

## Environmental Impacts of Trade:

Indonesia experiences in addressing environmental impacts of trade of food production

By LAKSMI DHEWANTHI

Ministry of Environment, Indonesia

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## Key points

- **What are the main environmental impacts of Food and Food Processing**
  - Why is it important to address environmental concerns and integrate and overall socio-economic development
- **What tools can be used to assess environmental impacts**
- **What are the legal and institutional framework for addressing these into policy making**
  - What should be done to effectively to do so?
- **What are the challenges?**
  - How can these challenges overcome



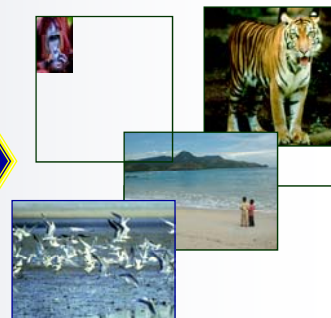
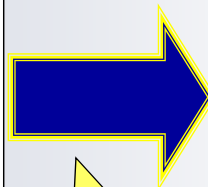
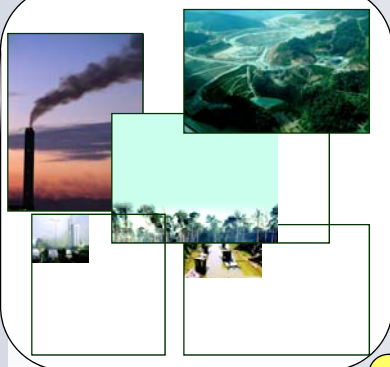
## Background

- Trade has the potential to stimulate economic, social and environment. Yet, to ensure that this trade is environmentally sustainable is a major challenge;
- In this regard, environmental requirements are increasingly viewed as NTBs. Nevertheless, they are factors increasingly influencing product quality and competitiveness → necessary to ensure that trade liberalization does not have a negative impact on the environment, and that economic growth is environmentally sustainable;
- Increase negotiation on and discussion of trade and environmental issues → increased the challenges confronting developing countries as they attempt to formulate coherent trade and environment policies.<sup>3</sup>



## Indonesia

Over-exploitation of Natural Resources and Environment in the last 3 decades



How trade contribute to better natural resources and environment in Indonesia?

## Food and Food Processing in Indonesia: Key commodities



RICE

PALM OIL

Pulp and  
Paper

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## Why is it important?

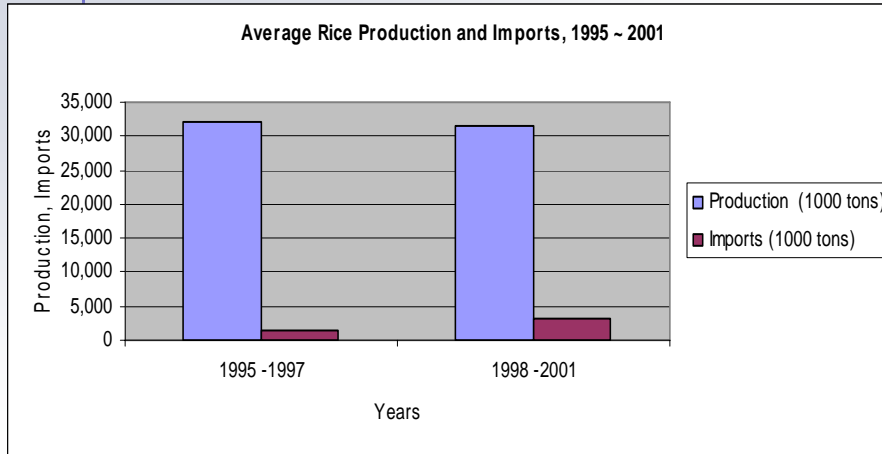
- Rice is a strategic commodity for Indonesia  
→ Main staple food, main source of income of small farmers,
- Palm oil is one of key commodities exported from Indonesia;
- pulp and paper, non-food, but significantly important to Indonesian trade and environmental damages

Related to smallholders and significant number of workers

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## In case of rice, trade liberalization has resulted in an increase in rice imports

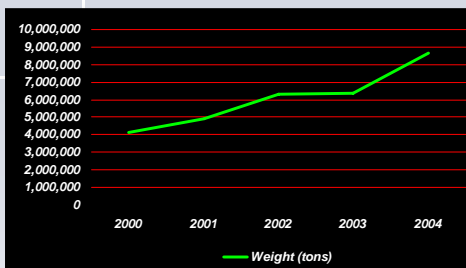


Source: BULOG and BPS in Unsoed, 2004

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## Palm Oil



15.11 Palm Oil and its fraction, whether or not refined, but not chemically modified

Countries Destination:  
Malaysia, China, India, Vietnam, EU, etc

Country	1969		2001		2004	
	( 000 tons)	%	( 000 tons)	%	( 000 tons)	%
Malaysia	370	32.74	11 660	48.26	13 974	46.00
Indonesia	190	16.82	8 300	34.36	12 080	39.00
Nigeria	50	4.42	750	3.11	790	3.00
Colombia	30	2.66	560	2.32	632	2.00
Thailand	N A	-	530	2.19	668	2.00
Congo	230	20.35	96	0.40	N A	
Others	260	23.01	2 263	9.36	N A	
<b>Total</b>	<b>1 130</b>	<b>100.00</b>	<b>24 159</b>	<b>100.00</b>	<b>&gt; 30 000</b>	<b>100.00</b>

Source:  
Ministry of trade, 2005



## Pulp and Paper

Significant, in term of contribution to gross domestic product (GDP), volume of exports, number of workers, excessive use of natural resources, and highly potential environmental impacts

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## Environmental Impacts of Trade



What tools and what are the impacts?

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## Rice

Java Island' case study\*)

### UNEP Integrated Assessment

The assessment help us to understands the different effects of trade liberalization.

Impacts divided into:

- Product effects
- Technological effects
- Scale effects
- Structural effects
- Regulatory effects

+ Valuation of environmental impacts

\*) by Soedirman University - Indonesia and UNEP, 2004-2005

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## Multifunctionality of rice fields

In addition to rice production, rice fields provide other functions such as flood mitigation, conservation of water resources, reducing erosion, rural amenity, food security, organic waste disposal, income and employment generation

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Effects	Related economic/environmental factor	Air Quality	Water Supply	Water Quality	Land Quality	Erosions	Biodiversity
Product	Rice imports	0	0	0	0	0	0
Technological	Fertilizer use	0	0	0	0	0	0
Scale	Increase in rice availability promotes activities in other sectors	(-)	(-)	(-)	(-)	(-)	(-)
Structural	Shift from agricultural to non-agricultural land use	(-)	(-)	(-)	(-)	(-)	(-)
Regulatory	Reducing input and subsidies floor price	(+) (+)	0 (+)	(+) (-)	(-) (-)	(0) (+)	(+) (-)

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## Rice' environmental Impacts

- Increase in Land Conversion (land use shifting)
- Decrease chemical fertilizer/pesticides use
- Decrease in Total Value of Environmental Benefits of Paddy field
  - Flood protection
  - Water retention
  - Erosion prevention
  - Assimilator of organic waste
  - Air quality protection

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## Valuation of the impacts<sup>\*)</sup>

No.	Function	US\$/Ha/Year
1	<b>Economic:</b> Rice production	<b>1,430.09</b>
2	<b>Social</b> Socio cultural present Urbanisation prevention	<b>296.43</b> 92.62 303.81
3	<b>Environment:</b> Flood protection Water retention Erosion prevention Land sliding prevention Assimilator of organic waste Air quality Pesticides use	<b>2,101.12</b> 711.41 488.99 6.98 656.78 234.31 2.65 4.900

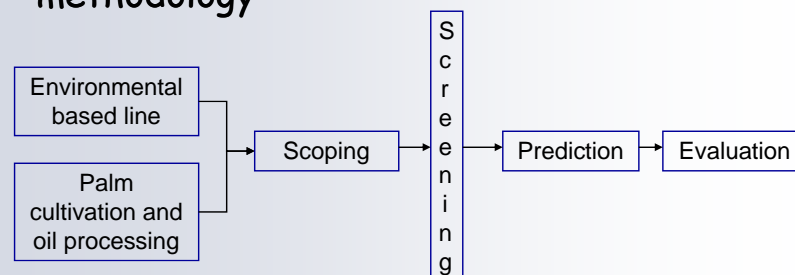
<sup>\*)</sup> Replacement Cost Method and Contingent Valuation Method (CVM)

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## Palm Oil<sup>\*)</sup>

### ■ Environmental Impact Assessment methodology



### ■ Data based on field survey and self-assessment by industries

<sup>\*)</sup> by Ministry of Environment and Sinar Mas Agro Resources and technology Institute, 2004

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## Palm Oil' environmental Impacts

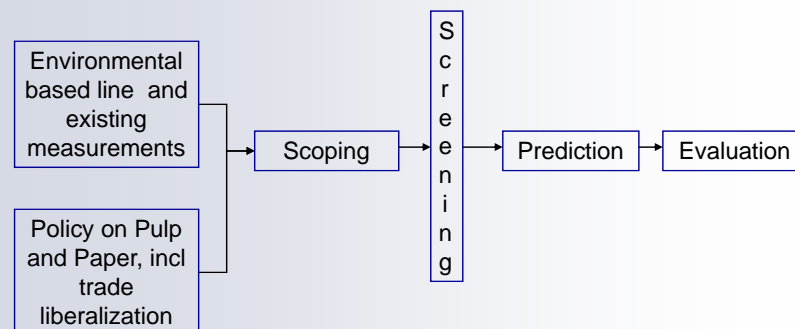
- Land use change → conversion from Forest area to palm plantation
- Threat to Biodiversity
- Ecosystem alteration
- Watershed alteration; increasing flood and drought threat
- Solid Waste
- Water pollution

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## Pulp and Paper<sup>\*)</sup>

- Combination: UNEP Integrated Assessment and Strategic Environmental Assessment



<sup>\*)</sup> by Ministry of Environment, Indonesia, 2004

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## Pulp and Paper' Impacts on the environment

- Use of forest resources,
- Threat to biodiversity,
- Excessive use of natural resources → water, energy, aquatic, surface and ground water,
- acid rain
- health and safety (resulted from effluent)

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Trade-related Effects	Impact on Forest Resources	Impacts on Bio-diversity	Impact on Water Use	Impact on Energy Use	Impact on Aquatic	Impact on Surface & Ground Water	Impact on Acid Rain	Impact on Health & Safety
Product effects	(0)	(0)	(0)	(0)	(-)	(-)	(0)	(0)
Technology effects	(++)	(++)	(+++)	(++)	(+++)	(++)	(++)	(+++)
Scale effects	(--)	(--)	(--)	(-)	(-)	(-)	(-)	(-)
Structural effects	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
Regulatory effects	(++)	(++)	(0)	(0)	(++)	(++)	(++)	(++)

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## It should be noted, yet

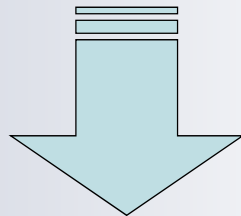
- Isolating the effects of trade liberalization from the effects of other policies has been difficult.
- The impacts of trade liberalization are different in one site compared to other site in view of different social and environmental conditions.

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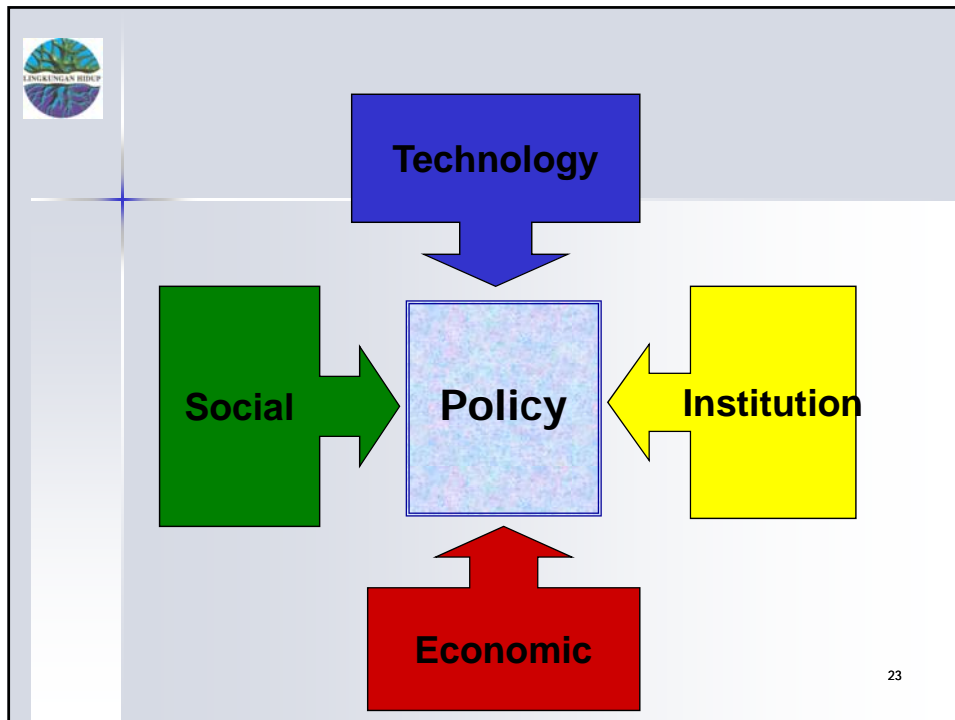
## What should be done to effectively to addressing the impacts?

Addressing environmental impacts into policy making



Internalising environmental factors/impacts into policy measurements

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**Measurements include:**

- **Technology**
  - Cleaner Production and Technology
  - EMS
- **Institution**
  - Rules, regulation and standards
  - Law enforcement
  - EIA/SEA
- **Social**
  - Traditional knowledge/wisdom
  - Community based
  - Multistakeholder initiatives
- **Economic**
  - Financial incentive/disincentive
  - Fiscal instruments

In the top left corner, there is a small circular logo with the text "LINGKUNGAN HIDUP" and a tree-like graphic.

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	Technology	Institution	Social	Economic
Rice	<ul style="list-style-type: none"> <li>■ Integrated Pest Management (IPM)</li> <li>■ Go organic</li> <li>■ New irrigation system</li> </ul>	<ul style="list-style-type: none"> <li>■ Food safety and security policies</li> </ul>	<ul style="list-style-type: none"> <li>■ Plasma-Nucleus farming</li> <li>■ Traditional farming system</li> </ul>	<ul style="list-style-type: none"> <li>■ Pricing policies</li> </ul>
Palm Oil	<ul style="list-style-type: none"> <li>■ IPM</li> <li>■ HVCF (High Value Conservation Forest)</li> <li>■ Waste minimisation</li> <li>■ Land Application</li> </ul>	<ul style="list-style-type: none"> <li>■ EIA</li> <li>■ Effluent Standard</li> <li>■ Certification schemes</li> </ul>	<ul style="list-style-type: none"> <li>■ RSPO (Roundtable Sustainable Palm Oil)</li> <li>■ Plasma-Nucleus farming</li> </ul>	<ul style="list-style-type: none"> <li>■ User/polluter fee</li> <li>■ Financial and fiscal instruments</li> </ul>
Pulp Paper	<ul style="list-style-type: none"> <li>■ Cleaner Production</li> <li>■ Environmental Management Systems</li> </ul>	<ul style="list-style-type: none"> <li>■ EIA</li> <li>■ Effluent standards</li> <li>■ Ecolabel</li> <li>■ Environmental Audit</li> </ul>		<ul style="list-style-type: none"> <li>■ User/polluter fee</li> <li>■ Financial and fiscal instruments</li> </ul>



## What are the challenges?

- Lack of access to the information, incl methodologies on impact assessment;
- Weak environmental law enforcement;
- Lack of mutual recognition arrangement, equivalency and harmonization among standards, measurements, as well as laboratory testing procedures;
- Lack of capability → smallholders/SMEs may encounter additional difficulties to meet the measurements
- Efforts to fulfill the measurements (incl. new technology, etc) see as a burdensome and costly
- Lack of government to provide financial incentive

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## How to overcome the challenges?

- Public awareness building,
  - incl. social control
- Enhance law enforcement
  - incl. good governance initiatives, law enforcer capacity building
- Incentive/disincentive
  - incl. mobilization of new financial resources to provide financial

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## Importants Initiatives

- Cleaner Production and Technology
- Labeling and Standardization
- Good Governance to allow implementation of effective sustainable development;



adipura



Ramah Lingkungan



- Public Disclosure and information dissemination;
- Economic Instruments, icl. alternative financial resources and financial incentives;
- Communities and stakeholders involvement;

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## Financial / Fiscal incentives

Indonesian Experiences  
in getting financial institution involved

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## Environmental Soft Loan Schemes

- Since 1994, MoE and MoF have cooperation with banks (state, private and regional development) to channel fund through environmental soft loan schemes
- To assist all scale of enterprises to invest in the field of environmental pollution prevention and control, and in the same time improving their production efficiency

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## ELIGIBILITY

- **Pollution Prevention Equipments**
  - Cleaner Production Technology (Machineries)
  - Recycling Equipments
- **End-of-pipe Solutions**
  - Wastewater Treatment Plant (WWTP)
  - Air Pollution Control (APC)
  - Solid Waste Treatment Plant (SWTP)
- **Supporting**
  - Related working capital, incl. consultant Fee
  - EMS Development and Certification

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## Fish Processing Enterprises



**Building new cold storage unit and additional fish-processing unit by using amonia as its freezing medium to replace CFC.**





**Environmental Benefit :**  
 Ammonia has no Ozone Depletion Potential and Global Warming Potential.

**Financial Benefit:**

Fresh (1 day delivery)

Contain More water

MoE Approve an IEPC Loan of Rp3,5 Billion for compressor, air cooling unit, water chiller, heat exchange



# POULTRY

MoE approve an IEPC Loan for Rp 3 Billion for Cages, Chicken Feed (Boiler, Autoclave, Drying Machine), Composting of Chicken dropping.



Integrated Poultry



Cage



Air Controller

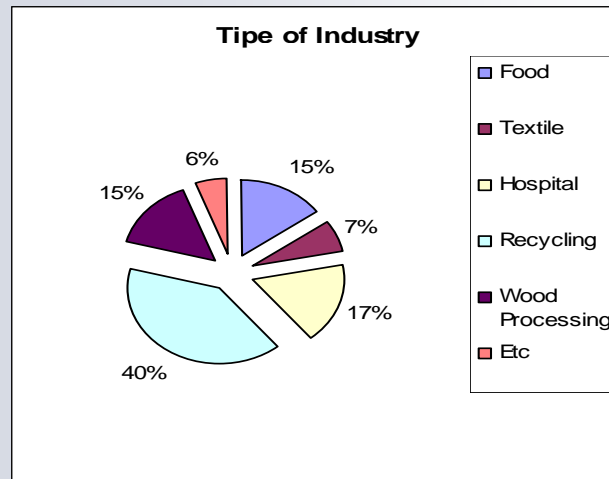


Belt Conveyer for Chicken Dropping

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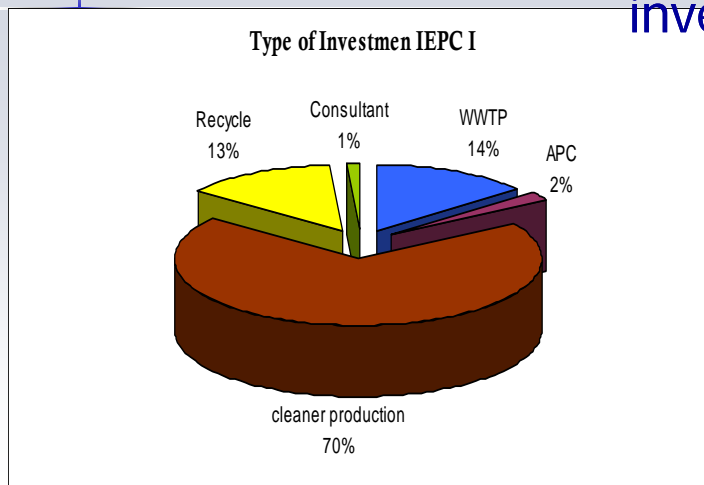
## Percentage of Loan usage by Industry



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## Percentage of Loan usage by Type of investment



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## Internalising environmental issues into bank' policies

- 2004, MoE in cooperation with Central Bank of Indonesia, to internalize environmental measures within bank's policies
- Indonesian central bank regulation no. 2/2005 → promulgates inclusion of environmental performance within bank' credit policy
  - Create direct financial disincentive
  - After PROPER announcement in August 2005, some national private banks adjust its interest rate (up to 0.5%) for borrowers who environmentally perform under **RED** and **BLACK** categories

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## Closing remarks

- Trade relating to **Environment Issues** is only one side of the coin, but **Unequal Resources Distribution in the World and Industrial Pollutant** is another more important side of the coin, in order to achieve and to ensure a "win-win-win" situation → it is need to internalizing environmental impacts into policy making process at all levels;
- **Unfair and unnecessary barriers have to be avoided in order to meet the objective of environmental protection.** Most food commodities are produced by smallholders in the developing countries with limited capability and capacity to meet the sound environmental quality required by the consumers in the developed countries. → All related parties must be equally involved, a "RSPO" type of forum is needed;
- **Capacity building on the awareness of environment to all related stakeholder, especially to smallholders, is needed → Developing countries need a capacity building and technical assistance, to able to address environmental impacts resulting from trade. Yet the capacity building and technical assistance must result into reasonable costs and does not burden production capacities (in term of cost).**<sup>38</sup>



*Thank you*