Implications and Challenges of Climate Change for Vietnam

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The recent assessment reports of the Intergovernmental Panel on Climate Change (IPCC) and various other scientific sources confirm that climate change is already taking place and having discernable impacts. Reducing vulnerability to climate change has become an urgent issue, especially in developing countries, which are more vulnerable because of their lack of financial resources, institutional and technological constraints, low local expertise, and limited research capacity (Grasso 2007: 223, Huq & Reid 2007, IPCC 2007). Although Vietnam has only played a small part in creating the problems of global environmental change and faces many other challenges, it cannot avoid the impacts of climate change. Implementing adaptation policies seems mandatory.

Global perspective

As shown in a recent World Bank Study (Dasgupta et al.: 2007), Vietnam is among the countries most heavily affected by the consequences of climate change: Of the 84 coastal developing countries investigated in terms of sea level rise (SLR), Vietnam ranks first in terms of impact on population, GDP, urban extent, and wetland areas, and ranks second in terms of impact on land area (behind the Bahamas) and agriculture (behind Egypt). The authors maintain that the consequences of SLR for Vietnam are "potentially catastrophic" (Dasgupta et al.: 2007: 2/44) and demand "intermediate planning for adaptation".

According to the latter study, 10.8% of Vietnam's population, mostly those people living in the two river deltas, would be impacted by an SLR of just 1 m (Dasgupta et al.: 2007). According to the IPCC (2007: 59), a 1 m SLR in Vietnam would lead to flooding of up to 20,000 km^2 of the Mekong River delta and 5,000 km^2 of the Red River delta. In the Mekong River delta alone, more than 1 million people would be directly affected. Also, the Stern Review on the economics of climate change confirms Vietnam's high vulnerability to climate change (Stern 2006): Vietnam ranks fourth behind China, India, and Bangladesh in terms of the absolute number of people living in vulnerable, low elevation coastal zones (LECZ), defined as the contiguous area along the coast that is less than 10 m above sea level. About 43 million Vietnamese, or about 55% of the country's population (38 % of Vietnam's urban population), are living in those LECZ (McGranahan et al. 2007: 11/28). This is the highest percentage of all countries worldwide. The authors conclude that "vulnerable settlements in low-income countries clearly deserve international support […] to adapt to climate change".

All in all, the country would face losses totalling US$17 billion per year in case of a SLR of 1 m (VNS: 6 June 2007). According to the first national report on climate change, in the "Vietnam Initial National Communication" to the UNFCCC, published in 2003, the sea level along the coasts of Vietnam has already increased slightly in the past 30 years and is expected to rise by up to 33 cm by 2050, and by 1 meter by 2100 (SRV & MoNRE 2003).

Increase of Weather Extremes

Climate change also increases the likelihood of extreme weather events such as floods and heat waves as well as more gradual changes in temperature and precipitation (Mukheibir & Ziervogel 2007). It is already evident that settlements in the coastal lowlands (like the metropolis of Ho Chi Minh City) face the risk of tropical storms, too. These prospects are amplified when they occur in combination with high tides and/or high river flows (McGranahan et al. 2007: 20). Vietnam is particularly threatened by powerful storms, as the country is situated at the end of one of the most powerful cyclone tracks in the whole world, and virtually no sector of the coastline of 3,260 km can be considered "cyclone-free" (Kelly & Adger 2000: 333). An increase in the sea surface temperature in higher latitude regions leads to more typhoons occurring in the northwest Pacific Ocean, affecting Vietnam. The higher sea surface temperature will also cause higher wind velocity in typhoons. In this context, the authors of the World Bank study conclude that even a rather small increase in SLR can significantly magnify the impact those storm surges (Dasgupta, Susmita et al.: 2007: 2). A higher frequency of storms hitting the southern regions of Vietnam has already been noted (VNS 2007: 6 April 2007).

Limitations of Global Studies

However, the above-mentioned global comparative country studies on the impact of climate change have limitations in assessing vulnerability: There are still uncertainties in national and regional climate change scenarios, as these mainly consist of simplistic downscaling of global scenarios, based on model-driven scenarios with limited variables. Very often, SLR is used as the sole indicator of climate change. Also, the number of exposure/sensitivity variables (population at risk, land/area exposed) is quite limited. Therefore, as a rule, the assessment results of these global studies can not be used in spatial planning and for decision-making on a regional scale. (Schneiderbauer 2007: 85ff.)

Nevertheless, these studies have played a prominent role in raising awareness among political stakeholders and the population. For example, (for the first time ever) in Vietnam, there has been a wave of articles published in the local media on the critical issue of climate

change, especially after the publication of the World Bank study mentioned above as well as after the publication of the 2007 assessment reports by the IPCC.

Without doubt, climate change will result in disruptions of human populations and consequent migration in Vietnam. This would significantly increase population pressure on the urban agglomerations of Vietnam, most of all on the economic hub of Ho Chi Minh City. So far, climate policy has mainly focussed on the national level of Vietnam, while research on the effects and challenges of climate change in urban areas has been neglected.

Conclusions

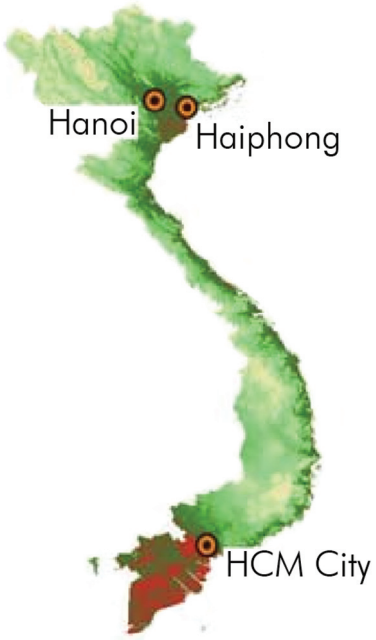
Dealing with the serious implications of climate change will be a major challenge for Vietnam in the next decades. Its effects may threaten the impressive economic progress the country has made in the course of the transition towards a market economy. In this context, implementing adaptation policies should be prioritized over mitigation strategies.

As there is now a broad consensus among scientists that climate change will definitely occur, regardless of whether emission reductions or even stabilization measures are achieved, it will be necessary for Vietnam to mainstream climate change into development planning at all levels, scales, and sectors as well as to empower communities and other local stakeholders, encouraging them to participate actively in vulnerability assessments and implementation of adaptation measures.

Among the institutional constraints in the implementation of adaptation planning in Vietnam are a lack of a national and local framework for climate change adaptation and a lack of co-ordination among ministries, agencies, and institutions in areas pertaining to climate change. Also, there is limited knowledge on the relationship between climate change strategies and the attainment of sustainable development objectives, as well as limited knowledge and capacity-building on climate change issues among local stakeholders. In this process, incremental adaptation strategies and policies to exploit "no-regret" measures and "win-win" options are to be preferred over other options (IPCC 2007: 472).

As research on the potentials and costs of adaptation by industry, settlement planning and society to climate change is still at an early stage, Vietnam urgently needs expertise and financial support from the international community.

Impact of 1 m Sea Level Rise in Vietnam



Source: Dasgupta et al 2007

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