



Green Industry

Weaving Wealth:
Resource efficient and cleaner production and supply chain integration
for more sustainable rattan and bamboo craft in Viet Nam


SLIDES PRESENTATION




Green Industry

*Resource Efficient & Cleaner Production &
Supply Chain Integration for Sustainable Rattan
& Bamboo Craft in Viet Nam*






UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



Viet Nam

- **Capital City:** Ha Noi
- **Population:** 90.5 million
14th most populous country in the world)
- **Area:** 321,210 kilometres



- **GDP per capita:** US\$ 1,224/ lower-middle income country (World Bank, 2010)
- **HDI:** 0.593/ ranked 125 of 187 (UNDP, 2011)

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



Green Industry

Viet Nam

- Rapid industrialization and economic development
- Reduction in absolute poverty from 29% in 2000 to 14% in 2010
- Inequalities still exist
- Environmental degradation
 - National State of Environment Report (2010):
 - Industrial zones
 - Waste management
 - Soil degradation

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Vietnamese Handicrafts Sector

- ILO definition:
 - Informal
 - Local availability of natural resources
 - Small scale/ household level,
 - Intergenerational skills
- Examples: wooden furniture, lacquerware, silk, candles, jewellery, glass products

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam





Vietnamese Handicrafts Sector

- Cultural traditions:
 - Approx. 3,000 crafts villages, of which around 2,000 have a history of more than 100 years
- Contribution to **economic growth**, employment and livelihoods - exports turnover
- **Over exploitation of natural resources** - unpredictable supply, shortages, illegal importing of raw materials, unsustainable production practices

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Bamboo



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam

Rattan



About Bamboo and Rattan

- Bamboo
 - Hollow, free standing, perennial, grass, fast growing
 - Potentially more sustainable alternative to timber logging
 - Bamboo forests - good carbon sinks, can help prevent soil erosion
- Rattan
 - Solid core, vine-like palms, vertical grain, durable but flexible
- Different species but share some similar properties
 - Light, strong and versatile

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Bamboo and Rattan Craft - Around the World

- Bamboo and rattan is closely linked to the livelihoods of 1.5 billion people
- Amongst the most valuable non-wood forest products
- Many uses, furniture, basketry, scaffolding, housing, paper, chopsticks, etc.

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Bamboo and Rattan Craft in Viet Nam

- 1.5 million hectares of natural bamboo forests
- Total rattan resources: 380,000 hectares
- Overall, women comprise 80% of all workers in value chain



- Large variety of products – complex supply chain
- Crafted products – relies on skill of workers

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



Green Industry

The Pilot Site: Nghe An Province

- 2.9 million inhabitants
- GDP per capita of VND 10,490,458
 - Compared to a national average of VND 17,180,000
- Around 65-80% of the farmers/craft producers are women and ethnic minorities who reside in remote areas and are disproportionately affected by poverty
- 80,000 ha of bamboo and rattan



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



Green Industry

The Pilot Company: Tinh Tu Company

- Established in 1993
- 70 workers, two thirds of whom are women
- Approximately 3,000 collectors and weavers who collect raw materials, produce both finished goods and partially finished goods
- Main products: furniture, lamps and other decorative items
 - Bamboosa Longsima sp. Nov – “lung” bamboo and garden rattan

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Resource Efficient Cleaner Production and Value Chain Diagnostics

...for more informed policymaking

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Resource Efficient and Cleaner Production

- Continuous application of preventive environmental strategies to processes, products and services to increase efficiency and reduce risks to humans and the environment
- RECP addresses three sustainability dimensions individually and synergistically:
 - *Production efficiency*
 - Through improved productive use of natural resources by enterprises
 - *Environmental management*
 - Through minimization of the impact on nature by enterprises
 - *Human development*
 - Through reduction of risks to people and communities from enterprises and supporting their development



*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*





RECP for the *Greening of Industry*

- Evaluation report (2012) conducted by SECO;
- 340 consultancy projects conducted by Viet Nam Cleaner Production Centre on behalf of ten major donors and agencies such as CIDA, DANIDA, ILO, UNEP, WWF and the EU
- Cleaner Production options implemented in pilot companies led to savings of:
 - 7% in electricity,
 - 9% in coal,
 - 18% in water and
 - 25% in chemical consumption
 - Average savings of US\$ 75,000/year



*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*

Source: SECO, 2012



RECP for more informed policymaking

- For an **enterprise level perspective**:
 - Production processes
 - Sources of waste and pollution
 - Resource (including) energy efficiency
 - Occupational health and safety
- For **practical “triple-bottom line” solutions** to dispel conventional myths about environmental protection costing more, not being feasible etc.

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Value Chain Diagnostics Methodology

- Better understanding and optimizing of resource use
- Enhanced adaptive capacity,
- For products and services that are green, and
- Holistic analysis of sustainable development.



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Rattan and Bamboo Craft - The Challenge

- You are local government officials working for the provincial government of Nghe An Province.
- Your task:
 - In your working groups you will develop a strategy:
 - To improve **incomes** of local people in Nghe An Province, contributing to better **livelihoods and poverty alleviation**.
 - To reduce **overexploitation of natural resources** in addition to **production processes which pollute the environment**.

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Working Session 1: Value Chain Analysis

Task 1:

- Map the bamboo and rattan value chain in Nghe Province in Table 1.
- Actors,
- Functions and
- Interchanges

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Working Session 1: Value Chain Analysis

Task 2:

- Characterise the different dimensions of the bamboo and rattan value chain,
- Identify **constraints** and **opportunities**,
- Making your observations in the Table 2.

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Working Session 2: Resource Efficient and Cleaner Production and Suggestions for Policy Recommendations

Task 3.

- From the description of production processes involved in making rattan and bamboo,
- Identify problem areas and potential cleaner production options in Table 3:

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Working Session 2: Resource Efficient and Cleaner Production and Suggestions for Policy Recommendations

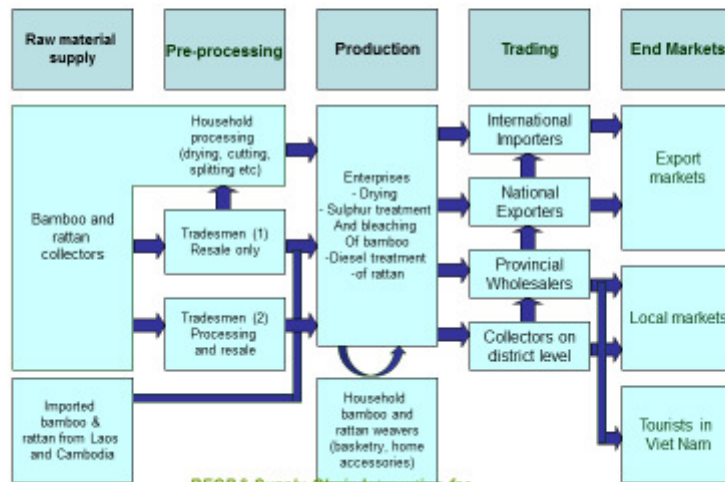
Task 4.

- Make policy recommendations for bamboo and rattan sector in Table 5.
- Sustainable development objectives
- Recommendations for policy actions

*RECP & Supply Chain Integration for
Sustainable Rattan & Bamboo Craft in Viet Nam*



Task 1: A Solution: Bamboo and Rattan Value Chain



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



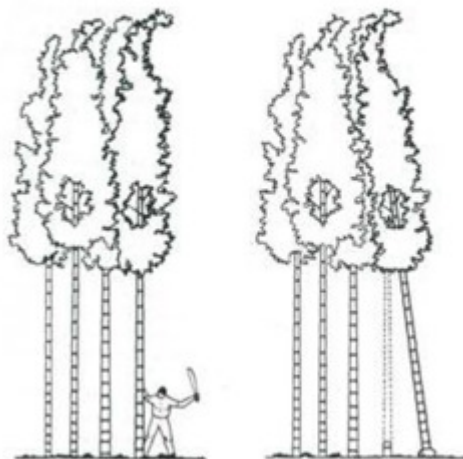
Task 3: Cleaner Production Problem Areas ...



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Raw Materials - Collection



RECP & Supply Chain Integration for
 Sustainable Rattan & Bamboo Craft in Viet Nam



UNITED NATIONS
 INDUSTRIAL DEVELOPMENT ORGANIZATION

Green Industry

Transportation



Photos from www.pbase.com

RECP & Supply Chain Integration for
 Sustainable Rattan & Bamboo Craft in Viet Nam



Before... Pre-processing



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Before... Pre-processing



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Pre-processing

...After



Pre-processing

...After



RECP & Supply Chain Integration for
 Sustainable Rattan & Bamboo Craft in Viet Nam





UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION





Finishing of Goods



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Design-for-Sustainability - Eco-Design






RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Green Growth Through Green Industry Development in Viet Nam

- Presenting results from the project, Policy Advice for Environmental Management, results included
- A policy framework and guiding quantitative goals
- **Green Industry pilot demonstrations:**



- **Pilot I: EAF Steel Industry**
- An industry-driven, voluntary approach, based on intra-sector benchmarking and technology-cooperation, best practice sharing and learning, and technology road-mapping
- **Pilot II: Eco-Town Development in Hoi An City**
- A local-government-driven planning approach for GI, solving environment and climate challenges, balancing business and community development, and enhancing income and employment opportunities
- **Pilot III: Zero Waste Systems for Crafts Villages**
- Innovative models for sustainable crafts production focusing on recovery and utilization of all materials and reduction of emissions



Reference Materials:

- **CP Toolkit**
 - Modular structure
 - Introduction to CP
 - Team, Policy and Motivation
 - Material Flow Analysis
 - Energy Analysis
 - Innovation, Creativity and Option Generation
 - Green Procurement and Hazardous Materials
 - Industrial and Environmental Controlling
 - Waste Management and Recycling
 - Audits
 - Networking at National and Regional Level
 - From CP to Environmental Management Systems
 - Hazard Analysis and Critical Control Points
- Linked with supervised CP audit programme leading to UNIDO endorsed CP award



RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Background: MDG-F Joint Programme - Results

- 43 “Quick Scan” cleaner production assessments conducted and recommendations made
- 1,430 grassroots producers trained
- 50 Trainers from vocational schools trained
- Expert help to 22 SMEs to redesign their products based on principles of eco-design and LCA
- Dissemination of CP case studies

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Conclusion

- Integrated/ value chain solutions
- No miracle materials
- No inherent green industries
- Environmental issues need to be addressed in their socio-economic context
- No such thing as free!

RECP & Supply Chain Integration for Sustainable Rattan & Bamboo Craft in Viet Nam



Reference Materials:

- **Bibliography**
- Hartwich, F., J. Devlin and P. Kornawa. 2011. Diagnostics for Industrial Value Chain Development, published by UNIDO
- Reubens, R. and H. L. Nguyen, 2011. Final Report - Rattan and Bamboo Product Development – published by UNIDO.
- Tuong, T. H. and A. Eilgmann, 2011. Value Chain Study for Bamboo and Rattan in Phu Tho, HoaBinh, Thanh Hoa and Nghe An, Viet Nam, produced under UN Joint Programme, "Green Production and Trade to Increase Income and Employment Opportunities for the Rural Poor."
- UN System in Viet Nam. Craft and Design in Viet Nam - produced under UN Joint Programme, "Green Production and Trade to Increase Income and Employment Opportunities for the Rural Poor" - produced under UN Joint Programme, "Green Production and Trade to Increase Income and Employment Opportunities for the Rural Poor."
- Viet Nam Cleaner Production Centre, 2011. Cleaner Production and Design for Sustainability Assessment in the Rattan Value Chain.
- Viet Nam Cleaner Production Centre, 2011. Establishing a Sustainable Production System of Rattan Products in Cambodia, Laos and Viet Nam – Research and Case Studies – published by VNCPC, WWF and EU.



Reference Materials:

- Maplesden, R., 2011. UNIDO Green Industry – Policies for Supporting Green Industry.
- SECO, 2012. Independent Impact Evaluation of UNIDO Support to the National Cleaner Production Center in Vietnam Funded by the Swiss State Secretariat for Economic Affairs.
- Wong, C. and R. van Berkel, 2012. Green Growth Through Green Industry Development in Viet Nam, published by UNIDO.

Websites:

- Green Production and Trade to Increase Income Opportunities and Employment for the Poor: www.greentrade.org.vn
- International Network for Bamboo and Rattan: www.inbar.int
- UNIDO Cleaner and Sustainable Production Unit (CPU) Homepage: www.unido.org/cp
- Viet Nam Rattan Association <http://vietnamrattan.org/>
- Viet Nam Cleaner Production Centre: www.vncpc.vn



Thank You



Catherine WONG
Environmental Management Branch
c.wong@unido.org

Rene VAN BERKEL PhD
Chief, Cleaner and Sustainable Production Unit
Environmental Management Branch
r.vanberkel@unido.org



Case 9:
Weaving Wealth:
Resource efficient and cleaner production and supply chain integration
for more sustainable rattan and bamboo craft in Viet Nam