

# 7. VIET NAM

## 7.1 Introduction

*Since the introduction of “Doi Moi” (renovation) policy in 1986, Viet Nam has been experiencing high rates of economic growth leading to growing energy demands and GHG emissions.*

Viet Nam is known as a country of reform and integration with significant initial successes in socio-economic development, hunger eradication and poverty reduction (>50% reduction between 1990 and 2000) under the “Doi Moi” (renovation) policy introduced in 1986. Viet Nam has been experiencing a consistently high rate of economic growth since then. For example, its GDP growth rate marked 7.2% in 2003 and 7.5% in 2004 (Table 1). However, it still faces many challenges given that its GNI per capita is only US\$550 per annum and 17.7% of its population live on a daily income of US\$1.

High rates of economic growth in Viet Nam led to growing energy demands and GHG emissions. Viet Nam historically relied on hydro-power for electricity. In 2002, for example, hydro-power contributed to 60% of the total electricity generated. Viet Nam is the third largest oil producer in Asia with crude oil production averaging about 403,300 barrels per day (bbl/d) in 2004. Further, it has proven gas reserves of 6.8 trillion cubic feet. Viet Nam has significant coal reserves estimated at 165 million tons, the majority of which is anthracite (EIA 2004). It also has significant uranium reserves. Therefore, Viet Nam has promoted the construction of coal-fired power plants and is now planning to construct a 2000 MW nuclear power plant by 2020 in cooperation with Japan, France, Russia, the

Republic of Korea, and others. Viet Nam’s industries are primarily dependent on domestic coal, oil and gas, while much of the population relies on non-commercial biomass energy, such as wood and rice husk. Indeed, due to years of war and the overdependence on fuel wood, Viet Nam’s forest coverage decreased from 43% in 1943 to 28% in 1994. The socio-economic development plans of 2001-2005, and 2006-2010, therefore, set targets of forest coverage of 38 and 43% respectively.

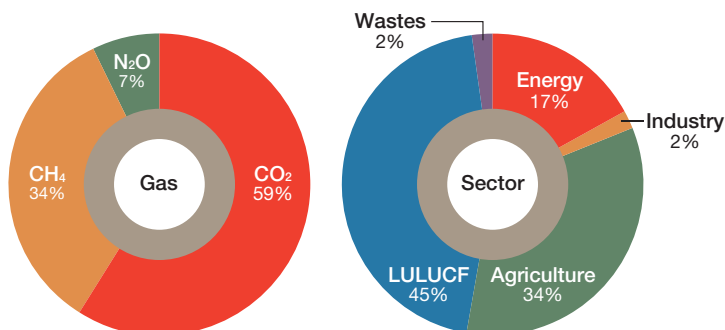
Viet Nam’s initial National Communication, stated that the counting emitted 154,160Gg CO<sub>2</sub> equivalent (CO<sub>2</sub>-eq) of GHG (excluding 50,327Gg CO<sub>2</sub> removal by LULUCF) in 1994 with CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O accounting for 60%, 34% and 6%, respectively. The main sources of GHG were forest degradation (45%), followed by agriculture (34%) and energy sectors (17%) (Fig. 7.1). Total GHG emissions are projected to increase from about net emissions of 104 million Mt CO<sub>2</sub>e in 1994 to about 233 million Mt CO<sub>2</sub>e (Fig. 7.2).

**Table 7.1 Key Statistics for Viet Nam**

Population (2004)	82.2 million	
Annual Population Growth (2004)	1.04%	
GDP (Current US\$) (2004)	US\$ 45.2 billion	
GDP per capita (2004)		
Current US\$ (2004)	US\$550	
Purchasing Power Parity (2004)	US\$2,704	
GNI per capita (Atlas Method) (2004)		
Current US\$ (2004)	US\$550	
Purchasing Power Parity (2004)	US\$2,700	
Annual GDP growth (2004)	7.50%	
Energy demand (2002)	43 million Mtoe	
Per capita energy consumption (2002)	530.25 kgoe	
Per capita electricity consumption (2002)	373.87 kWh	
Energy mix (2002)	Combustible, renewable and waste	55%
	Oil	24%
	Coal	13%
	Gas	5%
	Hydro	4%
GHG Emissions (1994)	154 million MtCO <sub>2</sub> e	
GHG Emissions per capita (2000)	1.66 MtCO <sub>2</sub> e	
CO <sub>2</sub> Emissions (1994)	91 million MtCO <sub>2</sub>	
CO <sub>2</sub> Emissions per capita (2000)	0.73 MtCO <sub>2</sub>	
CO <sub>2</sub> Emissions per GDP (2000)	1.84 kg/US\$	
Forest area	38 % of Land	

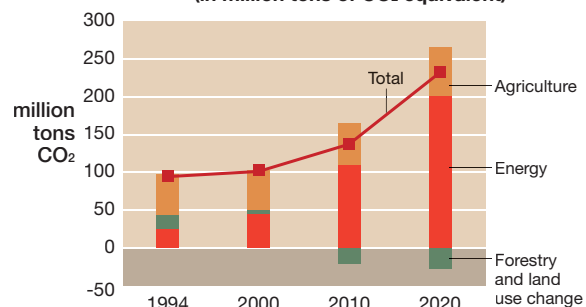
Sources: UNFCCC (2005g), World Bank (2005), IEA (2005)

**Figure 7.1 Distribution of GHG emissions from Viet Nam in 1994 by gas and sector**



Source: UNFCCC (2005g)

**Figure 7.2 Estimated GHG emissions to 2020 (in million tons of CO<sub>2</sub> equivalent)**



Source: UNFCCC (2005g)

## 7.2 Major Domestic Climate Policies and International Contributions

Table 7.2 lists selected policies and measures aimed at GHG mitigation and adaptation to climate change.

**Table 7.2 Selected domestic policies and measures in Viet Nam**

	Area/Issue	Policies and measures
M I T I G A T I O N	Energy efficiency improvement	<ul style="list-style-type: none"> <li>Replacement of low-efficient coal/oil fired boilers.</li> <li>Efficiency improvement of coal cooking stoves.</li> </ul>
	Promotion of renewable energy	<ul style="list-style-type: none"> <li>Renewable Energy Action Plan to develop geothermal, solar, wind and nuclear power.</li> <li>Setting up biogas plants and stoves in rural areas.</li> </ul>
	Transportation	<ul style="list-style-type: none"> <li>Fuel efficiency improvement with lean burn engine in transportation.</li> </ul>
	Carbon Sequestration	<ul style="list-style-type: none"> <li>Active protection of forests including national reserve gardens, rare wood forests, watershed protective forests, important reserves.</li> <li>Restoration of special protective forests.</li> </ul>
	Other initiatives	<ul style="list-style-type: none"> <li>Water management policies in rice fields.</li> <li>Provision of processed feed for animals.</li> </ul>
A D A P T A T I O N	Natural resource management	<ul style="list-style-type: none"> <li>Afforestation and reforestation policies in watersheds.</li> <li>Development of cropping patterns, new varieties and techniques to adapt to climate change.</li> <li>Effective use of irrigation water and upgrading of irrigation systems.</li> </ul>
	Infrastructure management	<ul style="list-style-type: none"> <li>Upgrading and new construction of sea and river mouth dykes and rising level of drainage system.</li> </ul>
	Other initiatives	<ul style="list-style-type: none"> <li>Developing national plan and programme for health control and monitoring.</li> </ul>

Source: UNFCCC (2005g)

***Viet Nam's policies to mitigate GHG emissions in the energy sector were mainly focused on energy efficiency and renewable energy through implementation of a decade long Renewable Energy Action Plan of 1999.***

### **7.2.1 Mitigation policies**

Viet Nam's policies to mitigate GHG emissions in the energy sector were mainly focussed on energy efficiency and renewable energy through implementation of the 10-year Renewable Energy Action Plan of 1999 (Australian Business Council for Sustainable Energy (BCSE) 2005). Several policies were adopted to improve efficiency of coal energy use and develop nuclear energy. In the forest sector, several forest protection and afforestation policies were being implemented with the goal to increase the coverage of forestland by 43%. In the agricultural sector, CH<sub>4</sub> mitigation measures through improved soil, crop, water and fertiliser management were being encouraged.

### **7.2.2 Adaptation initiatives**

Viet Nam is located in the downstream from two large international rivers: the Mekong and the Red River. The large delta areas of those rivers are less than one meter above the mean sea level and some is even below sea level. Therefore, vulnerability of Viet Nam to impacts of climate change need not be overstated (Granich et al 2003). Viet Nam introduced measures to prevent soil salinisation and flooding by constructing sea dykes and drainage systems. As food security is one of the top priorities to alleviate poverty, Viet Nam needs to further upgrade its drainage systems and construct new sea dykes. Policies for increasing the forest coverage in watersheds can also contribute to the improvement of adaptive capacity of local communities and to minimise losses from natural disasters associated with climate change (Tri et al 1996).

### **7.2.3 International contributions**

Viet Nam ratified the UNFCCC in November 1994 and the Kyoto Protocol in September 2002. The Ministry of Natural Resources and Environment (MONRE) was designated as a National Focal Agency to the Convention and the DNA of the CDM. Viet Nam prepared the initial National Communication (VINC) with the support of UNEP/GEF and submitted it to the UNFCCC in 2003. The DNA was established in 2003, and the UNEP-RISO is supporting the development of its capacity under the CD4CDM programme.

## **7.3 Assessment of the Climate Regime from Viet Nam's Perspective**

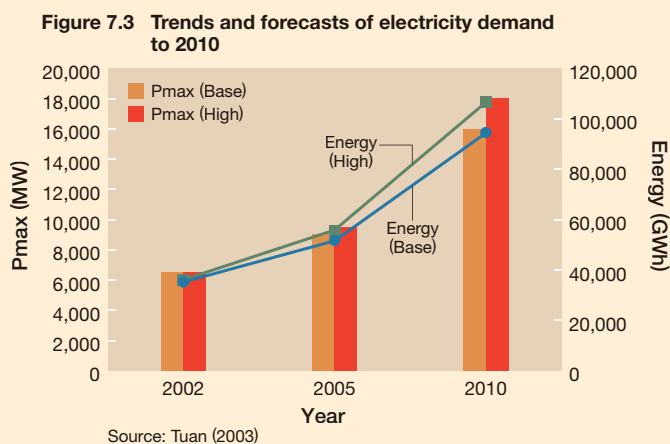
Most participants of our consultations in Viet Nam noted that the current climate regime is the first positive step to addressing the challenge of climate change. They recognised that the entry into force of the Kyoto Protocol and the establishment of market-based mechanisms, such as the CDM, are significant achievements of the current regime. For example, the CDM is recognised as a good tool to facilitate private investment in renewable energy and rural area development as well as afforestation and reforestation. However, they noted that improvements in various elements, including market-based mechanisms, technology transfer and adaptation, would be crucial to strengthening the future climate regime. The concerns related to various elements of the climate regime and the options to improve them are discussed in the following sections.

## 7.4 Major Concerns on the Current and Future Climate Regime

### 7.4.1 Developmental and economic concerns

The UNDP placed Viet Nam at a level of “medium human development” and ranked it 108 on the list of 183 countries (UNDP 2005). Most participants agreed that economic growth and poverty alleviation should be high priorities for Viet Nam but they recognised that GHG mitigation and adaptation should receive more policy attention in future. To do so, they recognised the necessity of improving awareness of policy-makers on climate change. Considering the fact that a significant proportion of the population is poor, Viet Nam set an annual economic growth target of 8% to reach a GDP per capita of US\$1000 by 2010. Such a growth rate, however, will in turn enhance energy demand. For example, Tuan (2003) reported that the demand for electricity is projected to increase by nearly three-fold from 2002 to 2010, with significant implications for GHG emissions for the country (Fig. 7.3). How to meet growing energy demands to sustain development without significant increases in GHG emissions is a major concern for Viet Nam.

*Most participants recognised that GHG mitigation and adaptation should receive more policy attention in future.*



### 7.4.2 Equity concerns

The participants noted that high disparities in per capita emissions both within and among nations were a major concern. Viet Nam's per capita GHG emissions are very low at present (Table 7.1) but they noted the need to conduct studies on the potential economic impacts of various GHG mitigation and adaptation measures. They also considered that Annex I countries should commit to further reduction of GHG emissions and some of advanced developing countries should commit to reducing GHG emissions in the future.

### 7.4.3 Market-based mechanisms-related concerns

The limited progress in the CDM implementation in Viet Nam was a major problem expressed by several participants in our consultations. Although Viet Nam established the CDM National Executive and Consultation Board (CNECB) in 2004 and set up its mid-term plan for the CDM by 2008 in order to develop the capacity for CDM implementation, the number of CDM activities to date is quite limited. Only one methodology from the country was approved by the CDM methodology panel but the project was not submitted yet for registration by the CDM-EB. As of October 2005, four projects are in

***The uncertainty of the validity of CERs generated after the first commitment period was noted as one of the reasons for difficulties in raising underlying finance for CDM projects.***

the approval process at Viet Nam's DNA and sixteen projects are under development (Hieu 2005). Participants noted that the complexity of the CDM procedures, including the long approval process both within and outside the country, was a major barrier. Although many workshops on CDM implementation and methodologies took place, it is still hard for local project developers, including small and medium-scale enterprises, to understand the modalities and procedures for the CDM. Furthermore, the participants highlighted difficulties in raising underlying finance for CDM projects due to their low rates of return on investments. The uncertainty of the validity of the CERs generated after the first commitment period was noted as one of the reasons for difficulties in raising the underlying finances for CDM projects, especially those related to afforestation and reforestation. The lack of attention by international investors to support small-scale CDM projects in rural areas and renewable energy projects was also identified as a major concern.

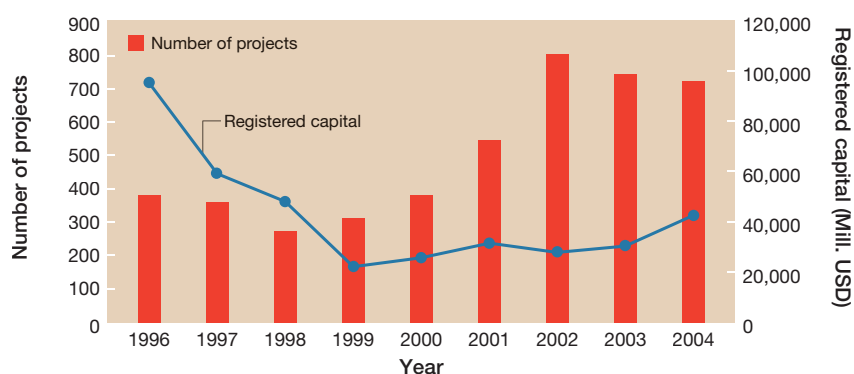
#### ***7.4.4 Technology development and transfer-related concerns***

Most participants expressed concern about the level of technology development and transfer to address climate change in Viet Nam. Indeed, the technology diffusion level in the country is rather low. Viet Nam ranked 102 among 162 countries in the Technology Diffusion Index (UNDP 2001). The lack of comprehensive technology needs assessment to determine GHG mitigation technologies which are suitable for Viet Nam's economic and social conditions and developmental needs was also identified as a major concern. Considering its renewable resource potential and coal reserves, clean coal and renewable energy technologies might be most appropriate for Viet Nam. However, participants noted that the current climate regime failed to create a suitable incentive structure for the development of renewable sources of energy. The participants noted that even developing countries could commit to reducing GHG emissions if they have the necessary technologies and financial resources, and highlighted that incentives for the transfer of technologies from developed countries should be considered.

#### ***7.4.5 Capacity-building concerns***

The majority of the participants expressed a strong concern regarding Viet Nam's capacity to address climate change. First, the lack of research capacity within the country and inadequate and inconsistent support from developed countries to undertake country-specific and/or country-relevant research were identified as significant issues for attention. Secondly, the lack of negotiation capacity was identified as a barrier to convey Viet Nam's concerns on climate regime to international community. Although Viet Nam received capacity-building support for establishment of DNA (for example through UNEP-RISO's CD4CDM programme), and preparation of initial National Communication from several kinds of sources, participants felt that such efforts were inadequate. Thirdly, the low capacity of the private sector to implement CDM activities was considered an important issue. Some participants noted that the lack of capacity to improve the legal framework and create an incentive structure for foreign investment was hindering CDM activities in Viet Nam, although CDM is expected to facilitate an inflow of FDI which level is gradually recovering. (Fig 7.4)

**Figure 7.4 Foreign direct investment projects licensed from 1988 to 2004**



Source: General Statistics Office of Viet Nam

### 7.4.6 Adaptation concerns

Considering the fact that the main rice fields of Viet Nam are in the Mekong and Red River deltas, which are highly vulnerable to climate change, the participants noted that Viet Nam was strongly concerned about adaptation. Although the government implemented some measures to mitigate the impacts from typhoon, flood and salinisation, the participants noted that such measures are far from adequate to address the challenges. Smith (1997) suggests the necessity of the priority setting for adaptation measures. As for the international climate regime, the participants felt that adaptation has not receive much attention to date and that financial measures to support adaptation were inadequate and sometimes inappropriate.

## 7.5 Priorities for Restructuring the Future Climate Regime

### 7.5.1 Development and equity

As the topmost priority for Viet Nam is development, the participants at our consultations recommended that climate policies must be framed in developmental terms, rather than purely from the point of environmental concerns. On a national level, Dang et al. (2003) noted the importance of designing a domestic, harmonious and realistic strategy to combat climate change that combines both mitigation and adaptation at the national level. At the international level, the participants noted that the future regime discussions must expand the options for mainstreaming climate concerns in developmental programmes, including the creation of additional market-based mechanisms. Some participants argued that advanced developing countries should begin to reduce their GHG emissions growth more proactively than before.

***The need for preferential support for community-based CDM projects (biogas utilization, energy conservation, waste management, etc.) was emphasised.***

### ***7.5.2 Market-based mechanisms***

Several participants noted that Viet Nam's high expectations for the CDM as a basis for financing development projects with technology transfer were not realised due to various barriers. They urged that the future climate regime discussions should focus on streamlining the CDM procedures to reduce transaction costs and that all projects that aim to develop renewable resources must be made eligible for the CDM. The need for preferential support for community-based CDM projects (biogas utilisation, energy conservation, waste management, etc.) was also noted as such projects will have direct positive impacts on poverty alleviation, development of rural infrastructure, and increased awareness of rural communities on ways to reduce GHG emissions. Participants noted that it is important to develop additional CDM methodologies focussing on small-scale CDM activities in rural areas, and that removing uncertainty of the validity of CERs generated after 2012 would greatly help the implementation of long-term sustainable projects such as afforestation and reforestation. The latter is especially relevant for Viet Nam, which aims to increase forest coverage from the current 28% to 43%. The participants suggested that Annex I countries should consider establishing a financing programme to cover the underlying finance of CDM projects with large sustainable development benefits. At the national level, participants noted the need for streamlining approval procedures and for conducting cost-benefit analysis of CDM projects.

### ***7.5.3 Technology development and transfer***

From Viet Nam's perspective, facilitation of technology transfer is one of the key features for restructuring the future climate change regime. As stated earlier, the government plans to develop coal-based, renewable energy-based and nuclear power plants to meet the increasing energy demands. The participants, therefore, suggested that discussions must focus on ways to transfer clean coal and other advanced technologies from developed to developing countries. Considering the high vulnerability of Viet Nam to impacts of climate change, especially sea level rise, the participants noted the need for the transfer of technologies to facilitate adaptation.

### ***7.5.4 Capacity-building***

The participants argued that future regime discussions must explore new ways of enhancing the capacity of developing country stakeholders, especially in negotiation, technology and research. While association with major groups such as "G77+China" was considered a useful strategy to increase negotiation capacity of countries such as Viet Nam, some participants felt that they do not necessarily represent Viet Nam's concerns and priorities due to a large number of countries. The participants also noted that building capacity of the private sector in CDM implementation is crucial to achieve reduction in GHG emissions and that research capacity to assess local impacts of climate change is necessary to design appropriate adaptation strategies reflecting both national and local circumstances.

### 7.5.5 Adaptation

Current mechanisms for facilitating adaptation both at national and international levels were considered to be inadequate by many participants. On the national level, participants recognised the need for mainstreaming adaptation concerns in developmental policies and programmes. In this process, however, economic structural causes of vulnerability in different regions must be carefully examined (Adger, 1998, 1999 and 2000). At the international level, the participants argued that future regime discussions should lead to the development of mechanisms to support adaptation in terms of funding, technology and policy implementation. Some participants suggested that the creation of a new institutional framework, such as an adaptation protocol with specific targets, could be useful for countries such as Viet Nam, if it facilitates: (a) development of short- and long-term adaptation policies, (b) the assessment of necessary technologies for adaptation, and (c) financial assistance for adaptation. Target-setting for adaptation was considered crucial as it would allow determining the extent of adaptation measures to be undertaken by different groups of stakeholders (national and local governments, and local communities). Some participants noted that discussions should facilitate ways to share information on the tools and technologies for facilitating adaptation, and to find synergies between strategies of mitigation and adaptation (Dang et al 2003).

*Current mechanisms for facilitating adaptation both at national and international levels are considered to be inadequate.*

## 7.6 Epilogue

Our consultations helped us identify various concerns and interests of Viet Nam in relation to the future climate regime. The concerns mainly include various development issues like poverty alleviation energy security, food security, and forest conservation. At the same time, many participants recognised that climate change is a serious threat that cannot be ignored and that substantial domestic efforts are necessary in both mitigation and adaptation. It is, therefore, important for policy-makers and negotiators from Viet Nam to bring their concerns into international discussions more proactively than before. Several ideas were proposed to strengthen the future climate regime especially with regard to the CDM and adaptation. We believe that the implementation of such ideas, both at domestic and international levels, can lead to the realisation of the vast potential for development that Viet Nam holds in this century.