Environmenally Sustainable Development in the Northern focal Economic Region of Vietnam

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Economic development attached to environmental protection, to rational, effective use of resource is an important part in sustainable development. In Vietnam, the views of sustainable development was soon put out by the Government and become a consistent policy management and executive development process of the country.

In recent years, the Northern key economic region of Vietnam has achieved remarkable growth, contributing greatly to its suburbs and the country. However, at a rapide rate of urbanization, the urban population increased rapidly but the urban infrastructure failed to keep up with the speed of urbanization. On the other hand, industrial development in the Northern key economic region of Vietnam going too fast, too hot, with the establishment of a series of parks and industrial clusters; the hasty investment should have led to significant environmental effects. In view of sustainable development, environmental pollution will reduce real GDP, the final effect of economic growth becomes lower than its external manifestations.

The paper focuses to analyze manifestations of unsustainable development environmentally in the Northern key economic region of Vietnam, from which to propose anti-pollution measures and environmental protection to sustainable development the Northern key economic region of Vietnam./.

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Introduction
The concept of sustainable development relates to the maintenance and enhancement of environmental, social and economic resources, in order to meet the needs of current and future generations. The three components of sustainability are: Economic sustainability; Social sustainability; Environmental sustainability, in which, Environmental sustainability requires that natural capital remains intact. This means that the source and sink functions of the environment should not be degraded. Therefore, the extraction of renewable resources should not exceed the rate at which they are renewed, and the absorptive capacity to the environment to assimilate wastes should not be exceeded. Furthermore, the extraction of non-renewable resources should be minimized and should not exceed agreed minimum strategic levels.

The Northern Focal Economic Region (NFER), Vietnam, includes seven provinces/ cities: Hanoi, Hai Phong, Quang Ninh, Hung Yen, Hai Duong, Vinh Phuc and Bac Ninh, with the natural area of 15,594.2 km², the population of 14,255,000 people in 2009, accounting for 4.7% of the natural area and 16.5% of the population over the country, the Region's population density is 914 people per km², 3.5 times more than the average population density of the country. This is the region with favorable conditions, economic potentials ranked the second largest of the whole country, is the development core of the Red River Delta Region and the Northern Region.

According to the statistics of local and annual statistical book 2011, GDP of the overall NFER in 2010 at current prices reached $ 21.5 billion, contributing 20.8% in total GDP of the country and rising 4 times more than in 2005. GDP growth rate of the NFER in period 2001-2010 was 12.0%, 1.65 times more than the growth rate of the country in the same period (7.26%); in which the GDP growth rate, in the period of 2006 -2010, remained at 11.9% (1.7 times the country) despite global economic crisis and the decline of domestic economic growth. The fastest economic growing sector in period 2001-2010 is industry-construction, 14.4% / year; service sector reached the growth rate of 12.4% / year; agriculture reached 3.3% industry on average. However, along with the high economic growth rate and the extensive process of industrialization and, NFER in Vietnam has been facing with many serious environmental problems. In view of sustainable development, environmental pollution will reduce real GDP, the final effect of economic growth will be lower than its external performance. Therefore, the study of environmentally sustainable development in the Northern Focal Economic Region on the basis of comprehensive analysis of the environmental status of the region points out the unsustainable factors and their causes, and then proposing solutions for developing NFER sustainably is necessary.

1. The environmental problems of the Northern Focal Economic Region
1. Decreasing agricultural land severely
In the process of development, the agricultural land of the Northern Focal Economic Region (NFER) has been being narrowed due to converting agricultural land to urban land, industrial land, transportation land and other dedicated land, even agricultural land with high productivity has been converted, making many farmers out of work, and the potential risk of food insecurity.

The current total area of NFER is nearly 156 thousand km² and is the the smallest focal economic region of the country. For almost 10 years (2000 -2009), agricultural land reduced rapidly (-6.6%) due to "being used" as dedicated land (transpotration land, industrial land) and living land in one of the most active socio-economically developmental regions in the whole country. In the locals of the
Region, the provinces which have good GDP growths, develop many industrial parks (IPs), and build lots of roads have their agricultural land decreased most rapidly, such as Bac Ninh, Hung Yen, Hai Duong, Hai Phong and Vinh Phuc\(^1\).

In the period 2005-2010, on the average, there were annually 7679 hectares of agricultural lands converted to urban, industrial and transportation lands. According to the statistics of Ministry of Agriculture and Rural Development (6/2010) in 10 years, the annually average reduction of rice growing land in Hai Duong was 1,642 ha, in Hung Yen was 943 ha, in Hanoi was 1.067ha.

2. Developing industry with high speed, but planning industry irrationally and untrusting resources of waste water, making the region’s environment more polluted.

By the end of June/2011, the Northern Focal Economic Region had 54 industrial parks established, accounting for 20% of industrial parks in the country with a total land area of 13,670 hectares, of which industrial land could be leased for over 8055 ha, accounting for 60% of total natural area of land and was leased for 3503 hectares, the IP filling-up rate is 44%.

**Figure 1:** The number and area of Industrial Parks in the Northern Focal Economic Region, 2001-2010

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\(^1\) Annual Statistical Publication 2001 and Annual Statistical Publication 2009

Source: Economic Zones Management Department, Ministry of Planning and Investment (2011)

NFER’s Industrial Parks attracted 861 foreign-invested projects with total registered capital of $15,038 million, representing 26.5% of the country; 15 times more than the Central Focal Economic Region, by 40.5% of Southern Focal Economic Region and 70 times more than the Mekong Delta Focal Economic Region. The total investment in The NFER Industrial Parks made in the past time accounted for 28% of the whole country, 3.2 times more than the Central FER, 19.6% of the Southern FER and 21 times more the Mekong Delta FER\(^2\).

The above data shows that the number of industrial parks concentrating in NFER was relatively huge. However, only few active IPs had centralized waste water treatment stations. Planning to develop a number of industries was not associated with planning to develop industrial parks, causing complex environmental issues.

Moreover, there are, in the NFER, 3 economic zones...
(EZ) including coastal Van Don EZ, Dinh Vu EZ and Mong Cai Border Gate EZ, all of which have industrial parks and service areas discharging sewage to pollute the environment.

3. Not complying with objective rules in strong urbanization, the slow development of urban technical infrastructure raised a lot of pressing environmental problems.

- Rural urbanization is not in accordance with objective rules

In many urban area of the NFER, as deciding to urbanize from villages/communes to wards, not considering the possibility of converting agricultural economy into non-agricultural economy, the fully environmental impacts of urbanization, and not ensuring the sustainable urban development were the underlying causes of urban environmental degradation.

In village/commune urbanization, there is only focus on new urban development in the agricultural land of villages/communes, but very little attention to planning and renovating the residential area/village, old, especially lack of investment in urban infrastructure connecting between new urban and old residential village/commune, making up residential oasis/villages in the urban areas, which brought the barriers to environmental improvement in long term for the new urban and old residential village/commune.

- “Spontaneous” megacities appears

The process of urban development in NFER, in the past time, had two main focuses on Hanoi and Haiphong. On the one side, these cities have themselves developed rapidly, expanding their urban area according to transportation axes connecting with surrounding cities. On the other hand, the urban areas of other surrounding localities have also developed rapidly, forming new urban areas towards Hanoi and Haiphong, such as on the National Road No.5, the urbanization almost connects three urban Hanoi, Hai Duong and Hai Phong. Bac Ninh city has taken development toward Hanoi as well, and in future, there will not have anymore separated space between these two cities. This process of urbanization will enlarge the urban population rapidly, creating pressure beyond the ability to meet the urban transport, water supply, drainage, sanitation, solid waste management, housing, services, employment, etc…raising many problems of the urban’s physical environment and social environment which are very difficult to solve.

- The investment in urban infrastructure development is too slow compared with the rate of urbanization.

Planning urban infrastructure construction for the urban areas the Northern Focal Economic Region are often slower than planning housing construction and other buildings. There is no mechanism to promote investment in constructing water supply and sewerage systems, urban transport systems, therefore, the developing speed of urban infrastructure system is much slower than the speed of urbanization. According to statistics, in the urban centers of the Region, the criteria for transport infrastructure was also very low, only met about 35-40% of the needs. The major consequence of the poor state of urban traffic is increasing traffic accidents, traffic congestion, and air and noise pollution.

II. The concrete manifestation of the lack of environmental sustainability in the Vietnam Northern Focal Economic areas

I. Soil pollution

Soil is subject to the direct impact of the use of fertilizers, crop protection and agricultural activities, handicraft, industrial. The region has been shifting from traditional agriculture based mainly on soil, organic fertilizer to intensive agriculture based on chemical fertilizers to increase production of vegetables, food, short-term industrial crops and
livestock cattle. Along with the strong development of industry, urban and working village, agricultural land is narrowed, creating huge pressure on the current rural environment, degrading the quality of soil.  

The types of pesticide and plant protection are one of the reasons to reduce the number of useful microorganisms, threatening the sustainability of biodiversity, causing harmful effects for human health. Plant protection chemicals dissolving in water very slowly creates significant residues in soil.

2. Water pollution

Waste water from daily life, service and production has not been growing and processing, causing serious pollution of surface water, passing over the self-cleaning ability of all the rivers and lakes within the city, as well as the rivers that flow through the urban area, such as Cau river, the Nhue etc. Current estimate of the total volume of wastewater from urban areas in the region KTTDBB is nearly 1 million m3/day, in which the pollution load of BOD (Biological Oxygen Demand) is about 300 tonnes / day; the suspended substance is around 350 tons / day. The amount of waste water from industrial parks in the region is about 350,000 m3/day with BOD pollution load is 20 tons / day and the suspended substance is 200 tons / day.

Along with pollution of surface water, groundwater has had manifestation of pollution and increasingly exhausted. Due to overexploitation, the groundwater table is lowered, causing subsidence in some areas, altering the hydro-geological conditions, which is typical in the Hanoi area. Groundwater in some places is also saline such as in Quang Ninh and Hai Phong, and arsenic in Hanoi. In the Northern Focal Economic Region, there were two provinces/ coastal borders, Quang Ninh and Hai Phong, with a coastline of 375 km. All land-based activities are causing environmental pollution in estuaries and coastal areas of these two provinces / cities. On the other hand, developing ports, maritime transportation, marine tourism and aquaculture have direct impacts on coastal pollution. In particular, reduction of coastal mangrove forests leads to lose habitant area of coastal ecosystems as well as undermine natural treatment systems (absorption) of contaminants. Currently, this coastal region has oil pollution, pollution of organic substances and heavy metal pollution.

The pollution of industrial waste water in industrial areas is becoming more and more serious, 100 ha to 400 ha of industrial wastewater discharged from 3,000 to 10,000 m3 per day for each industrial park, the total wastewater amount of industrial parks in the region estimates around 100,000 - 130,000 m3 /day on the average. In some industrial parks including light industries such as textiles, leather, chemical industry ... the amount of wastewater discharged into the environment is very large and highly toxic. In addition, every day industrial parks emit thousands (m3/day) of domestic wastewater which is made by employees. In Quang Ninh, only with the amount of wastewater from thermal power factories in Ha Khanh, Cam Pha, sewage flow can reach up to 8m3/s; in Hai Phong, the amount of water discharged by industrial parks is around 20,000 - 25,000m3 / day.

3. Air pollution

Air environment in urban areas in general and in Region KTTDBB in specific is contaminated dust very heavy, averaging 2 - 3 times more than the standard, totally 5-7 times more than the standard allowed. Atmosphere around the t factories producing thermal power, and cement, brick kilns
and coal mining areas of Quang Ninh heavily contaminated dust and SO2. In some handicraft villages like traditional handicraft village Bat Trang (Hanoi), air pollution is a very pressing problem. The main reason is due to the production facilities here using coal concentration of CO2, SO2 ... 1.5 to 1.8 times more than the permitted standard.

At major intersections, the places near or in industrial parks have been tending to increase local pollution. Dust concentrations in traffic along the axes have reached 2 - 6 times more than the standard allows; addition to emissions, making noise that cause environmental pollution, motor vehicles also carry all kinds of coal products, construction materials... also cause dust pollution in urban areas.

Noi Bai International Airport has been developed to expand, the problem of noise pollution is huge.

4. Forests and biodiversity is increasingly impaired

The trend of changes in biodiversity in the region depends mainly on the environmental pressure and the level of exploitation and the use of biological resources. The region has abundant forest resources, however, the level of covering natural land is less than 20%, at a low level, the area of natural forest and forest quality is increasingly degrading.

Natural forests and natural protected areas, national parks have been compromised. Many natural reserves (NR), National Parks (NP) and natural forest in the region is put on enormous pressure of traffic development, residential development, industrial and service development, tourism, such as in Tam Dao National Park, Ba Vi National Park, Cat Ba National Park, Bai Tu Long National Park. Illegal exploitation of natural forests by loggers, wildlife hunting still occurs frequently. A lot of barren land/hills have not been greening, such as Soc Son, Dong Anh Thach That, Ba Vi (Hanoi), An Lao, Kien An, Cat Hai (Hai Phong), Cam Pha, Van Don island in Quang Ninh, Lap Thach Binh Xuyen (Vinh Phuc), Chi Ling Hai Duong, Tien Du, Que Vo (Bac Ninh). In recent decades, the coastal mangrove forests of Quang Ninh and Hai Phong have been severely reduced; thousands of hectares of mangroves have been destroyed by filling sea for urban development, by building new ports and by the development of aquaculture. The coral reef in Halong waters are degraded, mainly due to contaminated seawater environment, especially turbidity pollution and overexploitation.

5. Solid waste pollution (SW)

According to local reports in 2009 and compiling from many sources, the total volume of SW arising from households and commercial areas of urban service areas, from type IV to the special type, in the Focal Economic Region is about 4600 tons / day, in which the collected volume is 3983 tons / day equivalent to collection rate 86.6%. The highest SW volume arises in Hanoi, about 2500 tons / day accounted for 54.3% of the total urban SW arising in the region, followed by Hai Phong and Ha Long with corresponding rates 15 % and 5.9%. Hazardous solid waste is generated from operating activities in Hanoi accounted for 6.94% on average, and around 0.6 - 1.23% in other cities. The development and expansion of health facilities and hospitals in the region have made medical waste volume increase.

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rapidly. SW in the whole region now is unsorted officially at sources but only partially spontaneous SW is sorted by some people, scrap-collectors (buyers), workers who collect garbage and waste for taking use of waste which can be recycled, such as metal, plastic, glass... or used for breeding purposes, such as vegetables and leftovers.

Solid-waste handling activities in the region are carried out mainly by means of burial, secondary processing compost and recycling in the informal sectors. The rates of waste treatment forms in Hanoi for burial methods, composting and recycling, respectively, 73 to 81%, <7% and 12% to 20%.

The vast majority of burial sites (BS) are now the temporary BS or BS is not designed to meet sanitary standards. Demand for BS for SW from daily life in the long term (decades) is very frustrating for most urban areas. The entire region has only 4 hygienic KCL: Nam Son in Hanoi, Deo Sen, Hekou Quang Ninh and Quang Hanh. However, the waste water treatment system in the BS need to be also considered now to improve the quality of treated water. On the other hand, the size of the burial sites is not large, but the possibility of expansion is minimal.

6. The environment handicraft villages, handling facilities which cause serious environmental pollution

Handicraft villages are growing and expanding a serious impact on the quality of the environment and people's health. Most of the villages do not have waste treatment systems and discharge waste directly into the environment ... increase the river basin pollution, affect the sanitation, rural landscapes, agricultural productivity and ecosystem. In about 68% of SW village arising from the provinces, approximately 54% arises from Bac Ninh and Ha Noi.

In April 22nd, 2003, the Prime Minister issued Decision No. 64/2003/QD-TTg approving the Plan of thoroughly handling facilities which cause serious environmental pollution. Accordingly, in the region, 65 places must be treated by 2007. However, the handling facilities which cause serious environmental pollution today is not completed in accordance with the proposed schedule, the resources are not strong enough to solve serious environmental pollution problems. Besides, there are still some facilities being inactive in pollution treatment and having expression of dealing with authorities. Meanwhile, a number of locals, to call for investment, have overlooked environmental problems, allowing the use

III. The cause of policy mechanisms about the lack of environmental sustainability of the Focal Economic Region.

Firstly, the urbanization policy is rapid but has lack of strict control.
- Land resources for urban development and the construction of new urban areas are exploited too strongly, narrowing green area, water area, changing humidity balance, causing ecological imbalance. After more than 50 years, Vietnam's forest covering rate has declined from 43% to 29%. This has led to soil erosion, increase of ecological imbalance, putting many species of plants and animals in dangers of extinction. Along with the process of urbanization, the demand for water for domestic, service, production has increased dramatically, so


increasingly degrading water resources and increasing the volume of water and waste.

- Rapid urbanization leads to overloading for urban infrastructure, especially motorized transport infrastructure. Many enterprises and factories causing pollution previously located in the suburbs, has reached the middle of the crowded residential area along with urbanization... Uncollected solid waste, untreated wastewater in regulations, emissions, dust, noise from vehicles and industrial..., which are the basic causes of pollution and urban environmental degradation in NFER, especially in the big cities such as Hanoi, Hai Phong.

- The speeds of population growth, industrialization, urbanization, the massive development of tourism in coastal areas are increasingly polluting the marine environment. Cities, industrial zones, economic zones along the coast, the resorts are dropping a lot of untreated sewage, garbage, a solid waste into rivers and the sea, polluting the water environment, degrading coastal and marine ecosystems.

Second, planning policy and plans of industry development in particular and in general in the Focal Economic Region are not reasonable. According to the experts, environmental pollution, especially river pollution is mainly due to the impact of industrial development. This is obviously evident in the Focal Economic Region. High concentrations of industrial parks (IPs) in NFER also cause more severe pollution. IPs as Dong Anh, Soc Son, Hanoi; Do Nong – No market, An Hong (Hai Phong), Dong Mai Cai Lan (Quang Ninh); Son - Hap Linh, Que Vo II, Thuan Thanh (North Ninh); Viet Hoa, Cong Hoa, Laiwu (Hai Duong); Hung Yen, Minh Duc (Hung Yen), Orange, (Vinh Phuc) are all overloaded with environment. Besides, in NFER, there is still a lot of old manufacturing establishments with small and medium-scale, distributed production by very outdated technology, there is almost no waste water treatment equipment, toxic gas, industrial wastewater is discharged with the waste water.

Thirdly, the lack of regulatory mechanisms and violation-sanctions and implementation of anti-pollution projects.

As indicated above, the current environmental pollution, especially air pollution, river pollution ... is a matter of real urgency for NFER. After years of implementing the program of reducing environmental pollution, the indicators of air - water quality haven’t almost done. This is caused from a management perspective: we still lack a uniform solution, inter-regional cooperation between the provinces to deal with environmental pollution in areas NFER; projects of treating environmental pollution in urban areas have not been actively implemented.

Fourthly, the investment policy for science and technology and environmental protection is not satisfactory:

Although the environmental pollution caused by development is increasing more and more, but investment costs for environmental protection does not increase significantly; investment approval for environment improvement of production facilities almost not be carried out, i.e. the cost of environmental protection have not yet been accounted in the business – manufacture process. According to the Ministry of Natural Resources and Environment, except Hanoi, Hai Phong and Quang Ninh have greater investment, in each of the remaining provinces only about a billion is spent annually in the environmental industry. Such funding is too small compared with the requirements. Since 2006, the State has had a policy of spending 1% of the total budget at minimum for the environment, but this policy has not been taken seriously by the local areas.

- The classification of Solid waste (SW): in most of urban, SW is not being sorted at sources. The
classification of residential SW at sources is just
taken experimentally in a number of areas in Hanoi.
Industrial SW is classified at sources but only for
economic benefit of these wastes. This makes it
difficult for the SW solving and processing
organizations.
- Treatment SW: technology for processing SW is
still very primitive: currently residential waste is
mainly buried; most of burial sites are in unhygienic
conditions. Some sanitary burial sites is so small that
they should not be able to meet the needs of SW
treatment in long-term; methods as collection and
transportation of industrial solid wastes still mainly
occur spontaneously, by the self-responsibility of
business units. Hazardous SW processing
technology applied today is mostly incinerators.
Some hazardous industrial waste which can
not be burned is kept at the facility or in the
production process. non- hazardous medical SW is
treated together with residential SW.
- Activities of recycling, re-using SW has been made
in some areas such as Hanoi, but accounting for
13-20%. The application of technology to turn waste
into compost is mainly, but the quality and efficiency
is not high.

**IV. A number of policy solutions for environmental sustainable development in the Focal Economic Region, Vietnam**

*Firstly, develop and improve the institutions and policies on environmental management*

* Issue and timely edit appropriate decisions related to environmental protection

On the one hand, it is necessary to conduct, organize
and implement documents relating to the
protection of environmental resources and pollution
prevention by the determination of implementing
addresses, functions of the involved ministries and
offices, turning it into real life; On the other hand, in
the process of implementation, timely detection for
unreasonable points is needed, editing the policy
system on the protection and management of natural
resources and environment should be always
completed in accordance with the set-out
requirements.

* Form independent sectors with functions of
managing and monitoring the field of environmental protection

Environmental protection is tied to resource
management and use, but also closely associated
with the manufacturing and service sectors: industry,
agriculture, forestry, fishery, tourism ... because of
these, State offices of environmental management
should be formed and take the following functions:
- Build management systems with information
systems, statistical reports, monthly, quarterly and
annual surveys... about environment in each local
area, at least in the major urban areas, economic
zones, industrial zones;
- Construct separate planning projects for
environmental protection (like other economic
sectors) and taking responsibility for managing a
overall comprehensive resource of environmental
issues in the region;
- Take responsibility for development of strategic
environmental assessment reports, and
environmental impact assessment report.

* Form an organization capable of high performance
in the management of anti- environment pollution.

In current conditions, when many environmental
factors are in a state of alarm, lots of measures are
taken for solving and improving. However, there is
still a lack of measures to realize these solutions;
Therefore, NFER should set up an environment
processing center for the private region.

*Secondly, associate policies for economic development with environmental sustainability goals in NFER, namely:*

Develop a master plan of environmental
management throughout the Region consistent with
the master plan of socio-economic development in
the whole region and each province. This will help
the Region and local authorities in the Region to
predict the environmental factors, especially the
negative environmental factors which may arise
from economic activity, then determine goals against
pollution prepare resources for activities of
environmental protection and pollution prevention,
timely monitor and evaluate environmental pollution
problems.

Need to review and adjust the master plan of
socio-economic development for NFER on the
perspective of sustainable development, particularly,
the master planning project of residential areas,
industrial zones must be in harmony with the load
capacity and self-cleaning ability of the
environmental components. Environmental issues
should be considered seriously in schemes of
planning and developing sectors and locals, urban
planning, and specific projects of developing
industrial zones, economic zones.

Take detailed planning of industrial zones and strict
implementation of waste treatment; avoiding calling
for massive investment that ignores or evades
environmental regulations. Specifically, the planning
projects for developing industrial zones, economic
zones, and urban areas have to offer synchronized
solutions for ensuring the ecological environment,
the social environment; waste treatment systems,
water supply and sewerage systems associated with
the system of large rivers in the Region.

Construct plans for restructuring economic in every
province, city and between localities in the region,
need to have a shifting map associated with
economic efficiency and environmental protection;
being determined not to license for investment firms
which have a negative impact on the ecological
environment.

In determining the structure of economic sectors,
especially industrial sector, need to focus and see
technology as one of the key solutions to actively
prioritize the development of industrial sectors and
products friendly with environment directing to a
green industry in the Region.

Thirdly, the locals in NFER should take the initiative
to organize activities of environmental protection,
disaster prevention and address the consequences of
economic activities affecting the environment;
The locals in NFER should build systems of
monitoring and assessing environmental impact to
guide facilities, industrial parks, factories and project
owners to strictly comply with regulations on
environmental protection.

Develop institutions, regulations and rigorously
testing to protect the environment and preserve the
natural landscape. Pay special attention to protect the
urban environment Imps. Make regulations and well
implement the regulations on hygiene, the
environment in the school facilities, hospitals, resorts,
commercial centers and public places.

The locals in NFER should actively and urgently
relocate industrial production facilities away from
densely populated areas and urban cities so that
these production facilities does not pollute the
environment and in order to create favorable
conditions for the centralized processing and control
of industrial waste effectively and thoroughly.
Relocation of businesses with high levels of
pollution from big cities does not do too much
damage to the local environment to receive.

Fourthly, develop and improve policies related to
handling the phenomenon of environmental
pollution violations.

- Improve the system of legal documents, amend and
promulgate early penalties in the field of
environmental violations in accordance with the
current legal framework; amend, promulgate and
illuminate economic tools effectively to enhance the
responsibility of emissions for environmental
protection activities and to raise awareness of
environmental protection, the sense of
environmental law in the society, the community, organizations, individuals in the river basin areas in NFER.
- Decentralize organizations to do monitoring and processing environment problems in the locals of NFER. For the radical and effective environmental pollution treatment, must have consent and participation with the high determination of the ministries, especially the local authorities.
- Develop policies and coordinated measures to solve environmental pollution problems in an active and effective way, such as: Strengthen institutions and promote activities of the environmental police, with effective sanctions; strengthen and prioritize 1% of budget spending for the environment and budgets for environmental management, waste disposal, environmental improvement; severely handle violations in many ways, in which emphasis on the treatment of administratively and economic solution, if necessary, may have to suspend the operation of the facilities with serious violations of environmental protection in order to provide a deterrent to other facilities.

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