



VIET NAM: SOME GOOD SUSTAINABLE DEVELOPMENT PRACTICES

REPORT AT THE UNITED NATIONS CONFERENCE ON SUSTAINABLE DEVELOPMENT (RIO+20)

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Sustainable Development (Rio+20)

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ABBREVIATIONS

ACCCRN	Asian Cities Climate Change Resilience Network
CPI	Cleaner Production in Industry
CSR	Corporate Social Responsibility
NTP-PR	National Target Program on Poverty Reduction
GDP	Gross Domestic Product
GTZ	German Agency for Technical Cooperation
MOIT	Ministry of Industry and Trade
PECSME	Promoting Energy Conservation in Small and medium-sized enterprises in Viet Nam
Rio+20	United Nations Conference on Sustainable Development, 2012
EC	Energy Conservation
SMEs	Small and medium-sized enterprises
SRI	System of Rice Intensification
EC&EE	Energy Conservation and Energy Efficiency
PC	People's Committee
NP	National Park
VCCI	Viet Nam Chamber of Commerce and Industry
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization

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INTRODUCTION

Since the Earth Summit on Environment and Development, Rio-1992, Viet Nam has been making progress in efforts towards achieving sustainable development with important gains shown in economic, social, and environmental fields. Gains in economic development have created a sound basis for successful resolution of a variety of social issues, specifically in: poverty reduction, education development, health care, achieving the Millennium Development Goals to constantly improve the quality of people's life.

To realize its commitments made to the international community, the Government of Viet Nam (GoVN) has issued the Strategic Orientation for Sustainable Development in Viet Nam (Viet Nam Agenda 21) and established a National Sustainable Development Council chaired by a Deputy Prime Minister of GoVN. Viet Nam has also developed and promulgated both sectoral and local Agenda 21. The strategic approach to sustainable development is: "To achieve rapid development alongside sustainable development, with sustainable development as a common thread in the whole strategy". This has been affirmed in previous socio-economic development strategies and is now affirmed again in the country's national strategy for socio-economic development for the next 10 years.

Following this strategy, a variety of sustainable development activities, models, and initiatives have been implemented and positive results achieved, contributing to the achievement of the sustainable development goals of Viet Nam. Among these activities, models and initiatives which can be considered positive sustainable development practices.

This report aims to bring together and assess some of good sustainable development practices implemented in Viet Nam recently, and to draw out lessons and make recommendations for further implementation of these models and initiatives, continuing the promotion of sustainable development by Viet Nam.

The criteria for selection of good sustainable development practices to be included in this report are: i) Representativeness; ii) Uniqueness and distinctiveness; iii) Alignment with the Government's policies and programs related to sustainable development; and iv) Sustainability, assessed on the basis of the eight sustainable development principles of Viet Nam¹.

Representativeness means that the selected cases must be representative of a cluster of cases relevant to priority areas of Viet Nam Agenda 21².

The uniqueness and distinctiveness of selected good practices were assessed by their demonstrable

¹ Viet Nam's eight principles for sustainable development are: (1) Human beings are at the centre of sustainable development; (2) Economic development is considered the central task of the next development periods; (3) Protection and improvement of environment quality are to be considered an inseparable factor of the development process; (4) The development process must satisfy the needs of present generations without causing obstacles for the life of future generations; (5) Science and technology are the foundations and momentum for the country's industrialization and rapid, strong and sustainable development; (6) Sustainable development is the cause of the whole Party, of governments at all levels, of ministries, sectors and localities, agencies, businesses, social organizations, communities and of the whole people; (7) Development of an independent and autonomous economy must be linked with international economic integration in order to ensure sustainable development of the country. (8) Socio-economic development and environmental protection should be closely tied with a guarantee of national defence and security as well as of social safety and order.

² The 19 priority areas for sustainable development are: (1) Maintaining rapid and sustainable economic growth rate; (2) Switching to environmentally-friendly production and consumption models; (3) Implementing the "clean industrialization" process; (4) Ensuring sustainable agricultural and rural development; (5) Ensuring sustainable development of regions and localities; (6) Making focused efforts to eliminate hunger and reduce poverty, and furthering efforts to achieve social progress and equity; (7) Continuing to reduce population growth rate and creating jobs for the workforce; (8) Setting directions for urbanization and population resettlement with an aim to ensure sustainable development of urban areas and reasonable distribution of population and labour force for each region; (9) Improving education quality in order to raise the education level, professional skills and qualifications of the population and to meet the requirements for development of the country; (10) Developing healthcare services, improving working conditions and healthy living environments; (11) Preventing soil degradation and using land resources in an efficient and sustainable manner; (12) Protecting water bodies and using water resources in a sustainable manner; (13) Ensuring rational exploitation and sustainable use of mineral resources; (14) Protecting marine, coastal and islands environments and developing marine resources; (15) Protecting and developing forests; (16) Reducing air pollution in urban and industrial zones; (17) Managing solid waste and hazardous waste; (18) Conserving biodiversity; (19) Adopting measures for mitigating climate change and limiting its negative impacts, preventing and combating natural disasters.

positive impact on economic growth, social progress, equity and environmental protection.

The selection of good practices to be presented is also based on the two major themes of Rio+20 conference, which are: (i) A green economy in the context of sustainable development and poverty reduction; (ii) The institutional framework for sustainable development and issues to be discussed in this Conference³.

Through a review of and site visits to documented cases of good sustainable development practices, on the basis of their results and achievements and in relation to the 19 priorities in the Viet Nam Agenda 21, four groups of areas of good sustainable development practices have been selected and presented in this report, including: (i) Efficient use of energy and natural resources in production; (ii) Poverty reduction and rural development; (iii) Conservation and development; and (iv) Climate change response.

These are also areas of sustainable development in Viet Nam where a great number of good models and initiatives have made a positive contribution to the implementation of sustainable development objectives and priorities of the country, with achievements in some areas highly recognized by the international community.

Each case of good practice in sustainable development discussed in this report is presented in the following structure: (i) Background and issues, which mentions the context of the good practice, and problems to be solved before its implementation; (ii) Summary of the case, including its objectives, content, activities, and results; (iii) Uniqueness and distinctiveness, which mentions the typical and innovative features of the good practice; and (iv) Lessons learned, with reporting of advantages, strengths, limitations, and challenges as well as an assessment of chance of success in other locations.

Information for the development of this report has been compiled from various sources of materials, in particular:

- 1) Consolidated materials from the Ministry of Planning and Investment and other Ministries and sectors involved in sustainable development;
- 2) Consolidated materials from UNDP Viet Nam and other organizations with programs related to sustainable development;
- 3) Performance reports of projects and programs related to sustainable development that have been carried out in the economic, social, environmental, and institutional fields.

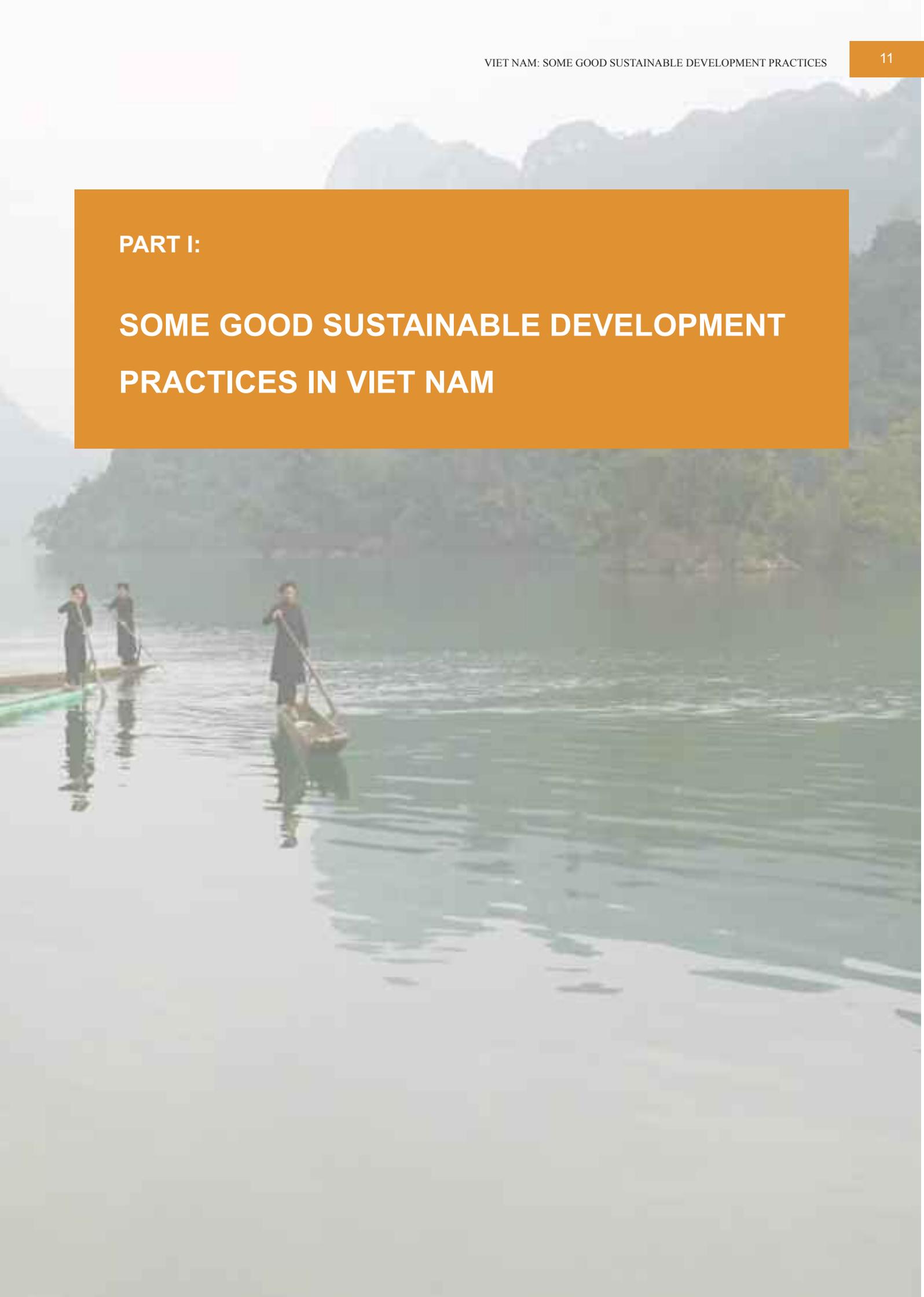
³ Issues to be discussed in the Conference: (1) Employment; (2) Energy; (3) Green cities; (4) Food; (5) Water; (6) Oceans; and (7) Natural disaster management.





PART I:

**SOME GOOD SUSTAINABLE DEVELOPMENT
PRACTICES IN VIET NAM**



EFFICIENT USE OF ENERGY AND NATURAL RESOURCES IN PRODUCTION

Policies and current situation

Policies

The Government has promulgated various major policies during recent years, which are aimed at ensuring efficient use of energy and natural resources closely aligned with environmental pollution control and prevention⁴.

Learning from the achievements in this field during the last decade, the Law on Efficient Use of Energy was passed by the National Assembly in 2010 and became effective in early 2011. In order to further promote this process, Viet Nam has been actively developing the Green Growth Strategy which is expected to be promulgated in 2012.

Certain financial mechanisms to encourage efficient use of energy and natural resources have also been established, including the Viet Nam Environment Protection Fund⁵. This fund is aimed at providing financial support for projects and manufacturing/production establishments to address environmental pollution, prioritizing support to enterprises that are adopting clean, environment-friendly and energy-efficient technologies. Established with an initial charter capital of VND 200 billion, which increased to VND 500 billion in 2008, the fund has provided financial support to 139 enterprises, of which 63 enterprises are engaging in energy efficiency and cleaner production (Ministry of Industry and Trade, 2011).

Current situation

Various activities have been implemented within the National Target Program on energy efficiency, the most notable of which are: (i) Organizing the network

of management and organization of energy efficiency initiatives in central provinces and cities; (ii) Strongly promoting on communication, education and dissemination of information, mobilizing the community, improving awareness, advocating energy efficiency, and protecting the environment; (iii) Developing and introducing high-efficiency and energy-saving equipment to gradually replace equipment with low efficiency; (iv) Using energy efficiently in industrial production enterprises.

The objectives of the National Target Program on energy efficiency during Phase I (2006-2010) have been fulfilled, with over 150 tasks, proposals and projects implemented with a saving of 4900 KgOE (2006 – 2010) (equivalent to 56.9 billion kwh or 35.2 million gallons of crude oil), equivalent to 3.4% of total national energy consumption (Ministry of Industry and Trade, 2011).

Along with the promotion of energy efficiency production, the "clean industrialization" process has also been carried out, integrating industrial development planning with efforts to ensure proper industry structure, technologies and equipment, in line with the principle of environmental friendliness; active efforts have been made to prevent and address industrial pollution and to build "green industry", particularly within the framework of implementing the Cleaner Production in Industry strategy up to 2020 and the National plan on environmental pollution control up to 2010.

Cleaner Production was officially introduced in Viet Nam in 1996. The Viet Nam Cleaner Production Centre was established two years later. The Ministry of Industry and Trade (formerly the Ministry of Industry) has promoted cleaner production within the Cleaner Production in Industry (CPI) Component. Outstanding results of the Component after 6 years of

⁴ Relevant policies include: (1) Strategy on cleaner production in industry for the period up to 2020 (2009); (2) National Targeted Program on energy efficiency for the 2006-2015 period (2006); (3) Program on Energy saving for the 2006 – 2010 period (2006); (4) Proposal on bio-fuel development up to 2015, with a vision through 2025 (2007); (4) National plan on environmental pollution control up to 2010 (2005).

⁵ The Viet Nam Environmental Protection Fund was established on June 22nd, 2002 with Decision No. 82/2002/QĐ-TTg of the Prime Minister.

implementation include: (i) Introduction of a National Strategy on Cleaner Production in Industry up to 2020, (ii) Demonstration of cleaner production at 61 production establishments, and developing a national network of cleaner production including cleaner production support teams at the Central and local levels, as well as consultants.

Apart from the Program of the Ministry of Industry and Trade, various other projects and programs related to the efficient use of energy and natural resources have also been implemented with the support of international organizations. These projects and programs have worked to build and develop sustainable goods and products, including Viet Nam's rattan products, alongside improvement in efficient use of natural resources by SMEs. These projects and programs have made important contributions to more efficient use of energy and natural resources in Viet Nam's industrial production.

Good sustainable development practices related to efficient use of energy and natural resources in production

Promoting Energy efficient use in Small and Medium-sized Enterprises

Background

Saving energy and improving energy efficiency in production is an acute challenge for all enterprises, particularly small and medium-sized enterprises. It is not only an important economic and technological issue but also an environmental challenge, to minimizing emissions of CO₂ to reduce the green house gas effect. Moreover, SMEs suffer low productivity and competitiveness due to a shortage of technology and management expertise, in addition to high fuel and material costs.

The Government of Viet Nam, through the Ministry of Science and Technology, has promoted activities aimed at "Promoting Energy Conservation in Small and

Medium-sized Enterprises in Viet Nam" (PECSME project)⁶ during the 2006-2010 period.

Summary of the case

The PECSME project aims to reduce greenhouse gas emissions by removing the barriers to widespread transfer and adoption of energy conservation and energy efficiency technologies, management and maintenance and operational practices in SMEs in 5 industries of Viet Nam, comprising: ceramics, brick, paper, textiles, and food processing. The project was initially scheduled to be piloted in 10 provinces/ cities - Hanoi, Hai Phong, Bac Ninh, Hai Duong, Hung Yen, Da Nang, Ho Chi Minh City, Dong Nai, Binh Duong and Can Tho. The project was composed of six (6) major components related to energy conservation and energy efficiency (EC&EE), including (i) Support for Policy and Institutional Development; (ii) Communication and Awareness; (iii) Technical Capacity Development; (iv) Support to Energy Efficiency Services Providers; (v) Financing Support; (vi) EC&EE Demonstration and Replication.

As of June 2011, 543 projects on energy conservation and efficiency have been completed in the five fields, and 25 provinces and cities have been supported to participate in energy efficiency initiatives, of which 12 provinces/cities have promulgated policies and institutions to assist SMEs. 25 energy efficient service providers have provided support to over 500 SMEs.

A total of 232,000 tonnes of oil equivalent (TOE) has been saved, 944,000 tonnes of Carbon Dioxide (CO₂) - a greenhouse gas - has been reduced, and energy costs have been lowered by 24.3 percent. The economic and financial benefits directly gained by SMEs has seen a 10-50% reduction in production costs, a 30% increase in productivity and product quality, and an improvement in competitiveness. In brick and ceramic industries only, about 10,000 jobs have been created in rural areas particularly in craft villages, dramatically reducing environmental pollution in this industry (Ministry of Industry and Trade, 2011). Moreover, the effective management of the 1.7 million USD Loan Guarantee Fund has

⁶ The Project received assistance from Global Environment Fund (GEF) and United Nations Development Programme (UNDP)

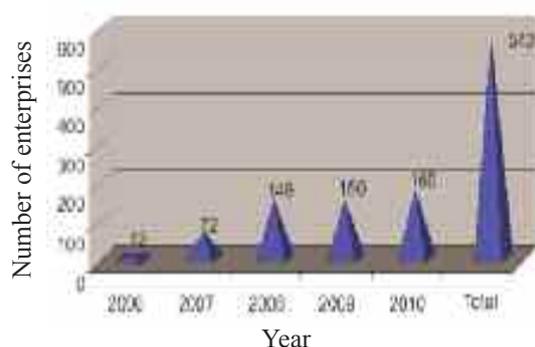


Figure 1: Number of enterprises implementing energy efficiency solutions during 2006-2010

(Source: Ministry of Science and Technology, 2011)

significantly enabled SMEs to access loans from credit institutions to effectively implement investment projects.

According to the Ministry of Science and Technology, after five years of implementation in Viet Nam, the Promoting Energy Conservation in Small and Medium Scale Enterprise Project (PECSME) has become one of the most successful projects of the national program on cooperation for sustainable development and energy efficiency promotion, between the Government of Viet Nam and the United Nations Development Program (UNDP).

Uniqueness and distinctiveness

The project has brought about economic benefits, technological innovations, and environmental benefits for small and medium-sized enterprises (SMEs).

The project has created a favorable environment to help small and medium-sized enterprises (SMEs) in technology innovation and adoption of modern management practices for energy efficiency. Within this project, the SMEs have directly gained economic and financial benefits through reduction of production costs and improvements in productivity, product quality, and competitiveness. The successful implementation of these EE&EC initiatives has greatly contributed to the mitigation of environmental pollution in the five industries of ceramics, brick, paper, textiles, and food processing.

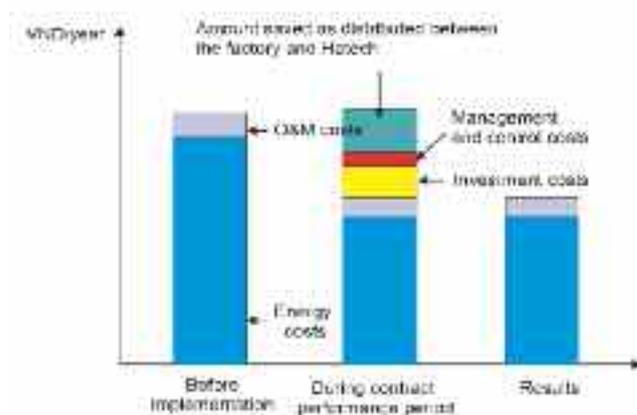


Figure 2: Benefits and costs of enterprises before and after adopting cleaner production

(Source: Ministry of Science and Technology, 2011)

Lessons learned

The successful implementation of initiatives in the PECSME project has contributed to realizing objectives in the National Program on Cooperation for sustainable development and energy efficiency promotion, between the Government of Viet Nam and UNDP during the 2006-2010 period. This good practice has contributed to the implementation of Vietnamese policies related to energy efficiency and conservation through encouraging enterprises to participate.

The main limitation of this good practice has been the SME's underperformance in their adoption. The Government's encouragement and support in terms of technology and other resources is required in order to maintain and develop this initiative.

Cleaner Production in Industry Component

Background

One of the major challenges for almost all Vietnamese industrial enterprise is the limited provision of new technology and resources, resulting in lower efficiency in production and to wasteful use of natural resources and contributing to environmental pollution. In order to address the root causes of industrial environmental pollution, apart from aggressive efforts in developing and enforcing

legislation concerning the environment, the Government has provided guidance, support, and solutions to enterprises to improve resource efficiency and to prevent the generation of pollutants. Cleaner production is an appropriate tool to help enterprises achieve both objectives.

Cleaner production has been successfully implemented in Viet Nam for more than ten years. The Cleaner Production in Industry Component (CPI) managed by the Ministry of Industry and Trade (MOIT) within the program of Viet Nam – Denmark Development Cooperation for Environment (DCE) is a success story in this field.

Summary of the case

The overall objective of the Component was to improve the livelihoods of people working in and living around industrial enterprises through adopting cleaner production within those industrial enterprises. With this objective, CPI's initiatives were designed to assist sustainable industrial development, through measures such as the reduction of industrial pollution, increase of production efficiency, improvement of living conditions of workers and the community, and through capacity-building and the commitments of stakeholders to promote cleaner production. Also the demonstration and provision of instructions through communication and dissemination of information on cleaner production practices.

With the development objective of bringing about benefits for the community and enterprises by adopting cleaner production, the Component has three

immediate objectives: (i) Relevant entities making commitments to adopt cleaner production and who receive capacity-building assistance, do so; (ii) Key elements of the national Strategy on Cleaner Production are effective in target provinces; (iii) Cleaner production techniques are demonstrated, and experience is used to refine the strategy and to replicate the policy in other provinces.

Within this Component, 8 groups of activities have been implemented: (i) Formulation of a national Strategy on Cleaner Production covering large, medium and small-scale industry; (ii) Establishment and operation of an Agency for Cleaner Production in the Ministry of Industry and trade, with the role of promoting and monitoring Cleaner Production implementation by industry sectors and enterprises; (iii) Development of a plan to address shortcomings in the existing promotion systems and regulatory framework; (iv) Establishment and operation of a Unit for Supporting Small and Medium-sized Enterprise in the Industry Promotion Centers under the Departments of Industry and Trade (of target provinces); (v) Cleaner Production becomes an important element of pollution management plans in target provinces; (vi) 40 Demonstration Projects are prepared and implemented in priority sectors and locations; (vii) Enterprises participating in the demonstration achieve improvements in economic benefits and are able to comply with the Government's regulations on environment, health and safety; (viii) Development of a plan for disseminating information and use of lessons learned in the work of sectors and localities.



Figure 3: Consultant introducing the energy-efficient ceramic kiln

(Source: Ministry of Industry and Trade, 2012)



Figure 4: Construction of settling tank for pulp recovery and pulpy water circulation

(Source: Ministry of Industry and Trade, 2012)

The target provinces of Thai Nguyen, Phu Tho, Nghe An, Quang Nam and Ben Tre were selected to implement the cleaner production of the Component.

The Cleaner Production in Industry Component was started in September 2005 and completed in December 2011 with commendable results. It was not only successful in achieving the objectives set out in the Strategy on Cleaner Production in Industry up to 2020 (approved by Prime Minister in 2009), establishing and operating the Agency/Units for Cleaner Production in the Ministry of Industry and Trade and 5 target provinces, incorporating cleaner production into pollution control plans and developing cleaner production action plans at target provinces, CPI also exceeded the objectives in various aspects.

CPI carried out cleaner production demonstration in 61 enterprises, more than the initially planned number.

CPI was more successful than expected in communications activities and replicating cleaner

production models to non-target provinces. As of end of 2011, CPI had undertaken activities to support the adoption of cleaner production for all 63 provinces/cities nationwide at different levels by training experts and lecturers on cleaner production, organizing conferences and workshops, carrying out quick assessment of cleaner production for industrial enterprises, assisting the establishment of cleaner production units and cleaner production action plans at provincial levels, and developing websites and databases. 50% of the provinces and cities received support in developing their cleaner production action plans and cleaner production support units, and a quick assessment of cleaner production practices had been carried out for 260 production facilities, and approximately 300 conferences and workshops on cleaner production for over 22,000 participants had been organized with the assistance of CPI as of the end of 2011.

CPI's demonstration projects show that cleaner production really brings about economic and environmental benefits.

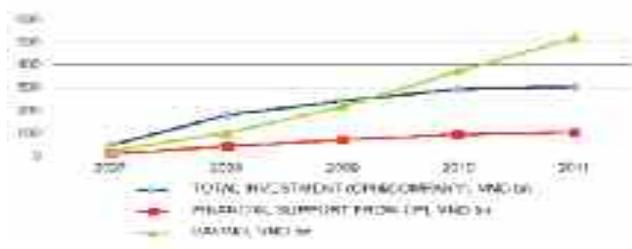


Figure 5: Comparison between investment and economic benefits gained for the whole project
(Source: Ministry of Industry and Trade, 2012)

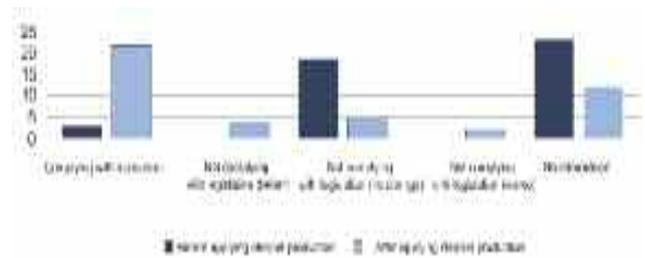


Figure 6: Number of enterprises meeting environmental emission standards.
(Source: Ministry of Industry and Trade, 2012)



Figure 7: Replacement of coal-fired ceramic kiln by gas-fired ceramic kiln in Bat Trang (PECSME)
(Source: Ministry of Industry and Trade, 2009)

Thai Nguyen Paper Mill for Export JS Company with cleaner production solutions

Before, Thai Nguyen Paper Mill for Export JS Company was known as an enterprise with poor and obsolete facilities and a particularly polluted environment, and outdated business strategy. The company specialized in producing votive paper with a design capacity of 2,500 tons/year, with 100% of its products being exported to Taiwan, a fairly stable market with undemanding clients. The company's business activities were not subject to drastic or exceptional changes.

As with other paper mills, the biggest environmental problem faced by the company was wastewater in the two stages of soaking bamboos and cleaning machines and equipment. The wastewater at this time had black or dark yellow color and a bad smell; it also contained a large amount of fibers, pulp, oil and other inorganic compounds. However, the Company failed to fully solve the wastewater problem, and therefore was on the red flag list due to its environment-polluting practices and possibly subject to forced closure if no solution was carried out.

With support from CPI and Viet Nam Cleaner Production Centre, the company conducted a review of all its production processes and found that 35 solutions should be implemented immediately in stage 1. Due to the company's small production scale, the company decided to adopt cleaner production in the entire enterprise, starting with no-cost internal management solutions and low-cost investment ones. In order to save oil and sulfur, some methods were adopted by the cleaner production task team, for example, adjusting to a more rational practice in burning oil and sulfur, maintaining or replacing the spray faucets if necessary; and controlling and minimizing the purchase of granule sulfur for use as raw material. This method did not cost any money, but

has helped the company save VND342 million annually thanks to the saving of 47 tons of fuel oil, 125 tons of CO₂ emissions, 1.258 tons of SO₂ and 115kg of soot annually. Besides, in order to reduce energy consumption, the cleaner production task team adopted such methods as utilizing natural light in workshops, replacing outdated engines, more frequent maintenance of equipment and machines and using compact lamps instead of incandescent lamps. Next, the company made bigger investments to deal with the problem of fibers and pulp contained in wastewater by building two settling tanks to collect pulp and recycle wastewater.

Thus, with an investment of only about VND 0.9 billion for stage 1, the solutions helped bring about economic benefit of VND 1.5 billion. In terms of environmental benefits, these solutions contributed to a saving of 4% crude materials, 4% chemicals, 70% of wastewater (about 40m³/year), and a reduction of 125 tons of CO₂ emissions. Particularly, the two proposals for investing in new technologies to replace the old ones brought about important economic and environmental benefits. With an investment of VND 0.7 billion for the first proposal (of which CPI financed 50% of the investment costs), the Company could recover the investment costs after four years.

Talking about the benefits of cleaner production, Mr. Tran Duc Quyet, the Company Director, affirmed that cleaner production not only helped his company save energy and materials and increase production, but also improved product quality and enhanced the company's reputation.

(Source: Ministry of Industry and Trade, 2007)

Uniqueness and distinctiveness

The contents and method of disseminating information on cleaner production to industrial enterprises highlights the economic benefits, as being of most importance to enterprises, as well as the environmental benefits. Cleaner production provides an all-round solution, including policies, capacity, organization, techniques, and communications in the industrial enterprises and in the whole industry. The

technical solutions proposed are appropriate to Vietnamese enterprises, and the technologies involved are not too complicated and reasonably affordable.

CPI can benefit from the resources developed by earlier cleaner production initiatives, particularly the Viet Nam Cleaner Production Centre. Cleaner production can be sustainable because the Strategy on Cleaner Production has been approved and a number of new organizations have been established.

Bio-fertilizer from wastes of cassava starch production – Fococev's success in adopting cleaner production

Anyone who passed by Fococev Food Stuff & Investment Company Limited (FOCOSEV), Quang Nam province before 2008, particularly on a hot summer day, could not help but feel uneasy because of the putrid smell from the company's cassava wastes. Fococev is a starch production company in the Central region with capacity of 120 tons of fresh cassava/day (equivalent to 50 tons of starch). With this capacity, each day 300kg of cinder, 300kg of cassava pulp, 18 tons of cassava skin and 100 tons of starch dregs at 86-percent humidity and 2,400 cu.m of wastewater containing BOD, SS and COD were discarded to the environment.

Not far from the factory, were farmers accustomed to using inorganic fertilizer in their farming practices, which although providing short-term benefits, leave the land infertile over time. By contrast, organic fertilizer provides similar short-term benefits without the long-term damage. Pricing of the organic product is favourable and would result in lower production costs.

Recognizing these benefits, with the help of Cleaner Production in Industry Component (CPI), Fococev has invested in new technology converting waste from starch production into bio-fertilizer (organic fertilizer) for sales. The project brought about economic and environmental benefits not only for the company, but for the entire community.

Adopting advice of consultants from Viet Nam Cleaner Production Centre, the company Management Board has established a cleaner production task team who have selected 17 solutions for immediate implementation, with 6 further possible solutions needing further analysis. Of the 17 solutions, two require considerable investment in both technology and human resource training. The task team sought assistance from CPI in the following areas: (i) use of the discarded cassava pulp and skin to make bio-fertilizer to supply the material production zone and for sale on the market and (ii) installation of specialized equipment to squeeze the cassava dregs, and construction of a drying system to reduce the humidity of the dregs to 14 percent for sale to animal feed processors.

To implement the first solution, the company has built a bio-fertilizer plant on 300sq.m of its vacant land. The plant has a capacity of 4,800 tons of bio-fertilizer a year, most of which is for the company's material production zone, and the remainder for sale on the market, bringing profit and reduction in environmental pollution. With an investment of VND1.669 billion on the bio-fertilizer plant and equipment, annual costs of VND3.274 billion for

production, operation, and a projected revenue of VND4.320 billion from sale of bio-fertilizer (profit of VND1.045 billion) Fococev expects to recover investment costs in 1.6 years. The operation of this bio-fertilizer plant has resulted in a complete removal of the solid waste that would have remained on-site, indefinitely. As such, this solution has not only brought economic benefit but also minimized environmental pollution.

To implement the second solution, the company has installed a machine system to squeeze the cassava dregs and built a drying system to reduce the humidity to about 14 percent, increasing the sale price to VND1,100 per kg. The total investment cost of the project was VND3.851 billion, annual production costs approximately VND1.486 billion, and annual profit of than VND1.154 billion. As such, the project's return of investment period is only 3.3 years.

Apart from the two major solutions with CPI's funding for 50% of investment capital, Fococev has been active in developing the project on "Wastewater treatment system for biogas collection in accordance with the Clean Development Mechanism (CDM)". With a volume of 2,400m³/day of wastewater, 300 days of production/year, the total investment budget for the project is VND 45 billion and operation costs (2%/year) is VND 950 million. The project has helped reduce about 59,029 tons of CO₂ emissions, equivalent to VND8.8billion for sale of emission quota, save 1,100 tons of coal or VND 1.1 billion, and 2,500MWh of electricity or VND 2.5 billion annually. Thus it takes only 3.9 years for the project to recover the investment costs, while the conventional method not following CDM would take 16 years. The main weakness of the project is that it requires large investment capital, but the benefits are not just limited to economic value but include a contribution to the campaign to stop the ongoing global warming process.

The solutions successfully implemented by Fococev have been highly appreciated by national and international scientists and experts. The project has fulfilled sustainable development factors, harmonizing social and environmental benefits, benefits for the target beneficiaries, as well as being in line with the overall international development trend. More enterprises should be able to have a development roadmap similar to Fococev's, not only to increase their profitability, brand, and image, but also to contribute to the protection of the environment and the prevention of global warming.

(Source: Ministry of Industry and Trade, 2009)

Lessons learned

Some lessons can be drawn to ensure successful implementation of the cleaner production component, including: (i) Full awareness and willingness to adopt cleaner production by top management of the enterprises; (ii) Managers and employees' active involvement in the initiative, understanding of production and technologies, and devotion to work; (iii) The role of consultants, both international and national in disseminating information and giving instructions to the enterprises to undertake systematic assessment of cleaner production using a robust methodology which had been field tested; (iv) The adoption of simple cleaner production solutions with low investment cost first, in order to create a momentum and willingness to implement solutions involving better and cleaner production technologies requiring higher-cost investment; (v) Technical and financial consultants to propose and implement the technology and equipment innovation solutions that involve large investment.

Even though cleaner production has been launched in a fairly systematic manner in provinces and cities of Viet Nam, there remain various obstacles to the achievement of the objectives set in the Strategy on Cleaner Production, which is: "90% of production establishments have knowledge of cleaner production and 50% of production establishments adopt cleaner production by 2020". Major obstacles include: (i) Enterprise's expectations of State support when confronting environmental issues, (ii) Limited awareness of enterprise owners about the benefits of cleaner production, (iii) Difficulties in mobilizing investment capital for science and technologies, and human resources. The five factors identified above are essential factors for successful adoption of cleaner production, but these obstacles are reasons why many enterprises, particularly SMEs, have not been able to carry out cleaner production.

Conclusion

The trends of ensuring energy saving and natural resource efficient use for industrial production, particularly in SMEs is an inevitable trend in developing sustainable production and consumption systems. However, constraints in terms of capital, technologies, and high quality human resources are huge challenges for Vietnamese enterprises in extensively implementing these initiatives.

Promoting Energy efficient use in Small and medium-sized enterprises in Viet Nam (PECSME) and the Cleaner Production in Industry Component are two good sustainable development practices aimed at achieving efficient use of energy and natural resources in Vietnamese industry, and have been successfully carried out.

It has been proven that these are effective environmental management tools to help enterprises achieve sustainable business. These practices can be flexibly implemented and adopted at different levels such as a strategy, an approach, or a solution in industrial production and business. In essence, the objective is to deal with environmental issues in industry (including pollution and natural resource

conservation) by improving the input efficiency of materials such as chemicals, energy, fuel, water, and human resources, thereby reducing production costs, increasing profit, meeting new requirements in terms of environment and social responsibilities, improving enterprises' competitiveness, and moving towards sustainable production and consumption.

Good sustainable development practices related to efficient use of energy and natural resources can be disseminated and replicated for industrial production in different enterprise sectors and on different scales, particularly SMEs nationwide. However, low awareness and shortage of financial resources and new technologies are the main obstacles for sustainable development. Appropriate financial, technical, and human resource support from the government and international organizations are much needed.

For these cases to be successful, it is essential that enterprises have a sound understanding of the concepts of cleaner production, energy efficiency and assessment methodology, as well as a strong commitment from senior management. On the other hand, the State should also bring consultants and provide information about appropriate technology, as well as providing financial incentives for enterprises that make investments in environmentally-friendly projects.

POVERTY REDUCTION AND RURAL DEVELOPMENT

Policies and current situation

Policies

The Government of Viet Nam has adopted the Comprehensive Poverty Reduction and Growth Strategy (CPRGS) (2002) and at the same time carried out large national Programs on poverty reduction⁷, significantly contributing to the realization of millennium and sustainable development goals. In order to improve the living conditions in rural areas, the Government of Viet Nam has, since 2000, adopted the National Strategy on Rural Water Supply and Sanitation⁸ with the objectives that by 2020, all rural inhabitants will have access to clean water, sanitary latrines and keep the environment in their villages and communes clean. The National Target Program for Rural Water Supply and Sanitation 2006-2010⁹ was implemented with the aim of providing rural areas with access to clean water, and the immediate priorities of the program were given to remote areas, rural ethnic minorities, coastal areas, areas which suffer from frequent drought, limited water resources, and areas with contaminated water sources.

In addition, to push sustainable development of rural areas, the Program on Agriculture, Rural Areas and Farmers¹⁰ (2008) and National Target Program for New Rural Development during 2010-2020¹¹ (2010) have been implemented with the purpose of completing the socio-economic infrastructure, modernizing agriculture and industrialization of rural areas in a sustainable manner.

Current situation

The above mentioned policies in combination with the Socio-economic development Strategy 2001-2010 have contributed to a reduction of the national poverty rate from 58.1% in 1993 to 10.7% in 2010 (GSO, 2011), and an increase in the percentage of rural population having access to clean water to 80% in 2010 (Ministry of Agriculture and Rural Development, 2011), helping Viet Nam become one of the first countries to achieve the Millennium Development Goals on poverty reduction and contributing to the remarkable improvement in the living standards of different classes of the population.

Over the past decades, by realizing policies on agriculture and rural area development, Vietnam's

⁷ These programs include: i) National Target Program (NTP) for poverty reduction during 2006-2010; ii) Program for socio-economic development program of communes facing extreme hardship in ethnic minority and mountainous areas (Program 135) phase 1 (1997-2006) and Phase 2 (2006-2010); iii) Program on Rapid and Sustainable Poverty Reduction of 61 poor districts (Program 30a).

⁸ National Strategy on Rural Clean Water Supply and Sanitation up to 2020 was approved by the Prime Minister on 25 August 2000, under Decision No. 104/2000/QĐ-TTg.

⁹ National Target Program for Rural Water Supply and Sanitation 2006-2010 was approved by Prime Minister on 11/12/2006 under Decision No. 277/2006/QĐ-TTg.

¹⁰ The Program is implemented under Resolution No. 26-NQ/TW dated 05 August 2008 on Agriculture, Rural Areas, Farmers, with the following key contents and solutions: (1) Development of a comprehensive and more modern agriculture, and at the same time boost the development of industries and services in rural areas; (2) Development of socio-economic infrastructure linked to urban development; (3) Enhancement of the material and spiritual well-being of rural population, especially in disadvantaged areas; (4) Reform and development of different forms of organisation for efficient production and services in rural areas; (5) Rapid development of research, transfer and application of science, technology, human resource training, creating a breakthrough for rural modernization and industrialization; (6) Strong reform of mechanism and policies for extensive mobilization of resources, rapidly developing rural economy, enhancing material and spiritual lives of farmers; (7) Strengthening the leadership of the Communist Party, management of the State and promoting the strength of socio-economic and political unions/associations in rural areas, especially the Farmers' Union.

¹¹ National Target Program for new rural area 2010-2020 was issued under Decision No. 800/QĐ-TTg dated 4/6/2010 of Prime Minister with the overall objective of developing new rural areas with socio-economic infrastructure which is modernized on a step-by-step basis and appropriate economic structure and production forms, linking agriculture with rapid industry and service development; linking rural development with urban development under planning; and ensuring that rural society is characterized by democracy, stability, and richness in national cultural identities; ensuring the ecological environment is preserved; ensuring that security and social order are well maintained and that people's material and spiritual well-being are enhanced further and further; and ensuring alignment with a socialist orientation.

agriculture has developed at quite a high and stable speed towards commodity production, especially food production to ensure national food security. The systems of transportation, power supply, social infrastructure in rural areas have seen rapid quantitative growth. The material and spiritual well-being of the rural population has been dramatically improved.

The implementation of the Government's Plan for Rural Development is on track, serving as the fulcrum for rural socio-economic development, narrowing gaps in economic, cultural and social development levels, between urban and rural areas.

Good sustainable development practices in poverty reduction and rural development

Programme for socio-economic development of communes facing extreme hardship in ethnic minority and mountainous areas

Background

Viet Nam has committed itself to the implementation of the Millennium Development Goals on poverty reduction and the country's fulfillment of these goals before the deadline of 2015 is highly recognised by the international community. This achievement has been thanks to the socio-economic development process in line with the country's poverty reduction efforts in recent years, in which the National Target Program on poverty reduction (NTP-PR) during 2006-2010 and Programme for socio-economic development of communes facing extreme hardship in ethnic minority and mountainous areas (also known as Program 135) Phase II (Program 135-II) were the two main pillars in the poverty reduction cause of the Vietnamese Government during the 2006-2010 period.

Summary of the case

Program 135 is one of the most important poverty reduction programs. Its implementation is steered by the Government and divided into two phases: Phase I from 1998-2005 and Phase II from 2006-2010. Phase

II had some differences from phase I: (i) Donors' funding accounted for about 30% of the total budget for Program 135-II; (ii) Phase II focused more on regional targets where ethnic minorities are in the majority; (iii) Program 135-II had a wider coverage, including components on improvement of livelihoods through support of agricultural production.

The overall objectives of the Program 135- II included: (i) Creating rapid improvement in production; (ii) Speeding up the structural transformation of agricultural economy towards market-driven production; (iii) Improving material and spiritual well-being of the people; (iv) Reducing the development gaps between ethnic groups and regions, nationwide; (v) By 2010, there would no longer be hungry households and the rate of poor households to be reduced below 30% in the target locations.

The target beneficiaries of the Program 135 phase II were people in communes facing extreme hardship in ethnic minority and mountainous areas, namely 1,848 communes facing extreme hardship and 3,274 villages facing extreme hardship among the communes of zone II¹², in 51 provinces and cities nationwide.

The main contents of the program included: (i) Production support and economic structure transformation, improving the production level of the ethnic minorities groups; Training of village agricultural extension officials; Agro-forestry-fishery extension; Development of efficient production models, and of preservation and processing industries; Production Development: forest economy, high-yield crops, husbandry with high-value poultry and cattle; (ii) Development of essential infrastructure in communes and villages facing extreme hardship: Construction of civil use roads from villages to commune centers of appropriate characteristics depending on resource availability, with public disclosure of the Government's subsidy norms; Construction and solidification/reinforcement of irrigation works (dams, canals of grades 1-2, pumping stations) to provide irrigation services for agriculture production and combining with domestic water supply; Establishment of low-voltage power systems to reach villages which were yet to be

¹² Communes of zone II are communes having less than 1/3 hamlets of special difficulties, having poor households accounting for from 30% to less than 55%, having limited social and production elements, and being adjacent to or belonging to the developed cities, town, townships, industrial zones, districts centers, borders, and communes having favorable socio-economic and natural conditions for developing production and lives.

connected to the national grid, and develop alternative sources of energy if possible; Construction of water supply facilities for community; Construction of village community houses (in line with local people's customs) in places with urgent needs; (iii) Training for grassroots officials in knowledge and skills for society management and capacity-building for the community; Vocational training for young people aged 16 - 25 working in plantations, farms, construction sites and those to be send overseas to work; iv) Support for improving services, enhancing education quality, and ensuring sanitation with an aim of minimizing environmental impacts on peoples' health; Provision of access to health services, insurance and community healthcare.

Program 135-II consists of four projects: (i) Project on Production and business development; (ii) Infrastructure development project; (iii) Capacity building project; and (iv) Livelihood improvement Policies.

So far Program 135 phase II has provided VND 14,000 billion as support to localities. Under the Program, 4,125 agro-forestry development models have been developed; over 42,000 machines for production/processing procured; and over 12,000 programs on capacity building for grassroots official implemented. The Committee for Ethnic Minorities has provided training to 3,500 participants who are officials involved in the management of Program 135 from provincial to district levels. On average, each

locality has provided training on administrative management and economic and project management to 178 officials at commune and village levels. Also 1,500 legal assistance clubs have been established for communes of Program 135 phase II.

Central agencies have provided training to 3,500 participants who are officials of provincial and district levels involved in the management and implementation of Program 135. With the training, 90% of the communes have assumed the roles of project owners.

The program has provided agro-forestry-fishery production support to 2.2 million households by providing seeds and seedlings of food crops, industrial crops, and fruit trees; livestock, cattle and poultry for breeding; chemical fertilizer, pesticide and production machines and equipment. Over 0.9 million participants who are farmers have attended training courses for enhancing knowledge of agro-forestry production.

A 5-year review of program implementation shows that the poverty rate in communes and villages facing extreme hardship went down from 47% (2006) to 28.8% (2010). Average income has reached VND 4.2 million/person/year. An increase is seen in the percentage of communes having roads for motorized vehicles from commune centers to villages, which is 80.7%; 100% of communes have health stations; 100% of people having legal needs can access free support. In addition, the Program has provided 926,326 grants to children and school pupils to attend kindergarten and boarding schools.



Figure 8: Slash-and-burn by upland people

(Source: Viet Nam Newsagency)

Finding ways to a life of comfort for the people of Sin Chai commune, Tua Chua district, Dien Bien province

Sin Chai commune in Tua Chua District, Dien Bien province is known as the most disadvantaged commune of Tua Chua district, with a population of over 4,500, with 100% being Hmong, living in 12 villages and villages. To make their living, they mainly rely on key crops such as corn (550ha), upland rice (240ha) and field rice (89.3ha). However a fairly large area of farming land has been lost owing to the submergence of the Da Riverbed. Therefore, Sin Chai became a commune being supported by Program 135 phase II of the GoVN.

With the aim of poverty reduction and hunger elimination, gradually improving the people's living standard, many integrated solutions have been implemented in order to stabilize production, develop livelihoods, and to maintain local and traditional cultures. In terms of agricultural production, people have been provided with food seeds of high-yield varieties, such as corn LVN10, rice varieties IR64, soybean DT84 in order to increase yield, so addressing hunger in the commune. The people have also been working to their local strengths by expanding the low-level cultivation areas with Snow Shan Tea plants and effectively exploiting higher levels with ancient Snow Shan Tea plants. With only 62ha of high tea plants cultivated in 2001 and 2,298 ancient tea plants, a tea processing workshop was constructed in the commune center with support from JICA (Japan).

Together with new plant varieties and Sin Chai's advantages in animal husbandry Chai was also "uplifted" through efforts to maintain a cattle herd of over 700 buffaloes, nearly 200 cows/bulls, 150 horses, 500 goats and 3000 pigs. Therefore, more importance has been

attached to disease prevention and periodic vaccinations have been administered to the cattle herd, thanks to which the commune has achieved high and stable growth in animal husbandry at the rate of 8% per year.

The traditional crafts of Dao people such as forging of knives, hoes, ploughshares, and embroidery and textile production have also been maintained. In addition, the traditional markets of upland areas held in Tả Sin Thàng have been maintained, fostering the exchange/trading of goods of peoples of the ethnic minorities in five northern mountainous communes of Tua Chua, contributing to stronger cultural exchanges between ethnic minority groups in the region.

In short, Sin Chai can be considered a typical area of a particularly disadvantaged region in terms of poverty reduction, with 100% of the population being ethnic minority people with poor infrastructure: no power, no roads, no schools, no health centers/clinics. Thanks to integrated solutions, from support to agricultural production techniques and science, enhancing awareness to maintain local cultures, Program 135 phase II has step by step resolved difficulties of the commune, thereby improving and upgrading the infrastructure and subsequently the overall quality of life.

Though it is a very disadvantaged province, the most disadvantaged and remote area of the district, with State support, strong involvement of the local governments and the Sin Chai people making their own efforts, to develop the economy to improve their quality of life, this can be seen as an exemplary model for other localities nationwide to learn from.

(Source: Committee for Ethnic Minorities, 2010)

Uniqueness and distinctiveness

The program was organized and implemented nationwide with the objective of reducing poverty. Targeting specially disadvantaged areas and the most vulnerable groups of people in mountainous and ethnic minority groups, the program was designed for a twelve-year period (1998-2010, with 2 phases) allowing adequate time for assessment of practices at each locality and proposing and implementing suitable solutions. Basically the program has achieved the set objectives, significantly contributing to the achievement of the sustainable development and millennium development goals of Viet Nam. This type of organization has helped avoid the shortcomings of short-term and isolated projects, which are less effective and unsustainable.



Figure 9: Clean water supply in upland areas

(Source: Viet Nam News Agency)

Lessons learned

The poverty reduction cause of Viet Nam in the past years has recorded remarkable achievements thanks to socio-economic development in combination with poverty reduction. The implementation of NTP-PR and Program 135 in the past several years has shown the efforts and commitment of the Government of Viet Nam in poverty reduction, in order to achieve sustainable development and millennium development goals.

Though Viet Nam has become a middle income country, the continued maintenance of poverty reduction achievements in the current context will have to face new and more complex difficulties and challenges. The reason

is that poverty is no longer a widespread phenomenon, but is not eradicated in ethnic minority areas, predominantly in the mountainous and remote areas, which makes identification of poor households more difficult. Many of the households recently rising above the poverty line could easily return below it, if they face any socio-economic “shock”, especially when Viet Nam participates in the global market, or they are faced with increasingly common environmental, or natural disasters, as a result of global warming. Therefore, poverty reduction efforts still have to be continuously integrated in the socio-economic development of the country, as well as of each locality.

Viet Nam’s eco-village – model for rural socio-economic development in harmony with nature

Background

The process of socio-economic development in Viet Nam in the recent past has contributed to the prosperity of the country, but also caused fundamental resources such as land, water, and ecosystems to be used to the maximum for development purposes, resulting in a decline in resources, disruption to the ecological balance, and increased environmental pollution. Therefore, in order to resolve the above-mentioned problems, it is necessary to harmonize socio-economic development and environmental protection in alignment with the principle of sustainable development. The large rural area represents 75% of the country’s territory, with over 70% of the population in those areas participating in various economic sectors, and a high population growth rate. Therefore issues related to environment and resources have been getting more and more acute. As such, the development of eco-villages is an orientation to achieve sustainable development for rural areas. An Eco-village, or economic eco-village, is a model for socio-economic development in close linkage with environmental protection and conservation of ecosystems and the natural landscape. Viet Nam has recognized 16 eco-villages in 3 sensitive ecosystems,

namely bare hill, sand dunes, and submerged areas in 14 provinces/cities in the North and Northern Central¹³ of Viet Nam since 1990.

Summary of the case

An Eco-village is an ecosystem where residents of a certain community live, producing necessary products to meet the demands of the community without breaking the ecological balance, with human beings playing the central role in reconciling the relationships in order to ensure optimal use of available resources, in order to achieve stable and sustainable balance from both natural and social perspectives.

Experience in Viet Nam has shown that the development of eco-villages will go through 3 steps:

1) Preparation of the project, which involves: Selection of a site to build the eco-village; Assessment of the fundamental natural, social, and economic conditions; Identification of elements for the eco-village; Establishment of the local coordination team.

2) Implementation of the project, including: Land use planning and designing a model of households’ eco-gardens; Direct training on techniques to develop eco-villages for households (such as hillside farming techniques, techniques for planting and upkeep of fruit trees and food crops); Construction of the eco-village in accordance with the set project progress and

¹³ The development of Eco-villages in Viet Nam is normally associated with the Institute of Eco-Economy founded by Prof. Nguyen Van Truong.

identified elements (such as hillside protection system, planting and tendering of fruit trees and food crops, construction of infrastructure; wells, water tanks, and development of pumping systems for water); and raising awareness of and training of human resources

for production development, environmental protection and conservation of local/ indigenous culture.

3) Project review, including assessment of project results in terms of the sustainable development of the eco-village.

“Dao ethnic eco-village in Ba Vi”

For generations, people living in the core zone in Ba Vi National Park used to rely on the forest resources for their living. Seeing the need to protect the core zone of Ba Vi National Park and of conserving the park's biodiversity, the Ministry of Agriculture and Rural Development (formerly Ministry of Forestry) issued a policy to move households in the core zone to the lower hill areas which were not covered by forest vegetation and the soil was seriously eroded; consequently, people's lives and livelihoods faced great difficulty. Having no knowledge of farming on the new land, people continued to live on the forest resources. In order to help Dao people to settle down and develop their production, the Institute of Eco-Economy, founded by Prof. Nguyen Van Truong, established “Dao ethnic eco-village in Ba Vi”, one of various eco-villages established within a period of 5 years, from 1993 to 1998.

Being a village in Hop Nhat commune, Ba Vi district, Ha Tay province (now Hanoi), So village had 90 households, most of whom are Dao ethnic minority people. In order to help So people to have stable lives, the Institute of Eco-Economy sent experts with good experience in hillside farming techniques to organize training courses for local people to use mountainous and hilly land in agro-forestry production, planting food crops to cater for human needs and animal and poultry breeding. After training courses, the Institute assigned a very experienced engineer to stay at the eco-village to guide the actual implementation on each assigned land plot. 25 households participated in initial implementation; divided into 5 groups, each with a leader, to help each other to rehabilitate their fields, create terraced fields, and plant hedges of protective trees. Later, these farming experiences and techniques were disseminated to the whole village of 90 households, all with eco-fields of terraced fields and protective trees, with total development area of 325,000m². At the same time, the Institute provided financial support for the rehabilitation of fields, and provided people with seedlings of fruit trees and food crop. The Institute also provided financing for the construction of a well for each household, pond digging for aquaculture production, for construction of animal and poultry breeding facilities, and guided people on the use of inorganic and organic fertilizer.

With the model of terraced fields, the crop structure has changed remarkably. Inter-cropping has brought about stable and timely income for people. On top of the hills, people normally plant acacia mangium, dracontomelum, and canarium trees for protection, and use the twigs for firewood. With the model of integrated breeding facilities, each household produces about 100kg of pork per year. Each family has about 30 to 50 big and small chickens to improve the family's meals. On average, each family has 1.5 buffalos for use in farming. Pig and buffalo manure is used as fertilizer. Some families in low land areas have dug ponds for fish farming. Fish can be used for daily food or sold for income.

It can be said that the model of the Dao ethnic eco-village in Hop Nhat commune, Ba Vi district is an exemplary model for re-greening bare hills. Before this production model, the poverty rate of this area was 68%, with only 5 children in the whole commune graduating from secondary school. Since the model was developed, the poverty rate has been reduced to only 6% (some households make tens of million Vietnamese dong/year) and there are over 500 pupils in secondary school. The project implemented by the Institute of Eco-Economy not only helped establish the commune health station, but also provided financial assistance for training of teachers and community health workers, and for the construction of meeting and community halls in accordance with Dao people's tradition. The material and spiritual well-being of the people has been improved thanks to the loudspeaker system used for disseminating instructions on production. 24 households in the village have radios and some have television sets, and other appliances. Some households have small hydro-electricity generators. Cultural life in the village has been enhanced, with superstitions and outdated practices being gradually eliminated.

Dao ethnic eco-village in Ba Vi is a good model for eco-regions with sloping terrain in Viet Nam. With the objective of achieving socio-economic development in line with environmental improvement and mountainous ecosystem rehabilitation, the project has helped Dao ethnic people have more stable lives, contributing to sustainable socio-economic development and environmental protection.

(Source: Ministry of Planning and Investment, 2006)

Normally, eco-regions characterized by unsustainability are selected to develop the ecosystem economic model in order to support local people through provision of farming techniques to stabilize the ecological balance and through restructuring to promote production, as well as the importance attached to human ecology contributing to comprehensive improvements in people's lives. The eco-villages selected for the pilot are those in flood-prone areas, one in coastal fallow sandy land and one in the bare hills. The three successful models in all 3 eco-villages are in Phu Dien commune (Nam Sach district, Hải Dương province); Hai Thuy commune (Le Thuy district, Quang Binh province) and So village, Hop Nhat commune (Ba Vi district, Ha Tay province).

Uniqueness and distinctiveness

The approach of sustainable rural development at a village scale, associated with the model of Forest-Garden-Pond-Animal Pen is very well-suited to rural conditions in Viet Nam.

Eco-village is a model for economic development in harmony with natural resources and the environment linked with conservation of indigenous culture and tradition. The development of eco-villages is also the development of a model for rural economic development aligned with poverty reduction.

Lessons learned

Many of the natural, social, economic, and cultural characteristics of eco-villages are typical for rural areas in Viet Nam, both in mountainous and delta regions. The problems with these villages used to be the decline or irrational use of natural resources and the life of local people was hard. The development of eco-villages means finding a method of using natural resources efficiently, and most importantly it involves the development of agro-forestry along with traditional cultural conditions and indigenous knowledge of each area, with a view to improving people's life. This is why eco-villages can be replicated in various regions nationwide.

However, in order for these good practices to go further, there should be targeted technical, human resource, and financial support, which can be incorporated within the Tam Nong Program (Program on Agriculture-Rural-Farmer Development) and Program on New Rural Development.

Development of organic farming – a way for sustainable rural development

Background

Over the past few decades, Viet Nam's agriculture has seen good progress and gained significant achievements in terms of productivity, output, types of product, scale of production and has produced a huge quantity of products for both domestic consumption and export. However, Viet Nam's agriculture is now facing significant challenges from causes such as environmental pollution, soil deterioration, and outbreak of pests and diseases as a consequence of the destruction of the ecosystem and excessive use of chemicals and plant protection agents. In order to overcome all the above issues, the Government of Viet Nam has issued guidelines and policies to gradually turn Viet Nam's agriculture into safe and organic agriculture.

Summary of the case

Moving towards clean agriculture and helping farmers become knowledgeable in production of clean/safe products are the Government's objectives. Recently, the Central Viet Nam Farmers' Union has been working with Agricultural Development Denmark - Asia to implement the project on "Developing a framework for production and marketing of organic agriculture in Viet Nam" during the 2005 – 2010 period. This project aimed to improve organic agriculture in all areas from production to consumption in a sustainable manner. The project was implemented in 6 Northern provinces, Bac Ninh, Bac Giang, Hai Phong, Vinh Phuc, Tuyen Quang, and Lao Cai, and was undertaken with the participation of non-governmental organizations and the private sector.

The Project's activities include: i) Examining local difficulties and advantages, and socio-economic conditions in transitioning to organic farming; ii) Organizing training courses for farmers from various provinces on organic production of rice (Lao Cai province), litchi (Bac Giang province), vegetables (Tuyen Quang, Vinh Phuc, and Bac Ninh province); iii) Implementing some market related initiatives to improve the awareness of consumers about organic food and implementing the Participatory Guarantee System



Figure 10: Farmers practicing organic farming
(Source: Viet Nam Farmers' Union)



Figure 11: Organic litchi production in Bac Giang
(Source: Viet Nam Economics News, 2010)

Organic farming – model on clean agriculture in Bac Giang

Organic farming is a natural cultivation and livestock breeding system, not using chemical fertilizer and pesticides, helping to reduce pollution, and protecting human and animal health. With the objective of moving towards clean agriculture and ensuring phyto-sanitary standards, the Organic Farming project led by the Central Viet Nam Farmers' Union in collaboration with the provincial Department of Agriculture and Rural Development and Agricultural Development Denmark -Asia (ADDA), was implemented in Thanh Hai commune, Luc Ngan district - Bac Giang province, gradually changing awareness of both producers and consumers in production, and consumption of clean agricultural products, as a move towards a sustainable agriculture.

Since the Project started in 2006, 20 farming households in Thanh Hai commune participating in the project have attended training courses and applied organic farming process for Thieu litchi (Vai Thieu) on an area of 10 ha. These farming households have strictly applied the farming techniques and processes taught, such as: producing fertilizer (compost) on site; raising beneficial insects and maintaining biodiversity; only using bio-pesticides to control pestilent insects and weeds; and designing the orchard by pruning, creating canopy, adopting rotational cropping system and intercropping with other short-term crops.

At present, this model has been maintained, replicated, and demonstrated to have brought about benefits. More and more local farming households wish to apply this model thanks to its benefits such as higher quality fruits, higher price and better sales volume, more fertile soil and environmental protection. Another remarkable feature of organic farming is the implementation of the Participatory Guarantee System; under this system, if the agricultural product buyers are still doubtful about the advantages and benefits of organic farming, they can join the project and apply the production process themselves as well as

monitoring the quality of their own products.

In order to scale up the project and promote the “farmer to farmer” training approach, the Central Project Management Unit selected 6 farmers with good experience in agricultural production, high sense of responsibility, willingness to learn and to pioneer in adoption of organic farming, and ability to communicate and organize training courses, to take a part in the TOT “Training of Trainer” segment, over a period of 5 months.

According to the Project Management Unit, however, the model can only be successful if the following 5 principles are adhered to: conserving farm ecosystems in production areas, making the agricultural ecosystem more diverse, using mechanical measures in combination with natural cycles, preventing pollution from outside, and ensuring self-sufficiency in the supply of production materials. After 5 years of implementation, the project has set up an organic farming system for litchi and vegetable in 4 communes, namely Hong Giang, Thanh Hai in Luc Ngan district, Tien Luc and Tan Thanh in Lang Giang district; develop credible suppliers for consumers of organic products, i.e. the group producing organic litchi in Hong Giang and Thanh Hai communes (Luc Ngan district) and the group producing organic vegetables in Than Thanh, Tien Lac communes (Lang Giang province).

With organic farming, the products have created confidence among groceries, companies, and consumers in their quality. At the same time, the project has increased awareness and knowledge about organic farming for farmers participating in the project in particular, and farmers in the whole province in general, helping them to switch from conventional farming with heavy use of fertilizer to organic farming, and establishing groups of farmers who know how to link production with market, with enterprises and consumers of organic products.

(Source: Viet Nam Farmers Union, 2010)

and organic vegetable value chain in order to link the producing farmers with product purchasing companies and supermarkets.

After 5 years of implementation, the Project has achieved certain results: (i) Over 3,000 farmers have been trained in organic farming and have produced organic products; (ii) Demand for organic products in the domestic market has increased; (iii) The organic farming systems for seasonal crops and perennial crops, and for aqua-culture have been developed for some provinces in the North of Viet Nam; (iv) Farmers and organized collaborative production groups have extended organic farming to some fruit trees and vegetable; (v) A Participatory Guarantee System system for organic products has been developed in the domestic market; (vi) Awareness of the government agencies and non-governmental organizations of necessary conditions for the development of organic farming has been increased.

Uniqueness and distinctiveness

The project has improved the environmental awareness and organic farming techniques for local traditional products, linking production with markets as a complete chain, contributing to setting directions for an environmentally-friendly farming method.

Lessons learned

The success and lesson learnt from the Project is to encourage farming households to adopt organic farming techniques to produce safe and high-quality products, and at the same time contributing to the rehabilitation of deteriorated land. Moreover, this was one of the few projects with a comprehensive implementation from production to marketing of organic products in linkage with efforts to improve the awareness of producers and consumers in some Northern provinces.

A major difficulty of this project was increasing production costs, resulting in higher product prices while awareness of the society about this type of products remained limited. Moreover, creating a stable market for organic products was also a great challenge.

Conclusion

Three good sustainable development practices on poverty reduction and rural development include (i) Program for socio-economic development of communes facing extreme hardship in ethnic minority and mountainous areas; (ii) Viet Nam's eco-village and (iii) Development of organic farming. These are some of the many practical examples of poverty reduction and rural development in provinces nationwide.

In the field of poverty reduction, Viet Nam has gained important achievements thanks to the implementation of a great number of large-scale national programs over long periods, with comprehensive activities, from awareness raising, training, rural socio-economic infrastructure improvement, to agro-forestry development and environmental sanitation for poor and ethnic people. The programs and projects have been successful in mobilizing the participation of local governments, social organizations, and scientists, thus creating consensus. These are also good experiences for wide application in similar conditions.

With diverse situations, various models and initiatives have been developed and implemented by people all over the country and have positively contributed to poverty reduction and rural development.



Figure 12: Upland people harvest corn

(Source: Viet Nam News Agency, 2009)

CONSERVATION AND DEVELOPMENT

Policies and current situation

Policies

A great number of important policies have been promulgated to guide implementation by the Government of Viet Nam, to provide orientations for environmental protection, biodiversity conservation in combination with socio-economic development¹⁴ and various other primary and secondary legislation¹⁵.

Many relevant strategies have been developed, including the National Environmental Protection Strategy up to 2010 with a vision to 2020 (2003); Viet Nam Forestry Development Strategy up to 2010 2006-2020 (2007); Strategy for the Management of Viet Nam's Nature Reserves up to 2010 (2003); Biodiversity Action Plan (1995).

A legal system related to conservation and development has been developed and promulgated in Viet Nam, of which the most important one was the Law on Environmental Protection (promulgated in 1993, amended in 2005); Law on Water Resources (promulgated in 1999); Law on Biodiversity (promulgated in 2009), Law on Forest Protection and Development (promulgated in 1991, amended in 2005); Law on Sea (in draft in 2012).

Current situation

A number of national target programs have been carried out in order to link natural resource conservation and environmental protection with socio-economic development, and they have brought about great benefits¹⁶.

Thanks to the efforts of the Government and Vietnamese people, conservation initiatives have achieved good initial results, including: (i) Increase of forest coverage; (ii) Development of reserves (national parks, nature reserves); (iii) Development of biosphere reserves; (iv) Development of marine reserves.

Network of reserves, national parks (special use forests)

A system of nature reserves, under the common name of special use forests, have been developed, and categorized into three groups: national parks, nature reserves and protected landscape. The purpose of developing these nature reserves is to protect forests and wild animals and plants. To date, Viet Nam's terrestrial reserves include 164 sites with total area of 2,198,744 ha, equivalent to 7.6 % of natural land area.

Biosphere reserves

A nature reserve is recognized by UNESCO as a biosphere reserve if it has unique and diverse flora and

¹⁴ Directive of the Politburo on the strengthening of environmental protection during the industrialization and modernization phase of the country (1998) and Resolution of Politburo on environmental protection during the industrialization and modernization phase of the country (2004).

¹⁵ Decree guiding the implementation of the Law on Environmental Protection (1994), amended (2004); Decree on administrative fine in the field of environment (1996, later replaced by a new Decree in 2004); Decree on the conservation and sustainable development of submerged areas (2003); Decree on environmental protection fees for wastewater (2003); Decree on the management, export, import, and transit of wild animals and plants (2002); Decision of Prime Minister approving the National plan on environmental pollution control until 2010 (2005)

¹⁶ Including Program 327 (1993-1997) with objectives including reforestation of bare hills and mountains, exploiting coastal alluvial ground, development of aquaculture, using approaches such as forest planting, protection, rehabilitation; Decision 556 (1995) on protective forest and special use forest (from 1995); Five Million Hectares Reforestation Program 661 (1998-2010): The objective is to promote the speed of forest planting and reforestation of barren hills and mountains, protecting of existing and planting of new forest, increasing the forest coverage to 43% in 2010; Decree 02 (1994), Decree 196 (1999) on forest land rental and allocation, with the purpose of effective use of forest land by organizations, households, individuals, and community, ensuring each land plot or forest plot has a specific manager.

fauna with 7 important criteria associating conservation and sustainable development¹⁷.

Biosphere reserves are organized into 3 interrelated zones with biodiversity conservation functions in the core area, the functions of economic development, proper natural resource exploitation, eco-tourism development, research, education and training in the buffer zone to reduce pressure on the core area, and the function of economic development in the transition area. During the period from 2000 to the present, 8 Viet Nam's international biosphere reserves have been recognized by United Nations Educational, Scientific, and Cultural Organization (UNESCO)¹⁸.

Network of marine reserves

A planned network of Vietnamese marine reserves up to 2020 has been approved by the Government¹⁹ in order to conserve the ecosystems and marine creatures of significant economic and scientific value, contributing to the development of the ocean economy and improving the livelihoods of coastal fishing communities.

Specifically, the objectives for the period 2010 - 2015 are to establish and bring into use 16 marine reserves²⁰; at least 0.24% of Vietnamese sea area is to become marine reserves and about 30% of the area of each marine reserve is to be strictly protected. The objectives for period 2016 - 2020 are to research and propose a plan for the development of the marine reserve network; to survey, establish, and bring into use further new marine reserves.

Good sustainable development practices in relation to conservation and development.

Cat Ba archipelago biosphere reserve – learning laboratory for sustainable development

Background

Despite Viet Nam's high level of biological diversity, the population living in the proximity of natural reserves primarily includes poor people whose livelihoods depend mainly on forest resources. Therefore the question is how to both conserve biodiversity and enhance local people's living standard.

Cat Ba archipelago biosphere reserve was established primarily for the purpose of sustainable development as outlined above, or in other words to ensure the harmonization of biodiversity conservation and local socio-economic development. Cat Ba archipelago biosphere was recognized by UNESCO on December 2nd, 2004, with a total area of 26,241 hectares and its highlights of Cat Ba National Park and Langur Conservation Area.

Summary of the case

As a territory which includes the Cat Ba archipelago in Cat Hai District of Hai Phong city, Cat Ba archipelago biosphere reserve covers about 17,041 hectares of terrestrial area and 9,100 hectares of marine area, including 11,814 hectares of concentrated forest with a high level of biodiversity and various specific

¹⁷ The seven criteria for designation as a biosphere reserve: 1) The nominated area should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human intervention; 2) It should be of significance for biological diversity conservation; 3) It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale; 4) It should be of an appropriate size to serve the three functions of biosphere reserves; 5) It should have sufficient number of appropriate zones; 6) Organizational arrangements should be provided for the involvement and participation of a suitable range of, inter alia, public authorities, local communities and private interests, in the design and the carrying out of the functions of a biosphere reserve; 7) Mechanisms for management and implementation must be accepted by UNESCO.

¹⁸ The 8 Biosphere reserves are: i) Can Gio (2000); ii) Cat Tien (2001), now Dong Nai (2011); iii) Cat Ba Islands (2004); iv) Red River Delta (2004); v) Kien Giang (2005); vi) Western Nghe An (2007); vii) Cu Lao Cham (2009); viii) Ca Mau (2009).

¹⁹ The network of sea reserves were approved by Decision No. 742/QĐ-TTg, signed by the Prime Minister on May 26th, 2010.

²⁰ Sixteen sea reserves include: 1) Dao Tran; 2) Co To; 3) Bach Long Vi; 4) Cat Ba; 5) Hon Me; 6) Con Co; 7) Hai Van - Son Tra; 8) Cu Lao Cham; 9) Ly Son; 10) Nam Yet; 11) Vinh Nha Trang; 12) Nui Chua; 13) Phu Quy; 14) Hon Cau; 15) Con Dao; and 16) Phu Quoc.



Figure 13: Map of Cat Ba archipelago biosphere reserve.
(Source: Management Board of Cat Ba Archipelago biosphere reserve)



Figure 14: The harmony of development and conservation in Cat Ba archipelago biosphere reserve landscape design.
(Source: Management Board of Cat Ba Archipelago biosphere reserve)

ecosystems. Cat Ba biosphere reserve is also home to many species, especially Cat Ba Langurs (*Trachypithecus poliocephalus*) - the most endangered endemic primates in the world. Cat Ba archipelago is associated with a thousand-year civilization and is typical of Vietnam's North sea and islands, where the first ancient Vietnamese people traced the coastlines to search for a livelihood and gradually gathered together after numerous natural events and historical upheavals to form the foundation for Cat Ba communities today. Cat Ba archipelago is also archeologically and historically diverse, with 77 detected archeological sites currently under investigation.

From a management perspective, the Cat Ba archipelago biosphere reserve is divided into three functional zones: core zone (8,500 hectares), buffer zone (7,741 hectares) and transition zones (10,000 hectares). The core zone of Cat Ba national park is currently under the direct management of Hai Phong City People's Committee, while the buffer and transition zone are directly managed by Cat Hai District People's Committee with an aim of providing assistance for the preservation, management and protection of specifically-used forests and socio-economic development. The key function of Cat Ba archipelago biosphere reserve is to conserve natural and human values, boost socio-economic and human development; and provide support to research and training.

The local government plays a crucial role in guiding, coordinating and maintaining the activities of relevant agencies and sectors in local biodiversity conservation and socio-economic development. The Management Board of Cat Ba archipelago biosphere reserve currently works in conformance with the regulations promulgated by Hai Phong City People's Committee.

The Management Board has developed Cat Ba archipelago into a sustainable development learning laboratory with the following objectives: (i) Making Cat Ba archipelago biosphere reserve a successful model of biodiversity conservation and poverty reduction; (ii) Disseminating and raising awareness on biodiversity within the context of the international Convention on Biological Diversity; (iii) Establishing mechanisms to cooperate with other biosphere reserves across the country and in the region for information-sharing and exchange; (iv) Identifying necessary research and capacity-building in relation to information provision and support to mitigate biodiversity losses; (v) Contributing to poverty reduction and sustainable development; and (vi) Evaluating the relationship between the biosphere reserves and urban areas, and enhancing the quality of eco-services for development.

Activities in line with sustainable development principles include: (i) Promoting tourism with the participation of local community; (ii) Developing eco-

friendly commercial products and (iii) Establishing Cat Ba biosphere reserve's sustainable development fund.

Tourism activities in Cat Ba archipelago biosphere reserve have attracted the participation of local communities, including enterprises, restaurants and hotels, providers of farm produce, and the local government. These activities are designed to provide the best social, economic and environmental benefits, including (i) Resort and recreational centres, sports and outing activities in buffer zones, and eco-tourism in the national park; (ii) Tourism combined with thematic scientific research on natural resources; (iii) Adventure tourism, mountain climbing and kayaking; (iv) Photography and filming services; and (v) Aquaculture farming knowledge exchange.

Commercial products and services of Cat Ba biosphere reserve will have the Cat Ba langur logo. This 'green' logo will contribute both to enhance the conservation value of Cat Ba biosphere reserve and to make local products and services more socially and environmentally friendly. A number of agricultural products²¹ have been given the Cat Ba biosphere reserve 'brand', while some service providers and tourist areas have carried Cat Ba archipelago biosphere reserve's logo.

In order to promote relevant activities to move towards sustainable development, Cat Ba biosphere

reserve fund has been established with the contribution of 12 enterprises. This fund is currently managed by Cat Ba biosphere reserve Management Board, and coordinated by one vice chairperson of the provincial people's committee and the biosphere reserve director. This fund was established under the decision of Hai Phong City People's Committee with a view to mobilizing financial resources for the operation, conservation and sustainable development of Cat Ba archipelago biosphere reserve.

Uniqueness and distinctiveness

For the first time in the Asia – Pacific region, Cat Ba archipelago biosphere reserve has been considered as a 'Learning Laboratory' for sustainable development based on systems thinking approach, landscape design, inter-sectoral coordination and economics of quality. The biosphere reserve model not only provides the theoretical basis but also the instruments for the implementation of multi-national Man and Biosphere (MAB) research program, which reflects the basic methodology and approach that humanity is part of the biosphere and an eco-citizen. The reserve can also be used to realize the ideas to harmonize "conserving to grow" and "growing to conserve" according to sustainable development principles.

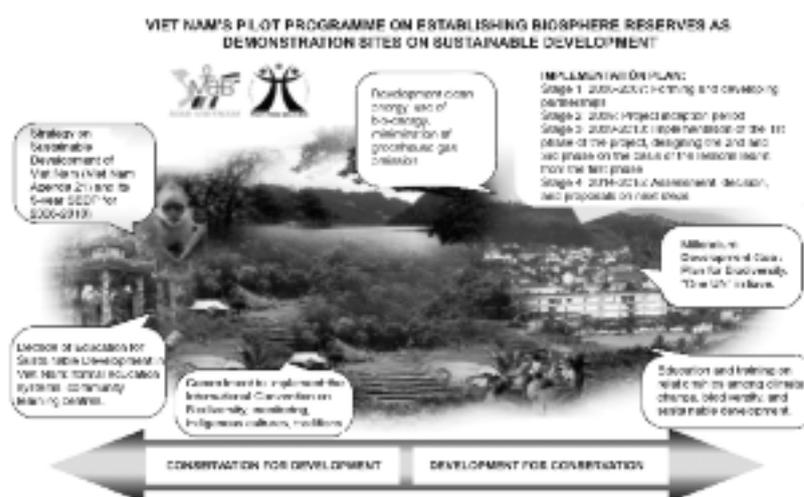


Figure 15: Biosphere reserve – Demonstration model on sustainable development

(Source: Cat Ba archipelago biosphere reserve)

²¹ 1) Local aquaculture products include fish, prawns and the bivalves (Cobia, Geoduck clams, pearl clams, sand crabs); 2. Aqua products for Cat Hai fish sauce production; 3) Forest products (Cat Ba forest flower honey); 4) Clean farm produce (Lien Minh free-range chickens, Cat Ba mountain goats, organic fruit and vegetables growned in Xuan Dam, Khe Sau and Viet Hai).

Lessons learned

Cat Ba archipelago biosphere reserve is a specific area for the application of sustainable development principles. The intention is that conservation of the core area (Cat Ba national park) will create favourable conditions for economic development, in particular for eco-tourism and cultural tourism. In return, economic activities in the buffer zone and the transition zone will contribute to increase living standards, quality of life, and sense of responsibility while at the same time creating additional revenues from environmental charges and taxes for effective conservation.

As one of the eight world biosphere reserves in Viet Nam, Cat Ba archipelago biosphere reserve's practical

experiences in relation to diversity conservation in line with sustainable development is a good model that other biosphere reserves can learn from and replicate on a larger scale

However, challenges and difficulties remain due to the community's limited understanding about the relationship between conservation and development, especially among the business community. It is difficult to mobilize resources for the harmonization and coordination of relevant areas, in particular very limited funding is available for sustainable development activities

Livelihood Development for conservation: good case of local communities in Ky Thuong Commune, Ky Anh District, Ha Tinh Province

Background

Ke Go natural reserve (Ha Tinh Province) is located in a 24,800 hectare area with a high level of biological diversity. It is home to a number of endangered, endemic species of pheasants. Ky Thuong Commune, of Ky Anh District – Ha Tinh Province is one of the 8 communes in Ke Go natural reserve, with a population of over 5,000 people, covering the largest part of the natural reserve (14,032 hectares) and is also one of the poorest communes in the province. Hunger and other hardships have forced local people to exploit forest resources and hunt animals to make ends meet. The current challenge is how to enhance local people's living standards while at the same time conserve the natural reserve's biodiversity.

There is no other way to protect biodiversity than to search for appropriate measures to enhance local people's living standard based on rational utilization of natural resources, forest, water and land resources so that they can benefit sustainably from local biodiversity and forest conservation. The government encourages scientists to actively participate in promoting biodiversity conservation in association with economic development in natural reserves and national parks.

Summary of the case

Between 1992 and 2000, Hanoi National University's Centre for Research in Environment

Sciences (CRES), headed by Professor Vo Quy conducted a research on the development of a buffer zone in Ky Thuong Commune, of Ky Anh District – Ha Tinh Province with the financial support of various international organizations. This research aimed to harmonize natural conservation and livelihood enhancement for local people. CRES cooperated with the local government and communities to develop a management plan for the commune and proposed a number of specific actions to help increase living standards and reduce reliance on forest resource exploitation.

These activities, all of which were closely linked to forest protection and Ke Go natural reserve biodiversity conservation, were initiated and implemented by local people in order to address their most pressing concerns. These include: (i) Providing support to develop high-yield rice varieties suitable to the local conditions to address food shortage, thereby reducing deforestation; (ii) Providing technical support for bee-keeping in the entire commune and maintain a bee-keeping club for knowledge sharing, thereby helping to create another stable source of income for local people; (iii) Providing a number of small hydropower generators which utilized hydraulic force from local streams to produce electricity for lighting and charging battery for radios and televisions, thereby improving local people's access to updated socio-economic knowledge which they can use to enrich their social and cultural activities, and raising their awareness of environmental protection.

The local community established a forest protection team who was in charge of preventing illegal forest logging and animal hunting in order to preserve the

benefits from bee-keeping and to ensure sufficient water supply. As such, Ky Dong commune proposed to the Provincial People's Committee to establish an area directly managed by the commune. The proposal was approved and Ky Dong was allocated an area of 10 square kilometers of forests under their direct management. This conservation model was then replicated on a large scale for the development and conservation of Ha Tinh Province's Ke Go natural reserve.

In order to create alternative livelihoods and improve income, local people were given access to advanced farming technologies, including fruit tree nursery, grapefruit and orange tree grafting. Thanks to such support, the fruit tree cultivation model was expanded to the entire commune and various agro-forestry techniques were applied, including forest gardening and tree planting. A small credit fund for the Commune Women's Union was also established in order to provide support for members to raise livestock and grow fruit trees to help increase household income.

Also thanks to Ky Thuong's success in poverty reduction associated with forest protection, it received

financial support from the German Embassy for primary school classroom construction. In addition, environmental education and communication activities undertaken by local pupils also contributed to raise awareness of local communities.

Through various aforementioned activities, Ky Thuong's people developed a good understanding of the benefits that forests have to offer to their daily lives, such as protecting water supply for fish farming, electricity generation, and rice production; and forest wild flowers for bee farming. Consequently they proactively organized forest management activities.

The forest protection team, appointed by local communities, achieved certain successes in their operation. Many household orchards were upgraded and started generating profit. Ky Thuong's buffer zone development project achieved good outcomes. Local people's living standards were improved, and forests protected as the communities were aware that protecting forests was also protecting their personal interest



Figure 16: A farmer and oranges produced with grafting technique

(Source: <http://www.dunghangviet.vn>)

Uniqueness and distinctiveness

The successes in giving support to Ky Thuong communities in forest protection, socio-economic development and livelihood enhancement were attributable to the combination of scientists' knowledge and the active participation of local government and communities as they realized that

these jobs were theirs and not the project's.

The close cooperation between local government, local people and the natural reserve's Management Board, and the respect for people's ideas all helped create a consensus among local communities and encouraged them to actively participate in conservation activities.

Lessons learned

Local people living in the proximity of natural reserves often have to rely on forest resources to make ends meet, such as shifting cultivation, wood logging, and collecting forest products. In order to protect forests and conserve biodiversity, we need first to find alternative livelihoods for the poor. Only when this is done can conservation be effective.

In order to encourage local communities in mountainous areas to take a proactive approach in solving their difficulties, the proposal should include small steps to address the most pressing issues such as food and water supply, health care services, housing and accommodation, and better income. In addition, the sustainability of the project will depend on the successful development of good and applicable models as well as the establishments of methods for equitable profit-sharing among the communities.

During the project implementation phase, the local communities should be consulted and their comments respected, in particular those of project beneficiaries.

Care should be taken to avoid a too rigid top-down approach. Projects on biodiversity conservation and sustainable development in rural areas and conservation area buffer zones should mobilize the direct participation of local government and communities. It is their job to take part in such projects, and by taking an active part they will be able to receive training, thereby raising their awareness and managerial capacity. This is crucial to ensure the sustainability of projects' results.

Another lesson learned is that the provision of support to the poor communities for development and conservation needs to be maintained in a long enough period, approximately 10 – 15 years to make such projects effective.

The conditions of Ky Thuong Commune are typical for other communes in the buffer zone of the conservation area, where local people are still living in hardship. The successful implementation of poverty reduction measures in Ky Thuong Commune will form the basis for application of this approach in other communes of similar conditions.

Payment for environmental services in Viet Nam: from practice to policy

Background

Environmental or ecosystem services are functions of the ecosystem with direct or indirect benefits to human beings and include: (i) Provisioning services (for food, clean water, raw materials, etc. (ii) Regulating services (like upstream area protection, flood mitigation, climate regulation, etc. (iii) Cultural services (that give aesthetic and recreational values, ecotourism, scientific and educational values, etc. And 4) Supporting services (for land composition or land nutrient dispersal). The payment for the environmental services scheme has developed from policies to generate financing for environmental protection and natural resources conservation. Recognising the importance of this issue, the Government has provided incentives for studies to

design a feasible payment for environmental services scheme and has called for international aid in this process.

Since 2002, the International Fund for Agriculture Development (IFAD) has supported the Project “Rewarding Upland Poor for Environmental Services that they provide – RUPES” in six locations in the three countries of Indonesia, the Philippines and Nepal. To enhance the efficiency of this project and its applicability in Viet Nam, some pilot studies have been done in a number of provinces in the country on aspects such as policy design, development of mechanisms, financial resources generation and benefit sharing²² (World Agro-forestry Centre, 2007). The Government has instructed uniform implementation on a pilot basis in the two provinces of Lam Dong and Son La to provide foundations for the implementation of a payment for forest services scheme nationwide.

Summary of the case

The Government of Viet Nam has developed a

²² The success of the Program ‘Rewarding Upland Poor for Environmental Services - RUPES’ in Viet Nam is the result of the strong support of the Government, the substantial contributions of RUPES’s partners such as Winrock International, the World Agroforestry Center (ICRAF), Center for International Forestry Research (CIFOR), the World Wildlife Fund (WWF) and the International Union for Conservation of Nature over several years.

roadmap for the policy on payment for environmental services that include studies of the best practices, review and assessment of the integration and formulation of the policy in the implementation of different activities. In 2005-2007, under the framework of Viet Nam RUPES program, some studies were done on five aspects, i.e. (i) integrating payment for the ecosystem services in the country's legislation and programs; (ii) generating financing to support the protection of watershed area of Tri An reservoir; (iii) generating sustainable financial resources to protect the landscape of the Bach Ma National Park; (iv) developing a mechanism for payment for carbon sequestration in forestry through the pilot activities in Cao Phong district, Hoa Binh province of Viet Nam; and (v) sharing local revenue in the marine conservation area of Nha Trang Bay. RUPES program phase II has been implemented in 2008-2012 to continue to improve the policy and mechanisms.

In 2007, the Ministry of Agriculture and Rural Development (MARD) took the lead in developing a pilot policy on payment for environmental services (PES) in Viet Nam with the support from some international organizations. In 2008, the Government promulgated policy²³ to provide support to the two provinces of Son La and Lam Dong for their pilot implementation of payment for forest environment services. This is the first policy on forestry that regards forest protection and development, forest ecosystems, biodiversity and forest landscape conservation as services. All individuals, enterprises and organizations that use and benefit from these services are required to pay in the form of contributions to a trust fund through the forest development and protection fund to the service suppliers such as forest owners and households contracted to protect forests.

After one year of implementation in the above two provinces, the Government has officially assigned MARD to formulate a policy on payment for forest environment services. In 2010, MARD conducted a review and assessment of the implementation of the mechanism for payment for forest environment services to provide a basis for formulating policies and mechanisms that fit the country's context. Based on

the results of such assessment, in late 2010, the Government promulgated Decree 99/2010/ND-CP on payment for forest environment services, which took effect from 1st January 2011 nationwide.

By the end of 2010, the total forest area determined for application of the mechanism on payment for forest environment services in the pilot period in the two selected provinces was 607,930 ha. The total amount to be paid by local hydro-power stations, water supply companies and tourism companies for forest environment services in 2009 – 2010 was VND 432.112 billion. This amount was paid to 62,000 local household forest owners and households contracted to protect the forests, the majority of whom are ethnic minority people (MARD, 2011).

Deforestation, forest land encroachment, illegal exploitation of forestry products, and slash-and-burn farming etc. have declined substantially in the forest service payment areas. The number of such cases dropped by 50% in Lam Dong province over the previous years, while no cases of illegal forest resource exploitation or farming deforestation were reported in Son La province. It is reported by Lam Dong province that the household poverty rate in its piloted districts fell by 15% over that of 2008, which has contributed to more stable security in the region. Such achievement was hailed by the international community, and taken as a model of good practice by many international organizations for replication in other countries.

After two years since the pilot's implementation, the policy on payment for forest environment services has been considered a success story, and thus has received strong and unanimous support from different levels, sectors, and the people especially the ethnic minority people and poor households in the forest areas.

The policy has created a new financial mechanism that contributes to the socialization of forest plantation, and to poverty reduction and has relieved the burden on the State budget for forest protection. At present, PES is considered a policy measure to encourage and share the benefits of forest protection among the community and society, which result in better forest protection and quality.

²³ Decision 380/QĐ-TTg dated 10 April 2008 of the Prime Minister on the pilot payment for forest environment services scheme.

Uniqueness and distinctiveness

Viet Nam is among the pioneers in formulating policies on and pilot implementation of the payment for forest environment services mechanism, which is illustrated via the initial definition of the ecosystem services provided for in some of its legal documents such as the 1998 Law on Water Resources, the 2003 Land Law, the 2004 Law on Forest Protection and Development, and the 2005 Law on Environmental Protection.

The policy on payment for forest environment services has been successfully designed in Viet Nam based on international best practices, the pilot implementation at provincial level, the effective support of international organizations and the active participation of the scientists and administrators. The policy, therefore, will make a critical contribution to forest protection and biodiversity conservation efforts in Viet Nam.

Lessons learned

Socio-economic development activities have exerted substantial pressure on the ecosystem. The introduction of the policy on payment for environmental services (PES) is considered a tool to mitigate such pressure on the ecosystem in general and on biodiversity in particular. The use of the PES policy will create sustainable finances for biodiversity conservation and improved life quality of the local people, and contribute to poverty reduction.

The introduction of the policy on payment for forest environment services, institutionalized by a Government Decree has provided Ministries, agencies and local governments with a modern and effective legal instrument to mandate individual and institutional users of the forest ecosystem services to pay for these services as a commodity based on their values and market negotiations.

To successfully develop the policy on payment for forest environment services, Viet Nam has been undertaking systematic efforts, including the adoption of Lessons learned from the international best practices, doing experiments in the different local conditions, conducting reviews and introducing an appropriate policy. These lessons in policy formulation can be applied for the development of other related policies.

The key to ensure such a success is the strong and consistent leadership and guidance of the Government, the strong support of the community and the active participation of the scientific and development organizations.

Conclusion

Three sustainable development practices in conservation and development namely (i) The Cat Ba archipelago biosphere reserve zone – the learning laboratory for sustainable development; (ii) Livelihood development for conservation: the case of the community in Ky Thuong commune, Ky Anh district, Ha Tinh province, and (iii) PES in Viet Nam – from practice to policy, are a few examples among the numerous real life success stories related to conservation in association with socio-economic development in different localities nationwide.

Some lessons have been drawn from the assessment of the sustainable development practices on the aforementioned conservation and development practices.

Resolving conflicts between conservation and development, especially for poor local communities is a complex and time-consuming process. One of the measures to promote conservation is creating alternative livelihoods such as agroforestry production, developing traditional handicraft and tourism to alleviate pressure on the forests and biodiversity.

The pivotal key to successful implementation of biodiversity development and conservation projects is community participation. Local people have the right to identify their problems and priorities, and to be involved directly in the development and conservation projects beneficial to them. To achieve the expected outcome, the projects implemented in these areas must be implemented with the people, not for the people.

The role of the stakeholders is critical in conservation and development projects, particularly the coordinating role of the local governments, the advice of scientists, the activity and synergy of the local community and the participation of local businesses. The participation of these “four stakeholders” in the modality of Viet Nam has been reviewed.

The replicability of those modalities that harmonize conservation and development is great, especially in those areas and localities situated around the national parks, conservation zones, and ecosystems and landscapes subject to conservation and sustainable development.

RESPONSE TO CLIMATE CHANGE

Policies and current situation

Policy

Viet Nam has promulgated and implemented many important policies to respond to climate change such as the 2007 National Strategy on natural disaster prevention and mitigation, the 2008 National Target Program (NTP) to Respond to Climate Change, and most recently, the 2011 National Strategy on Climate Change. The Government has established the National Committee for Climate Change Response chaired by the Prime Minister. At present the Law on natural disaster prevention and mitigation is being drafted and is expected to be approved in late 2012.

The overall goal of the National Strategy on natural disaster prevention and mitigation is to mobilize all the possible resources to efficiently and effectively implement the prevention and mitigation of natural disasters up to 2020 to minimize the losses of lives and properties, to mitigate destruction of natural resources, the environment and cultural heritage, and finally to contribute a critical role to ensure the national sustainable development and the defence and security of Viet Nam.

The strategic goal of the NTP to Respond to Climate Change is to measure the degree of impact of climate change on different sectors, industries and localities in different periods. The NTP will also develop a feasible action plan to establish effective responses to climate change in the short and long term to ensure national sustainable development. Another aspect of the NTP is to make use of opportunities for low-carbon economic development and to join the international community in efforts to mitigate climate change.

Current situation

Viet Nam has taken part in numerous regional and global climate change activities. So far, many Ministries have finalized their action plans in order to respond to climate change. These action plans for climate change

and the rise in sea-level in Viet Nam were developed in 2008, then updated and further specified in 2012, serving as the basis for the Ministries, agencies and local governments to develop their own action plans to respond to climate change. The country has also conducted some successful studies and has been implementing some effective projects on climate change response and natural disaster prevention.

The Government has approved a proposal for Community Awareness Enhancement and Community-based Natural Disaster Risk Management²⁴. The overall objective is to enhance community awareness and organize the implementation of the model on community-based natural disaster risk management. Local governments and agencies aim to minimize the losses and contribute to ensure sustainable development of the country. This scheme will be implemented with the involvement of 6,000 households nationwide.

Investment in meteorological work and climate change have been intensified. Many activities have been undertaken in the whole country to raise community awareness and increase capacity building on response to climate change, meteorological operations and natural disaster forecasting.

Viet Nam has been active in international cooperation to make use of international best practices and aids for climate change response in the country.

Good sustainable development practices related to climate change

Climate change response by urban area in Viet Nam

Background

According to the assessment of international organizations, Viet Nam is one of the countries which are to be worst hit by climate change and sea-level

²⁴ The Decision No. 1002/QĐ-TTg dated July 13, 2009 on the Proposal for Community Awareness Enhancement and Community-based Natural Disaster Risk Management has been approved by the Prime Minister.

increases; coastal cities will be the most vulnerable. Recognising the severity of this issue, the Government has assigned the Ministry of Science and Technology (MOST) to be the focal point in mobilizing possible national and international resources to build capacity for the coastal cities to be resilient to climate change. The project “Asian Cities Climate Change Response Network (ACCCRN)” funded by the Rockefeller Fund has been implemented in three cities of Viet Nam, namely Da Nang, Quy Nhon and Can Tho since 2009²⁵.

Summary of the case

The ACCCRN project is aimed at: (i) enhancing awareness and building capacity for climate change response; (ii) supporting member cities to assess vulnerability and integrate climate change response measures in their city development plans; (iii) identifying the scope and coordinating the pilot activities; (iv) supporting the cities in developing their climate change adaptation/resilience plans; (v) supporting the cities to prepare proposals for external support and implement the action plans; (vi)

Quy Nhon city community to respond to climate change

Viet Nam is one of the countries which are to be worst hit by climate change. To help build capacity for cities to respond to climate change, the Asian Cities Climate Change Response Network (ACCCRN) has undertaken activities to attract more attention, finances and action to build capacity for poor and vulnerable people by creating models and approaches to measure the risks, and mobilize the active participation of the different stakeholders in the society. Together with some cities in India, Thailand and Indonesia, three cities in Viet Nam, including Quy Nhon (Binh Dinh) have been selected by ACCCRN for inclusion of the project.

The ACCCRN's project is aimed to enhance public awareness of the climate change impacts and experiment with a local strategy on climate change adaptation. Quy Nhon is located by the sea, mountains and the delta, and is thus exposed to numerous climate change impacts. The project will support Quy Nhon on technical aspects, local government coordination and line agencies to conduct surveys to work out measures to respond to the impacts posed by global climate change.

The city has developed an awareness-raising program for all citizens on the unusual changes of the climate and weather in recent years. Besides, twenty-one communes and wards have been trained to build their capacity for community-based natural calamity risk management and climate change response. Three pilot sub-projects for climate change adaptation; (i) mangrove forest plantation and Thi Nai lagoon ecosystem restoration; (ii) Nhon Ly and Nhon Hai communes' coral reef protection and restoration and (iii) the proposal to support the operations of Quy Nhon city Climate Change Office, have been implemented.

Thanks to these three sub-projects, 10 ha of mangrove forest have been planted in Thi Nai lagoon. It is expected

that after seven to ten years, this mangrove forest will contribute to Quy Nhon City's improved resilience to climate change through the following functions: to bar the storms, wind, sea waves, tidal waves, and to become a shelter for boats and ships, marine species, birds and animals. It will also sustain the marine resources which is the livelihood of the surrounding local people. The forest will also function as the city's green lungs and be potential for tourism development. Thanks to this project, the over-exploitation of coral reefs in the coastal areas of the communes of Nhon Chau, Nhon Hai, and Nhon Ly has been stopped. If these coral reefs can be restored, it will contribute greatly to climate change response. In this project, the community will be provided with the necessary support to conduct sustainable living by limiting the use of fishing facilities that exhaust marine resources and move towards marine product cultivation and processing services. Quy Nhon is developing a draft Climate Change Adaptation Strategy that identifies areas and people who are vulnerable to climate change.

The project to support Quy Nhon city to respond to climate change is one of the three projects that provides support to Vietnamese cities within the framework of the Viet Nam ACCRN project. The project is not only an opportunity for Viet Nam to learn from the international practices, and share its own experience in capacity-building for its coastal cities for climate change adaptation, but it also helps Viet Nam to improve its mechanisms and policies, and build capacity for climate change adaptation for the different localities as required in the National Target Program for climate change adaptation.

(Source: ACCCRN, 2010)

²⁵ Within the framework of the ACCCRN implemented in four Asian countries of India, Viet Nam, Indonesia and Thailand, a total number of 11 cities have participated in the project, which includes three from India, two from Indonesia, three from Thailand and three from Viet Nam.



Figure 17: Quy Nhon city panorama before climate change impacts

(Source: ACCCRN, 2009)

establishing a regional network and supporting the sharing and learning process.

The project has implemented various activities, including (i) establishing and staffing the Project Management Units and Steering Committees of the three cities of Da Nang, Quy Nhon and Can Tho with the participation of various provincial line departments and agencies under the direct coordination of the City People's Committees; (ii) organizing many national and local workshops to review the achieved results, and share the experience in climate change response and planning for the coming periods.

In almost three years since implementation, the Project has provided effective support to the three cities of Da Nang, Quy Nhon and Can Tho to build their climate change adaptation capacity. Through this project, each city has conducted an assessment of climate change impacts on its key economic sectors. It has also identified vulnerable regions and people, developed climate change adaptation plans and proposed some priority projects for implementation in the period 2011-2013. The approaches, instruments, procedures and lessons from the project are vital in providing suggestions and solutions to other provinces/ cities in response to climate change. It will help related agencies and managers at national level in policy-making and in guiding the implementation of this Program.

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Figure 18: Local community planting mangrove forest to respond to climate change

(Source: ACCCRN, 2009)

plans and proposed some priority projects for implementation in the period 2011-2013. The approaches, instruments, procedures and lessons from the project are vital in providing suggestions and solutions to other provinces/ cities in response to climate change. It will help related agencies and managers at national level in policy-making and in guiding the implementation of this Program.

After completion of Phase II (2011) of ACCCRN program in Viet Nam, each city has gained better knowledge of the impact of climate change and the necessary action to take in response. Member communities have gained better awareness of their vulnerability to the climate and of the adaptation of solutions and measures they can take to be better prepared for possible natural disasters. With the support of national and international specialists, the provincial line departments and the different local communities have been working with one another in an efficient manner to prepare climate change adaptation plans. These plans are considered in fund-raising proposals related to climate change adaptation.

Uniqueness and distinctiveness

The project has combined the support of the international community and practical experience of the Asian Cities Network in responding to climate change within the global efforts to help improve capacity of the coastal cities to respond effectively to the impacts of climate change and sea-level rise.

The project is considered an effective model to mobilize participation and resources of the local stakeholders to build local capacity to effectively respond to climate change and sea-level.

Lessons learned

This is a new and pressing issue in many cities in responding to climate change and natural disaster prevention in the context that Viet Nam is among the countries most vulnerable to climate change and sea-level rise. Due to the current rapid urbanization in the country, this is one of the necessary tasks for the

successful implementation of the National Target Program to Respond to Climate Change and the National Action Program. Thus many localities will actively participate in and gain experience from the three cities of Da Nang, Quy Nhon and Can Tho.

Climate change response activities of Vietnamese Non-Governmental Organizations

Background

In parallel with the Government's efforts in implementing the NTP to respond to climate change, Vietnamese NGOs have been implementing numerous support activities for these efforts which focus on the implementation of models, pilot projects and initiatives to improve the capacity for climate adaptation. The climate change response activities of the local NGOs are mainly in the following areas: (i) Communication and awareness-raising on climate change related issues; (ii) Initiatives for economic and efficient use of energy and incentives to encourage the use of renewable sources of energy; (iii) Projects for community-based forest protection and management; (iv) Solutions for waste treatment, mitigation of environmental pollution and reduction of greenhouse gas emissions; (v) Measures for sustainable and environmentally-friendly farming; (vi) Support for the development of initiatives for community-based natural disaster prevention and climate change response; (vii) Projects for natural resource conservation and biodiversity restoration; (viii) Mobilization among the different levels of authorities to develop policies to protect the poor and people disadvantaged due to climate change.

The aforementioned projects and initiatives mainly target the poor, ethnic minorities, the disadvantaged and vulnerable people in specific disadvantaged areas, which are vulnerable to climate change.

Summary of the case

Vietnamese NGOs have established a regional network in response to Climate Change (VNGO&CC) to coordinate, connect, share information, and build capacity for the related organizations. This network has become an open forum for broad-based and active participation of members and other NGOs in the country, the Government counterparts at both Central and local levels, donors and communities share information, cooperate and support each other in the activities to respond to climate change.

System of Rice Intensification (SRI)²⁶ has been applied by many Vietnamese NGOs to ensure sustainability and efficiency in production and help adapt agricultural production to climate change. The SRI model has been introduced to farmers in six Northern provinces with the participation of the Plant Protection Department (MARD), Centre for Sustainable Rural Development – SRD (Viet Nam Association of Science and Technology) and some international NGOs. The activities of the models include enhancing SRI awareness and techniques for local departments and agencies by coordinating with agricultural cooperatives to implement SRI. The initiatives also review and assess the results and therefore draw lessons and replicate successful

²⁶ SRI is a combination of various management methods of food cropping implemented in Madagascar to support small farmer households by using efficient eco-rice cultivation methods for higher yields at lower input costs for breeds, fertilizers, pesticide, and irrigating water. In Viet Nam, SRI was piloted and transferred in 2003 with the promotion and support from the NGOs and has been recognized by MARD.



Figure 19: Ethnic minority farmers holding the paddy laden with rice seeds thanks to the use of the SRI method in Bac Kan province

(Source: SRD, 2010)



Figure 20: Study on and cultivation of a new and high-yield rice variety

(Source: Viet Nam News Agency, 2009)

models. In terms of efficiency to climate change response, SRI helps increase resilience of rice paddies to abnormal climate conditions such as droughts, storms, epidemics thus contributing to reduced emissions of greenhouse gases like CH₄ and N₂O. The success of the model is attributed to the use of the “community-based approach” with direct participation of farmers, strong support of local governments, the appropriate selection of locations and farmer households, and the role of the mass media in helping to enhance public awareness and consensus.

The Garden – Pond – Animal Pen (VAC)²⁷ model of Viet Nam has been widely applied in rural areas, making full use of the available land areas, terrain, water resources, and labour forces for enhanced farmer household economic efficiency. The advantage of this model is an easy application at household level, thus bringing direct benefits to the people’s lives by making use of the local knowledge in agro-forestry production and applying new scientific

and technological advances in the process. The VAC model, in terms of climate change adaptation, is considered a minimized sustainable and flexible ecosystem, which can be adapted to the changing weather conditions by altering the crop and livestock composition. Economically, this model is useful in poverty reduction, and immediately helps to meet the needs of local people for food. This is also a livelihood that provides farmers with increased ownership of their production and raises their income. The success story to be replicated from this model is the reliance on the local knowledge and consultation with local people. In terms of approach to implementation, it is advisable to start from an easy to a more advanced level, without rigidly requiring availability of all three components: gardens, ponds, and animal enclosure. The model can be expanded by including other components such as fields, forests and biogas initiatives but needs to receive consensus from local people for successful implementation.

²⁷ The VAC model was used by the Viet Nam rural households long ago, but mainly on a spontaneous basis. The model has been further developed and widely replicated by Viet Nam Gardening Association since 1986, and has been renovated and modified by farmers to other forms such as VAC-R (Garden-Pond-Animal Pen-Forest) or VAC-B (Garden-Pond-Animal Pen-Biogas), or a cultivation model associated with aquaculture.

Strengthening management of the coastal ecosystem and developing community livelihood to respond to climate change is the model implemented by the Centre for Marine Life Conservation and Community Development (MCD) in the four coastal communes of Giao Xuân (in Giao Thuy district, Nam Dinh province), Nam Phu (in Tien Hai district, Thai Binh province), Phu Long (in Cat Ba district, Hai Phong city) and Van Hung (in Van Ninh district, Khanh Hoa province) – In buffer areas of the natural conservation zones, where the majority of local people rely on the resources of the marine eco-systems, the symptoms of climate change impacts are gradually manifesting. The activities of the model include (i) Enhancing awareness, knowledge and capacity of the marine ecosystem, marine resources, and developing sustainable marine living in the context of climate change; (ii) Promoting and supporting the restoration and conservation of the marine eco-system, and enhancing effectiveness in management of marine resources; (iii) Developing models to improve the approach which combines community-based resources management with climate resilience such as the model for community management of the conservation zones, the model for community sustainable aquaculture and the model for coastal community eco-tourism. In terms of adaptation, the models have enhanced the adaptability and resilience of the communities, stakeholders and eco-systems to climate change impacts. In terms of climate change mitigation, the models have helped to sustain and promote the coastal protection and climate regulation functions of the

marine ecosystems, adjust the lifestyle of the local community to contribute to reduced greenhouse gas emissions. The active participation of the local people, the role of the scientists, the coordination of local governments, and alignment with local programs along with socio-economic development plans have made critical contributions to the success of these models.

Building climate resilience capacity for the civil society organizations in Viet Nam is one of the model projects implemented in the period of 2009-2011, which was aimed at enhancing awareness and building capacity for civil society organizations (CSO) to effectively respond to and integrate climate change adaptation activities in their related programs in order to contribute to Viet Nam's overall course of sustainable development. The project's key activities include (i) Communications and coordination for NGOs' enhanced access to information on climate change; (ii) Training in the knowledge and skills to respond to climate change and the capacity to integrate climate change, natural disaster risks and improvement in existing programs; (iii) Activities to share and learn best practices relating to climate change response. In addition, a group of climate change trainers will be established and work effectively, a climate change database, and system of training materials and communications will be developed for the staff of NGOs/CSOs. As a result, the awareness of climate change of those NGOs/CSOs under CCWG, VNGO&CC and their local counterparts will be enhanced, which helps these organizations to continue taking action to respond to climate change.



Figure 19: MCD officers supporting the sustainable marine collaborative group of Giao Xuan commune in checking the quality of the oyster farming environment

(Source: Centre for Marine Life Conservation and Community Development, 2010)

Developing a network of Viet Nam green generation that connects young Vietnamese with climate change

Young Vietnamese aged from 15-24 represent one-fourth of the country's total population (UN, 2010); they have limited knowledge of the eco-system and the environment, especially climate change. To help young people understand and take action on climate change, a Network of Green Generation was established in July 2009, based on the initiative of some young people and the Club for Environment with the encouragement of the Centre for Live and Learn for the environment and community. With a common interest in climate change and related issues, these young people connect to each other and develop a network within a dynamic young generation with a desire to enhance community awareness of climate change and sustainable development, and promote actions for a sustainable future.

Through small movements, the Network's pro-environment voluntary activities have been started and have had widespread spillover effects, especially in Ho Chi Minh City and Ha Noi. The Network also operates along with the environmental protection events and activities such as the Earth Hour Movement, Say No to Nylon Bags, 260 and beyond. Other events have included the Viet Nam Youth Forum and Sustainable Development (2009) Understand and Act, Tomorrow starts from Today. The Network has developed many activities and over 200 training sessions have been organized. The theme of the activities includes climate change and adaptation approaches, biodiversity, energy, poor and vulnerable people, natural disasters, food security, and developing "soft skills" for young people. These activities have ignited, in these young people, the hidden flame of passion and ambition to contribute their youthful energy to their surrounding environment. They are the ones who initiate the ideas, develop plans and call for the participation of others in the implementation of the ideas. To be able to

bring into full play their creativity and capacity, the voluntary activities for the environment provide young people with a place to play the roles of a new generation, and to practice and enhance their knowledge and living skills.

Another key to success is the strategy for online communication and knowledge-sharing of the Green Generation, which has attracted the participation of a large number of young people and students. By mid-2011, the whole network comprised 77 clubs in 23 provincials and cities, mobilizing over 5,000 young people to participate in environmental protection activities. 891 have registered their membership with the Green Generation Google Email Group and 2,986 "friends" registered on Facebook, and over 50 websites of the different groups, clubs and online newspapers have published articles and news about the activities of the Green Generation.

To attract the attention and participation of many young people, Green Generation has applied many new communication approaches such as gameshows, exhibitions, speaking contests, and developed user-friendly and creative training materials and publications to support the practice of climate change adaptation and mitigation.

To provide legal and financial support for the activities organized by the young people, Live & Learn has developed a partnership with Government agencies and NGOs (such as CETAC, Oxfam, Rosa Luxemburg Stiftung) and firms (FPT, BOO) to create the most favourable environment for their activities. In terms of financial support mechanism for young people, Live and Learn has designed transparent and comprehensive financial procedures for the groups and clubs for use in developing their project proposals and implementation plans.

(Source : Live & Learn, 2012)

Uniqueness and distinctiveness

Climate change response activities of Vietnamese NGOs are diverse and focus on some key areas of activities, from raising the awareness of the community and building capacity and working out measures to change agricultural production practice and strengthening the eco-system management in linkage improve the standard of living to adapt to the changing climate conditions. More attention has been paid to activities aimed at raising awareness changing behaviour among social organizations, NGOs or teenagers and young people in the face of sustainable

development and climate change. All these activities have made a difference in the climate change response practices by Vietnamese NGOs.

Lessons learned

The success of these climate change response practices is the mobilization of the participation of the different strata from social organizations, local and international NGOs and farmers to teenagers. The young people with their efforts are supported technically and financially by different donors, including the private sector.

Community-based natural disaster risk management

Background

Due to its geographical and geological features, Viet Nam is often heavily hit by storms, floods, droughts, sea water salinity intrusion, soil erosion and forest fires. In recent years, natural disasters have occurred frequently in Viet Nam; coupled with a high degree of unawareness and unpreparedness, these have caused numerous losses and severe destruction. Climate change, industrialization and rapid urbanization have increased the vulnerability of communities to these natural disasters.

Over the past years, the Central Steering Committee for storms and flood prevention and control, and local governments have played important roles in providing advice to the Government in terms of prevention, response and measures to deal with the consequences of natural disasters to help the local people recover their life faster and develop their standard of living. The National Strategy for natural disaster prevention, control and mitigation up to 2020 with the philosophy of four “on-the-spot” initiatives, namely on-the-spot instructions, on-the-spot facilities, on-the-spot forces and logistics has stressed the importance of the local governments’ and community’s role in natural disaster risk mitigation. The Government has approved the Proposal for community awareness enhancement and community-based natural disaster risk management, and has assigned MARD and the Central Steering Committee for storms and flood prevention and control to take the lead in implementation nation-wide.

Apart from domestic resources, Viet Nam has mobilized the active participation and support of international NGOs in community-based natural disaster risks management.

Summary of the case

The different NGOs have mobilized numerous resources, especially the support of the Natural Disaster Prevention Program of the European Commission (DIPECHO) to implement various initiatives on community-based natural disaster risk management.

Housing reinforcement to mitigate the economic losses caused by floods is an initiative financed by the French DWF to apply house-building techniques to ensure that existing and new houses of the local people in the Central Thua Thien Hue province are storm-

resilient. Enhancing housing quality for the community affected by annual floods helps mitigate the risks of destruction of the houses, and sustain the investments made by the households in building their houses, thus contributing to poverty reduction. The Lessons learned from the implementation of these initiatives have been consolidated and integrated in Thua Thien Hue province’s guidelines on storm-proof housing development in the areas.

Integrating community-based natural risks management in the Regional development program is an initiative financed by World Vision to enhance the community’s awareness of sustainable natural disaster prevention and control in the Central province of Quang Tri. The initiative is implemented through the organisation of different training sessions on natural disaster management that links to the community’s health, agricultural production, and livelihood development. Integrating various natural disaster mitigation and other activities is critical in ensuring sustainability of the interventions when undertaking simultaneous livelihood development activities for the local people. Moreover, the overall impact will be much stronger when local governments combine the resources of the other sectors such as health, education, community development and natural disaster management.

Water filters and clean water supply for communes affected by natural disasters is an initiative financed by Care International to protect vulnerable people such as women, children, and the disabled against diseases caused by the use of unsafe water in the flood season and enhance community awareness of the need to change the use of unclean water in Long An province in the Mekong River Delta. The supply of water filters to the poor does not seem to be a significant innovation, due to the popularity of these devices on the market. However in the specific context of the villages in Long An province, such supply has helped address the essential needs of local people when other measures, such as permanent cement tanks, are ineffective. This support has helped change the local people’s habit and enhance their awareness of the need to use clean water.

Community awareness enhancement via children’s participation is an initiative funded by the Save the Children Fund to build capacity for the most vulnerable communities in Viet Nam to be prepared and resilient to natural disasters through the use of the community-based and child-focused approaches.

Case study in Tien Giang: Safe School in the flood season

Whenever the floods come, the life of the local people in the Mekong River Delta becomes chaotic. The floods bring along a lot of alluvium and wealth on the one hand, but also pose numerous water risks to local people, especially children. In Tien Giang – a province located in the downstream of the Mekong River, half of all of its districts are submerged in water when the floods come. To help the flooded-areas children to protect themselves against the natural disaster risks, the Program for School Safety in the flood areas implemented by Ministry of Education and Training in cooperation with the Viet Nam Save the Children Organization in the period between 1/2007 - 4/2008 has brought about some initial positive results.

At present, whenever the floods come, the local people in the Mekong River provinces, especially in Tien Giang province, are no longer obsessed with worry about the hazards caused by floods to their children. The unexpected 2011 flood season, caused substantial property loss but the losses of lives, especially of children's lives, dropped dramatically. This is largely attributed to the effects of training provided to the children by the Children's Club for prevention and mitigation of natural disasters under the natural disaster prevention program. Apart from being equipped with children's lifejackets, the pupils and teachers are trained in survival skills to protect themselves in the storms and floods, and skills to respond to natural disasters, the activities to be done prior to, in and after the flood season.

It was a familiar scene to the local people in Cai Lay district, Tien Giang province over the past three years (2008-2010) that Ms. Pham Thuy An – an officer of Save the Children, who did not mind the various difficulties, came to the schools in the flooded communes to run coaching and training sessions, and set up the Children's Club for prevention and mitigation of natural disasters. In 2011, the whole of Tan Phong village, Tan Hoi commune, Cai Lay district was submerged in flood water for almost

two months. With the knowledge provided in the club, Tran Van Tho, a fifth-grade schoolboy of Tan Hoi primary school was able to rescue a four-year-old child drowning in the water in the village.

Between 2007 - 2011, 27 communes in the Mekong River Delta with 216,000 people, including 86,400 children benefited from the Program. On the festival day called "School safety in the flooded areas", the action plans for 20 clubs "Children with children" in 80 schools of Tien Giang province attracted over 123,388 pupils, 1,952 teachers, 7,418 pupils' parents, and 841 communal authority officials. Nearly 900 pictures were drawn by the children. Many short plays, stories and songs on the flood theme, flood disaster and practical preventive measures were shown, and became good lessons for the local pupils and community.

To date, the program has involved 180 primary and lower secondary schools in the three districts of Cai Be, Cai Lay and Chau Thanh of Tien Giang province with 9 coaching sessions for the pupils and teachers on the necessary self-protection skills in the flood season. In these sessions, at least 170 schools were supported to complete their preliminary assessment of and reports on the flood risks. The instrument used in these coaching sessions is the "Toolkit for school safety program in the flood season". The knowledge in this toolkit will help the local school children to respond to the water risks during and after the natural disaster and floods.

It can be seen that the involvement of the education sector, and the local institutions for natural disaster prevention is essential for the high effectiveness of the Program for School Safety. Through this Program, the local people, especially the small children are better aware of the importance of community-based mitigation of destruction and losses caused by the natural disasters.

(Source: Tien Giang Committee for Natural Disaster Prevention, Combat and Mitigation, 2011, and Asian Centre for Natural Disaster Prevention and Combating, 2007)

Children participate in the overall project implementation cycle, especially in the meetings and training sessions. Information, education and communication to raise awareness at schools and among the communities is now prevalent. There are small-scale risk mitigation activities and components are led by children in the process to assess the hazards and vulnerability. Children's participation has helped mobilize the community's participation in natural disaster prevention and risk mitigation through

communication by the children to their friends, families and local people in the community. Through these activities, the community leaders have become more aware of the importance and the needs for training on children's rights, and to change their way of thinking about children, that is, children have the right to participate and to be heard. Thus this will contribute to the better implementation of the UN Convention on the Children's Rights.

A map of hazards with simple scientific information to support the community in natural disaster mitigation is an initiative funded by the Canadian Centre for Research and Cooperation (CECI) to enhance safety for the local people in the Central region, in Thua Thien Hue province, by building their capacity to respond to climate change and the impacts of natural disasters such as floods and storms. The map of hazards has simple scientific information on the hazard-prone areas, which are marked by symbols and it also has specific analysis on the different types of natural disasters, degrees of hazards and the environmental issues. This initiative has simplified the scientific data on the climate, the dangers and the environment to help the community in planning their natural disaster management. It is also a measure to mitigate vulnerability of the community by improving the quality of the risk assessment. The map has become a useful tool for both the local governments and the community for their use when they want to have a better understanding of the natural disaster state in their region, and to recommend resilience measures.

Uniqueness and distinctiveness

The initiatives for community-based natural disaster risk management of the international NGOs in Viet Nam are diverse in content, participants, operation locations, local practical needs and capacity of these NGOs. These are a series of activities and initiatives implemented in alignment with the priorities set by the government in the area of natural disaster risk management in Viet Nam.

A distinctive feature of these initiatives is that they have attracted the participation of the local community who benefit directly from the initiatives in various regions of the country, and have mobilized the active and effective support of the international community in the process.

Lessons learned

This practice is successful in mobilizing the participation of many organizations, which contributes to addressing the essential needs of the local people, and is linked to the Government's involvement, which promotes active participation of the local community.

This ideal approach has involved a creative application to the sustainable development principles, which are about placing human beings at the centre of development and ensuring equity among the different generations.

Conclusion

These three good sustainable development practices to respond to climate change, namely: (i) Urban cities to respond to climate change; (ii) Climate change response activities of Vietnamese NGOs, and (iii) Community-based natural disaster risk management are some among the numerous practical examples related to this theme.

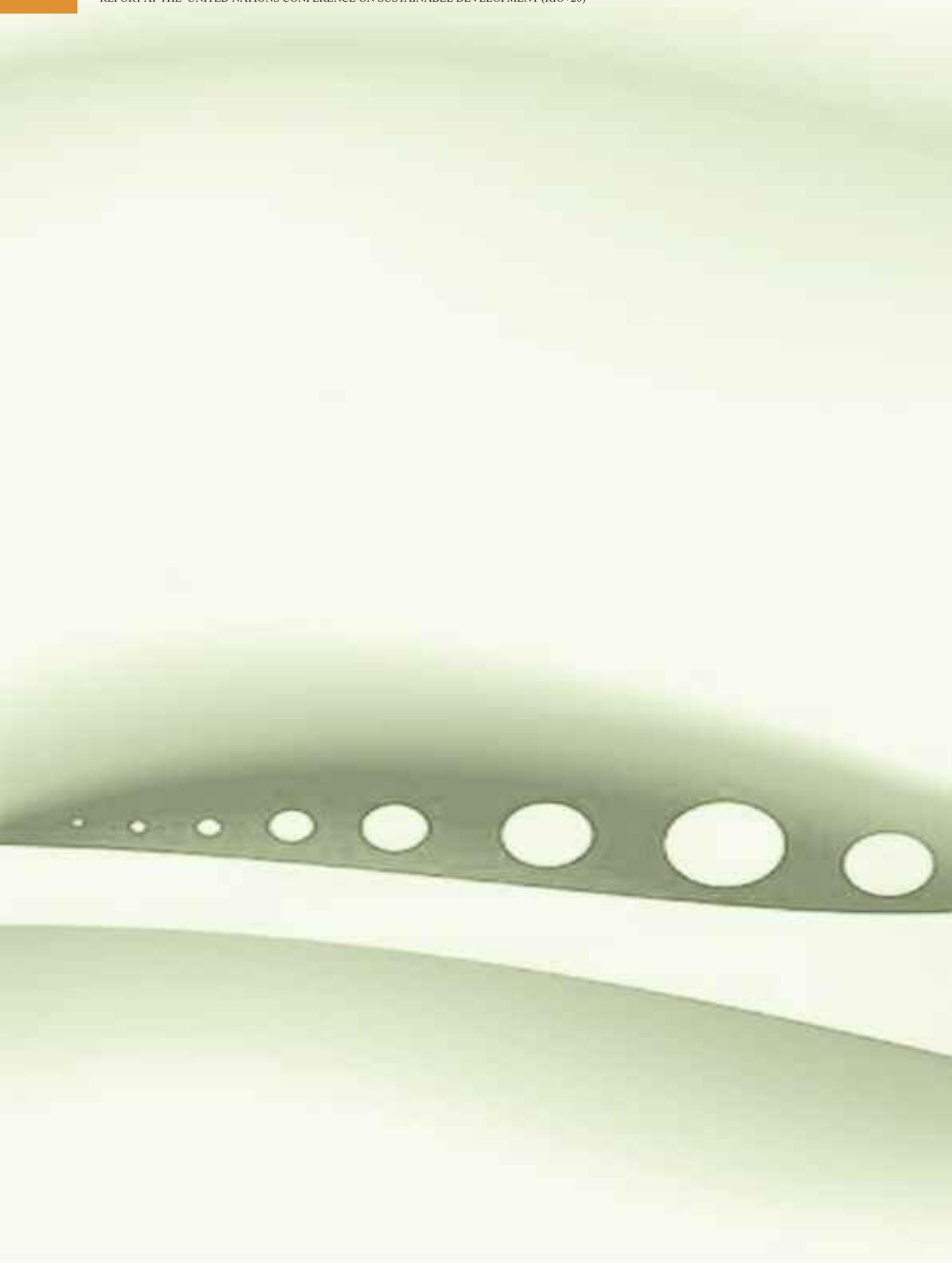
Experience in Vietnam shows that climate change is increasingly felt, and that climate change impacts have increased in frequency along with the unpredictability of extreme weather phenomena. Climate change will exert severe impacts on people's lives, production of goods and services and the environment, thus it is essential that the local community is active in responding to these changes. It is also required that they have measures to adapt their agro-forestry and fishery production to climate change, to diversify their lifestyles to reduce the risks of climate change impacts. These activities should be implemented under the orientation and coordination of central and local governments in alignment with large national programs, as well as the small individual programs of community-based organisations.

Enhancing community awareness of and increasing the capacity to respond to climate change is a critical, urgent and long-term task. The local climate change response practices and models can be seen as practical references for replication in specific conditions of other localities.



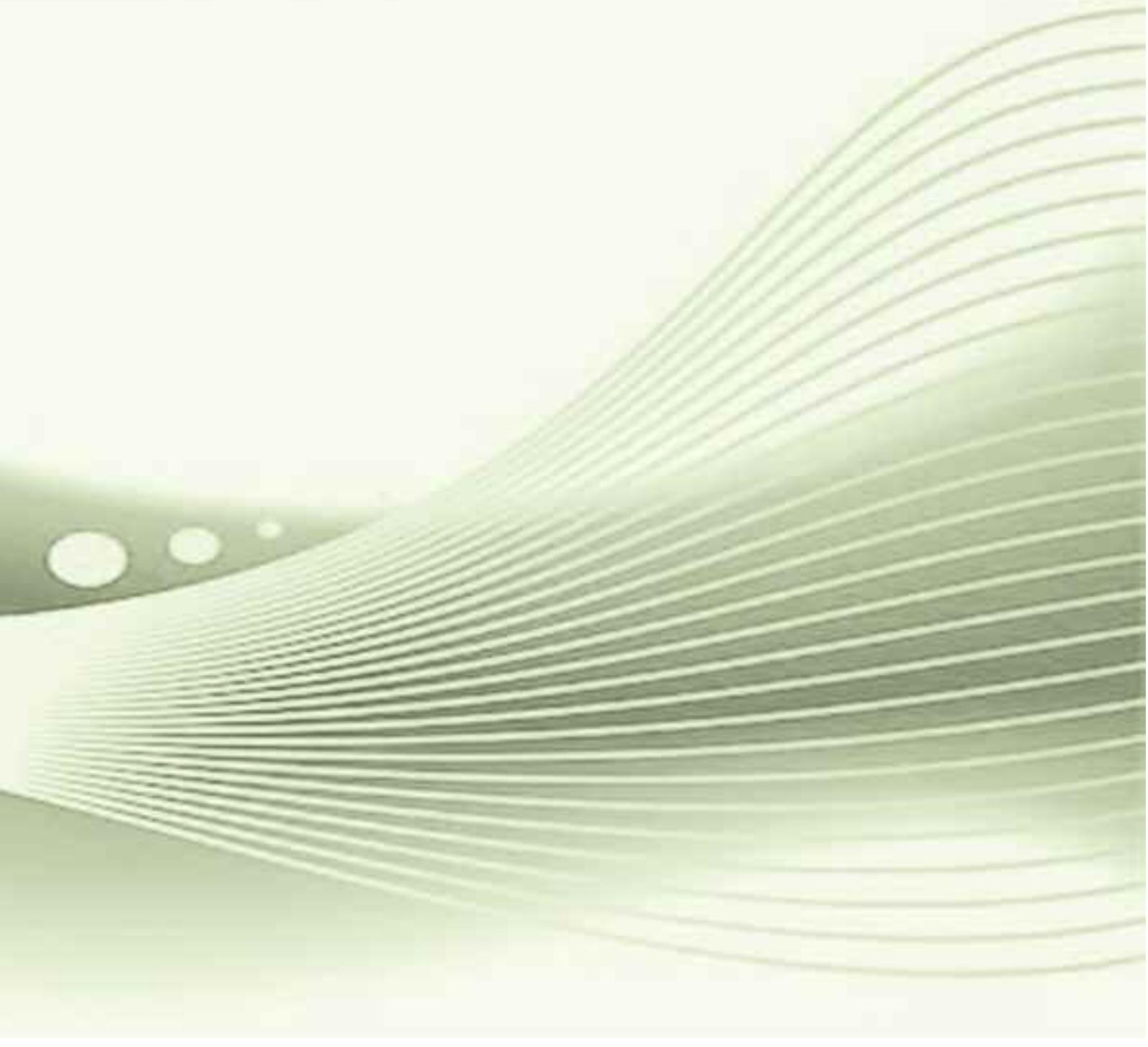
Figure 22: Construction of sea dyke in Nam Dinh

(Source: Viet Nam News Agency)



PART II:

LESSONS LEARNED AND RECOMMENDATIONS



LESSONS LEARNED

The eleven sustainable development practices presented in this report are some highlights to illustrate the existence of various sustainable development models and initiatives in Viet Nam. This approach is related to the four areas of energy and resource efficient use in production, poverty reduction and rural development, conservation and development, and climate change response. These are large-scale programs and small local community-based models and initiatives. This effective approach has resulted in engendering positive impacts on the course of sustainable development in Viet Nam. Some of these models have been recognized and appreciated by the international community.

The selected good practices are all associated with the nine areas of sustainable development of Viet Nam, as well as relating to the main theme of the Rio + 20 Conference on green economies in the context of sustainable development and poverty reduction and are within a legal framework for sustainable development. Especially, these are based on Viet Nam's 8 principles of sustainable development, which have been creatively adapted from 27 principles of sustainable development of the world's Agenda 21.

Some lessons have been drawn from the implementation of good models and initiatives on sustainable development in Viet Nam, as follows:

- The strong commitment of the Government in materialising sustainable development has enabled,

encouraged, and promoted the implementation of models, initiatives, and sustainable development practices in Viet Nam over recent times.

- Sustainable development practices in Viet Nam have been implemented in alignment with the national and sectoral policies and strategies within the framework of sectoral or local action plans which aimed at achieving sustainable development goals. The aforementioned practices have not been destructive of the socio-economic, cultural, ethnic and traditional features of each locality.

- A practical lesson drawn from these practices is the mobilization of various types of resources to implement sustainable development goals. The active participation of stakeholders, including local governments, scientists, administrators, commercial enterprises, civil society organizations and local communities has ensured the success of these models.

- The effective support of international organizations has been an important contribution for the success of sustainable development practices in Viet Nam.

The lessons learned from these practices can provide suggestions for organizations, individuals, localities and sectors nationwide to develop their own sustainable development models and initiatives based on their conditions and features. They also serve as references from a developing country like Viet Nam to the international community.

RECOMMENDATIONS

The exemplary programs, models, and initiatives on sustainable development have made important contributions to the implementation of Viet Nam's sustainable development goals. To expand and replicate these practices and initiatives, it is recommended that Viet Nam:

- Introduce mechanisms and incentives for the implementation of sustainable development activities, models and initiatives;

- Increase financial support from the State budget allocation to sustainable development activities, initiatives and models;

- Promote the participation of stakeholders, especially scientists, NGOs, and social organizations in implementing the sustainable development activities, models and initiatives;

- Increase international cooperation to share experience in developing and implementing sustainable development activities, models and initiatives, and call for support from the international community in implementing and replicating sustainable development models and initiatives.

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