other problems. The logistics of implementation, therefore, need to be set against the resulting benefit in terms of sustainable development as a whole and not merely against the benefits of mitigating FDI-related environmental impacts.

One fact needs to be emphasised before embarking upon a description of the measures that are recommended. All of the environment-related work that EU-MUTRAP has done to date, not only for this assignment but for two others[29], has concluded that a lack of environmental regulatory capacity is the main constraint to progress in implementing Vietnam's environmental legislation effectively. That lack needs to be addressed in a properly considered and structured manner, applying the principles of change management to institutional development planning. That will then provide the essential foundation for developing the following and other policy recommendations in more detail than is possible without it.

3.2 REGULATING ECONOMIC DEVELOPMENT

Policy:	*To prioritise longer-term sustainable development over shorter-term unsustainable economic development*
Aim:	*To restore sustainability of development by bringing the rate of economic development into alignment with realistically achievable progress in improving environmental quality*
Sectors affected:	*All*

[29] INVEN-8, INVEN-8 PE2

Decision level:	*National government*
Implementing authority:	*Ministry of Industry and Trade*

It has been established by the European Commission, the United Nations, the World Bank and the Asian Development Bank (among others) that development is sustainable only when economic development, social development and environmental quality are addressed in parallel with each other and kept in proper balance. If one drives economic development too quickly, environmental regulation cannot keep up with the regulatory workload, the environment suffers and ultimately society suffers. When that happens, a country becomes a less attractive place to do business, hence economic development itself suffers, which is why the development is said to be unsustainable.

Addressing the environmental issues needs to be properly planned and conducted. Given the limited resources of Vietnam's environmental regulatory institutions, this process is going to take time. Consequently, planning and implementation in the environmental sector is probably the rate-limiting step in Vietnam's development. Attracting investment is the easiest and most immediately attractive aspect of development, as witness the fact that when a country first opens up it is almost invariably a trade mission that is the first to land. Nevertheless if development in the environment sector cannot be accelerated, then a brake needs to be applied to economic development if the overall outcome is to be sustainable. It is not being suggested that economic development should be halted, rather that it should be encouraged only in sectors that will not impose significant additional workload upon the environmental regulatory institutions. Such an action would need to be discussed and agreed at the highest levels of government within Vietnam, not least because it would have implications also the rate of social development in the short-to-medium-term. If agreed, the decision would require proactive intervention by the MOIT in regulating FDI.

There remains the question of how one knows when economic development and environmental quality are in balance, i.e. what objectively verifiable indicator would one use. There is no definitive answer to this. However, for as long as environmental quality appears to be suffering on account of the environmental regulatory authorities not having sufficient capacity to implement Vietnam's environmental pollution control legislation effectively, it would be reasonable to conclude that economic development and environmental quality are not in

balance. This would indicate that the strengthening of the environmental regulatory framework should take priority over the promotion of economic development and that some form of constraining mechanism should be put in place.

3.3 ENVIRONMENTAL PERMITTING AND INDUSTRIAL ZONES

Policy:	*Effective environmental regulation of enterprises based in industrial zones*
Aim:	*To ensure effective regulation, transparency and clear accountability by rationalising the process of issuing environmental permits and approving operating contracts for enterprises operating within industrial zones*
Sectors affected:	*All with operations located in industrial zones, regardless of whether FDI is involved*
Decision level:	*Line ministries*
Implementing authority:	*(a) Ministry of Industry and Trade* *(b) Ministry of Natural Resources and Environment*

The basic process needed is to ensure that permits and operating contracts reflect accurately the real operating situation for an enterprise based in an industrial zone, so that there is no ambiguity about who is responsible for what. In addition, an enterprise needs the flexibility to employ third party contractors for waste handling if that seems appropriate, bearing in mind that wastes from industrial processes can sometimes have a significant value in terms of recycling.

One could approach this in any of a number of different ways, so the following description is illustrative rather than definitive.

Step 1. Draw up a list in which each item defines a unique regulatory responsibility or liability that would normally appear as a condition in an environmental permit. Make sure that all aspects are covered. Make sure that it is sufficiently detailed to differentiate clearly between the duties of the industrial zone operator, on the one hand, and the enterprise, on the other hand.

Step 2. Allocate each item on the list to the enterprise, the industrial zone operator or the regulatory authority. This will ensure comprehensive coverage of responsibilities without overlap or ambiguity.

Step 3. Review the environmental permits and the operating contract between the enterprise and the industrial zone operator, and note whatever changes may be needed in order to ensure that these are properly consistent with the output from Step 2 above and with each other.

Step 4. On the basis of the foregoing, draw up a standard model contract between an industrial zone operator and an enterprise operating in an industrial zone. This should include the right of the operator to impose conditions upon an enterprise for access to communal infrastructure provided by the operator, also assigning to the enterprise the liability for the consequences of failing to comply with those conditions. Acceptance of this model should become a qualifying condition for being granted permission to establish and operate an industrial zone. Ensure that this contains optional provisions that would come into effect in the case that an enterprise wishes to subcontract the handling of its waste to an external contractor or to sell it to a third party, providing always that such waste is handled in accordance with the requirements of applicable Vietnamese Law.

It is possible that one would need amendments to the legislation governing the procedures for applying for, processing and granting environmental permits, in order to legitimise the process described above. Note also that the process as described, if implemented rigorously, would circumvent the possible need for a single institution to oversee the three types of legal agreement involved in the process.

3.4 QUANTIFYING THE SHORTFALL IN INSTITUTIONAL CAPACITY

Policy:	*Effective implementation of Vietnamese environmental regulatory policy*
Aim:	*To quantify the extent to which existing institutional regulatory capacity falls short of that required for the effective implementation of Vietnamese environmental law, with an emphasis on the processes required to regulate activities in those sectors for which FDI is a significant financing component*
Sectors affected:	*Environmental regulation*
Decision level:	*Line ministry*
Implementing authority:	*Ministry of Natural Resources and Environment*

This is an essential precursor for a wide range of institutional strengthening measures (including implementation planning for the EU-Vietnam trade agreement) besides being relevant to the present assignment. The aim is to assess what resources exist at present, in which institutions, what is their present workload on what tasks; this is then compared with the same information in relation to the workload required to implement effectively all environmental regulatory functions (including those that are of a transitional nature) in order to identify what institutional and related budgetary changes may be necessary for the framework to function effectively. (The implementation of the EU-Vietnam trade agreement is a case in point.) Roles and Responsibility Analysis (RACI) is an essential tool for this, being the starting point for institutional development planning and communications planning. The work burden associated with the effective regulation of FDI enterprises would need to be a part of the overall work demand in this analysis. The analysis should include also an evaluation of the role of the industrial zone management board in assisting enterprises to improve their environmental performance. (At present its role is defined but it has not been allocated the budget necessary to fulfil that role.)

3.5 ESSENTIAL CAPACITY-BUILDING FOR EFFECTIVE IMPLEMENTATION

Policy:	*Effective implementation of Vietnamese environmental regulatory policy*
Aim:	*To develop institutional change objectives and a change management plan to deliver those objectives*
Sectors affected:	*Environmental regulation*
Decision level:	*Line ministry*
Implementing authority:	*Ministry of Natural Resources and Environment*

Assumptions. This intervention depends for its successful completion upon the Government of Vietnam guaranteeing sufficient budget to sustain the levels of institutional resource identified as necessary by the measure described in 3.4 above.

The starting point for this will be the output from 3.4 above. Therefore the two measures should be programmed sequentially. The preceding measure will clarify

(a) which people, of what skills and assigned which duties exist in which institutions

(b) how much work effort and of what type is needed in order to fulfil the requirements of Vietnamese environmental law (including the regulation of FDI enterprises and industrial zones)

This measure aims to work out how one gets from (a) to (b), in such a way that (b) is sustainable. The process by which this happens is referred to as an institutional development plan (IDP). It will necessarily include the industrial zone management board also the communications linkages between it and environmental authorities. One of the aims of this work component should be to resolve overlaps or gaps in function between, for example, the environmental guard, provincial environmental agencies, the industrial zone management board, the people's committees and so on.

Neither this nor the preceding measure is a straightforward task. It is noted that the European Union provided technical assistance to Romania at the time a regional level of environmental governance was introduced into the country's regulatory framework. It is possible that similar support may be needed for the completion of these measures, possibly via the EU-MUTRAP project.

3.6 DEVELOPMENT OF MONITORING AND INFORMATION SYSTEMS

Policy:	*Effective implementation of Vietnamese environmental regulatory policy*
Aim:	*To develop environmental monitoring systems, laboratory analytical capability and associated information systems and communications interfaces, based upon an analysis of information requirements, with an emphasis in the first instance upon air quality*
Sectors affected:	*Environmental regulation*
Decision level:	*Line ministry*
Implementing authority:	*Ministry of Natural Resources and Environment*

It should be noted that the specification of systems of this nature is a highly specialised discipline. Care should be taken to ensure that the people assigned to the task are sufficiently experienced.

In broad terms this measure aims to specify the purposes for which environmental monitoring is required, agree the *quality of information* required for each purpose, and then define what type of monitoring programme is necessary in order to yield the required quality of information. This forms the basis for designing additional measures to provide whatever laboratory analytical capability, information systems support and communications interfaces may be needed. Although it is tempting to 'import' monitoring specifications from other countries, the reality is that Vietnam needs a monitoring programme that offers an achievable compromise between the quality of information, the availability of human resources, the cost of equipment and resource deployment and laboratory analytical capability. This is not a straightforward logistical planning task. It is recommended that consideration be given to this as a stand-alone consulting assignment.

It is suggested that this measure is preceded by one or more seminars designed to familiarise people with the statistical characteristics of environmental data, the significance of periodic components of variation, binomial probability theory in relation to compliance assessment and associated levels of confidence in management decision-making based on environmental data. Once those issues are properly understood, it will become much easier to make the case for particular environmental monitoring regimes in the future and the information systems needed to support these.

3.7 SCREENING OF VENTURES INVOLVING FDI

Policy:	*Effective environmental regulation of FDI*
Aim:	*To ensure that environmental regulatory authorities are aware of all proposed developments financed in whole or in part from FDI, with a view to ensuring effective communication*
Sectors affected:	*Environmental regulation*
Decision level:	*Line ministry*
Implementing authority:	*(a) Ministry of Industry and Trade* *(b) Ministry of Natural Resources and Environment*

In order to ensure that FDI activities are subjected to the same degree of scrutiny for the purposes of environmental impact assessment (EIA) as internally-financed activities, it is suggested that the MOIT introduces a screening mechanism that alerts environmental regulatory

authorities to all significant FDI projects. Those projects that fall within the requirements for environmental impact assessment established in the 2014 Environment Protection Law should be highlighted in order to ensure that the requirements of the law are respected and that progress of the legally required stages is tracked properly. For other projects that do not require EIA, it is suggested that the regulatory authorities make a point of meeting with the managers of the enterprise, partly to establish a cooperative working relationship but also to flag up any other environmental issues of possible concern that may require some form of supervision.

The intention is that all proposed foreign investment into projects of a nature that would require EIA under Vietnamese Law should be subject to screening by MONRE. Potential investors need to be made aware of that (responsibility of MOIT), ideally through investment advice provided by Vietnamese Embassies and Consulates.

3.8 OTHER SUGGESTIONS

3.8.1 Encouraging responsible environmental management by enterprises

It is suggested that consideration be given to preparing advisory documents in the Vietnamese language, based upon the BREFs prepared by the European Union. If accepted, this would need to be done in the following way:

- BREFs applicable to the industrial sectors of importance in Vietnam should be selected from the list of those available from the European Commission.
- Each of the selected BREFs should be assigned to Vietnamese industrial process expert, whose job should be to review it and make any adjustments that may be appropriate to Vietnam's specific circumstances. That process should in principle take no longer than six months, with a typical work effort requirement of four weeks for each BREF.
- The revised BREFs should then be translated into Vietnamese and the translations subjected to rigorous peer review before adoption as drafts.

Priority should be given to the industries in which FDI predominates. This and other such information should be available via the internet, supplemented by advisory bulletins, *ad hoc* best practice guidelines, invitations to participate in up-coming consultations when appropriate and so on. A particular need has been identified for information relating to the identification of emission sources at each stage of production, including materials storage and the potential for emissions arising from by-products of the manufacturing process. The portal through which enterprises gain access to this information should be part of a more comprehensive system that enables enterprises to keep themselves properly informed of regulatory and other requirements.

3.8.2 Supporting pre-investment due diligence studies

It is possible that some or all of the following may already be done. The aim would be to provide information to potential foreign investors in advance of committing to invest, so that they can be as aware as reasonably possible of aspects of Vietnam's environmental regulatory framework that might have a bearing upon investment decisions.

There are several ways in which this could be done and it is not our intention to be prescriptive. One possibility would be to compile a non-technical booklet with a title such as, for example, *'Vietnamese Environmental Law: A Guide to Your Rights and Responsibilities as an Investor'*. It is possible that some information of this nature is already available through organisations such as the Vietnam Chamber of Commerce and Industry (VCCI). Therefore this measure might reduce to the relatively straightforward task of collating that information and publishing it in a single document (assuming that is not already available). Such information could then be made available through Vietnamese embassies and consulates.

4 CONCLUSION

The mitigation of environmental impacts arising from FDI-related activities has been shown to depend heavily upon building environmental regulatory capacity to be in line with the requirements of Vietnamese law. That intervention is not only on the critical path to achieving sustainable development in Vietnam but also of high priority in the short-to-medium-term. This includes the strengthening of environmental monitoring, information systems and the associated communications linkages. It is relevant also to the implementation of the EU-Vietnam trade agreement. Accordingly Vietnam in dialogue with its international partners should endeavour to implement this measure at the earliest possible opportunity. None of the supplementary measures proposed can be developed in significantly more detail until at least the following has been done:

- An estimate needs to be made of the public sector work effort required to conduct every task arising from Vietnamese environmental law, including the environment chapter of the EV-FTA.
- That estimate then needs to be compared with the work effort that can realistically be delivered by the staff resources currently available in the various governmental institutions that play a role in environmental regulation.

Following the completion of these two tasks, a change management plan will need to be devised in order to bring about the transition from the present situation to what is required for the implementation of Vietnam's environmental law. All supplementary measures needed will be, in effect, a function of that change management plan.

Resolving the issues surrounding the environmental permitting for industrial zones and the enterprises operating on them is a moderately high though less critical priority. This should be programmed as soon as reasonably possible. The best regulatory model seems, on the basis of the limited studies that have been possible within the time frame of this assignment, to be that provided by the United Kingdom's business parks and industrial estates, making use of the regulatory guidance issued by the Environment Agency.

Other measures are of less critical relevance and can be programmed as the opportunity arises and resources allow.

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ANNEX 1

Vietnamese regulatory framework and its implementation to mitigate environmental impact of FDIs in Vietnam

The legal regulations related to environmental protection are stipulated in numerous different legal documents. This forms the regulatory framework which helps to mitigate environmental impact of business sector in general and FDI sector in particular on the economy of Vietnam. In 2005, Vietnam issued a common Law on Investment and thus there have been not different treatments since then between domestic and FDI businesses in terms of benefiting from investment policies. In this paper, only the current effective policies are reviewed. Those policy documents basically include Law on Investment 2014, Law on Environmental Protection 2014, Law on Environmental Protection Tax 2010, Vietnam Mineral Law 2010, Law on Corporate Income Tax, many Decrees and Circulars.

I. In the stage of business registration

In this stage, regulations related to environmental protection are mainly in Law No. 67/2014/QH dated November 26, 2014 on Investment. This Law stipulates in article 5 that investors are entitled to make investments in the business lines that are not banned in this Law. Accordingly, the banned business lines include (i) trading in the narcotic substances specified in Appendix I hereof; (ii) trade in the chemicals and minerals specified in Appendix I of this Law; and (iii) trading in specimens of wild flora and fauna specified in Appendix 1 of Convention on International Trade in Endangered Species of Wild Fauna and Flora; specimens of rare and/or endangered species of wild fauna and flora in Group I of Appendix 3 hereof (article 6).

Beside banned business lines, the ***Law on Investment 2014 also stipulates conditional business lines in article 7***. Conditional business lines are the business lines in which the investment must satisfy certain conditions for reasons of national defense and security, social order and security, social ethics, or public health. The list of conditional business lines is provided in appendix 4 hereof. Conditions for making investments in the business lines mentioned in Clause 2 of this article are specified in the Laws, Ordinances, Decrees, and the international agreements to which Vietnam is a signatory. Ministries, ministerial agencies, the People's Council, People's Committees, and other entities must not issue regulations on conditions for making business investments. Conditions for making business investments must be appropriate for the objectives in clause 1 of this article, ensure transparency, objectivity, not wasting time or money of

investors. The conditional business lines and the corresponding conditions shall be posted on the National Company Registration Portal. The Government shall elaborate the announcement and control of conditions for business investments.

There are some amendments to the lists of banned business lines and the list of conditional business lines. Depending on the socio-economic conditions and state management requirements in each period, the Government shall review the banned business lines, conditional business lines and propose amendments to article 6 and article 7 to the National Assembly.

Beside all the stipulations on banned and conditional business lines, the Law on Investment 2014 also provides some incentives for investment which are able to positively impact on the environment.

According to article 16, the business lines given investment incentives include high-tech activities, high-tech ancillary products; research and development; production of new materials, new energy, clean energy, renewable energy; productions of products with at least 30% value added; energy-saving products; collection, treatment, recycling of waste;

Investment incentives are also given to some administrative divisions. They are industrial parks, export-processing zones, hi-tech zones, and economic zones.

II. In the preparatory stage of investment and construction

In this stage, the most important regulations related to environmental protection for enterprises are stipulated in the Law on Environment Protection No. 55/2014/QH13 dated 23/6/2014.

Article 7 stipulates prohibited acts that have the risks of damaging the environment. Those are ruining and illegally extracting natural resources; obtaining biotic resources by means of mass-killing equipment, devices and methods; carrying out such production process in wrong seasons and in breach of legal regulations on the permitted productivity; obtaining, trading and consuming wild plants and animals identified in the list of preferentially-protected endangered, precious and scarce species, regulated by the competent authority; transporting and burying poisons, radioactive substances, wastes and other hazardous substances in violation of technical process of the environmental protection; etc (refered to article 7 for more details on prohibited acts).

Beside, what investors are not allowed to do, this law also stipulates what the investors must do. Accordingly, articles from 18 to 34 provide for that the investors ***in the preparatory stage of projects are required carrying out environmental impact assessment or environmental protection plan to submit to authorized agencies to approve.***

The list of projects required carrying out environment impact assessment (EIA) is stipulated in annex II of Decree No.18/2015/ND-CP dated February 14, 2015 on regulations on strategic environmental assessment, environmental impact assessment. The project owners can carry out the assessment themselves or hire an independant consulting organisation to do the tasks. During the process of conducting an EIA, the project owners have to consult the Commune People Committees or equivalents of the project place, organisations and residential communities who are directly affected by the project. They then have to revise EIA to mitigate adverse impact of the project on natural environment, bio-diversity and community health taking into account (Article 12 of the Decree). In this Decree, it is also stipulated that (in Article 14) the Ministry of Natural Resources and Environment (MONRE) guides the Provincial People Committees to authorise the Management Boards of Industrial Zones of the Province to consider and approve the EIA of businesses.

According to article 18, environmental impact assessment objects consist of projects subject to the decision on investment intentions made by the National Assembly, the Government and the Prime Minister; projects that use land parcels situated in wildlife sanctuaries, national parks, historical – cultural monuments, world heritage sites, biosphere reserves, scenic beauty areas that have been ranked; projects that can cause bad effects on the environment.

After the approval of environment impact assessment, the investors have to adjust the project to make it be in line with the approval decision of environment impact assessment and carry out all solutions to protect environment in the preparatory stage of project and the stage of construction based on the content of approval decision of environment impact assessment (design and install environmental facilities including waterwaste treatment, hazardous waste and non-hazadous waste, dust and gas emission treatment, etc).

If the project is required to make an environment protection plan, the plan will be submitted to the district people's committee in the district where the project is located.

Therefore, the above regulations have contributed to minimize the environment impact of enterprises in general and of FDI enterprises in particular which had not been applied before

2011. Those enterprises have to plan and implement environment protection by themselves from the stage of designing project, stage of operation pilot, and the stage of operation.

III. In the stage of business operation

In this stage, enterprises in general and FDI enterprises in particular have to obey numerous regulations on environment, punishments for violation, and receiving supports and incentives if their business activities and production have positive impact on the environment.

1. Activities that investors have to do

Regulations related to environment that enterprises have to do are mentioned in many different Laws on different industries/fields

First is the Law on Investment No. 67/2014/QH 13 dated November 26, 2014. According to article 75, clause 1 Article 18 of the Law on High Technology No. 21/2008/QH12 is amended as follows: applying eco-friendly, energy-saving solutions to manufacturing and quality control in accordance with Vietnam's technical regulations and standards (or international standards if no Vietnam's technical regulations and standards are available);

Second is the Law on Environment Protection No. 55/2014/QH13 dated June 23, 2014. Beside all regulations related to environmental protection in exploiting and using the natural resources, protecting the environment of the sea and islands; protecting environment of water, soil, air, etc, articles from 90 to 94 regulate hazardous waste management. Enterprises have to creat files on hazardous wastes and apply registration with an environment authority.

This Law also has regulations on conventional solid waste, wastewater management, management and control of dust, exhaust gases, noise, vibration, light, and radiation and environment standards that enterprises have to meet in their operation process.

Third, Vietnam Mineral Law No. 60/2010/QH12 provides for geological baseline surveys of minerals; protection of unexploited minerals; mineral exploration and mining; state management of minerals in the mainland, islands, internal waters, territorial sea, contiguous zone, exclusive economic zone and continental shelf of Vietnam. In chapter 3 is about the protection of unexploited minerals (articles 16-20: regulated specific responsibilities for protection of unexploited minerals of different objectives: the governments at all levels, investors, and people; Chapter 6 is about environment protection, land using, technical infrastructure in mineral activities (especially articles 30 to 32).

Fourth, Law on Water Resource no. 17/2012/QH13 stipulates the management, protection, exploitation and use of the water resource; the protection, combat against and covercoming the harmful effects of water for Vietnam.

Article 4 of this Law is about the state's policies on water resource: i) managing, protecting, exploiting, and using water resource reasonably, economically, and efficently; ii) Investing, implementing basic survey, and making master plans on using water resource; building monitoring system of water resource; iii) providing incentives for water resource exploiting projects; iv) policies to encourage agencies and individuals to research, apply sciencific achievements and technology to manage, protect, and develop water sources and to exploit and use the water resource economically and efficiently.

Fifth, Law no. 10/2008/QH12 dated June 03, 2008 on amending and supplementing a number of articles of the Petroleum Law provides for regulations on exploration activities for oil and gas in the territory, exclusive economic zone and continental shelf of Vietnam. Article 4 of this Law stipulates that organizations or individuals are required to use advanced technologies and obey all Vietnam's regulations on protecting natural resources and environment when conducting petroleum activities; article 5 regulates that organizations and individuals when conducting petroleum activities are required to have an environmental protection plan, implementing all measures to prevent pollution, eliminate immediately the cause of the pollution and responsible for engraving consequences of pollution incidents.

Sixth is the Law on Economical and Efficient Use of Energy No. 50/2010/QH12 dated June 28, 2010. This law regulates economical and efficient use of energy; policies and measures to promote economical and efficient use of energy; Rights, obligations and responsibilities of organizations, households and individuals in economical and efficient use of energy. Chapter 10 (Articles 41-43) is about measures to promote economical and efficient use of energy: i) incentives for using energy economically and efficiently; ii) Developing science and technology to use energy economically and efficiently; iii) Disseminating, educating, developing consulting services on using energy economically and efficiently.

Beside regulations related to environment protection stipulated in numerous Laws, there are also some relevant regulations that are provided in some by-law documents, namely circular of some ministries, including Circular 30/2011/TT-BTC dated August 10, 2011 and Circular No 48/2011/TT-BTNMT dated December 28, 2011.

Circular 30/2011/TT-BTC dated August 10, 2011 stipulates temporary limits of the permitted content of several hazardous chemicals in electric and electronics products. According to article 5, there are provisions on toxic chemicals limited in electric and electronics products. They include toxic chemicals which are restricted in electric and electronics products include: lead (Pb), cadmium (Cd), mercury (Hg), chromium valence 6 (Cr6 +), polybrominated biphenyl (PBB) and polybrominated diphenyl ethers (PBDE); Content of toxic chemicals in electronic and electronic products which are in circulation on Vietnam market should not exceed the permitted limits specified in appendix 1, except as specified in annex 3 attached with this circular; An electrical or electronic product is considered to comply with the regulation on limited content of toxic chemicals if all homogeneous materials constituting that product meet the requirements of limited content of toxic chemicals; When there is no Vietnam's corresponding regulation on limited content, to assess the content of hazardous substances in electrical and electronic products, the authorized agency can temporarily apply the current standards of IEC 62321: Electro-technical products - Determination of levels of six regulated substances) or equivalent standards. "

The other Circular regulates what the investors have to do to protect the environment is Circular No 48/2011/TT-BTNMT dated December 28, 2011. The Circular is on environment protection regulations in economic zones, high-tech areas and industrial zones. The most remarkable points are in article 3, article 8, and article 10.

Article 3 sipulates that in case all production, business and service establishments in economic zones, hi-tech parks, industrial parks and industrial complexes are required to have contracts signed with ordinary solid waste- and hazardous waste-receiving, -transporting and -treating establishments. All production, business and service establishments in economic zones, hi-tech parks, industrial parks and industrial complexes shall arrange places for temporary storage of solid waste before such waste is transported for treatment."

Investors of concentrated wastewater treatment plants shall design and install systems for automatic and constant observation of the flow, pH level, COD, TSS and some other typical parameters of wastewater generated by hi-tech parks, industrial parks and industrial complexes before wastewater is discharged into a receiving source as required in decisions approving environmental impact assessment reports.

Article 8 stipulates the conditions for production, business and service investment projects in economic zones, hi-tech parks, industrial parks and industrial complexes to be put into operation. Establishments receiving, transporting and treating ordinary solid waste and hazardous waste of economic zones, hi-tech parks and industrial clusters specified at Point a. Clause 3, Article 1 of this Circular and the law on solid waste management have been identified.

Wastewater outlets of production, business and service projects have been directly connected to the wastewater collection systems of concentrated wastewater treatment plants of economic zones, hi-tech parks, industrial parks and industrial complexes, except cases in which production, business and service establishments have their own wastewater treatment stations up to current technical regulations on environment before concentrated wastewater treatment plants of economic zones, hi-tech parks, industrial parks and industrial complexes are built, and satisfy the conditions prescribed in article 45 of the Government's decree No.88/2007/ND-CP dated May 28, 2007, on water drainage in urban centers and industrial parks.

Production projects have completely installed, tested and operated on a trial basis their wastewater, exhaust gas and noise treatment equipment, applied other environmental production measures as committed in the environmental impact assessment reports or written environmental protection commitments and been inspected and certified by competent authorities as having completed environmental treatment works."

Article 10 stipulates that responsibilities of economic zone, hi-tech park, industrial park and industrial complex technical infrastructure investors are (i) to monitor and supervise the discharge of wastewater into concentrated wastewater treatment plants by production, business and service establishments according to the signed contracts; (ii) to assure that wastewater treatment works and solid waste collection, classification, temporary storage and treatment works of economic zones, hi-tech parks, industrial parks and industrial complexes satisfy all environmental protection requirements; (iii) to take care of and assure the rate of greenery coverage in their hi-tech parks, industrial parks and industrial complexes."

2. Duties related to environmental protection that investors have to fulfill

Law No. 57/2010/QH12 on Environmental protection tax stipulates how much tax the investors have to pay in their production or provision of services. The amount of environmental protection tax payable equal to the quantity of unit of dutiable goods multiply absolute rate

specified on a unit of goods. Absolute rates are specified in the tariff table. The National Assembly Standing Committee provide for specific tax rate to each type of dutiable goods ensuring the following principles: i) The tax rate on taxable goods in line with socio-economic development policy in each period; and ii) The tax rate on taxable goods shall be determined under the extent of causing negative environmental impacts of the goods. (Article 8).

In addition to environmental protection tax, investors also have to pay fee/charge if they discharge waste water into the environment. The fees/charges that investors have to pay are stipulated in The Decree No. 25/2013/ND-CP on environmental protection fees for waste water dated March 29, 2013 and Joint Circular No. 63/2013/TTLT-BTC-BTNMT dated May 15, 2013 subject to regulations of environmental protection charge for industrial wastewater.

In Decree No. 25/2013/ND-CP on environmental protection fees for waste water dated March 29, 2013, the levels of environmental protection charge for industrial wastewater are calculated for two cases: i) For waste water which does not contain heavy metals and ii) For wastewater containing heavy metals. Of course the fees are higher in the case of wastewater containing heady metals.

The detailed tax levels were further stipulated in Joint Circular No. 63/2013/TTLT-BTC-BTNMT dated May 15, 2013 subject to regulations of environmental protection charge for industrial wastewater, the environmental protection charges that investors have to pay for their industrial wastewater discharged into the environment (Article 4).

It can be seen that the detailed regulations on environment duties for businesses have just been issued very recently. In other words, there were “holes” in the past in this management aspect. There have been also different arguments on the levels of tax/duties that businesses have to pay. Some assume that they are not high enough to prevent effectively environment pollution emitting behaviors in practice. In addition, the enforcemence of all these stipulations is not always ensured as environment management authorities still do not have enough capacity (staff and equipment) to conduct enough inspections at sites.

3. Sanctions for the violation of the investors

Investors will be sanctioned if they violate the legal regulations on environment protection. Those sanctions are provided in selected Laws and Decrees.

Article 47 of Law No. 67/2014/QH 13 dated November 26, 2014 stipulates that a project will be suspended in order to address the consequences caused by that project when vilolating regulations on environmental protection according to the suggestion of state management agencies on environment.

In addition, Law on Environment Protection No. 55/2014/QH13 dated June 23, 2014 (article 104 to 107) regulates all actions against enterprises causing serious environment pollution and their responsibility to restore the environment.

Decree No. 179/2013/ND-CP dated on November 14, 2013 provides for sanctions of administrative violations in environmental protection. Accordingly, article 4 provides for the forms and levels of sanctions and remedial measures for the consequences of administrative violations in environmental protection.

Individuals and organizations that commit administrative violations in environmental protection will be applied to one of the two principal sanctions, including caution and fine. The maximum level of fine for an administrative violation in the field of environmental protection is VND 1,000,000,000 (about almost US$ 50,000) for individuals and VND 2,000,000,000 (a bit less than US$ 100,000) for organizations. As analysed above, these levels of fine would not be high and out of date in the future given the presence of inflation.

There are also some other sanctions could be applied. First, forfeituring the right to use certificate of environmental standards; management licience of hazardous waste; permit for discharge of wastewater into water sources; certificates for eligibility of importing scrap; certificate for eligibility to transport dangerous cargo; certificates of plastic bags (or plastic) with environmental friendliness; certificates for circulation of probiotics in waste treatment in Vietnam; and many other certificates. Second, confiscating material evidences of administrative violations, the means used for administrative violations in the field of environmental protection (hereinafter referred to as material evidences and means of administrative violations).

In addition to the sanctions mentioned above, individuals and organizations committing administrative violations in the field of environmental protection can be applied to one or more remedial measures for the consequences of their violation.

The another legal document that provides for sanctions for violation of environmental protection regulation is Decree No. 117/2009/ND-CP on dealing with legal violation in

environmental protection regulations. It is noted that ***the stipulations from this Decree are applied for environment violations made before December 31, 2013. After this point in time, stipulations of Decree No. 179/2013/ND-CP are applied.***

According to article 2, domestic and international individuals and organizations (hereinafter referred to as individuals and organizations) have administrative violations in the field of environmental protection in the territory of Vietnam will be treated penalties under the provisions of this Decree or relevant Decrees. In the case of international treaties which the Socialist Republic of Vietnam is a member contains different provisions, the penalties will be applied to the provisions of the international treaties;

Individuals who are minors and commit administrative violations in environmental protection regulations shall be sanctioned under the provisions of article 7 of the Ordinance on Handling of Administrative Violations.

The units which cause environmental pollution and serious environmental pollution may be suspended their operation, forced relocation, and prohibited operation under the provisions of Chapter III of this Decree. The Ministry of Natural Resources and Environment shall set criteria to define the units which cause environmental pollution and serious environmental pollution.

Article 14 of this decree specifies the levels of fines that investors have to abide if they violate the environmental protection regulations. A fine of between VND 10,000,000 and 15,000,000 shall be imposed for acts of burying or discharging into soil contaminants in solid, sludge, sewage cesspool violating regulations on environmental protection. A fine of between 15,000,000 and 25,000,000 shall be imposed for discharging grease, toxic chemicals, wastes, dead animals, plants, bacteria, viruses, harmful parasites which may cause diseases or other harmful elements into the environment violating the current regulations on environmental protection. Other detailed levels of fine are stipulated in the Decree as well for specific cases of violations.

4. Incentives and supports for business activities that have positive impact on the environment

In addition to sanctions, the state also provides incentives for business activities which are able to positively impact the environment. Incentives are stipulated in many different legal documents in many different fields.

First, Law No.67/2014/QH 13 dated November 26, 2014 (article 19) stipulates forms of investment supports: support to access production and business; support to relocate production base from the inner city or town.

Second, some incentive in tax are provided in Law on Corporate Income Tax No. 14/2008/QH12 dated June 03, 2008, amended Law on Corporate Income Tax No. 32/2013/QH13 and Circular No. 78/2014/TT-BTC. Newly set up enterprises operating in environmental domains are entitled to tax exemption for no more than four years and a 50% reduction of payable tax amounts for no more than nine subsequent years (Article 14, Law No. 14/2008 /QH12).

Additional tax-exempt income (Paragraph 8, Article 4 of Law No. 32/2013/QH13) "Income from transfer of emission reduction certificates (CERs) of enterprises certified emission reductions". Specific provisions of circular 78/2014/TT-BTC: Income from the first transfer of emission reduction certificates (CERs) of enterprises certified emission reductions; income from the transfer for the next time has to pay corporate income tax as prescribed.

Decree No. 04/2009/ND-CP, dated January 14, 2009 on incentives and supports environmental protection stipulates incentives and supports in terms of land and finance in addition to other financial support for activities related to environmental protection.

Facilities causing serious environmental pollution, being SOEs are allowed to use revenues from the auction of land use rights (after deducting costs of organizing the auction) and allowed to record this revenue as capital provided by the budget state budget to pay land use fees, land rent, renewing and upgrading technology in the new production facility.

Consolidated daily-life solid waste treatment facilities that apply treatment technologies with which less than 10% of treated waste volume must be buried and consolidated daily-life wastewater treatment systems are eligible for state supports of 50% of their construction investment capital, including 40% from the central budget, 10% from local budgets, and remaining 50% are preferential loans of the Development Bank of Vietnam or the Environmental Protection Fund of Vietnam. (Article 12, paragraph 1)

The State provides supports equal to 30% of capital amounts needed for procuring equipment for the application of environmental protection inventions, while the Development Bank of

Vietnam or the Environmental Protection Fund of Vietnam provides loans to make up the remaining 70%.

Enterprises and cooperatives conducting operations: applying high technologies and new technologies in Vietnam; applying biotechnology to environmental protection; investing research and development of techniques for treating and recycling wastes or environmentally friendly technologies with 25% or more of turnover; rransferring waste treatment technologies or environmentally friendly technologies; applying technologies for reducing green house and ozone layer-depleting gas emissions are eligible for preferential investment credits of the Development Bank of Vietnam, the National Scientific and Technological Development Fund, the Environmental Protection Fund of Vietnam and other funds under law for implementing production or business investment projects.

The State's key environmental protection programs and investment projects, if specified in the List, are considered for priority use of official development assistance (ODA). Beside direct financial supports from the State, there are also incentives of different kinds of taxes and charge regulated in this Decree.

Corporate income tax incentive: enterprises and cooperatives conducting environmental protection activities are eligible for corporate income tax incentives under the law on corporate income tax (Article 13).

Import duty and export duty incentives: (i) Importing machines, equipment, means, tools and materials for exclusive use in collection, storage, transportation, recycling and treatment of wastes; environmental observation and analysis; generation of clean or renewable energy are exempt from import duty and Import duty exemption is also applicable to the case of expansion of projects or replacement or renewal of technologies. (ii) Importing machines, equipment, spare parts, supplies and means of transport which cannot be manufactured at home or technologies which cannot be created at home; scientific documents, books, newspapers and magazines and electronic sources of scientific and technological information for exclusive use in waste research and disposal, projects on transfer of waste treatment technologies are eligible for tax incentives under the law on import duty and export duty; (iii) some products specified in the list of products eligible for incentives and supports (attached with this Decree) are eligible for export duty exemption.

Value-added tax incentive: Enterprises and cooperatives are eligible for value-added tax incentives under the law on value added tax (Article 15).

Enterprises and cooperatives implementing environmental protection projects which are eligible for special incentives and supports specified in Clauses 1, Section II, Part A or incentives and supports specified in Section II, Part B of the List (attached in this decree) are exempt from environmental protection charge.

There are also incentives of import tax for activities related to green economy. Those incentive are provided in Decree No. 87/2010/ND-CP of the Government dated August 13, 2010 on detailing a number of articles of the Law on Import Duty and Export Duty. According to that Decree, import tax incentives for projects on the list of special investment incentive. Specifically, the projects in the list closely related to the development of green economy, such as: i) Investment in construction projects of solar, wind, biogas, geothermal, and tide power plants; ii) Planting and preserving forests; iii) cultivating agricultural products, forrestrial products, and aquaculture products on uncultivated land and unexploited water areas; iv) pollution control and environmental protection; pollution treatment equipment manufacturing, monitoring and environmental analysis equipment manufacturing; v) collection and treatment of waste water, waste gas and solid waste; recycling and reuse of wastes.

More specifically, in terms of solid waste management, the State encourages all international and domestic organizations and individuals to invest in the construction of solid waste disposal facilities, ancillary works through incentives and investment support. Those are (i) exemption from land use fee, support costs for site clearance compensation; support for investment by the state budget and preferential credit; supporting investment interest rate when using commercial loans; and ensure preferential credit loans with the mortgage of the assets formed from the loans; imported tax exemption for equipment and materials for the project of building solid waste treatment plants; reduction or exemption of corporate income tax as current regulations (Decree No. 59/2007/ND-CP on Solid Waste Management).

A projects on clean development mechanisms is also a subject that supported and encouraged by the State. The supports are expressed through several policies mentioned in Decision no. 130/2007/QD-TTg dated August 2, 2007 on several financial mechanisms and policies applied to investment projects on clean development mechanism.

According that that Decision, corporate income tax Incentives: corporate income tax redemption or reduction are applied to CDM projects: i) CDM project in the fields eligible for specially preferential treatment for investment; ii) CDM projects are open investment projects, a deep investment project or a project that its additional investment is carried out to supplement more equipments of an on-going business entities with additional income gained from such new investment; iii) CDM projects that their income from selling CERs is accounted for in other income line in the total income line of the year that CERs are sold (clause 2 article 10).

Import duty incentive is that CDM project shall be exempted from import duties if goods is imported to create fixed assets of the project; if goods is in form of raw materials, materials, semi-finished products that have not been able to be produced yet by the nation, imported to serve project production activity.(Article 13).

Those projects can mobilized their capital fund by some different ways. The first, investors are allowed to mobilize capital fund in form of cooperation, linkage with other national and international enterprises, economic entities, and financial organizations to develop and implement CDM projects. Second, CDM projects qualified according to Decree No. 151/2006/ND-CP dated December 20, 2006 of the Government in investment credit and export credit of State shall be able to enjoy investment credit policies of the State. Third, in case CDM projects registered with International Executive Board and contract to sell CERs signed among partners, it shall be under prioritized consideration of borrowing money.

It can be said that all of these incentives and supports really have positive impact at different levels on environment of Vietnam although it is difficult to gauge the levels of impact. The effects are expected to be seen in the coming time as most of the policy documents as shown in the analysis are issued recently.

References

1. Law No. 67/2014/QH 13 dated November 26, 2014 on Investment
2. Law No. 55/2014/QH13 dated June 23,2014 on Environment Protection
3. Law No. 60/2010/QH12 dated November 17, 2010 on Minerals
4. Law No. 17/2012/QH13 dated June 21, 2012 on Water Resource
5. Law No. 10/2008/QH12 dated June 03, 2008 on amending and supplementing a number of articles of the Petroleum Law
6. Law No. 50/2010/QH12 dated June 28, 2010 on economical and efficient use of energy
7. Law No. 57/2010/QH12 dated November 15, 2010 on Environmental protection tax
8. Law No. 14/2008/QH12 dated June 03, 2008 on Enterprises Income Tax
9. Law No. 32/2013/QH13 dated June 19, 2013 on Corporate income tax (Amended)
10. Circular No. 78/2014/TT-BTC dated June 18, 2014 on guidlines for implementation of Decree No.218/2013/ND-CP dated December 12, 2013 on regulations and guidlines for implementation of the Law on Corporate income tax
11. Decree No. 25/2013/ND-CP dated March 29, 2013 on environmental protection fees for waste water
12. Decree No. 179/2013/ND-CP of the Government dated November 14, 2013 on regulations on the administrative sanctions for violation in environmental protection regulations
13. Decree No. 117/2009/ND-CP of the Government dated December 31, 2009 on dealing with legal violation in environmental protection regulations

14. Decree No. 04/2009/ND-CP of the Government dated January 14, 2009 on incentives and supports environmental protection

15. Decree No. 59/2007/ND-CP of the Government dated April 9, 2007 on Solid Waste Management

16. Decree No. 87/2010/ND-CP of the Government dated August 13, 2010 on detailing a number of articles of the Law on Import Duty and Export Duty

17. Decision no. 130/2007/QD-TTg dated August 2, 2007 on several financial mechanisms and policies applied to investment projects on clean development mechanism

18. Decision No. 24/2013/QD-TTg dated March 24, 2014 on mechanisms to support the development of biomass power projects in Vietnam

19. Circular 30/2011/TT-BTC dated August 10, 2011 on temporary regulations on the limited contents of some hazadous chemicals in electric and electronic products

20. Circular No 48/2011/TT-BTNMT dated December 28, 2011 on amending and supplementing a number of the minister of natural resources and environment's circular no. 8/2009/TT-BTNMT of July 15, 2009, providing for the environment management and protection of economic zones, hi-tech parks, industrial parks and industrial complexes

21. Joint Circular No. 63/2013/TTLT-BTC-BTNMT dated May 15, 2013 on regulations of environmental protection charge for industrial wastewater

ANNEX 2

1. ENVIRONMENTAL IMPACTS FROM FDI ACTIVITIES IN VIETNAM

1.1. OVERALL IN ENVIRONMENTAL DAMAGES FROM INDUSTRIAL ACTIVITIES IN VIETNAM

Over the past three decades since 'Doimoi' in late 1980s, Vietnam has strongly promoted policies towards socio-economic development and poverty alleviation through increased industrialization. The rapid industrialization from the early 1990s until now has been one of the key drivers that transformed Vietnam from a poor to middle-income country. However, besides the gained marvellous achievements in socio-economic developments, Vietnam also has to pay a dear price and face a series of environmental challenges.

According to Vietnam Environment State Report published by MONRE in 2010, it is estimated that the total economic loss resulting from environmental pollution in Vietnam accounts for at least 1.5% to 3% of GDP. Consequently, environmental problems must be identified and solutions put forward for environmental protection (EP) in the next five years in order to mobilize all resources necessary to fulfill the goals set in the "National strategy for environmental protection to 2010 and vision to 2020". As identified in this report, among others the followings have been the major environmental problems in Vietnam:

- ✓ ***Water pollution in river basins such as Cau, Nhue– Day and Dong Nai has reached an alarming level*** due to the discharge of non-treated or inappropriately treated waste water from industrial clusters/zones, manufacturing establishments, households, urban services and mining activities from the riverhead, which contaminates the surface water.
- ✓ ***Pollution in industrial zones is of great concern.*** FDI is a major investment in industrial and economic zones. By March 2015[30], there were 295 industrial zones, occupied 84 thousand hectares of land. Accumulatively to 2014, industrial zones attracted 5573 FDI projects, with total investment registered at $85.5billions and around $49 billion implemented. Economic Zones (15 zones) attracted 247 FDI projects, $37 billion registered and $13.5 billion implemented. For bordering economic zones: attracted 70 FDI projects, with $0.7 billion registered. For manufacturing sectors, FDI in industrial and economic zones share 90% total FDI registered ($122 billions).
- ✓ ***Large amount of waste water discharged from industrial zones without properly treatment.*** Total amount of wastewater generated is estimated at about 620,000m3/day.

[30] Information from MPI, http://nif.mof.gov.vn/portal/pls/portal/SHARED_APP.UTILS.print_preview?p_page_url=http%3A%2F%2Fnif.mof.gov.vn%2Fportal%2Fpage%2Fportal%2Fnif%2FNewdetail&p_itemid=168594309&p_siteid=293&p_persid=44421752&p_language=vi

Currently, of the more than 1 million m3 of wastewater discharged daily, 70% is discharged directly to the receivers without treatment, leading to widespread surface water pollution. The most affected areas are the river basins of Cau, Nhue-Day rivers (in the North) and Dong Nai river (in the South).Solid waste from industrial clusters/zones is also increasing rapidly in terms of quantity and noxiousness. Meanwhile there remain shortcomings and problems in collecting, sorting and treating solid waste in accordance with the environmental sanitary standards, especially in the management, transportation and registration of discharge locations for hazardous waste.

The industrial pollutants concentrated in some regions and sectors. As noted in below table, Red River Delta and South East are the largest industrial output, therefore also the largest pollutants emission.

Table 1. National Industrial Output Value (NIOV) and emission by region

Share (%) of / Region	NIOV	Emitted air pollutants					Discharged water pollutants		
		SO_2	NO_2	CO	VOC	TSP	BOD	TSS	Hazardous chemicals
Red River Delta	26.84	10.65	24.59	28.97	24.96	25.96	13.75	19.47	22.95
Northern Mountains	3.62	2.90	6.53	7.95	3.83	6.27	6.58	5.84	3.85
Central Coasts	9.58	6.18	15.37	12.66	11.23	17.68	9.44	11.68	7.64
Central Highlands	0.87	2.11	1.38	2.04	2.11	1.65	1.9	2.54	1.55
South East	49.55	72.65	37.42	39.40	49.68	32.92	49.21	49.62	54.75
Mekong River Delta	9.54	5.52	14.71	8.98	8.18	15.52	22.16	13.48	12.01

Source: Centre for Environmental Consulting and Technology/Vietnam Environment Administration, 2009

As pointed out in Table 2, the main sources of industrial airborne pollutants in Vietnam are the manufacturing sub-sectors of non-metallic products (producing building materials),

food, metal products, wood products, furniture and paper products. Meanwhile, the subsectors mostly contributed in water pollution are food processing as a main source of BOD; textile, food processing, chemical products and motor vehicles are main sources of hazardous chemicals; furniture, food processing, paper products, non-metallic products and wood/forest products as main sources of TSS.

Table 2. Industrial pollutants by sub-sectors in 2006

Share (%) of / Sectors	Airborne pollutants					Water pollutants		Hazardous chemicals released to		
	SO_2	NO_2	CO	VOC	TSP	BOD	TSS	Air	Soil	Water
Food	**25.92**	**31.39**	13.32	**16.04**	**31.62**	**59.66**	**23.09**	5.05	**25.14**	**21.14**
Non-metallic products	**28.46**	**39.07**	12.39	2.21	**48.08**	0.53	5.57	5.94	**25.37**	2.36
Wood and forest products	10.23	9.32	**35.02**	15.38	15.87	1.14	3.48	**11.86**	3.57	0.15
Metal products	7.63	4.53	**30.91**	1.48	1.83	1.79	0.91	0.81	7.25	0.00
Furniture	8.88	0.33	0.79	**31.10**	0.24	0.00	**39.00**	**26.19**	3.49	1.28
Textile	3.44	3.77	1.14	6.70	0.52	0.01	0.50	6.38	13.42	**50.05**
Paper products	6.46	4.79	4.09	2.81	0.68	**23.34**	18.98	8.51	2.06	1.98
Tobacco	0.77	0.35	0.16	0.37	0.01	0.01	0.01	1.26	0.37	0.19
Apparel	0.13	0.05	0.03	0.06	0.04	0.09	0.18	0.28	0.68	0.10
Leather	0.88	0.08	0.02	1.06	0.02	2.50	1.76	5.54	3.69	1.10
Machinery	0.11	0.04	0.04	0.41	0.01	0.00	0.04	0.78	0.69	0.74
Other electrical machinery	0.07	0.02	0.01	0.08	0.01	0.00	0.01	0.11	0.30	0.07
Printing	0.91	0.02	0.00	2.35	0.00	9.41	1.48	2.12	0.76	0.00
Communication equipment	0.14	0.02	0.00	0.49	0.00	0.00	0.01	0.48	1.10	0.15
Office equipment	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.08	0.03	0.00
Motor vehicle	0.14	0.04	0.01	1.14	0.01	0.00	0.03	1.13	0.97	0.17
Other transport vehicle	0.45	0.19	0.10	9.31	0.14	0.03	0.13	4.92	2.02	7.89
Petroleum products	1.47	3.43	1.47	3.65	0.38	0.39	0.33	0.82	0.39	0.95
Chemicals	2.00	2.20	0.42	3.58	0.46	1.00	2.09	3.50	6.33	11.29
Rubber and plastics products	1.88	0.34	0.08	1.78	0.09	0.08	2.39	14.25	2.37	0.40
Total	100	100	100	100	100	100	100	100	100	100

Note: Estimated using data collected from provincial yearly books of all provinces/cities in Vietnam in 2007and IPPS method (Centre for Environmental Consulting and Technology/Vietnam Environment Administration, 2009)

1.2. ENVIRONMENT ISSUES OF FDI ACTIVITIES

As reported by MPI at the National Conference on 25 years of FDI development in Vietnam, FDI companies have contributed significant efforts in the improvement of human resources and production technologies, job creation, enhancement of Vietnamese product competitiveness, increased export, etc… Those efforts play a key role to help Vietnam out of poor and becoming a middle income country. The graph and table below provides some basic information on FDI inflow. The general assessment of FDI inflow is that the flow now is coming with higher quality (more environmental friendly technology), more FDI from large TNCs which are in accordance with promotion policy of Vietnam.

Graph: FDI in Vietnam by year

Table: FDI inflow by sector (accumulative to end 2014, %)

	Projects (%)	Registered Investment (%)
Manufacturing	55.03	53.16
Real Estate	2.59	21.28
Hotel, restaurants	2.2	4.71
Construction	6.51	4.31
Electric, water supply	0.59	4.19
Transportation	2.38	1.55
Agriculture	3.22	1.47
Mining	0.52	1.43
Waste treatment	0.2	0.56
Others	26.76	7.34

Source: MPI, 2014

While is rationale to assume that the environmental impacts of FDI, to some extent, will inversely vary in accordance with the technological level, the data from GSO shows an increasing inflow of FDI in sectors with high and medium technology, suggesting an more environmental friendly FDI. According to GSO, the increasing dominance of FDI is observed in high-tech and medium-high-tech industries in every industry classified on the basis of technology level (figure 2). In 2008, 92.6 percent of the total output value produced by high-tech industries in Vietnam was from FDI companies. At the same time, private sector dominated medium-low-tech (38.8 percent in 2008) and low-tech industries (49.6 percent in 2008). The technology use in FDI companies is higher as compared with the domestic ones. However, the percentage of FDI companies investing in high-tech industries is still very low, around at 20 percent, much lower than Thailand (31 percent), Singapore (73 percent) or Malaysia (51 percent). In 2012, only 5% of FDI companies have been equipped with high technologies, 80% equipped with medium technologies and 14% equipped with low technologies.

Figure 1. Industrial Output of FDI

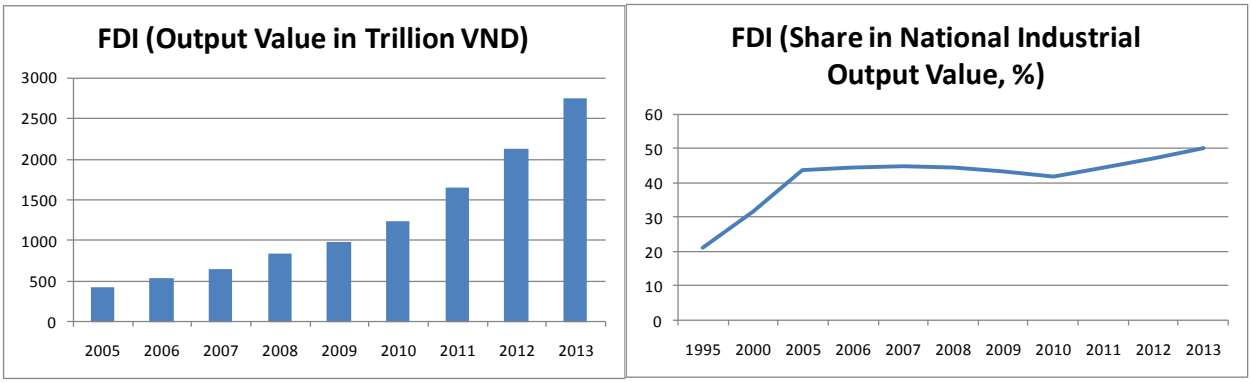
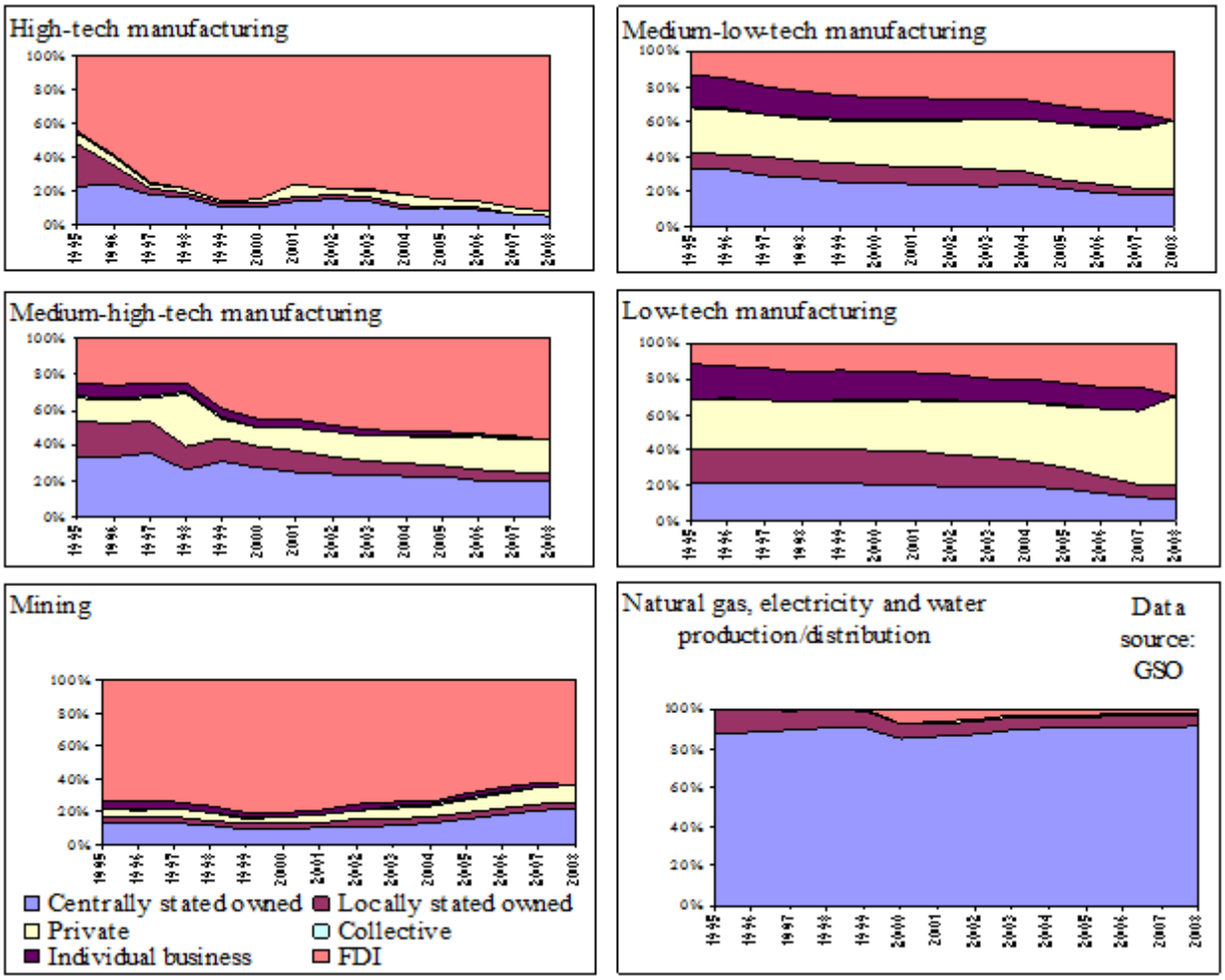


Figure 2. Change in Ownership in Sectors Grouped by Technology Level



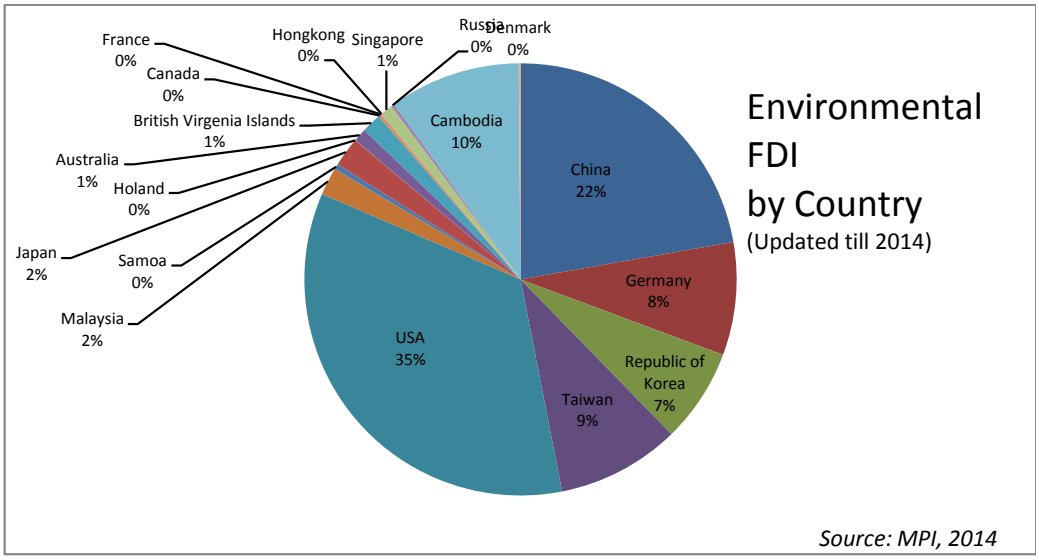
Source: Vietnam General Statistics Office (GSO) database, 2009 for figure 2 and 2015 for figure 1

According to an investigation conducted by VCCI and USAID/VNCI (2012), 67% of FDI companies in Vietnam have now been operated in the low added value industrial sectors. Nationwide, only 5% of FDI projects operate in high-tech such as ICT, another 5% and 3.5% of FDI projects operating in scientific and technological services and financial or insurance business respectively those are required high quality labour and emitting less pollution. While the biggest motivation for foreign investor to invest in Vietnam is cheap labour and availability of natural resources, it may results in some sectors with high potential of pollution discharge such as garment, textiles, food processing, chemicals and metal products. As an illustration, Nguyen Thi Kim Anh (2014) pointed out that only 25% of FDI projects in Vietnam is belonging to the sectors having low carbon sectors while 56% of FDI projects are not belonging

to the strategic group of low carbon sectors (which means they are high carbon emission industrial activities).

In addition, the share of FDI projects invested in environmental sector (e.g. waste treatment, pollution control, environmental rehabilitation, etc.…) in the total registered FDI capital is very small. According to MPI database published in 2014, by the end of 2014, the total amount of FDI projects operating in environmental sector was estimated at nearly US$510 million with a total number of 40 registered projects scattered in 15 provinces in Vietnam. Some big investors come from US, China, Gem any and Korea (Figure 3).

Figure 3. Environmental FDI projects by country



It is not easy to make a concrete conclusion on the environmental impacts of FDI activities in Vietnam at the moment as there is no statistical evidence but only some anecdotal evidence in public media. Although, Vietnamese environmental authorities, both at national and provincial levels regularly conduct inspections to check the compliance of environmental regulations by companies and service units, the results of those inspections/checking have not been published publicly yet. The statistics on environmental performance of companies and service units, both domestic and FDI ones, have not been developed at any managerial level. However, based on the share of FDI industrial output value in the national industrial output value, the industrial sectors and the technology level of existing FDI companies under operation in Vietnam nowadays, it could be said that, besides the economic achievements those have been gained with the enormous contribution of FDI economic performance, the operation of FDI

activities in almost last 3 decades have also contributed in the pollution situation caused from industrial development in Vietnam as described.

2. THE COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

2.1. GENERAL

Generally, according to MONRE, the main reason leading to serious pollution situation in river basin areas is that the manufacturers do not adhere to their commitments in protecting the environment as stated in environmental impact assessment (EIA) reports. Due to weak enforcement and poor state management in environmental issue, the environmental violation becomes serious. The inspection results conducted by MONRE during 2011-2013 (Table 3) reveal a relatively high ratio of companies violated environmental regulations. Among 1,214 cases (not necessary FDI companies) to be investigated, there are 738 cases (accounting for 60.79%) found violating environmental regulations and the total amount of fines to be imposed was almost VND95 billions.

Table 3. Environmental Performance during 2011-2014, MONRE report

Time of investigation	Number of companies to be investigated and having final investigation report published (*)	Number of companies found violate environmental regulations	Total amount of fines imposed
1st Quarter of 2012	120 companies in 12 provinces of Dong Nai rirver basin	56 companies	VND 4.2 billion
2nd and 3rd Quarter of 2012	178 companies in 10 province in the South and the Central regions	Many company (178)	VND6.4 billion
4th Quarter of 2012	100 companies in Hanoi and Hochiminh city	77 companies	VND18.5 billion
1st Quarter of 2013	130 companies in Bac Ninh, Bac Giang, PhuTho, Dong Nai, Ba Ria Vung Tau and Long An	61 companies	VND5.044 billion
2ndQuarter of 2013	125 companies/industrial zones in other provinces	64 companies/ Industrial Zones	VND5.498 billion

2014	561 companies nationwide	302 companies (of which, 37 companies were forced to shut down)	VND55.019 billion
Total	**1,214 cases**	**738 cases**	**VND 94.661 billion**

Source: Summarized by research team on the basis of annual report on investigation activities performed by MONRE.

Most violation behaviours are the followings:

- ✓ Having no the registered commitment on the compliance with environmental standards or approved IEA reports as required;
- ✓ Discharging the wastewater treated but still containing pollutant concentration higher than acceptable limits into the environment;
- ✓ Illegally discharging wastewater without the application of any treatment process into the environment (in some cases, the companies were found to have strong intension in cheating/violating the laws by using underground and secrete pipeline systems to discharge untreated wastewater);
- ✓ Do not follow proper procedures of hazardous waste management as required by environmental regulations;

As assessment from MPI (report on 25 years of FDI), in general, the compliance of FDI companies to environmental regulations is good. The owners of FDI projects generally have good awareness and complying regulations on environment protection. However, there are still many investors intentionally neglecting or avoiding it. These poor performance FDI companies have caused serious pollution problems in some region of Vietnam. Besides, there are many FDI investors have intentionally tried to import backward, almost obsolete and high polluting technologies to be operated inside Vietnam.

The table 6 below presents the own assessment of some selected provinces about the environmental performances by FDI companies in the National Conference on 25 years of FDI development MPI holds in 2012.

Table 6. FDI Companies' Environmental Performances in Provinces

No.	Province	General Evaluation
1	**Dong Nai**	The number of FDI intensive labor and polluting projects in the province has been declined in recent years. Recently the percentage of FDI projects using high technologies, less labor and less polluted has been increased in Dong Nai. Generally, most of FDI companies in Dong Nai have good environmental performance and full compliance with legal requirements of environmental protection.
2	**Binh Duong**	Generally, most of FDI companies in Binh Duong have good environmental performance and full compliance with legal requirements of environmental protection. However, most of FDI projects having registration in Binh Duong before 2005 are operated in the labor intensive sectors, requiring the large consumption of natural resources. Recently, more projects having applied high technologies have been licensed. Most of FDI projects operating in textile with dying process, leather tannery, chemicals and paper products are still trying to take advantage of existing gaps in environmental regulations to pollute the air and water environment rather than being willing to apply effectively environmental protection measures in order to save their operation costs.
3	**VinhPhuc**	Most of FDI companies have applied advanced technologies with good management procedures. This also helps FDI companies to have good environmental performances as well.
4	**Bac Ninh**	Besides positive impacts on Bac Ninh socio-economic development, FDI companies in Bac Ninh have also caused several problems such as ineffective operation, environmental pollution, etc…
5	**Nghe An**	Most of FDI projects in NgheAn province are small and medium ones operating in the processing of agricultural, forestry and fishery products and mining products. Therefore, the economic efficiency of FDI projects have not been as high as expected. Especially, the operation of these small and medium FDI companies has imposed high risk of environmental pollution.

6	**Ha Tinh**	Except few large scale FDI projects, most of FDI projects in Hatinh are small with the intensive use of labors, natural resources. The environmental management (EIA, waste management and treatment) performed by FDI companies have still been limited. Some FDI companies have lack of knowledge on legal requirements of environmental protection.
7	**Da Nang**	Although technology level of FDI companies in Danang is higher than those of local private sector, it is still backward and much lower than international standard. This has led the fact that the efficiency of FDI activities in Danang has not been as high as expected. Most of FDI companies operating in Danang have small and medium scale with intensive labor use. Many FDI companies have still neglected to comply with environmental regulations. In some cases, FDI companies were found to break environmental regulations and laws but being slowly responding to apply necessary measures to fix their environmental problems or to compensate environmental loss they made.

In fact, not FDI companies but local private companies have poorer records on environmental regulation compliance. Just around one-five of those companies having specialized facilities in environment control. There are many FDI companies still have not invested in the installation of pollution control systems such as emission and wastewater treatment facilities, illegally discharging wastewater into environment or illegally waste disposing, etc… The table 4&5 below is calculated from company census, presents proportion of companies in each ownership group having applied with environmental treatment facilities and management measures as required by Vietnam environmental regulations.

Table 4. Compliance with environmental regulations, (% of company)

Year	***Index***	***SOEs***	***Domestic Private***	***FDI Companies***	***Total***
2007	Having unit specialized on environment issues	56	19	54	26
	Having equipped with environmental protection systems/facilities	52	19	49	25
	Application of cleaner production	53	24	51	29

	Having ISO 14001	10	3	13	5
	Having other environmental management certificates	42	18	51	24
2008	Having unit specialized on environment issues	54	18	50	25
	Having equipped with environmental protection systems/facilities	48	18	47	24
	Application of cleaner production	51	23	52	29
	Having ISO 14001	10	3	12	4
	Having other environmental management certificates	39	17	48	23
2009	Having unit specialized on environment issues	53	17	53	23
	Having equipped with environmental protection systems/facilities	47	17	47	22
	Application of cleaner production	48	24	50	28
	Having ISO 14001	10	3	14	4
	Having other environmental management certificates	36	15	46	20

Note: Annual company census (updated data for the years after 2009 is not available)

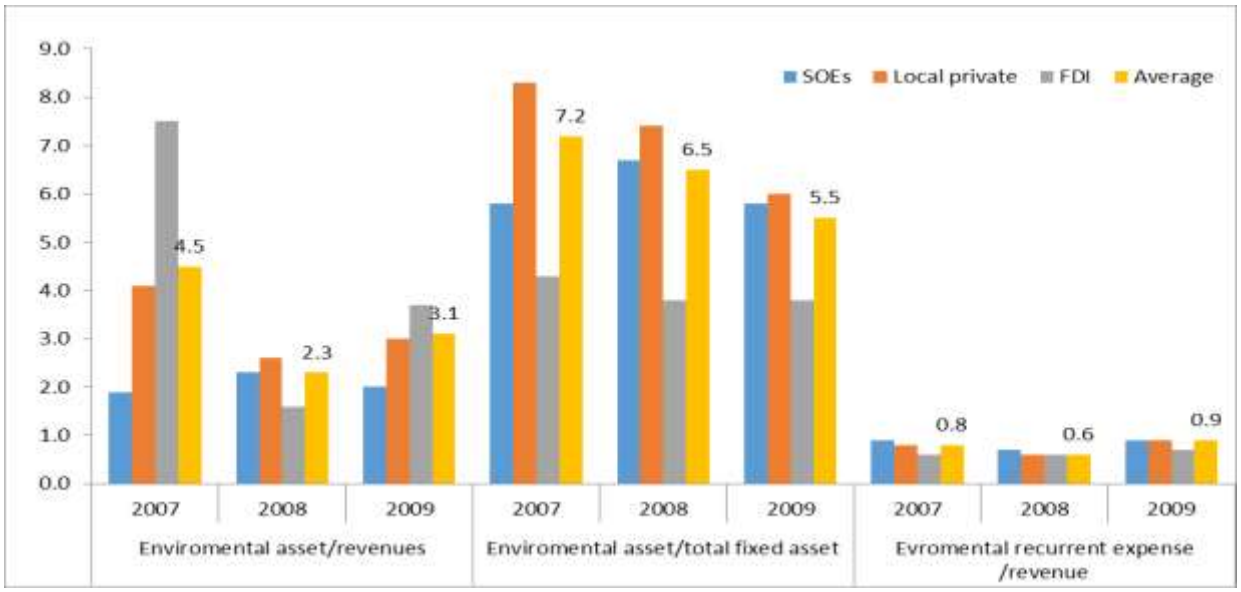
Table 5. Compliance by sector (% of company in each ownership group)

Sectoral Code	***Sector***	***Having unit specialized on environment issues (%)***			***Equipped with environmental protection systems/facilities (%)***		
		SOEs	**Domestic Private**	**FDI**	**SOEs**	**Domestic Private**	**FDI**
10	Food processing	61	42	70	65	45	59
11	Beverage	71	40	98	71	37	79
12	Tobacco	81	0	100	63	0	100
13	Textile	71	35	53	57	30	45
14	Garment	40	16	54	60	13	47

15	Leather products	20	31	68	20	25	58
16	Wood products	50	18	68	50	23	39
17	Paper products	58	40	39	68	38	37
18	Printing	57	26	41	49	25	41
19	Coal and petro.products		55			27	
20	Chemicals	90	41	64	67	40	62
21	Drugs and pharma.	69	54	74	69	49	59
22	Rubbers & plastics	95	28	58	79	24	58
23	Non-metallic products	79	39	66	74	38	60
24	Machineries	83	41	72	50	39	81
25	Metal products	61	27	66	47	23	57
26	Electronica products	31	25	79	31	24	69
27	Electricity products	55	30	56	82	28	57
28	Other machines		24	67		26	83
29	Motor vehicle	100	37	72	64	35	65
30	Other transport vehicle	75	42	59	56	43	45
31	Furniture	36	29	51	64	30	38
32	Other manufac. activities	00	14	38	0	17	33
33	O&M activities	100	16	25	50	3	50
35	Electricity and water	68	19	80	52	36	80

Source: Calculation from company census

Graph: Environmental Expenditure



Source: company census

The data shows that only about 50% of FDI companies have specific division responsible for environment, or equipped environmental facilities and/or applied cleaner production procedure. This is even lower than the same figure estimated for SOEs. The same observation is found when looking into the sub-sectors. The percentage of FDI companies with the application of environmental protection systems/facilities is smaller than same figure of SOEs in every industrial sub-sector. A more critical issue is the decline of environmental asset/fixed asset of company, thought the speed is lower if comparing FDI and domestic companies.

Above statistic information can also be supported by the results from a small investigation in a specific province (Hung Yen) carried out by Centre for Environment and Community Development (CECOD) in 2014 about "Obstacles and disputes on the implementation of environmental regulations for water environment protection – Case Study for Cau Luong river of My Hao district of Hung Yen province". A survey was conducted under the framework of this study to evaluate the company owners' awareness and consciousness on the compliance with environmental regulations and their environmental performances as well. 13 companies, including 8 local private ones and 5 FDI ones (Korean and Chinese investors only) was investigated. Among 12 companies on operation, only 3 companies (accounting for 23.07%) found to be equipped with wastewater treatment system, another 7 companies (53.86%) having applied very simple wastewater treatment measure with the use of simple

sedimentation tank/pond while the remaining even has no wastewater collection pipeline system and just directly discharge their untreated wastewater into the environment. Although the wastewater treatment systems in those 3 companies had been found under operation at the time the research team visited their factories, the observed wastewater quality was not in good state with dark or black colour. The table 7 below presents a summarization of environmental performance by 5 investigated FDI companies under this study.

Table 7. Awareness on Environmental Protection, Hung Yen province

No	Company Name	Company Background	Environmental Performance
1	AutoconVina Ltd.	✓ 100% FDI by Korean Investors ✓ Starting operation in 2009 ✓ Products: car seat straps (cloth) with the total output of 35 thousand pieces per year. ✓ Technology level: automatically control and operation ✓ Total number of employees: 50	✓ Total amount of water consumption: 2-3m3/day ✓ Total amount of domestic wastewater discharged: 2-3 m3/day ✓ No industrial wastewater is discharged ✓ Did not fulfill any environmental report as required by the environmental regulations. ✓ Lead contained wastes generated by production lines have not been managed properly (just being sent out as normal waste, did not follow legal requirements of hazardous waste management). ✓ Conducted self-monitoring of wastewater twice per year (but data is found for 2013 only) ✓ When being interviewed, the representative said that he has no idea about what kind of legal documents and measures he should prepare in terms of environmental protection in his company. ✓ The company has never been complained by citizens living around

2	Deok-Bu Ltd.	✓ 100% FDI by Korean Investors ✓ Starting operation in 2008 ✓ Products: wood furniture ✓ Technology level: semi-mechanically equipment with many manual procedures of production) ✓ Total number of employees: 23	✓ Total amount of water consumption: 4-5m3/day (from underground water) ✓ Total amount of wastewater (both domestic and industrial) discharged: 4-5 m3/day ✓ Have no wastewater treatment system. Wastewater discharged from painting process is only collected in a tank before discharging into environment. ✓ Have no EIA report, wastewater discharge permit, permission for underground water exploitation (although underground water has been used for its operation) ✓ Do not conduct regular self-monitoring of wastewater as required ✓ Having no environmental staff ✓ When being interviewed, the representative said that he has no idea about what kind of legal documents and measures he should prepare in terms of environmental protection in his company. ✓ The company has never been complained by citizens living around
3	KwangJinViệt Nam	✓ 100% FDI by Korean Investors ✓ Starting operation in 2011 ✓ Products: auto accessories and details with the total output of 2 million sets per year (for KIA and	✓ Total amount of water consumption: 10m3/day (underground water) ✓ Total amount of wastewater (both domestic and industrial) discharged: 10 m3/day ✓ Have no wastewater treatment system. Wastewater discharged from domestic purposes. The volume of industrial wastewater is very small and discharged together with domestic wastewater directly into environment.

		Huyndai autos) ✓ Technology level: semi-mechanically equipment with many manual procedures of production) ✓ Total number of employees: 263	✓ Have fulfilled all environmental documents as required by environmental regulations in proper way (Environment Protection Commitment was approved/certified by DoNRE; wastewater discharge permit was granted, permission for underground water exploitation was granted. ✓ Conduct regular self-monitoring of wastewater as required (twice per year) ✓ Paying all environmental protection fees/charges as required on time ✓ The company has never been complained by the citizens living around. ✓ Besides, the company also conducted several social activities such as providing scholarships for poor students (VND1 million per student).
4	GiaHưng plastic Ltd.	✓ 100% FDI by Chinese Investors ✓ Starting operation in 2011 ✓ Products: boots for agricultural works using recycled plastics (recycling of about 80 tons of plastic wastes to produce about 80 thousand pairs of boots per year) ✓ Technology level: semi-mechanically	✓ Total amount of water consumption: 480m3/day (both surface and underground water) ✓ Total amount of wastewater (both domestic and industrial) discharged: 480 m3/day ✓ Although as stated in business license, it is allowed to use the input material only, the company still use recycled plastics for its production lines (even conducting recycling process by itself without waste treatment license). ✓ Have no wastewater treatment system. Wastewater discharged from production process is only collected in a simple sedimentation tank before discharging into

		equipment with many manual procedures of production) ✓ Total number of employees: 50-60	environment. The sedimentation tank was just constructed in 2013. The sludge is treated as normal waste. ✓ Environmental Protection Plan was prepared and submitted to DoNRE but have not been approved yet. ✓ Have no wastewater discharge permit, permission for underground water exploitation (although underground water has been used for its operation) ✓ Do not conduct regular self-monitoring of wastewater as required ✓ Having no environmental staff ✓ When being interviewed, the representative said that he has no idea about what kind of legal documents and measures he should prepare in terms of environmental protection in his company. ✓ The company was fined (VND 35 million) in 2013 because of discharging inequality wastewater. ✓ By the end of 2013, the company was complained by the citizens living around. A big group of citizens visited company and requested to check its water quality.
5	HoaĐiềnViệt Nam Ltd.	✓ 100% FDI by Chinese Investors ✓ Starting operation in 2008 ✓ Products: garment product labels and logos	✓ Total amount of water consumption: 438m3/day (both surface and underground water) ✓ Total amount of wastewater (both domestic and industrial) discharged: 480 m3/day ✓ Have no wastewater treatment system. Wastewater discharged from production

		✓ Technology level: semi-mechanically equipment with many manual procedures of production) ✓ Total number of employees: 160	process (cooling water) is only collected in a simple sedimentation tank before discharging into environment. ✓ Environmental Protection Plan was approved. ✓ Have no wastewater discharge permit, permission for underground water exploitation (although underground water has been used for its operation) ✓ Do not conduct regular self-monitoring of wastewater as required ✓ Having no environmental staff ✓ Dormitory area for workers is wet and does not look hygiene enough. The workshops have bad smell, air environment looks containing high dust concentration. Workers have not been equipped with masks, gloves

2.2. COMPLIANCE OF ENVIRONMENTAL REGULATION BY FDI COMPANIES IN BACNINH PROVINCE[31]

Our investigation was conducted in June 2015 to understand the FDI companies' awareness and the compliance with environmental regulations. Under framework of this survey, 15 FDI companies were visited to discuss about their environmental management procedures, capacity and problems. The Table 8 below presents some information about the investigated FDI companies.

Most FDI companies to be investigated are large and medium scale.

[31] Name of company in relation to each details information discussed in this section will not be presented due to our promossion while interviewing them.

Table 8. Basic information of 15 FDI companies

No	Company Name	Nationality	Established Year	Locating inside Industrial Zone	Products and capacity	# Labor	Revenue in 2014
1	Diana Unicharm	Japanese	2011	No	Paper products	250	
2	Doosung VN	Korean	2006	No	Assembling trailers of trucks	150	
3	Flexcom VN	Korean	2008	No	Electronic Circuit Boards	2,015	
4	Floating Glass VN	Japanese	1997	Yes	Floating glass	355	VND1,300 billion
5	Han Jin VN	Korea	2010	Yes	Paints and solvents	54	VND 242 billion
6	Hanoi Liway Way Co. Ltd	Philippine	2005	Yes	Food processing	100	
7	KinhQuang Plastics VN	Chinese	2011	Yes	Pipe for dust collectors (520 thousand pieces)	120	
8	Minh Tri	Taiwanese	2005	Yes	Clothes	169	
9	Nissin Electric VN	Japanese	2005	Yes	Precise mechanical and electric devices	282	USD 13 million
10	ORION VN	Korean	2007	Yes	Cookies	309	
11	Suntory	American	2011[32]	Yes	Beverages and	400	

[32] Vietnam Suntory Pepsico Group established in Vietnam in 1999 and built its biggest factory in Bac Ninh in 2011.

	Pepsico VN	-Japan			food processing		
12	Toyo Ink Compounds	Japanese	2006	Yes	Plastic colorants and plastic compounds	229	USD 637 thousand
13	Trendsetters Fashions VN	German	2002	Yes	Garment	750	
14	Wontech Vietnam	Korean	2012	No	The covers of battery, tablet (230 million pieces per year)	50	VND 65 billion
15	Yang Min VN	Taiwanese	2013	No	Motor component products	500	

The interview focused on several aspect, including: the awareness of the companies, their compliance in environmental regulation, roles of central and local government.

2.2.1 Understanding and awareness of the companies on the requirements from environmental regulations.

All the companies said that they had studied about legal requirements of environment protection in Vietnam before making investment decision through consultant companies and authorities. However, only 10/15 companies stated that they had estimated the environmental expenditure while preparing the investment plan. Among which, only above half of them confirmed that they prepared budget for environmental contingencies, two of them mentioned that they are not sufficiently aware/understand about environment as well as environmental contingent budget.

In order to assess the understanding and awareness of company and its staffs on all the source of waste discharge, the interviewers was required to list all the input materials, the management and storing, reserving those materials in the company areas. The results (table 9) shows that almost all staffs can fully described their production material management and the potentials of waste discharge. Only 1 of 15 companies was not able to do so.

Similarly, the staffs were also requested to describe their production process at each stage and identifying the potential of waste discharge. Out of 15 companies, 10 were able to describe in details their production stages as well as adequately the potentials of emission at each stage. The others just can provide a general description, and cannot identify which type of waste potentially emitted. So, not all companies have environmental staff fully understand the production process and source of emission. The fact can affect to the waste management as well. The environment staffs who could not described in detail the source of waste also could not describe in detail the waste treatment process for each type of waste (only 11 companies can do so). As an example, it is noted that air emission is one that normally be neglected while staffs describing about their waste management. Given a fact that the companies of those staffs also reported their companies also do not have equipment to monitor air discharge, it can imply the importance of the awareness and intention of the companies in influence their staff awareness.

Table 9. Awareness on the compliance with environmental regulations

Question/Issue	# say 'Yes'
1. Interviewee can list input materials of production process	15
2. Interviewee can in detail describe how are input materials stored in company	14
3. Interviewee can in detail describe the production process,	10
4. Interviewee can generally describe the production process	5
5. Interviewee can in detail describe the flow of their wastes (how are their wastes managed, treated)	11
6. Interviewee can preliminary describe the flow of their wastes (how are their wastes managed, treated)	4
7. Having good understanding of legal requirements of environment protection for whole production process	7
8. Regular self-monitoring	14
9. Having/implementing annual environmental protection plan	12
10. Submitting a regular report of waste monitoring	14
11. Having environmental costs estimated in investment project preparation	10

12. Self-evaluation on its awareness and consciousness	
13. Having strong awareness and good understanding of environmental regulations; 14. Actively implementing environmental protection measures at high level; 15. Financial resources are always prepared/ready for the implementation of environmental protection measures	8 (Excellent)
16. Having fairly good awareness and understanding of environmental regulations; 17. Actively implementing environmental protection measures at medium level; 18. Financial resources are always prepared but not enough for the implementation of environmental protection measures	2 (Good)
19. Having limited awareness and understanding of environmental regulations; 20. Rarely implementing environmental protection measures ; 21. Just limited financial sources are prepared for the implementation of environmental protection measures	5 (Fairy Good)
22. Having no awareness and understanding of environmental regulations; 23. Implementing environmental protection measures in passive way ; 24. No financial source is prepared for the implementation of EP measures	0 (Poor)

One of reasons makes company to do not sufficiently understand the environment is a fact that there are so many regulatory documents in this issue. As said, those documents are also changeable overtime. Besides that, only in some recent years the environmental regulatory framework have been improved and completed, particularly in air polution issue. There are some “holes” in the system which let company to take advantage (discussed below).

In our point of view, in general, interviewees assessed their environmental awareness and understanding rather objectively, the FDI companies have shown their strong willing in the compliance with environmental regulations. According to the environmental inspection report annually published by Bac Ninh Department of Natural Resources and Environment only 5-7%

of investigated FDI companies have normally been found violating environmental regulations. Those violation are mainly the insufficiently following the administrative procedures (such as not reporting their amendment of the environmental management. This percentage is much lower than the same figure made among Vietnamese companies.

There are some reasons may explain the compliance by FDI companies:

(i) Most FDI companies locate inside the industrial zones where the authorities have tougher supervision and easier to monitor environmental protection regulations[33].

(ii) Given a poorer relationship with local authorities, FDI companies could face higher cost than domestic companies if violate the environment regulations. That is why the compliance is better.

(iii) The violation if happens also may affect the reputation of parent companies abroad, so, not only the enforcement from the Vietnamese authorities but also the requirement from higher management level force FDI firms caring more on this issue. As our interview, some parent companies are large TNCs, they normally require their member companies to follow domestic environment as well as to ensure the quality of the product.

(iv) The environmental issues have received the attention from many advanced countries, their citizen, therefore, are also in better awareness and understanding about environment protection. The awareness and knowledge of the manager can spillovers or directly influence the bahaviour and awareness of the staff, particularly enviromental staff.

(v) Buyer-supplier linkage also plays a role. Some satellite companies of SamSung, Tyota, Honda, LG, Canon…) are also required comply the environment and quality insurance from which the environmental issue is controlled.

2.2.2 Regulations and actual procedures which complied by companies in each steps of investment and operation

In term of reporting, companies are requested to periodically send their environmental surveillance report to authorities every 6 months. The table 9 suggests that among interviewed companies, 14 companies send their reports. Additionally, Bac Ninh Environment Agency reported that about 85-90% of FDI companies in Bac Ninh have

[33] Đến tháng 3/2015, Bac Ninh có 510 DN FDI, trong đó chỉ có 20 DN đặt ở các cụm công nghiệp, số còn lại đều nằm trong các khu công nghiệp.

regularly conducted and timely submitted reports of monitoring of environmental quality in their premises to Bac Ninh Environment Agency. This is much higher than the percentage of Vietnamese companies.

Most company have environmental specialized staff who are in charge of managing waste water, colleting and classifying solid waste, hazard waste or survey/measure the air. Some companies have specialized division, some others have it merged in to a biger one e.g. environmental and labor safety division. The specialized division normally is organized in large companies, while in smaller ones or companies those discharge little waste there are staff that got multi-tasks including environment management.

Table 10 also point out that, 13/15 companies take environmental expense into next year business plan. Environmental expenses normally include waste water treatment at the place, cost for hiring to treat solid waste or consultant fees for environmental survey. However, as mentioned, some company allocate very small budget for those activity or those budget merely existed in name. The companies also do not have plans to improve their equipment for environmental management. There are only three companies allocated budget for equipment improvement but not entirely for environmental purpose.

Table 10. Regulations and actual procedures which complied by companies

Question/Issue	# say 'Yes'
Having staff/unit specialized in environment management	13
Having listed environmental expenses in annual business planning/financial report	13
Have research and/or applied advanced tech.	3
Having/implementing annual environmental protection plan	12
Having technical guidelines on pollution control and environmental management	7
Regular self-monitoring	14
Having equipped with appropriate pollution control and environmental protection facilities/systems	12
Having applied any measure for energy saving/efficiency	12
Having ISO 14000 or other international standard certificates	7
Have ever be complained by the citizens	0

While most company has waste water treatment facilities, which help to ensure the waste water obtained standard B before discharging to common failities of the industrial zone, few evidence have been found in doing so for solid waste and hazard waste. Investment of company to this waste is limited in equipment for classification, storing. All interviewed companies sell or have contract to process those waste with outsiders. It is noted that there is no regulations so far for transporting, processing or contracting between companies in industrial zone and outsiders. Also there is not any study so far about the potentials from hazard waste if recycled or transport through the residential areas. More severely, some companies consider waste as commodity to sell and do not care how does their partner treat or recycle those waste.

For air waste, very few companies installed air filter or other facilities to control and measure the quality before emiting. Air is discharged directly to environment which could generate the pollution and bad smell for residents living outside.

Companies also do not care how contracted companies process their hazard waste. There is also not information available for hazard waste treatment by environmental companies outside. This issue reserves another in-depth study[34]

Our interview results also reveals that there is small number of companies have obtained ISO14000 for environment management. All 4 companies who have this certificate in our sample are large scale companies. It is also noted that those certificates were issued at the time of starting operation. No information is available on the environmental facilities and management procedures after obtaining this certificate.

Besides that, some company although do not apply for ISO 14000, obtained certificate on food safety likes – HACCP, or ISO 9000, ISO 22000 (4 companies). Those international certificates also require company to strictly control for product safety and have some environmental requirements.

6/8 companies who applied those criteria come from Japan, US, and Korea, only one come from Taiwan and Philippine. It is likely a fact that company size and the country origins may play a role in determining the awareness and knowledge about as well as

[34] Recently there are six companies registered collecting, transporting and treating industrial solid waste

compliance with regulatory environmental requirements. As commented by the Head of Bac Ninh Environment Agency, most FDI companies operating in Bac Ninh have good environmental performances. However Japanese and Korean FDI companies are said the best examples of complying environmental regulations while Taiwanese and Chinese FDI companies have as same awareness on the compliance with environmental regulations as Vietnamese private companies. Also as commented by this agency, Chinese and Taiwanese companies share a large number of companies violating enviromental regulations. However, because of tiny sample size, it needs more evidence to conclude.

2.2.3. The role of the employee and employers in environmental protection and environmental regulatory compliance

During the interview, it is easy to realize that the compliance of the company is substantially conditional on the attention, awareness and knowledge of the company owner and managers. In large companies, where there is a good internal regulation in waste management, their staffs also have good attention on the issue. Particularly, some companies have compulsory course (2-3 days) applied for new recruitments training on the environmental protection, safety, and occupational health. Those training also repeated annually. The opposite situation happened in companies its managers do not have good attention on this issue.

2.2.4. The role of local and central governments in enforcing, encouraging company to comply the environmental regulations

Interviewing authorities (environmental agency, industrial management board) show that local authority should have been playing important role to help company to compliance the environmental regulations. However, in practice, there are some limitations at both central and local level.

At central level: Regulation issues are likely not cover all aspects of the environmental issue at company level. It leads to a fact that companies may try to avoid the compliance as much as they can. Most clear evidence is the air emission at company level. No companies applied necessary criteria/standards for air emission control. In addition, due to no regulation, no company cares about their contracted partners are eligible enough to transport process or recycle their solid and hazard waste.

At local level: The monitoring, supervision the policy implementation as well as disseminating, updating policies documents is weak, which prevents companies from better awareness and understanding on environmental issues. Most companies complaint that they do not received timely and proactively support from local government in term of providing policy documents. In addition, though local authorities some time have organized training course on this issues, but limitedly in quality and quantity, and mostly in providing information, with little guidance.

Besides that as comments from Bacninh environment Agency, due to budget constraint, they are not equipped with good and enough facilities for monitoring and surveying waste, particularly air waste. They also cannot carry out their monitoring and supervision to all companies but only can select some who have more potential of violation. It needs to a possibility that many companies constructed and equipped with environment control facilities but do not usually operate them to save production cost.

2.2.5. Constraints and shortcomings of companies in environmental protection and complying the regulations

The most mentioned constraint to company in complying environmental regulations is the complicated and ambiguous regulatory documents. There are also some complaints that the regulatory documents lacking of guidance, issued not in due time, and more importantly, very changeable.

The instability of the regulations may lead to unnecessary cost to companies. As some companies explained, if they want to strictly follow the new and higher standards, they have to change all equipments installed when the constructing factories or they have to seek for new materials and machinaries.

Companies also do not have an official, reliable and systematic channel to reach the regulatory documents. They normally have to update their information through internet or unofficial relation. It reflects the passive support from local authority for new regulation and policy.

Also to complying regulation, for companies which produce multi source of emission, the organizations for surveying, monitoring is a problematic. Recently Vietnam has 43 organizations have been regconised eligible to provide this service. More importantly,

each organization is only able to investigate and measure one or some environmental indicators. So companies have to rent many different organizations (some come from very far distance) to survey and measure their environment indicators in case the company have multi-source of emission. This situation cost company substantially.

For authority, they also face with budget and human resource constraint to be more actively providing guidance and support to companies.

The below section describe above issue from other aspects

3. SOME RECOMMENDATIONS

- Local authorities should provide training and capacity building for enterprises to improve their human resource in environmental management. The training needs to focus particularly on identifying the emission sources, in each production stages, from material storing, processing, finalizing the products, even controlling for the by-products and the potential of emission.
- There is a need to re-specifying the role of industrial management board in facilitating company to improve environmental performance. The role of this organization in environmental protection, thought to be specified, but not in line with budgeting.
- Poor coordination among authorities, including environmental police, provincial environmental agent, industrial management board, people committee should be improve to avoid any overlap in monitoring, supervising the environmental performance of companies
- An official information system is necessary to be built to help company to update their knowledge and requirements from authorities.
- Air pollution could be soon become severe if there still a lacking of sufficient and efficient supervising, surveying system from the central and local government.
- There is also a need to issue regulations defining the role of each partner if companies inside industrial zone want to sell or renting outsiders to recycle their solid waste and hazard waste.

APPENDIX 1: LIMITATIONS AND THE IMPROVEMENT OF ENVIRONMENTAL REGULATIONS-A REVIEW FROM DESK TUDY

The legal documents system on investment, management and environmental protection is quite sufficient; organization and management systems are increasingly better; advocacy, guidance, inspection on environmental protection law enforcement is enhanced; infringement cases are handled more severely; investment on environmental protection infrastructures in industries are gradually increasing. With the current development progress of industries, we can see that the strategies, policies and regulations system in terms of industrial activities are sufficient enough to attract effectively FDI in Vietnam. However, there are still gaps to the environmental management of industrial activities as follows:

- ✓ *Planning and development of industrial zones* are not really suited to the socio-economic conditions and potential of each region, are still scattered and there is lack of balance in the manufacturing industries to promote local strengths. Industrial zones planning in Vietnam to 2015 and orientation to 2020 attached with Decision No 1107/2006 / QD-TTg dated August 21, 2006 of the Prime Minister has had many changes from the original. Especially with the industrial zones, development in general is still spontaneous, unplanned and unsynchronized.
- ✓ *In terms of organization:* To date, all industrial zone management boards have environmental management division according to Decree No. 81/2007 / ND-CP dated 23 May 05, 2007 of the Government stipulating the organization, specialization on environmental protection at the state agencies and state companies. Management boards often allocate 2 - 3 personnel from planning, construction and environment management division, there are some management boards which appointed the environmental protection department consisting of up to 4 personnel to carry out the environmental protection tasks. However, the provisions on industrial zone environmental protection liability and functions between those of the provincial People's Committees professional bodies and the management boards are inconsistent; and coordination amongst these agencies are not close.

Especially with the industrial zones, state management responsibility of the industrial zones state of the provincial departments, sectors, People's Committees at the communal level in some communities overlaps, lacks of cooperation and close coordination. Some communities

assign the environmental protection task to the Department of Industry and Trade while other communities assign to the communal People's Committee. If each industrial zone has investors who invest in the infrastructure and management of the operations and production, then in the majority of industrial clusters there are no investors who belong both to the communal People's Committee and are investors, this results in the unsynchronization and inconsistency in industrial and sectoral management, particularly industrial cluster environmental protection. Quality of treated wastewater and emissions in most of the industrial clusters has not met the national technical regulations. Due to the bombing in establishments and development and lack of strict management, direct discharge of untreated wastewater into the environment remains prevalent.

Qualification of the majority of the environmental staff in the industrial zones/clusters is limited, they do not have updated knowledge and understanding in management documents as well as technical requirements, environmental engineering.

- *Regulations system* on industrial zone/industrial cluster environmental protection has gradually been completed, but the regulations have not matched with the current situations and are still overlapping:

    + The organization, evaluation and approval of reports on environmental impact assessment still meet with inconsistencies between the provisions of Clause 1, Article 17a of Decree No. 21/2008/ND-CP dated 28 May 02, 2008 of the Government on the amendment and supplement of a number of articles of Decree No. 80/2006/ND-CP; and point h, Clause 2, Article 37 of Decree No. 29/2008/ND-CP dated March 14, 2008 of Government on industrial zones, export processing zones to Clause 2 of Article 18, Clause 1 of Article 32 of Decree No. 29/2011/ND-CP dated April 18, 2011 of Government on strategic environmental assessment strategy, environmental impact assessment, environmental protection commitment.

    + On environmental protection inspection and monitoring: Clause 2 of Article 37 and Clause 3 of Article 39 of Decree No. 29/2008/ND-CP of the government on the inconsistency with Article 4 of the Law on Inspection.

- *Enforcement of environmental protection* has not been serious, with infringements mainly in: EIA reports have not been formulated; completion of the environmental protection project have not been accompanied; have not complied with the EIA report committed

contents; have not complied with periodic environmental monitoring programs; have not complied with laws and regulations on the management of hazardous waste; have not installed automatic monitoring effluent system and etc...

Those shortcomings and limitations were revealed after 10 years of implementation of the old law on environment protection which was enacted in 2005 (LEP2005). Besides, LEP2005 does not promote the role as a legal foundation, as well as does not keep up the trend of rapid and sustainable development of the economy. To meet the requirements of the country industrialization process in future, the 7th session of Vietnam National Assembly Congress XIII passed the Law on Environmental Protection (LEP) 2014 (Code: 55/2014/QH13) on 26th June. The Law which came into effect from 1st January 2015, includes the specific contents with many new features compared to the Law on Environmental Protection 2005, for example the new concept of green growth, environmentally friendly products.

LEP 2014 will be an importantly legal apparatus to ensure the environmental conservation for the purposes of sustainable development, to secure the rights of living in a sound environment for every citizen as stated in the Constitution of 2013.

The LEP 2014 consists of 170 articles structured in 20 chapters. The LEP 2014 was elaborated on the basis of the following guidelines and principles:

- Institutionalization of the Communist Party's guidelines, opinions and directions, especially those presented in Resolution No.24-ND/TW dated on 3rd June 2013 by The IX Congress of Communist Party Central Committee on proactively responding to climate change, strengthening of natural resources and environment protection;
- Overcoming the obstacles and limitations of the LEP 2005 and supplementing the issues newly arisen such as green growth, climate change, environment security, etc…
- harmonization of Vietnamese regulations system with the international conventions those Vietnam newly ratified and participated;
- Being consistent to modern theories and thoughts of environment science such as prevention should be first priority, environment factors and issues should be handled on the basis that they are interactively linked together rather than being considered as the local issues of each and every geographical area.

In comparison to the LEP 2005, the LEP 2014 has been renovated and supplemented with the key following points:

(i) Environment protection planning is newly prescribed in this revised law in order to ensure the integration of environment issues and protection activities in any socio-economic development process in a comprehensive, long-term and proactive manner and to secure the sustainable development and green growth. Environment protection planning can be used as a basis on which other socio-economic development plans will be developed consistently and/or adjusted.

(ii) The details of the application of strategic environment assessment (SEA), environment impact assessment (IEA) are revised substantially to make them more practically applicable.

(iii)As climate change and its impacts (e.g. sea water level rise) have imposed its risks to the people worldwide and Vietnam is evaluated as one among the most 5 vulnerable countries, climate change issues have been incorporated in one separate chapter of the new LEP 2014.

(iv)The fundamental guidelines and principles for the environment protection of sea and islands are prescribed in one separate chapter of the new LEP 2014. These do not been overlap with the contents of the new law on the environment protection of sea resources and islands which is now under preparation by MONRE.

(v) Many other issues that were not prescribed in the old LEP 2005 are prescribed in this new LEP 2014 such as green growth, environmentally friendly products/establishments to facilitate the sustainable development, environment protection requirements for research institutions and laboratories, the control of dioxins generated from the use of herbicide ("agent orange") substances by Americans during war time, the control of chemical production, importation and use (especially the plant protection drugs and veterinary medicines), environment protection in agricultural and rural sectors, the importation and the dismantlement of secondhand ships, waste reuse and recycling, the prosecution time for environmental lawsuits and criminal cases, etc…

(vi)Prescriptions on the obligations and responsibilities on environmental information disclosure and reporting are also supplemented and/or clearly defined.

(vii) Prescriptions on the state management of environment have also been presented in a separate article with clear designation and determination of the tasks and functions of each level (e.g MONRE Minister, line ministries' ministers, especially the tasks

and functions relating to the development of legal documents on environment protection).

(viii) The obligations and rights of socio-political and socio-professional organizations and the communities are also clearly prescribed in the new LEP 2014. Especially, it is company stated in the LEP 2014 that all authorities, the owners of production, business and service establishments shall have to be responsible for the securing the rights entitled to socio-political and socio-professional organizations and the communities.

At the moment, MONRE has been preparing several key secondary legal documents to provide detailed guidelines on the implementation of the new LEP 2014. As planned, the system of secondary legal documents under LEP 2014 shall be finalized by the end of 2015 in order to facilitate the enforcement of the new law at soonest. The updated regulations of environmental protection requirements for industries in general and for FDI companies in particular is expected to be significantly improved on the basis of new LEP2014.

APPENDIX 2. ENVIRONMENTAL FDI IN VIETNAM (UPDATED TILL 2014)

Province	**Country**	**Amount (USD)**	**Sector**
Hanoi	Republic of Korea	5,800,000	Construction &Env treatment
	Japan	2,600,000	Consultancy
	Malaysia	7,500,000	Solid waste
	Denmark	650,000	Consultancy
	China	966,000	Construction &Env treatment
	Holand	50,000	Consultancy
	Singapore	312,000	Technology transfer, construction &Env treatment
	Australia	50,000	Consultancy
Bac Ninh	Republic of Korea	600,000	Construction &Env treatment
	Germany	1,000,000	Env treatment & EIA consultancy
	Taiwan	1,500,000	Construction &Env treatment

Province	Country	Amount (USD)	Sector
	China	50,000	Construction &Env treatment
QuangNinh	Taiwan	44,500,000	Forestry
Lang Son	Cambodia	50,000,000	Forestry
	China	5,250,000	Forestry
Quang Ngai	Republic of Korea	6,000,000	Construction &Env treatment
QuangBinh	Germany	42,000,000	Env treatment, waste treatment
Quang Nam	China	40,000,000	Forestry
Dong Nai	Republic of Korea	1,520,000	Construction &Env treatment
	Japan	5,943,301	Wastewater treatment
Binh Duong	USA	4,950,000	Environment treatment
	Taiwan	500,000	Environment treatment
Hochiminh City	Republic of Korea	21,900,000	Construction &Env treatment
	Singapore	4,170,000	Env treatment & consultancy
	USA	165,440,200	Waste treatment
	Hongkong	200,000	Consultancy
	Japan	2,655,000	Consultancy and equipment manufacture
	France	310,836	Consultancy
	Canada	1,000,000	Environmental equipment (manufacture & installation)
	Taiwan	480,000	Environmental equipment (manufacture & installation)
	Malaysia	100,000	Consultancy
	British Virg Islands	7,500,000	Waste treatment (gas collection for power generation)
	Australia	5,000,000	Environmental equipment (manufacture & installation)

Province	Country	Amount (USD)	Sector
Can Tho	Samoa	2,000,000	Biomas production & treatment
	Malaysia	2,980,000	Waste treatment
Dong Thap	Holand	17,378	Water supply
Kontum	China	67,000,000	Forestry
Lam Dong	Russia	1,400,000	Forestry
Phu Yen	USA	5,650,000	Env treatment & recycling (from sea food wastes)
	Japan	10,000	Consultancy

Country	Amount (USD)
China	113,266,000
Germany	43,000,000
Republic of Korea	35,820,000
Taiwan	46,980,000
USA	176,040,200
Malaysia	10,580,000
Samoa	2,000,000
Japan	11,208,301
Holand	67,378
Australia	5,050,000
British Virgenia Islands	7,500,000
Canada	1,000,000
France	310,836
Hongkong	200,000
Singapore	4,482,000
Russia	1,400,000
Cambodia	50,000,000
Denmark	650,000

Country	Amount (USD)
Sum	**509,554,715**

APPENDIX 3. SOME PHOTOS ABOUT ENVIRONMENTAL PERFORMANCE OF SMALL AND MEDIUM FDI COMPANIES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