

ENVIRONMENT

**Environmental protection for
sustainable development in Vietnam**



Dr. HOANG HAI

THE UNVERISTY OF DANANG



Name : HOANG HAI

Home Town / Country : Danang, Vietnam

Date of Birth : 10 / 05 / 1970

Affiliation : Department of International Cooperation, The University of Danang.

Position : Director

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2008 - 2012 : Lecturer of Faculty of Environment, Danang University of Technology, The University of Danang;

2012 - Present: Director of Department of International Cooperation, The University of Danang.

Field of Interests (Research or Education)

Safe Vegetable Production and Consumption, Environmental Management; Sustainable Development

Research and/or Educational Activities

1) Research experiences and achievements

- Suehiro Otoma, Hai Hoang, Izumi Miyazaki, Hong Hai, “A Survey on Municipal Solid Waste and Residents’ Awareness in Danang City, Vietnam”, Journal of Science and Technology, The University of Danang, No.4 April 2011, pp.164-179
- Kato T., Pham, T. X. D., Hoang, H., Xue, Y., and Tran, V. Q. (2012), “Roles for pig farmers in food residue recycle in Danang, Vietnam. 2nd Congress of East Asian Association of Environmental and Resource Economics”, pp.1-24(CD-ROM) February 2-4, 2012, Bandung, Indonesia
- Sanitation Constraints Classification and Alternatives Evaluation for Asian Cities, cooperating with Kyoto University, 2009 - 2012.

2) On-going research activities

- The research project on low-cost wastewater treatment plant in Phu Loc, Danang city.
- The research project on Eco-action 21 in Danang City, cooperating with Kyoto University and Department of Science and Technology and Department of Natural Resources and Environment, from 2012.

Comments

The environmental issues and concerns that have an affect on all of us require urgent attention to mitigate adverse impacts of the pollution, climate change. Hence international cooperation is extremely important to solve global problems towards sustainable development. Sharing our knowledge and experience will open the gate to success.

OUTLINE

1. ABOUT VIETNAM
2. ABOUT DANANG
3. ECONOMIC DEVELOPMENT IN VIETNAM
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM
5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

LEARNING OUTCOMES

- Economic development and environmental issues;
- Resource degradation and environmental degradation affect human well-being; know the importance of environmental protection;
- The mean of sustainability and sustainable development;
- Some arguments for conservation or preservation of nature;
- Several of the most important environmental problems facing in Vietnam. The signs of hope for solving these problems for sustainable development.

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6. CHALLENGES FOR SUSTAINABLE DEVELOPMENT

Map

1. ABOUT VIETNAM



1. ABOUT VIETNAM

- Area: 329 mil ha
- Population: 93,421,835 (2016)
- 65 provinces & cities
- Capital: Hanoi
- Biggest city: Hochiminh City
- Climate: Tropical
- Language: Vietnamese



1. ABOUT VIETNAM

1.1. Climate:

- Average tempt. : 26⁰C
- Hot months: 6, 7, 8, average tempt.: above 30⁰C
- **Cold*** months: 12, 1, 2, average temp.: 18-23⁰C.
- Humidity: above 80%;
- Rain fall: Average 2,504.57 mm/year;
- Influence by monsoon

1.2. Food and Culture



1. ABOUT VIETNAM



January, 2012



Can we swim in January?



Foods

PHO (PHỞ)



SPRING ROLLS

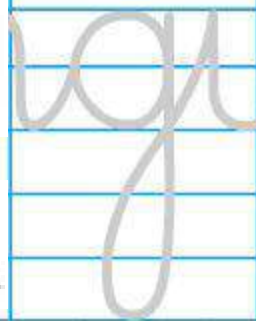
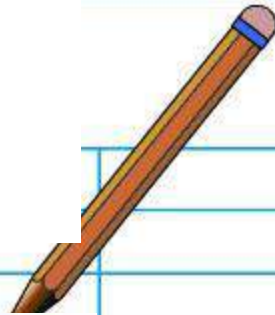


1. ABOUT VIETNAM

Vietnamese Language



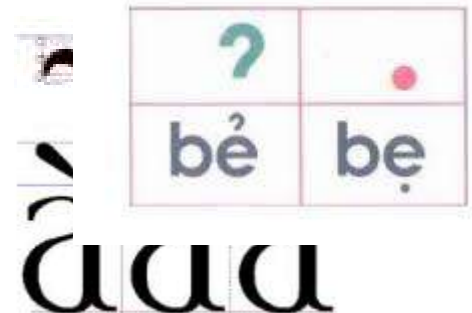
cá



The Europeans count on their brethren in the block: Italiano, Francais, Norsk and so on. The North Americans are mostly schooled with either Espanol or Francais. But to tell one's peers that he has an excellent command of the thing called Tiếng Việt, that is how-entirely different (source:internet)



Viết tiếp Thôi viết



Clothes



1. ABOUT VIETNAM

1.4. Ethnic: 56

- Ethnic: Kinh Ethnic people accounts for 87% (above 66 million people)





1. ABOUT VIETNAM

Economic: Developing

Before 1980, Vietnam had imported rice almost every year. In 1990, rice (incl. paddy) production was reached 19.2 million tons and exported 2.3 million tons. In 2004, rice (incl. paddy) production quantity reached 35.8 million tons with an increase of 186.7% in comparison with 1990



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2. DANANG CITY





2. DANANG CITY

Danang is the biggest city in the Central Region of Vietnam.

It is the Eastern Terminal of the East-West Economy Corridor

2. DANANG CITY

- **General information**

Area 1,259km²

Population 852,493 people

- **Administrative unit**

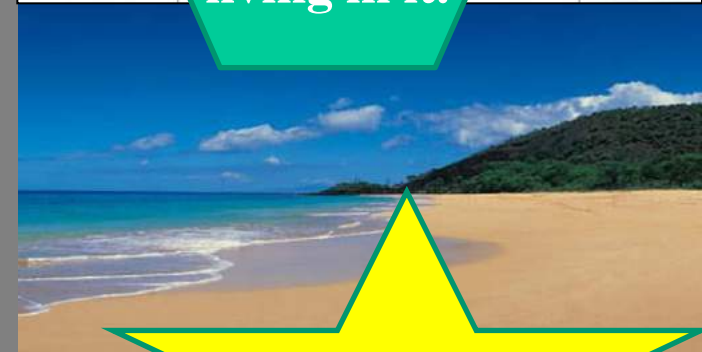
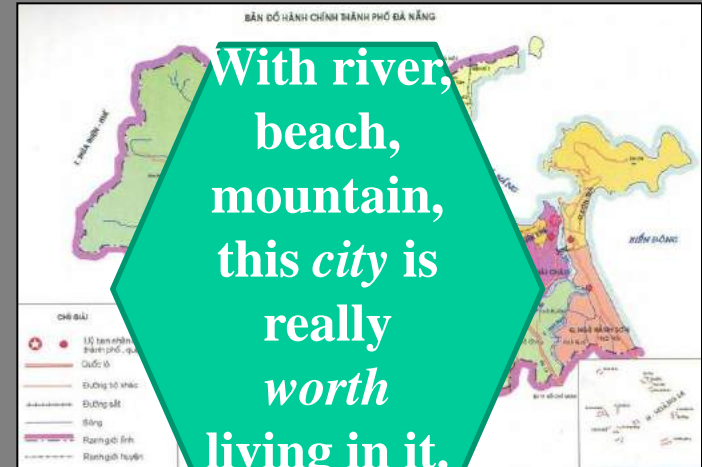
6 Urban & 2 Rural districts

- **Developing Orientation**

The important economic center of the Central & Highland of Vietnam

- **Role**

- Economic center: harbour, industrial zones, trade and Center of culture, sport, education and training, science and technology...



Green

**Low
carbon**

2. DANANG CITY

Sight seeing



2. DANANG CITY



Hoi An City – the
above 200 year old city

Vietnam and
Japan historical
relationship



2. DANANG CITY

Hue- the ancient city

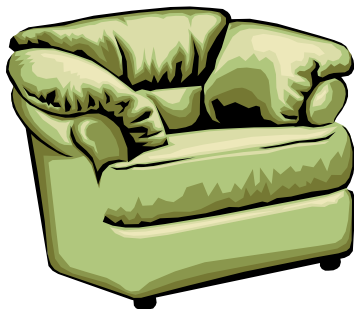


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3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES

Making choices



Economics is the science of choice...
...and many choices involve the environment



(Source: Giovanni Ruta,
Principles of Environmental Economics, WB)

3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES

- *Major causes of environmental problems are **population** growth, **wasteful** and **unsustainable resource** use, **poverty**, and exclusion of **environmental costs** of resource use from the market **prices** of goods and services.*

Why Do We Have Environmental Problems?

(Source: Giovanni Ruta,

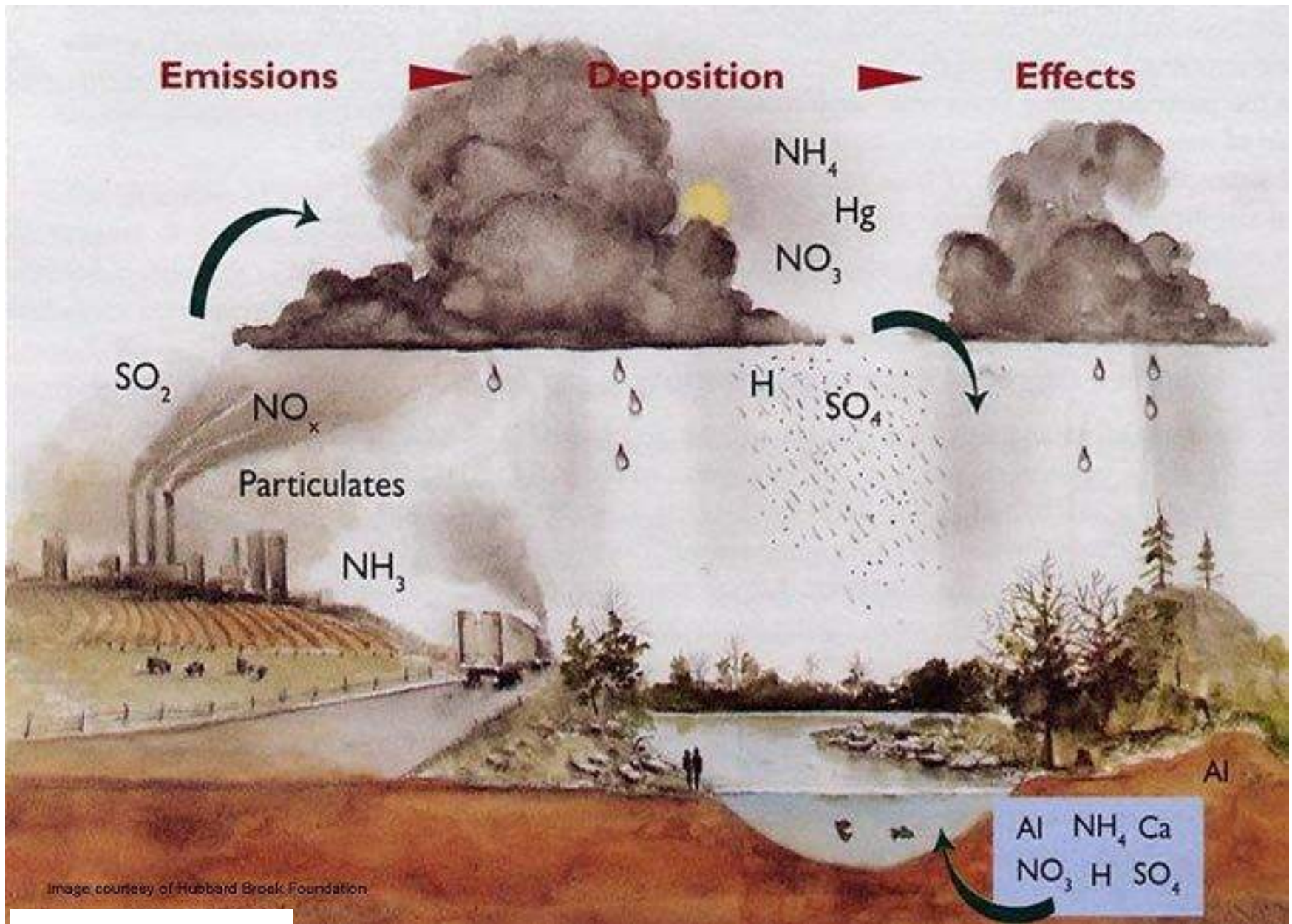
Principles of Environmental Economics, WP)

3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES

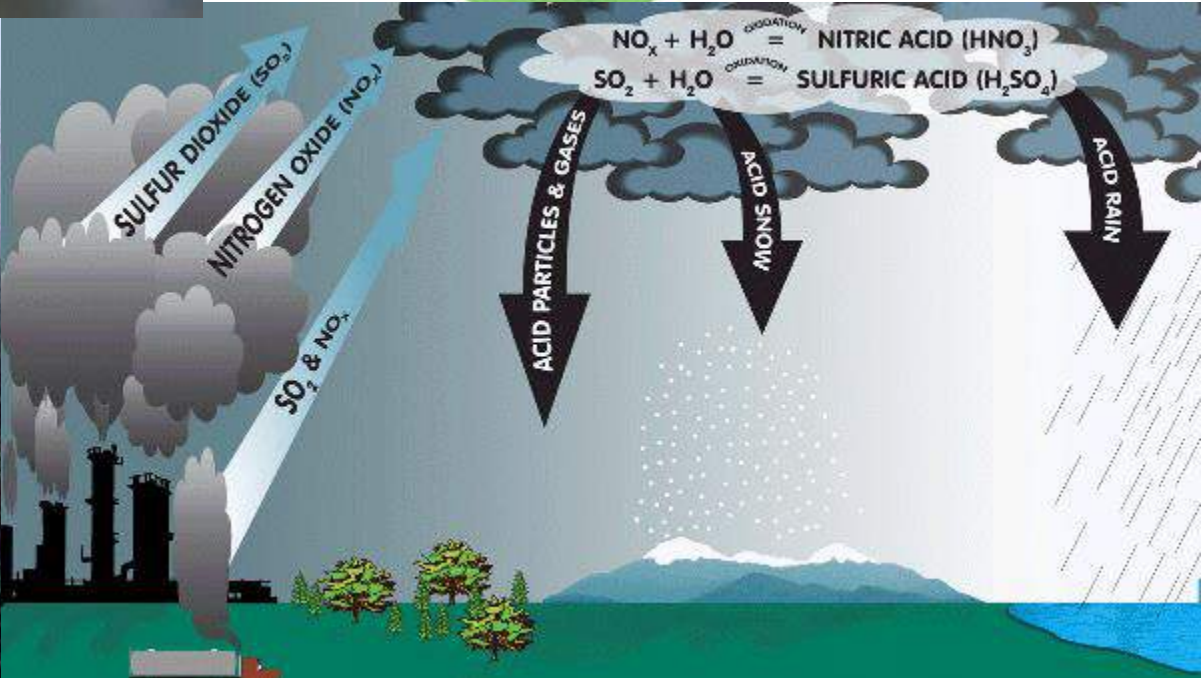
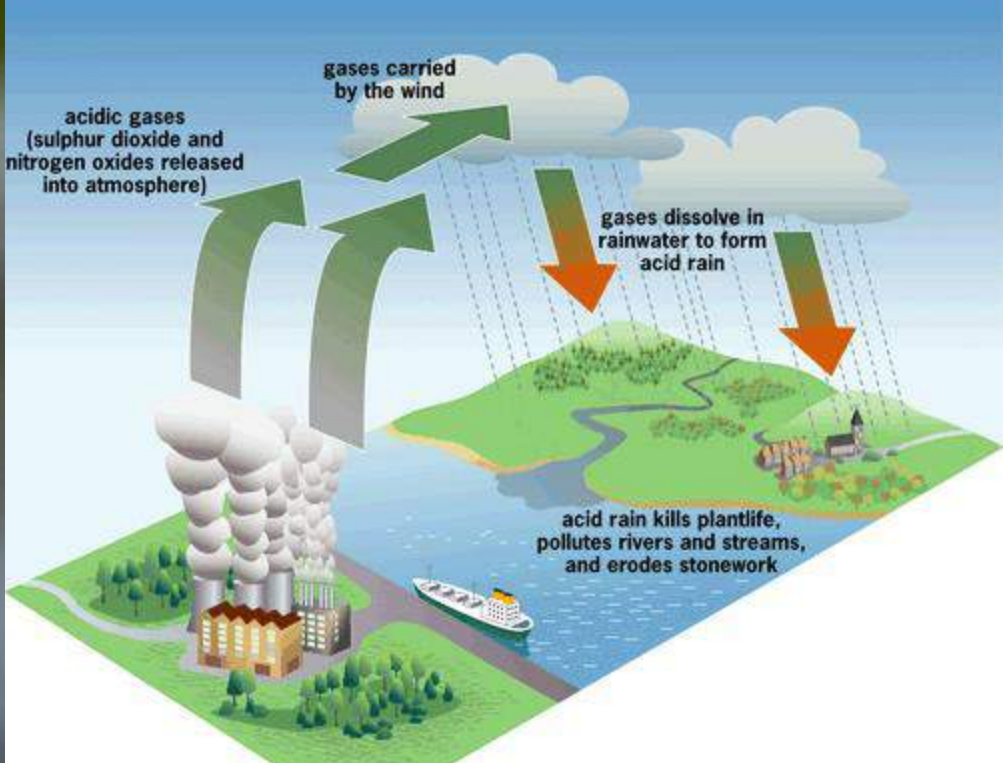
- **Environmental degradation**: wasting, depleting, and degrading the earth's natural capital
 - Happening at an accelerating rate
 - Also called **natural capital degradation**

We Are Living Unsustainably

ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES



Acid rain



3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES



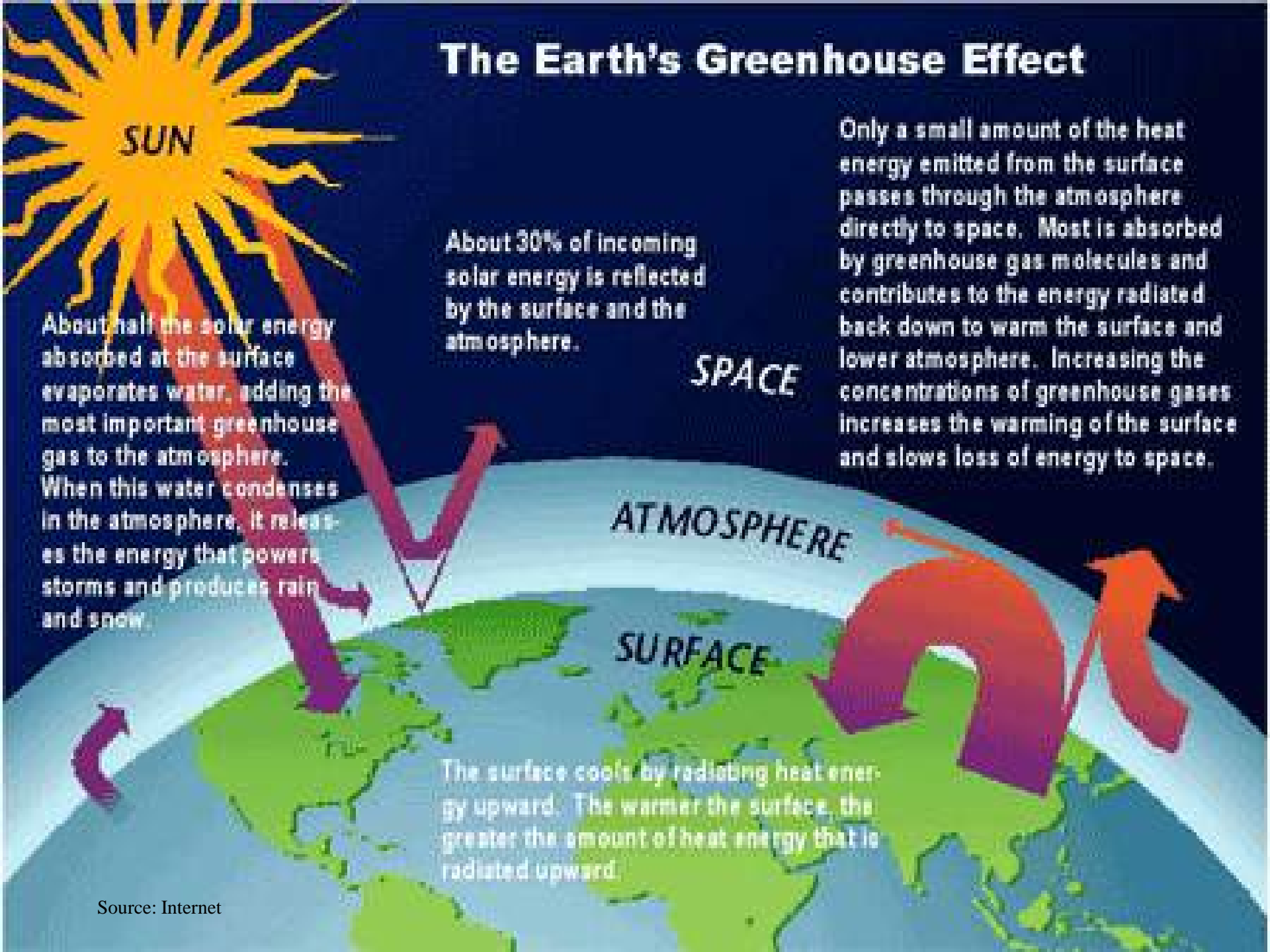
3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES

Environmental Degradation means

**SOCIAL FACTORS: POLULATION;
POVERTY; UBANIZATION...
NATURAL FACTORS: GLOBAL
WARMING, DEPLETAION OF
OZONE...**

- ENVIRONMENTAL DEGRADATION IS THE DETERIORATION IN ENVIRONMENTAL **QUALITY** and **QUANTITY** FROM AMBIENT CONCENTRATION OF POLLUTANTS AND OTHER ACTIVITIES AND PROCESSES SUCH AS IMPROPER LAND USE AND NATURAL DISASTER
- EROSION OF THE **QUALITY** and **QUANTITY** OF NATURAL ENVIRONMENT CAUSED, DIRECTLY OR INDIRECTLY, BY HUMAN ACTIVITES.

The Earth's Greenhouse Effect



About half the solar energy absorbed at the surface evaporates water, adding the most important greenhouse gas to the atmosphere. When this water condenses in the atmosphere, it releases the energy that powers storms and produces rain and snow.

About 30% of incoming solar energy is reflected by the surface and the atmosphere.

SPACE

Only a small amount of the heat energy emitted from the surface passes through the atmosphere directly to space. Most is absorbed by greenhouse gas molecules and contributes to the energy radiated back down to warm the surface and lower atmosphere. Increasing the concentrations of greenhouse gases increases the warming of the surface and slows loss of energy to space.

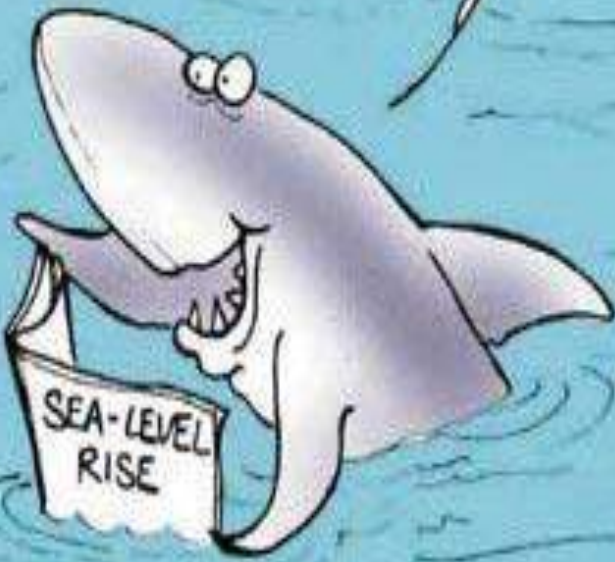
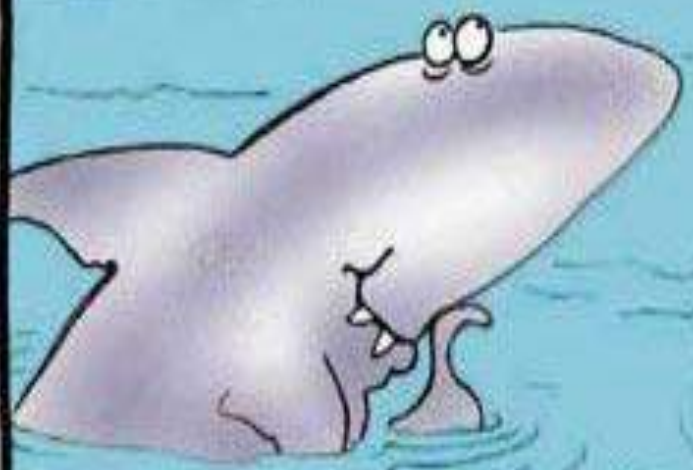
ATMOSPHERE

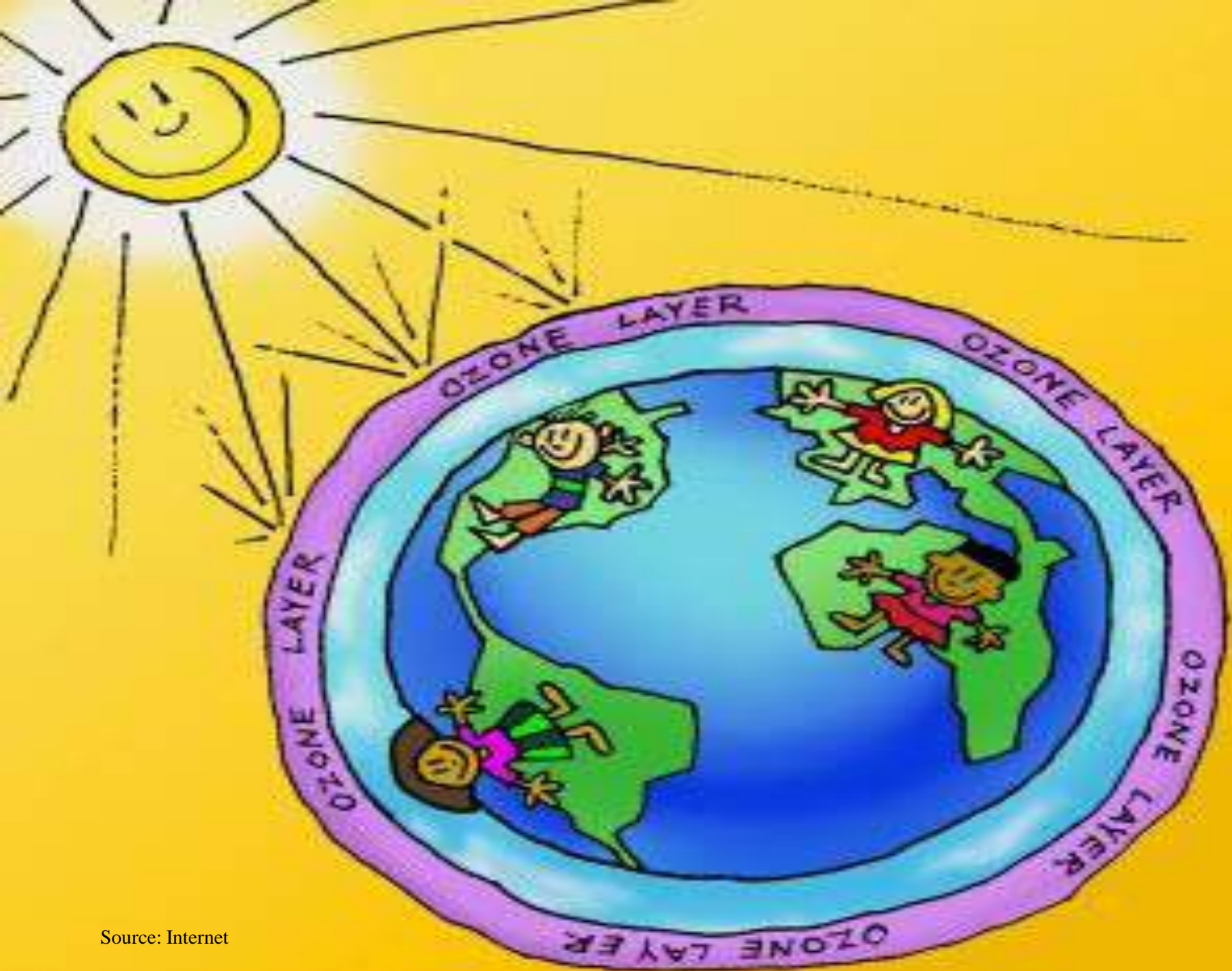
SURFACE

The surface cools by radiating heat energy upward. The warmer the surface, the greater the amount of heat energy that is radiated upward.



GOOD NEWS! AT THE CURRENT RATE OF GLOBAL WARMING WE SHOULD BE ABLE TO JUST SWIM OVER THERE AND EAT HIM IN UNDER FIVE YEARS..!





Source: Internet

3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES

ENVIRONMENTAL POLLUTION

Air pollution

Water pollution

Noise Pollution

Soil Pollution?



3. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES

Among the environmental degradation Air Pollution is of global significance unlike water and soil pollution which are of local or regional effects.



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4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Strengths

- An important domestic market of above 90 millions of habitants
- Young and increasingly well-trained population (70% of the population age between 15 and 64) having potential for high value added jobs
- Perfect location as a hub for South East Asia
- One of the most dynamic economies among the Emerging Asia nations

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Economic development

- Vietnam has been recognized as one of Asia's great success stories in terms of economic and social development over the last 20 years
 - Vietnam economy has a robust and steady growth since 1990 (average growth rate of 6.41% since 2000).
 - The growth is relatively balanced, with industry and services sectors contributing about 40% each to GDP
 - Vietnam is among the most attractive countries in terms of external financing (FDI and portfolio equity)

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Agrarian Economy Gradually Transitions to Industry



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Structural Change is Driving Growth

- Vietnamese productivity growth has been driven by **structural change**, with workers moving from agriculture to manufacturing
- With 49% of employment still in agriculture, this process can **continue**

HOWEVER

- The manufacturing jobs created have **low productivity** and **low wages**
- Vietnam will be **stuck** at low levels of prosperity if nothing else is done

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Structure of the Economy

Agriculture 1994- 67%

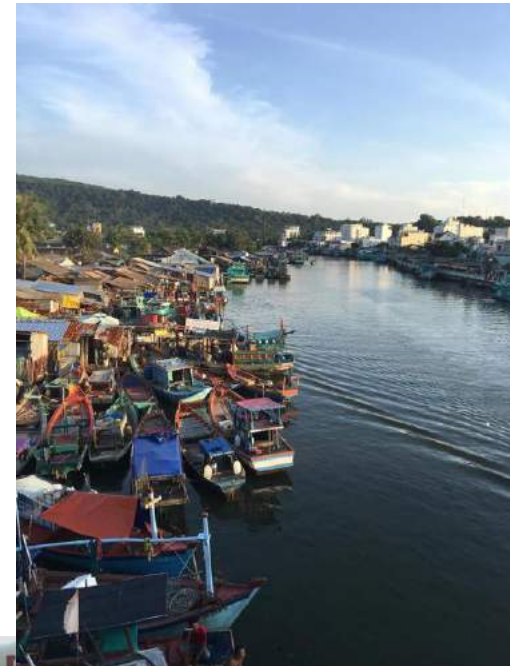
2013- 19.3%

Industry 1994-12%

2013- 38.5%

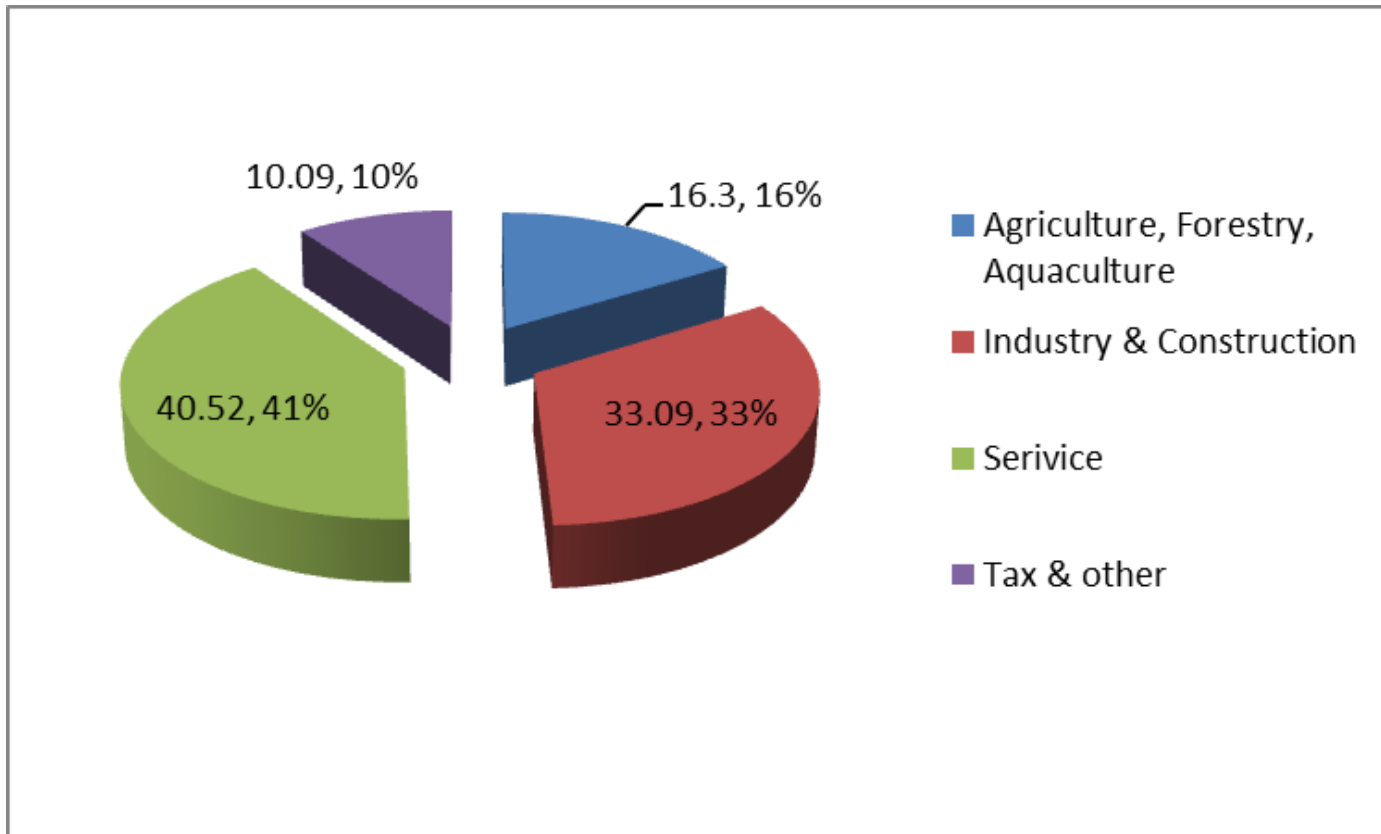
Services 1994- 21%

2013- 42.2%



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

- Overall economic performance
 - GDP per economic sector in 2015



Source: MONRE, 2015

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Development strategy:

ECONOMIC

- Develop industry (heavy and light)
- Tourism
- Agricultural production
- Mining
- Etc.

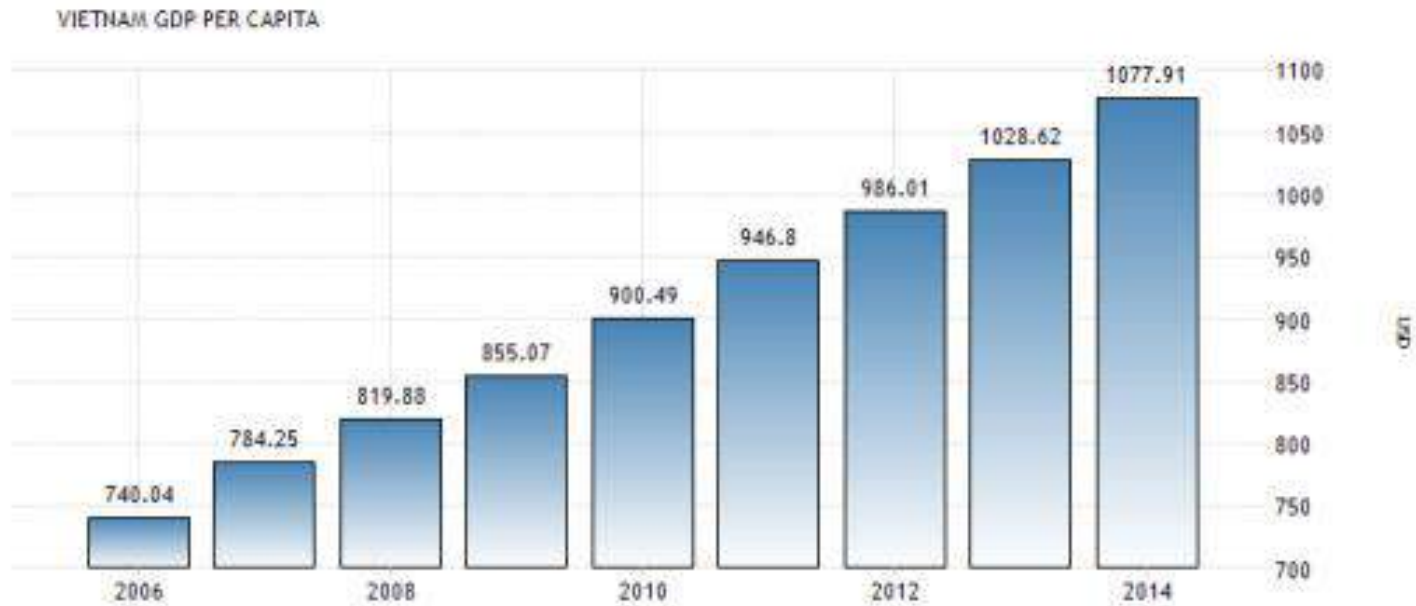
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Development orientation:

- Develop industrial production (heavy and light industry)
- Tourism
- Agriculture
- Mining
- Etc.



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



SOURCE: WWW.TRADINGECONOMICS.COM | WORLD BANK

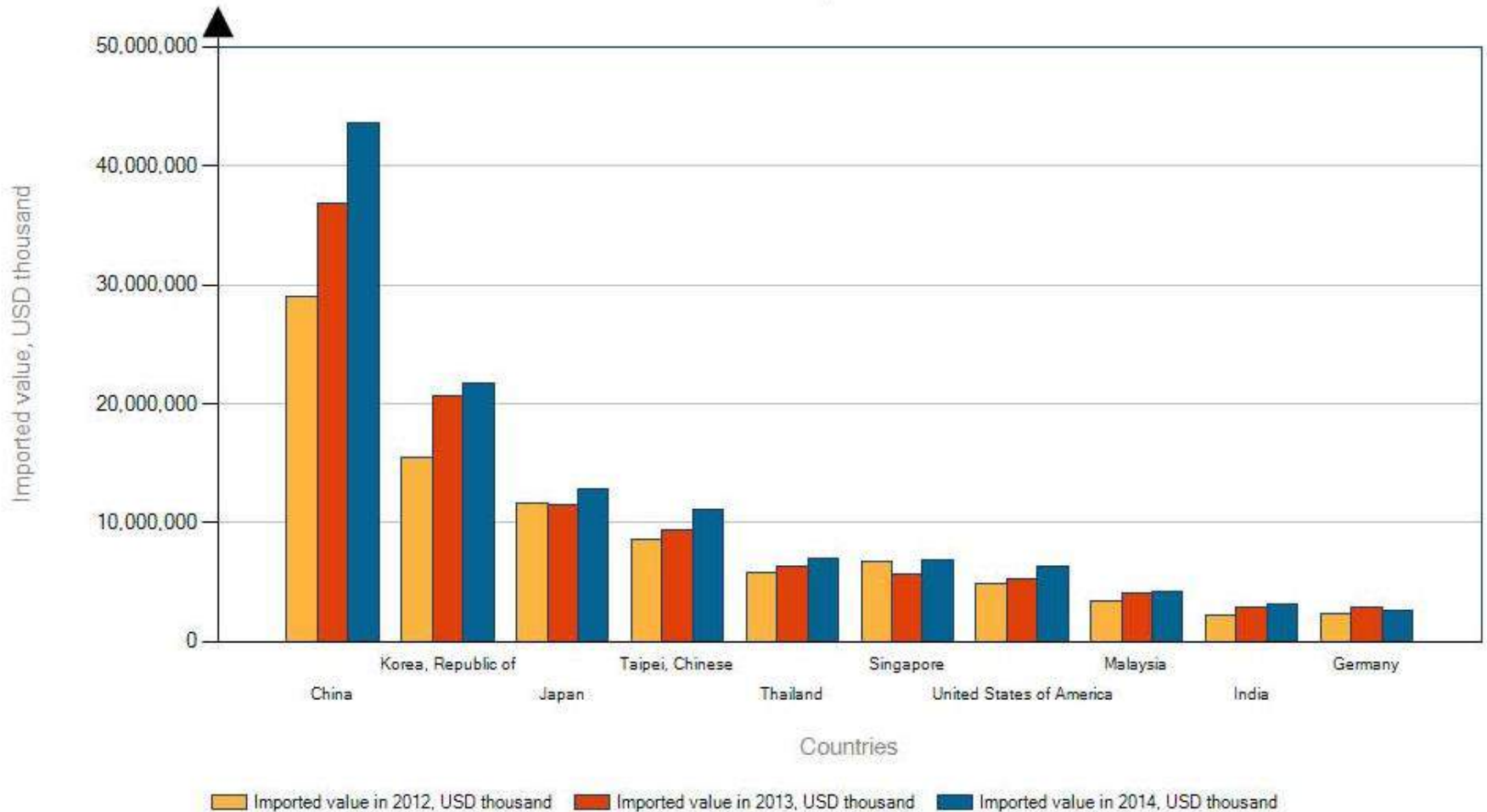
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Selected economic indicators (%)	2015		2016	
	ADO 2015	Update	ADO 2015	Update
GDP Growth	6.1	6.5	6.2	6.6
Inflation	2.5	0.9	4.0	4.0
Current Account Balance (share of GDP)	3.1	0.5	1.5	1.0

Source: Asian Development Outlook 2015; Asian Development Outlook 2015 Update

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

List of supplying markets for a product imported by Viet Nam
Product: TOTAL All products



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

- ◆ Stable socio-political environment
- ◆ Ongoing structural economic reforms
- ◆ Abundant labor force with enhanced skills
- ◆ Higher ability to meet debt obligations
- ◆ Towards more price stability

KEY FACTORS FOR SUCCESS

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

- ◆ Weak labor productivity growth and skills
- ◆ Slow pace of economic sector transformations
- ◆ Unbalanced financing means
- ◆ Low quality of FDI inflows
- ◆ Economic integration is not without risk

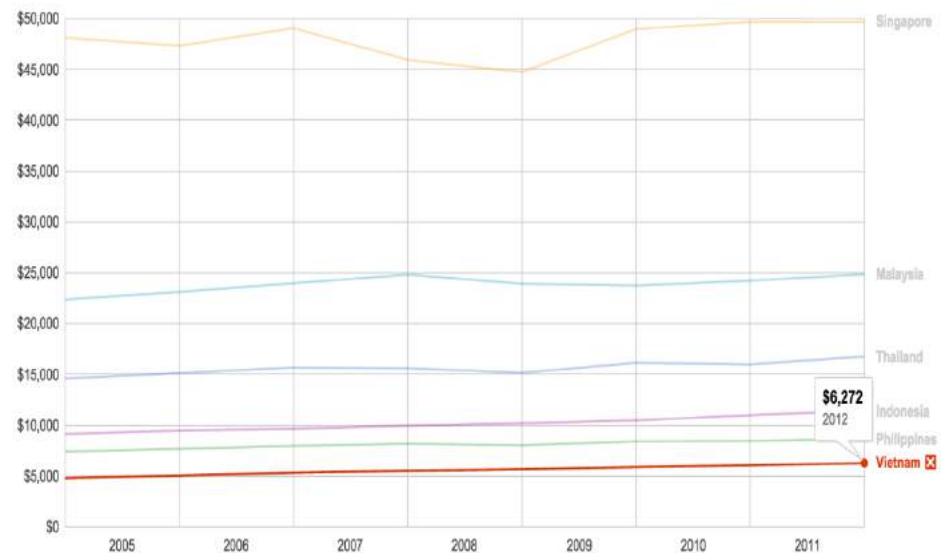
CHALLENGES!!!!

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Weak labor productivity growth and skills

- Vietnam faces a productivity challenges as it has to move from “labor-intensive” to “productivity-driven” economy
 - Labor productivity in Vietnam experienced a slight increase recently
 - It lagged behind the productivity of the Asian neighbors, albeit an average increase of 4.17% a year

GDP per person employed (constant 1990 PPP \$)



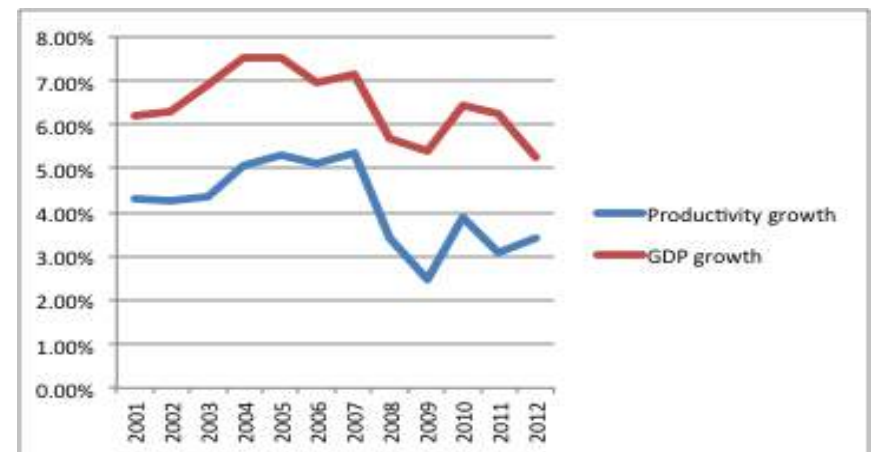
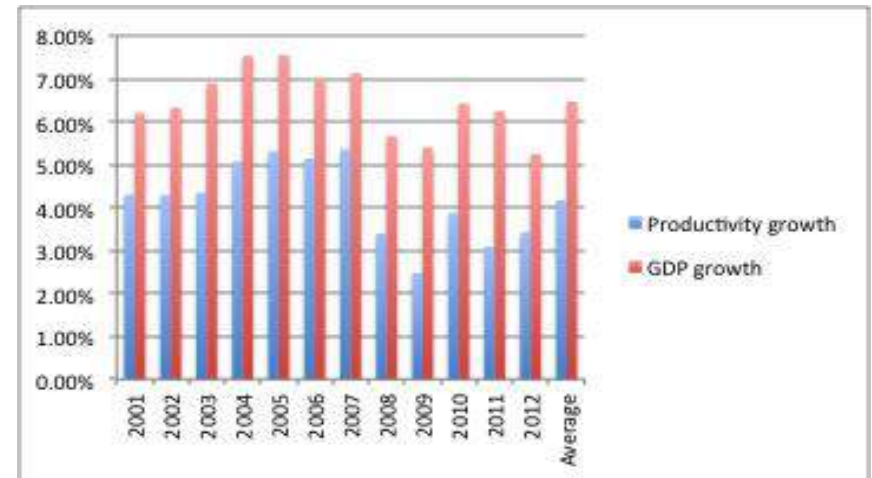
Source: WDI

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Weak labor productivity growth and skills

- An average gap of 2.29% between growth rate (6.46%) and productivity (4.17%)
 - Productivity follows growth path, but gets stuck
 - An increase of at least 50% in labor productivity is required to sustain the recent growth
 - The task is challenging in a context of global uncertainty and post-crisis
 - A potential loss of 25-30% in GDP (\$45-50 billion) in the next 5 years if growth gets stuck at 5-6%, below the target (7-8%)

Gap between productivity and economic growth (%)



Source: WDI & authors' calculations



ENVIRONMENTAL ISSUES IN VIETNAM

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Due to the economic development, Vietnam is facing to:

- Population increasing
- Water pollution (surface and underground water)
- Soil and Air pollution
- Waste water treatment
- Dumping site: leachate
- Solid waste collection and treatment
- Shortage of water

II. CURRENT WASTE MANAGEMENT SYSTEM IN VIETNAM (CONT.)

(Unit: million ton)

Year/ Type	Municipal waste	Industrial waste	Medical waste	Waste from Rural waste	Waste from Craft villages	Total
2015	22.2	9.6	0.2	9.8	1.8	43.6
2020	35.2	20.8	0.3	8.8	2.5	67.6
2025	51.7	27.8	0.3	7.6	3.6	91.0

Source: National Strategy on Integrated Solid Waste Management up to 2025 and Vision to 2050

Waste amount forecast in Vietnam

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

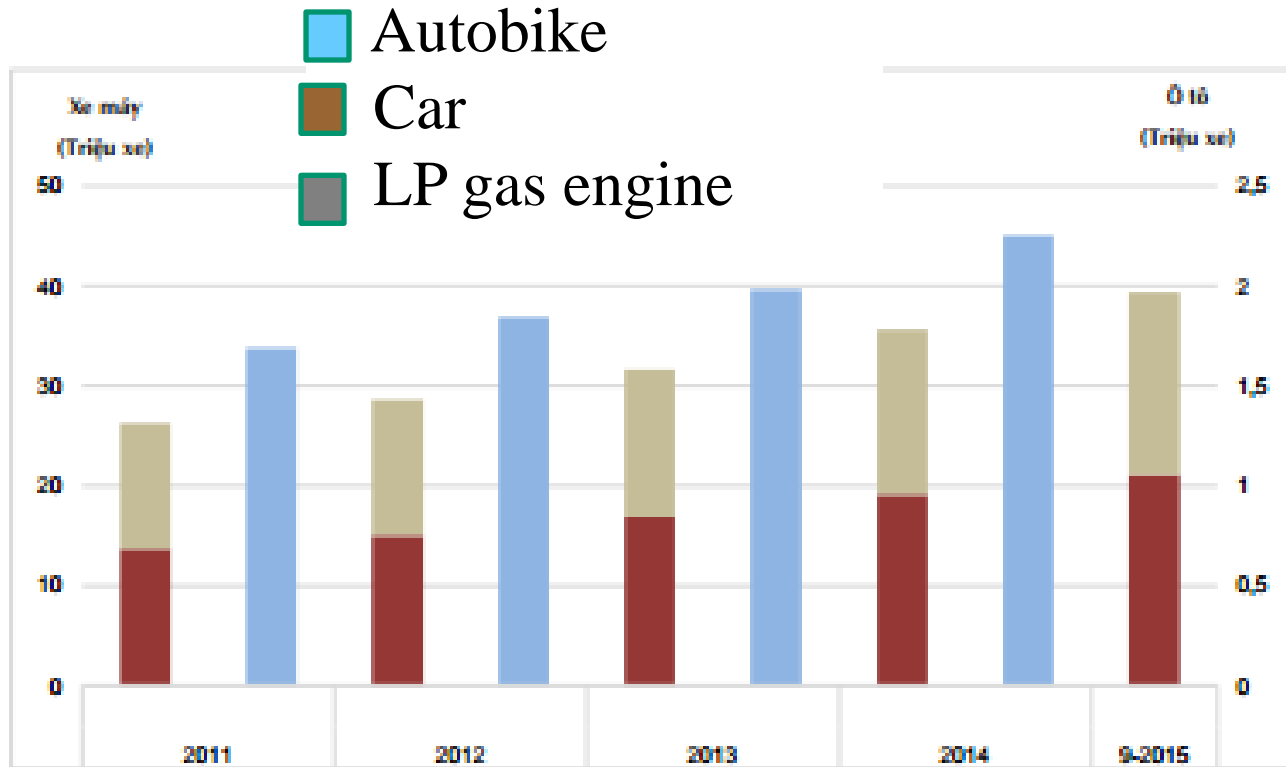


4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

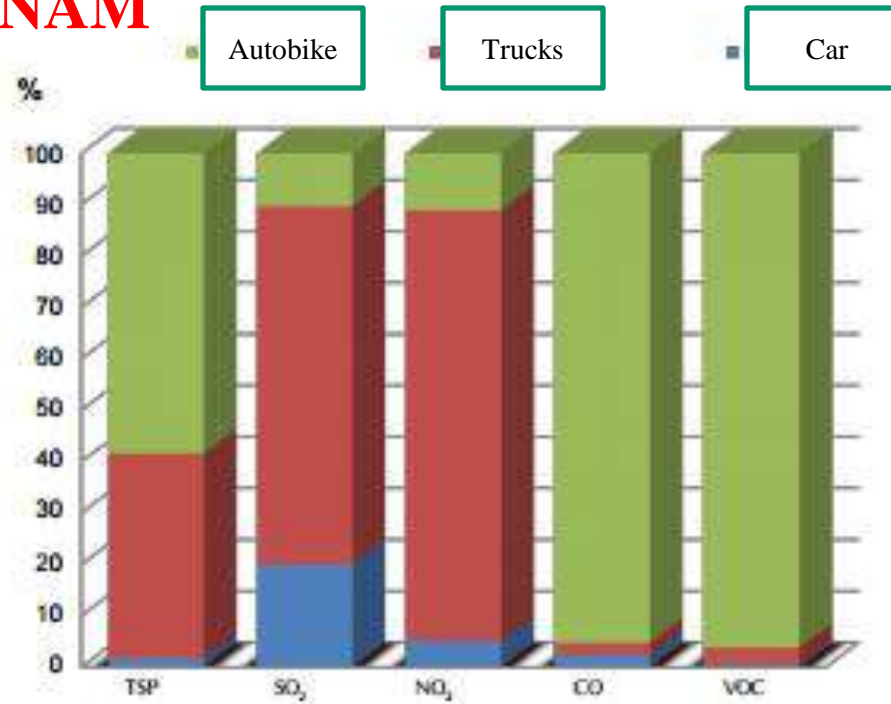


4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Air pollution causes by transportation means



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



Biểu đồ 1.13. Tỷ lệ đóng góp phát thải các chất gây ô nhiễm không khí do các phương tiện giao thông cơ giới đường bộ toàn quốc năm 2014

(Tính toán theo hệ số phát thải WHO, 1993)

*Nguồn: Trung tâm Quan trắc môi trường
- TCMT, 2015*

Air pollution causes by transportation means

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



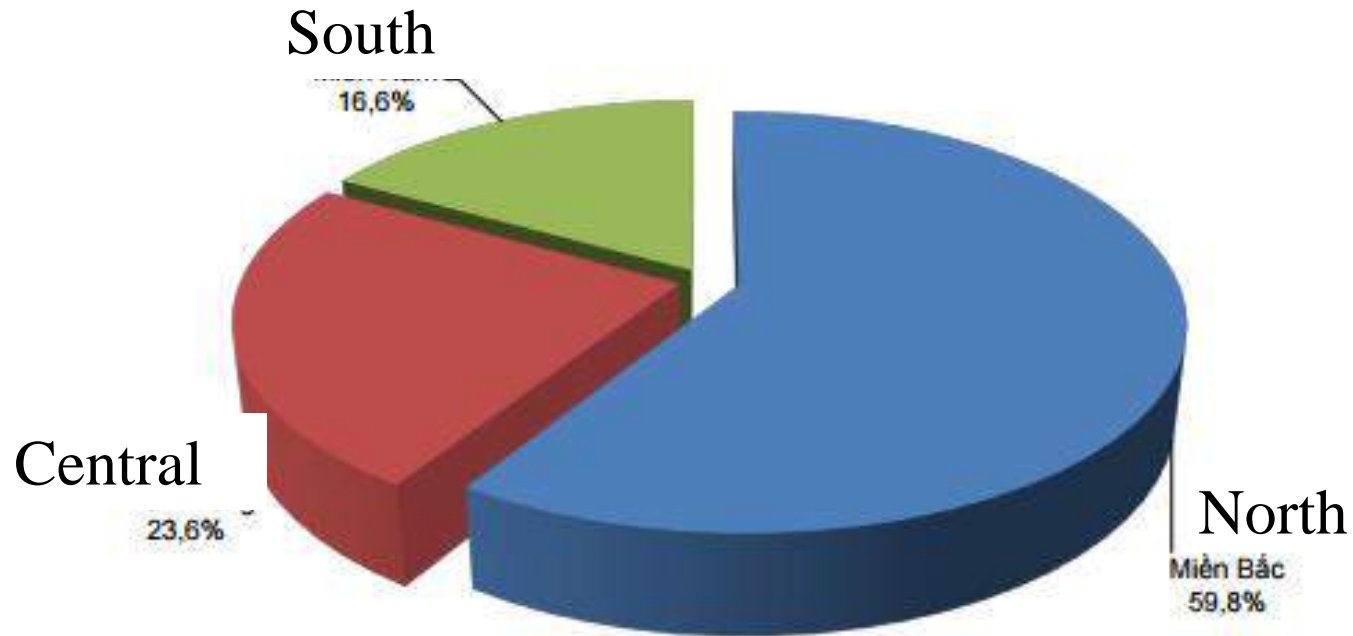
Environmental problems from traditional handicraft villages



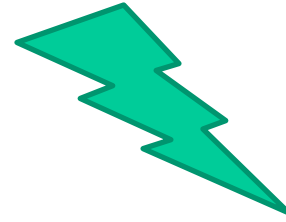
Traditional handicraft villages

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Traditional handicraft villages
location in Vietnam



Traditional handicraft villages

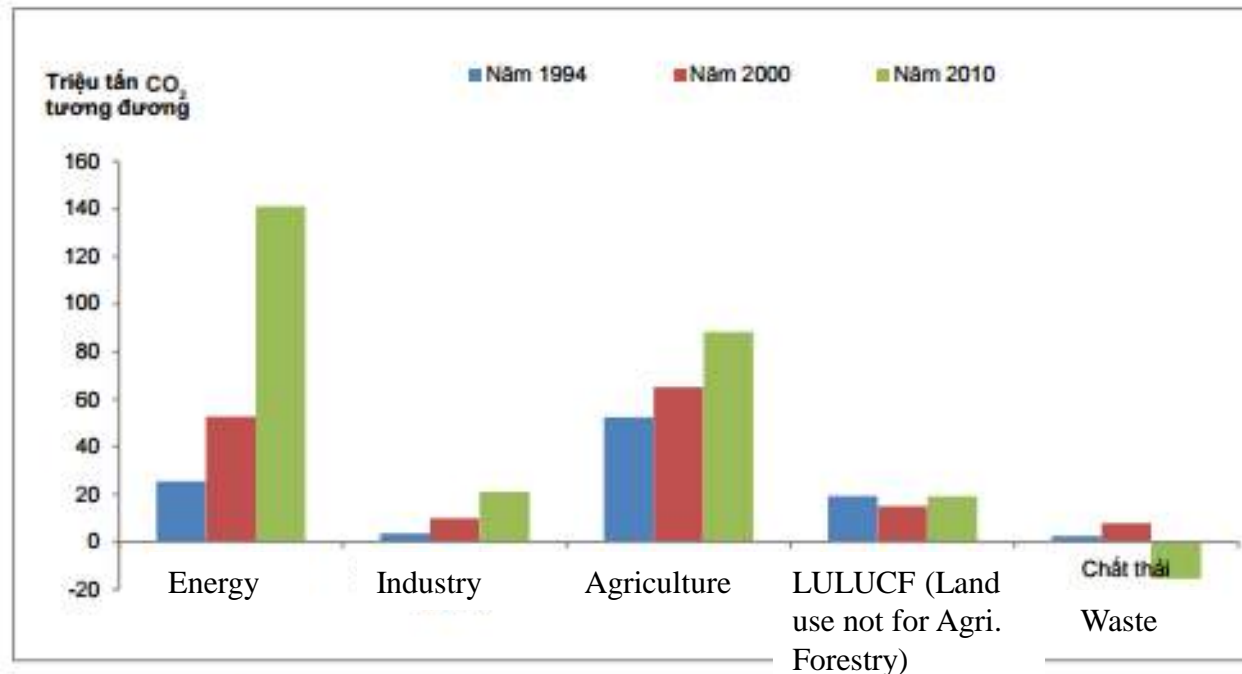


Brass foundry village





4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



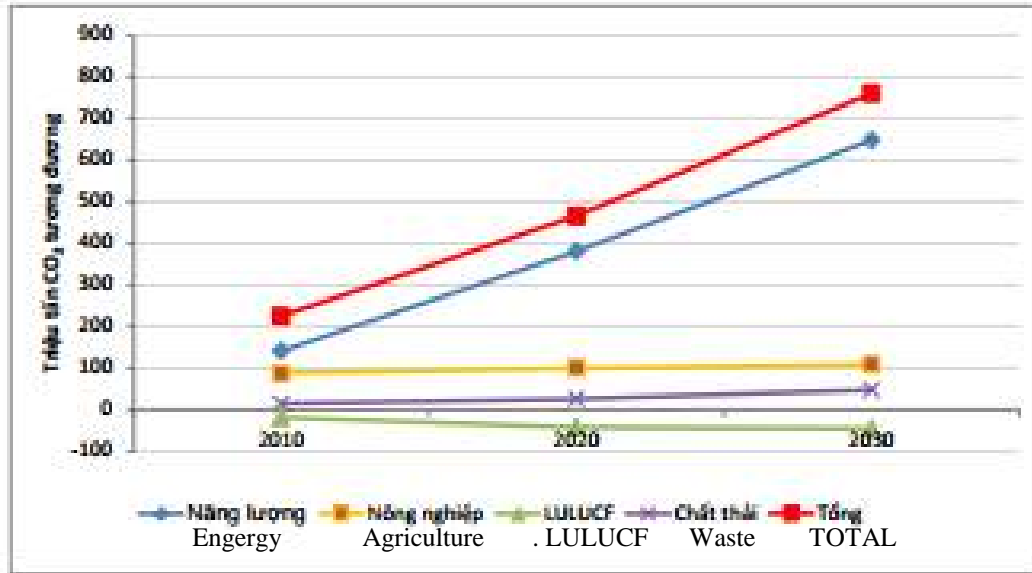
Biểu đồ 2.1. Diễn biến phát thải khí nhà kính theo lĩnh vực các năm 1994, 2000 và 2010

Nguồn: Báo cáo cập nhật hai năm một lần lần thứ nhất, Bộ TN&MT, 2014

CO₂ EMISSION QUANTITY in 1994', 2000',
2010'

Source: MARD, 2014

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



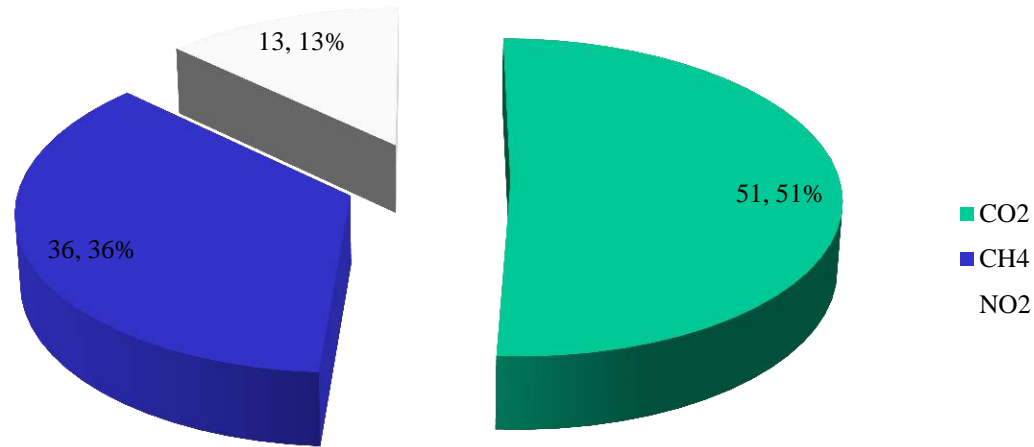
Biểu đồ 2.2. Ước tính phát thải khí nhà kính đến năm 2020 và 2030

Nguồn: Báo cáo cập nhật hai năm một lần lần thứ nhất, Bộ TN&MT, 2014

ESTIMATION OF CO2 EMISSION QUANTITY in 2020' & 2030'

Source: MONRE, 2014

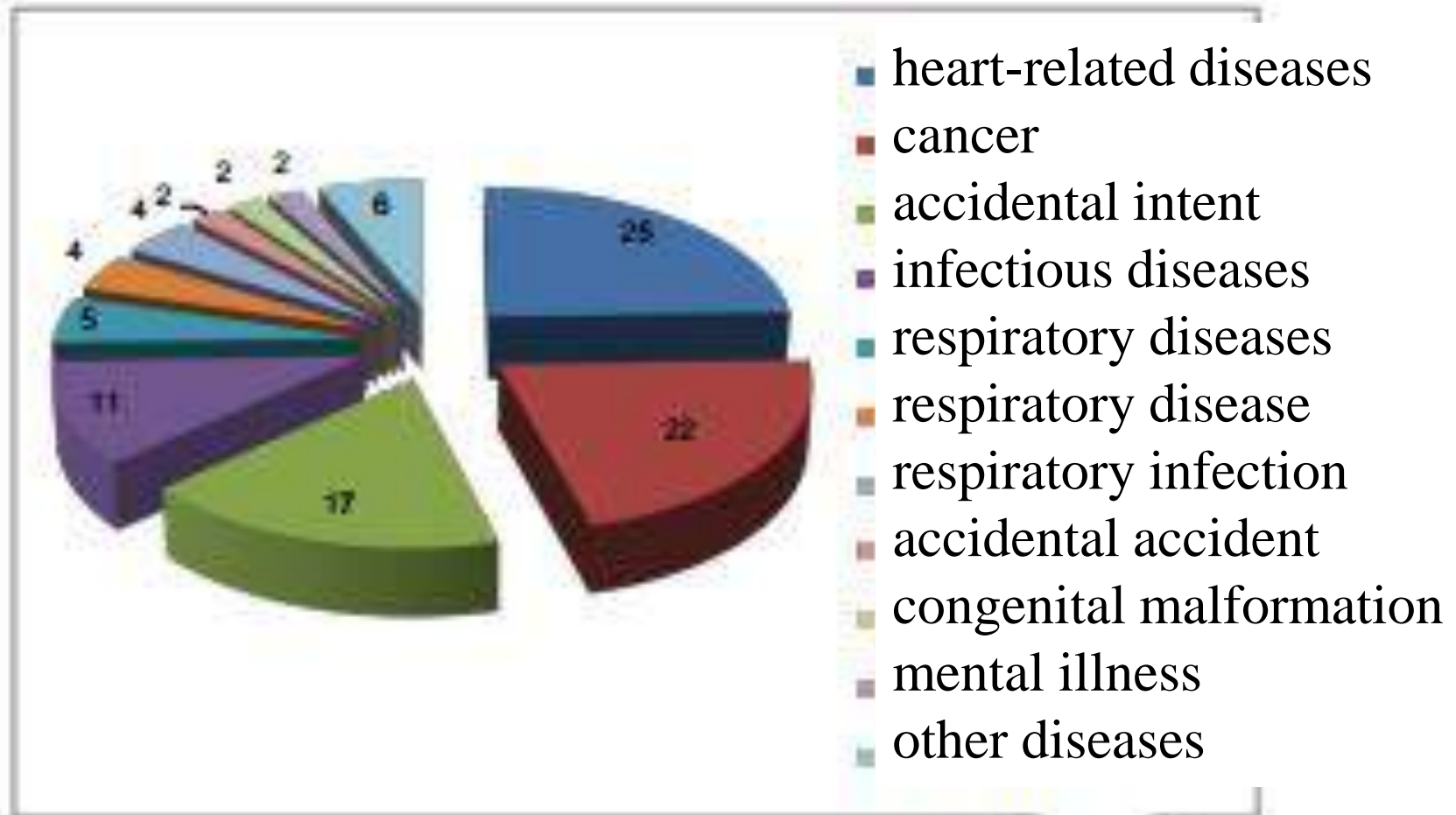
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



Green house gas emission in 2010

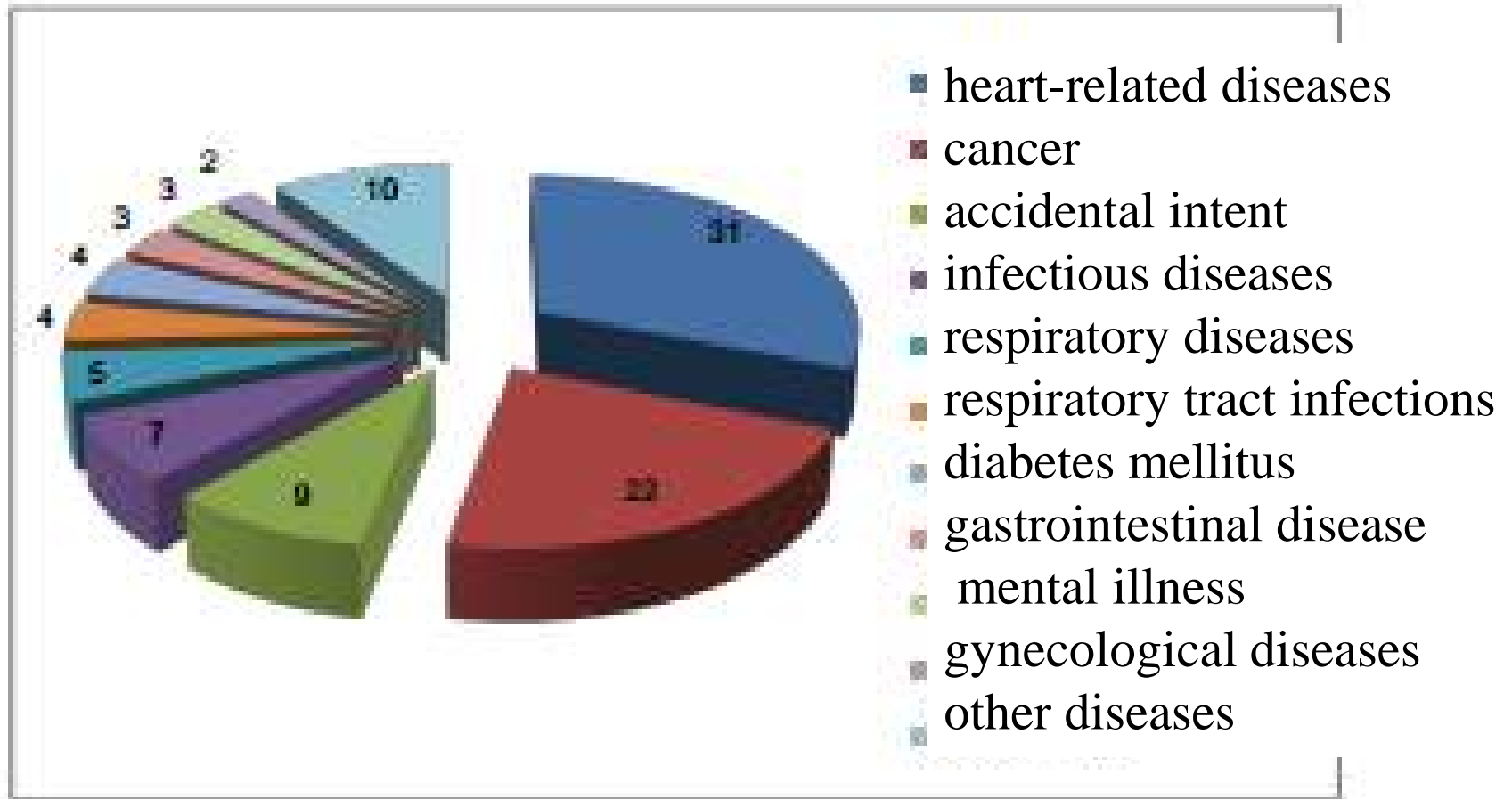
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Diseases caused by air pollution in Vietnam



4. ENVIRONMENTAL ISSUES IN VIETNAM & DANANG CASE STUDY: IN VIETNAM

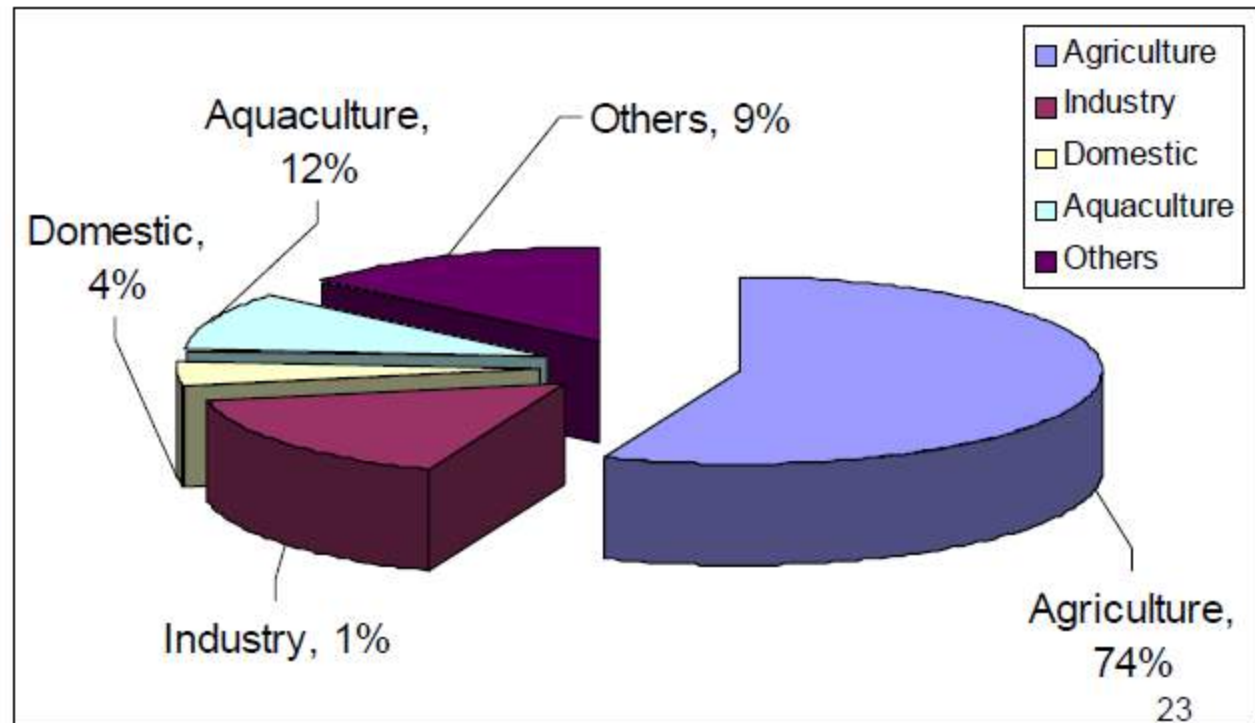
Diseases caused by air pollution in Vietnam



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Water Utilization

Water demand of sectors in major river basins (2020)



Source: Mai Trong Nhuan, and et al.



At Quang Ngai: Tra Khuc River



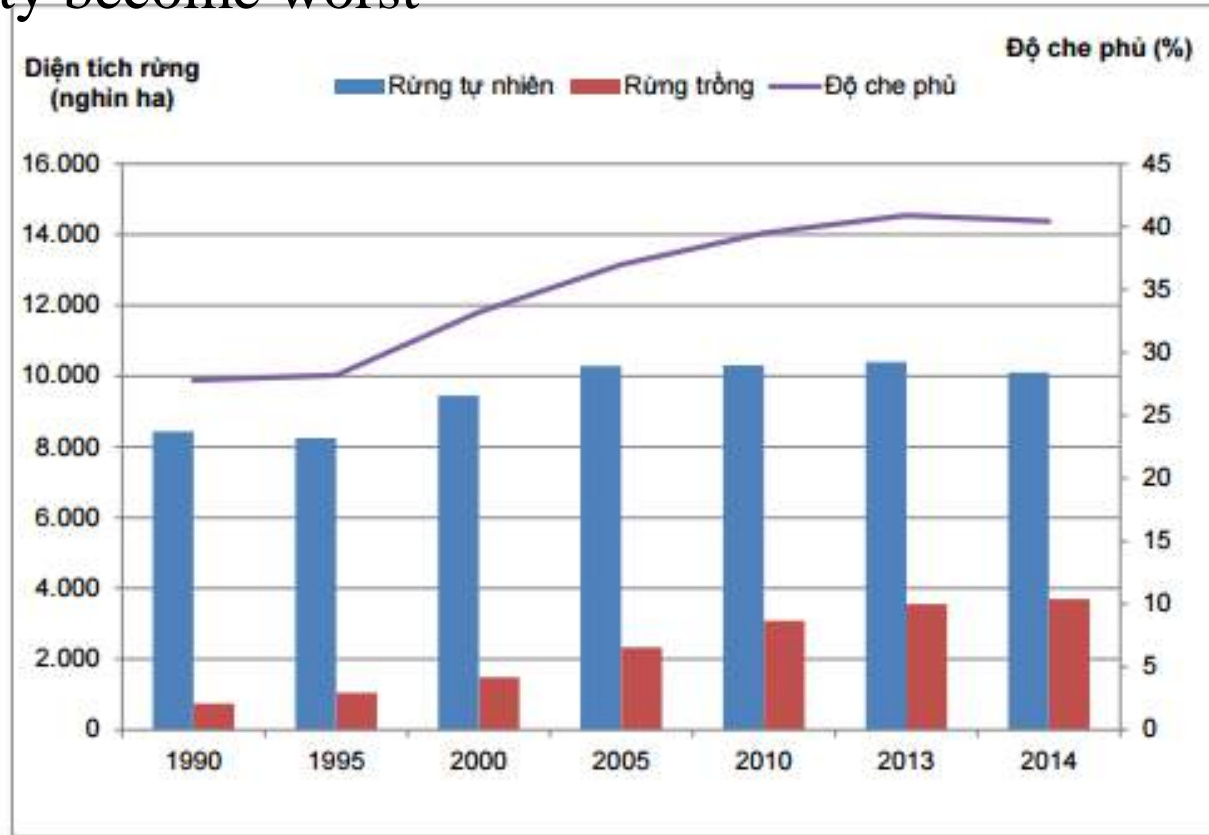


4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Forest quality become worst

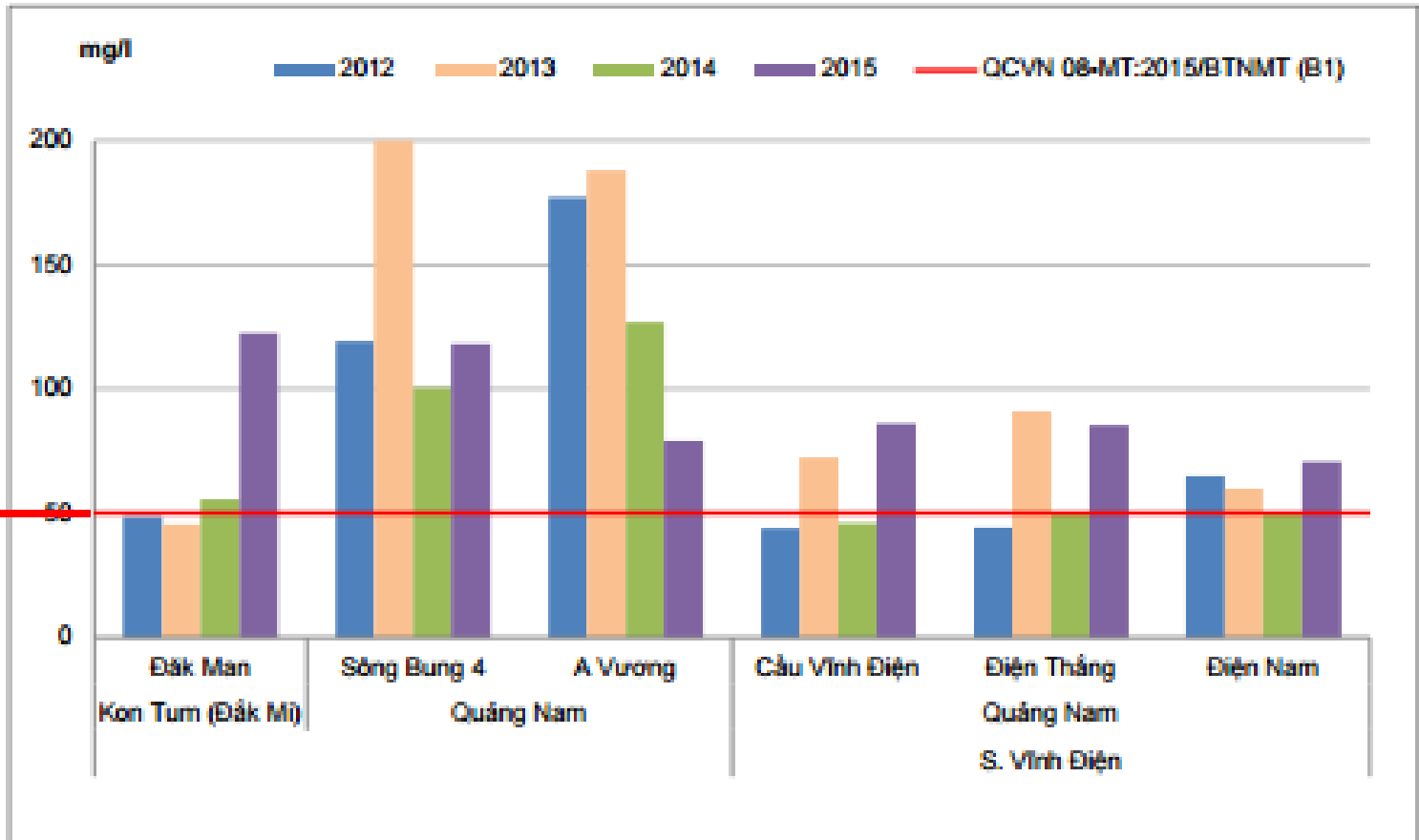


Biểu đồ 7.1. Biến động diện tích và độ che phủ của rừng Việt Nam giai đoạn 1990 - 2014

Nguồn: Cục Kiểm lâm, Bộ NN&PTNT, 1990 - 2015

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Water pollution problems

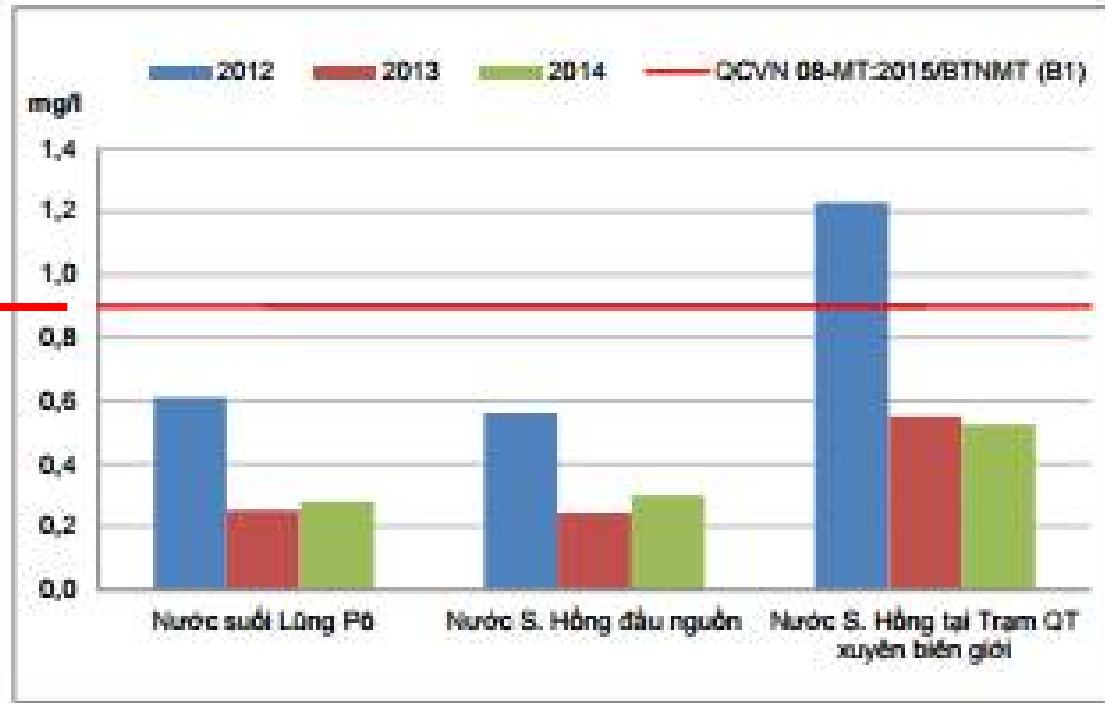


VN
standard ←

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Amoni contamination in water source for drinking

VN
standard



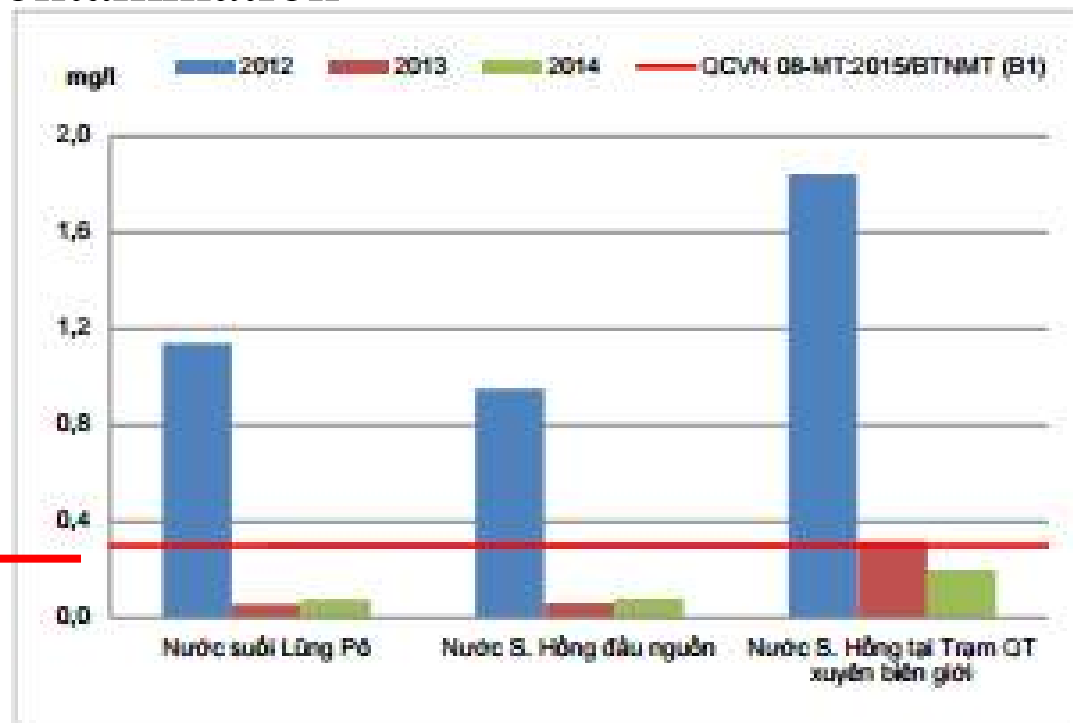
Biểu đồ 4.5. Diễn biến hàm lượng Amoni nước sông Hồng giai đoạn 2012 - 2014

Nguồn: Sở TN&MT tỉnh Lào Cai, 2015

4. ENVIRONMENTAL ISSUES IN VIETNAM & DANANG CASE STUDY: IN VIETNAM

Phosphorus contamination

VN
standard

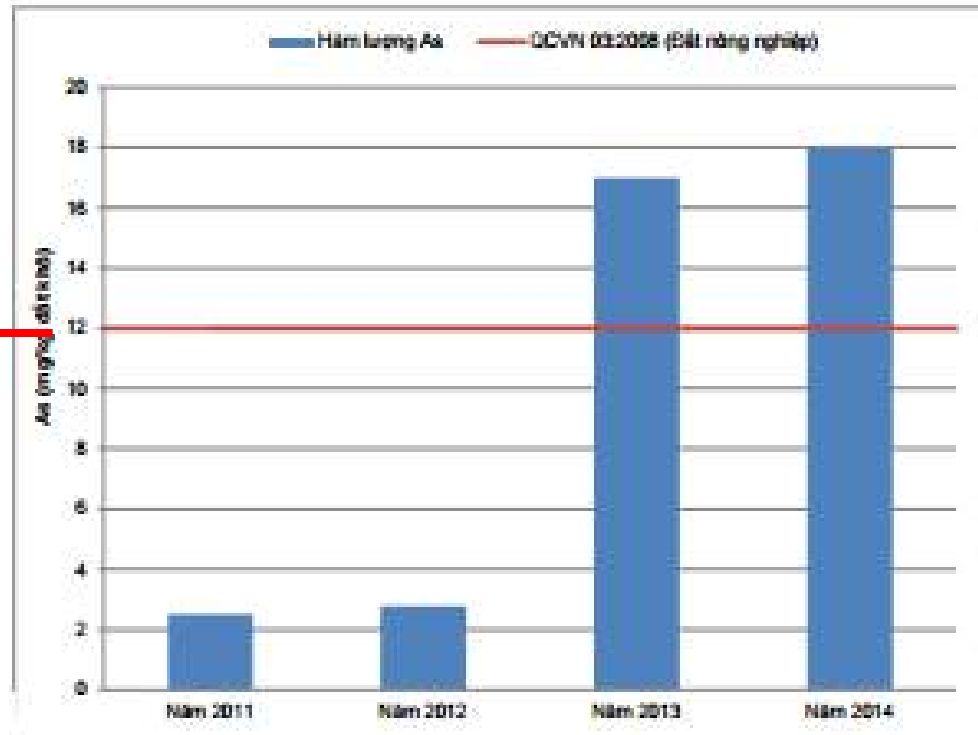


Biểu đồ 4.6. Diễn biến hàm lượng Phốt phát nước sông Hồng giai đoạn 2012 - 2014

Nguồn: Sở TN&MT tỉnh Lào Cai, 2015

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

VN
standard



Asen contamination

Biểu đồ 6.11: Diễn biến hàm lượng As trong đất trồng hoa Mê Linh - Hà Nội giai đoạn 2011 - 2014

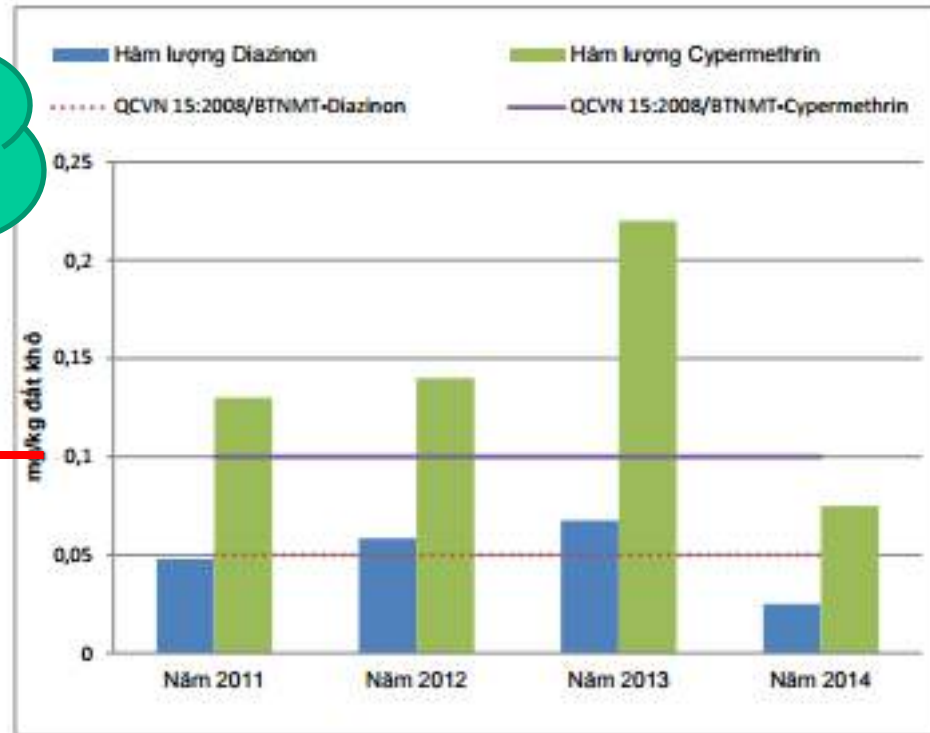
Nguồn: Báo cáo hiện trạng môi trường Thành phố Hà Nội giai đoạn 5 năm (2011 - 2015)

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Land pollution

Pesticides contamination

VN standard



Biểu đồ 6.14. Diễn biến dư lượng thuốc BVTV trong đất trồng rau Vân Nội, Huyện Đông Anh - Hà Nội

Nguồn: Báo cáo hiện trạng môi trường Thành phố Hà Nội giai đoạn 5 năm (2011 - 2015), 2015

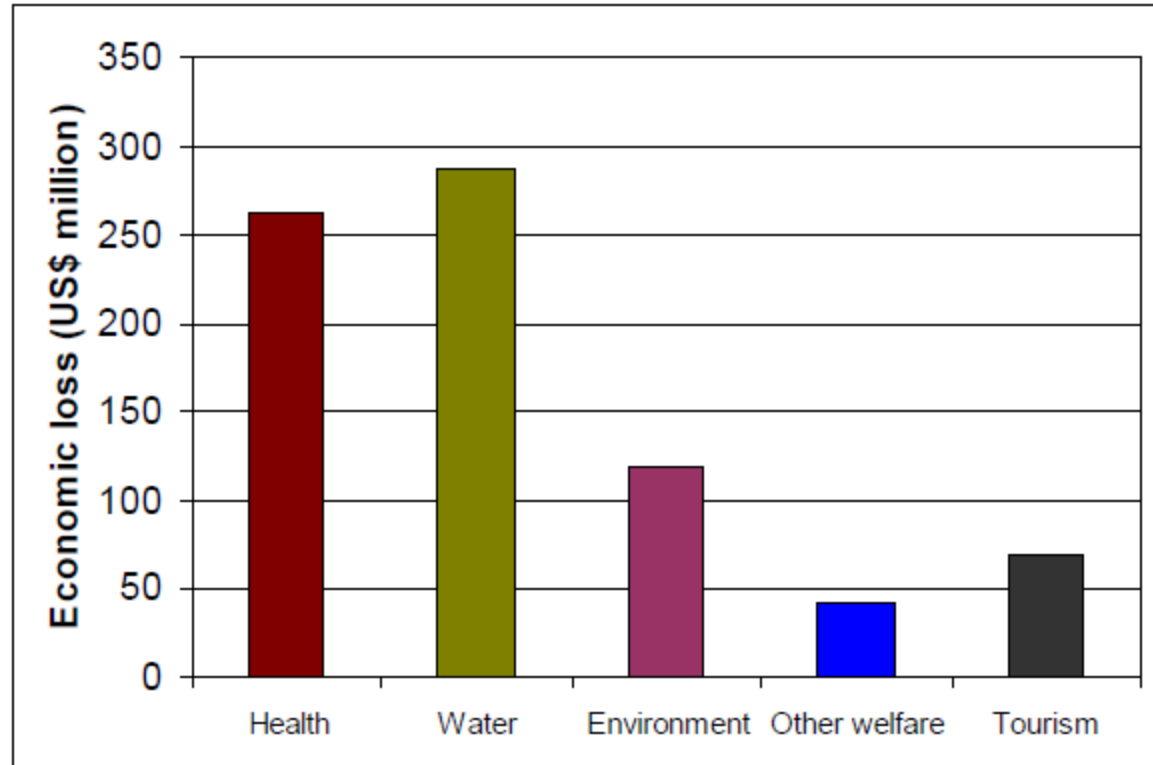
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Economic loss due to poor sanitation in Vietnam

Annual loss:
US\$ 780 mio.

Per capita:
US\$ 9.38

1.3% GDP



Source: *Evaluation of the Economic Impacts of Sanitation in Vietnam (WSP, 2007)*



Deforestation



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Deforestation and land degradation

Deforestation and land degradation are caused by various factors:

- Demand for **timber products**/ palm oil, intensive farming, and urban sprawl.

- Poor regulation**

- Unsustainable land-use**; over-cultivation of agricultural land

- *Woodland ecosystems require time and large expense to recover.. (ADB report, 2012)

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM



(Source: <http://edu.net.vn>)

NATURAL DISASTER



(Source : <http://baodaklak.vn>)

4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Disaster and Climate change in Viet nam

Natural Disaster:

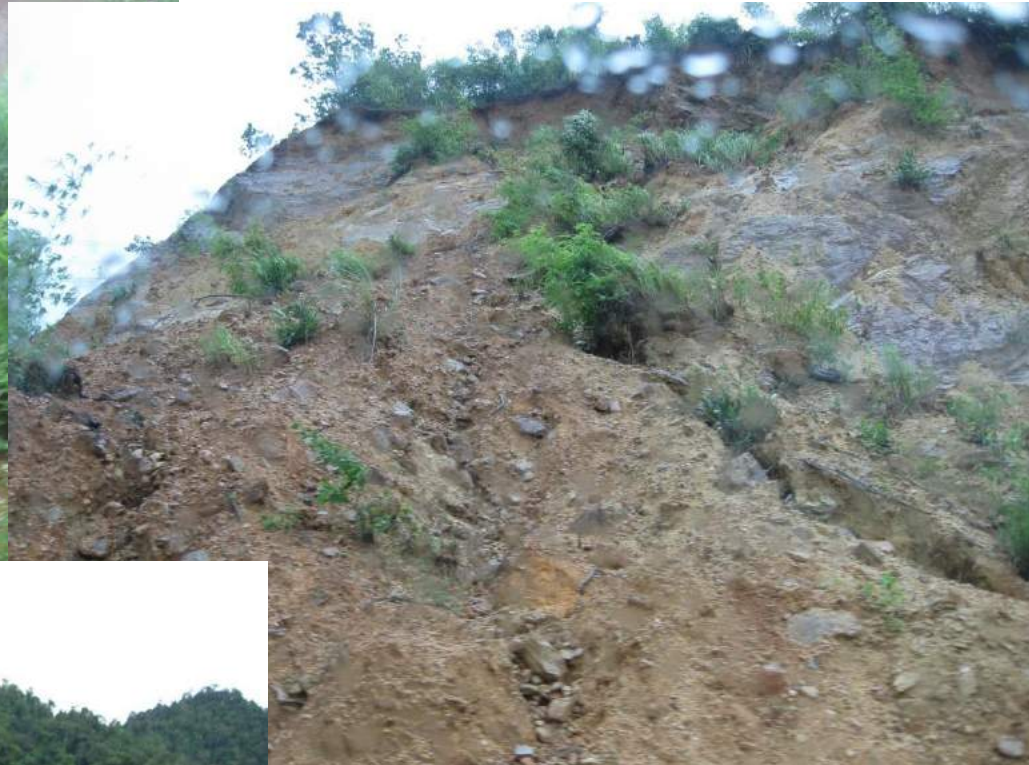
1. Natural disasters in Vietnam have been increasingly severe in terms of magnitude, frequency and volatility
2. Natural disasters such as typhoons, floods and droughts have caused significant losses, and asset damage equivalent to 1.5% of GDP

Climate change:

1. Vietnam is one of the 5 countries worst affected by climate change. Climate change will worsen natural disasters
2. If the sea level rises by 1 meter, 90% of the Mekong River Delta area will be flooded during the flood season, and 71% will be salted during the dry season, and about 20 million people will be affected in terms of housing.

Source:

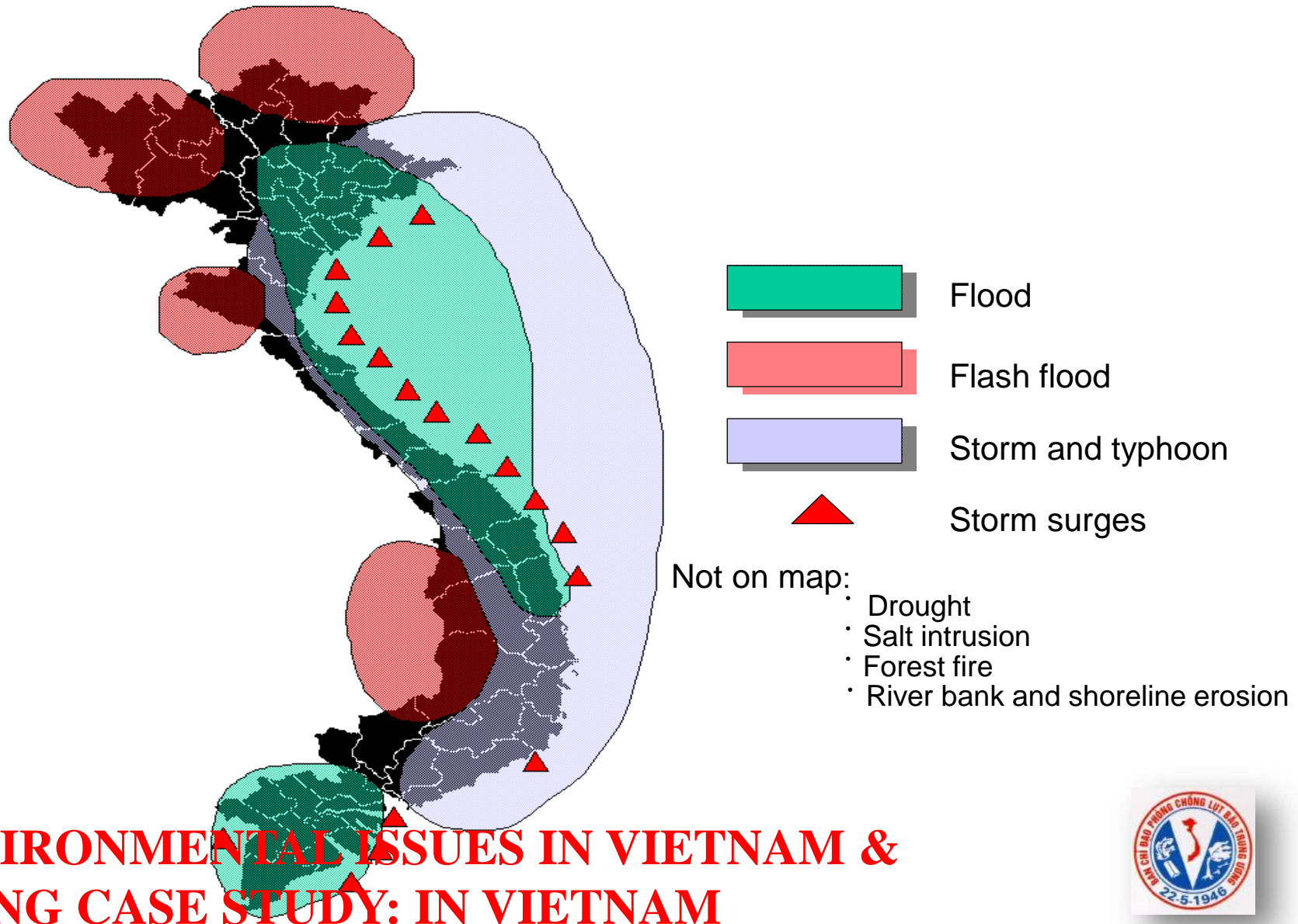




Pic 13 : Landslide
Some illustrations on
landslides along Ho
Chi Minh Road,
Kontum – Quang
Nam – Danang



TYPICAL NATURAL DISASTER IN VIETNAM

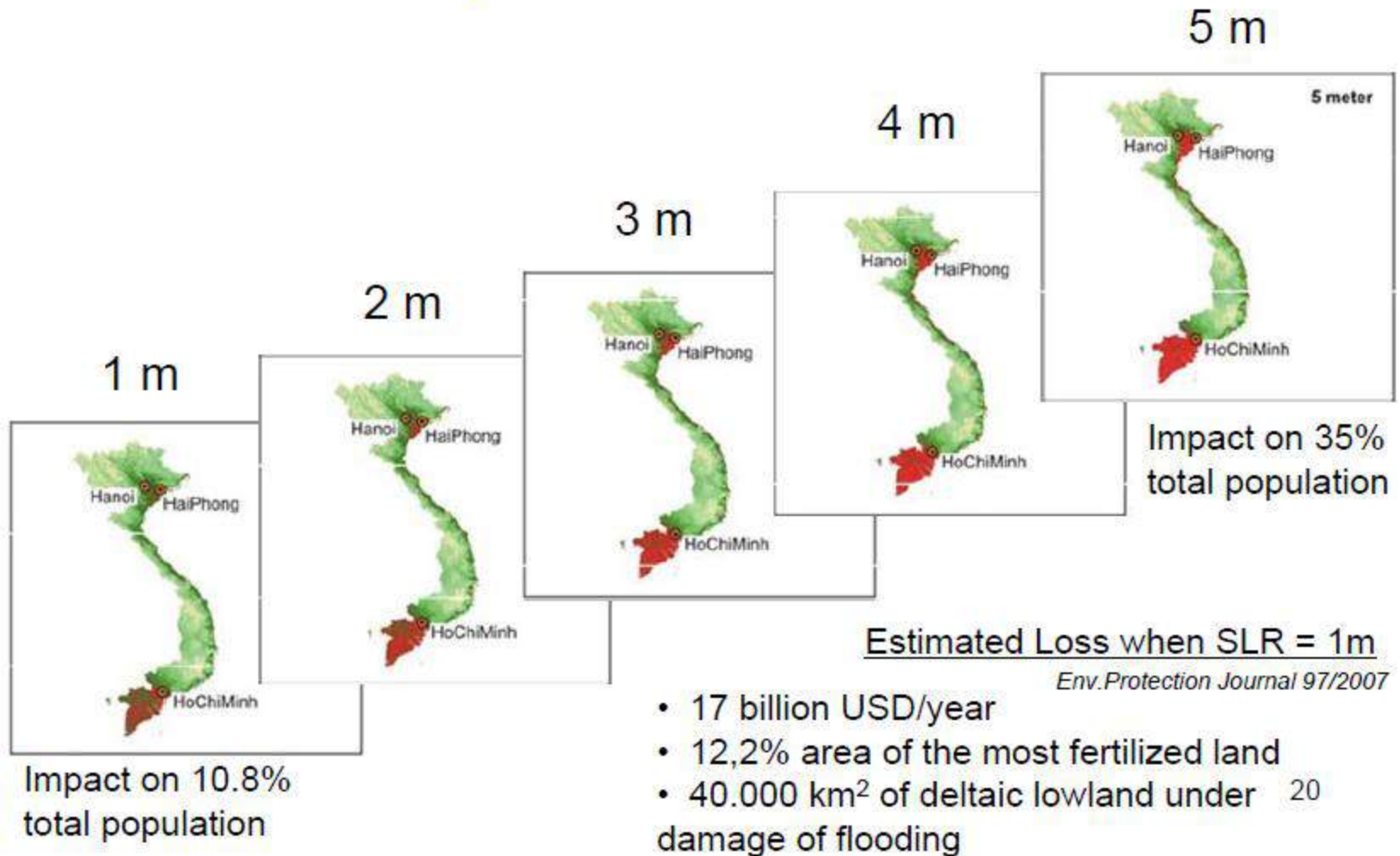


4. ENVIRONMENTAL ISSUES IN VIETNAM & DANANG CASE STUDY: IN VIETNAM



4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM

Land Loss and Land use change caused by Sea Level Rise



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3. ECONOMIC DEVELOPMENT IN VIETNAM
4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM
- 5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG**
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

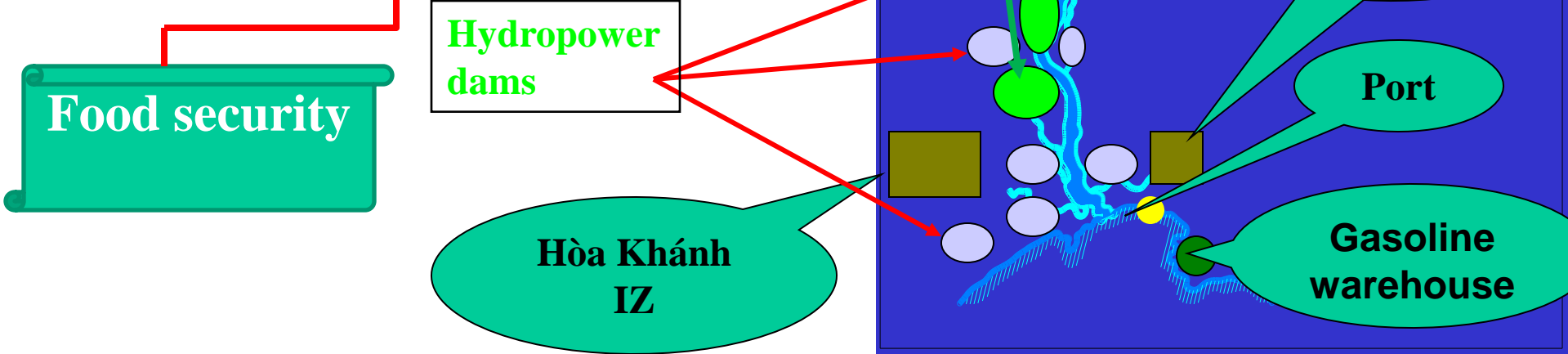
Eg: Danang City:

Industrial zones

- Hoa Khanh IZ: 750ha.
- Lien Chieu IZ and Port: 473,5ha
- Liên Chieu gasoline warehouse
- Others: Hoa Cam, Tho Quang

Agriculture

	2010	2020
- Rice	870ha	340ha
- Grains	500ha	730ha



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Danang City is facing to

- Eco-City. However,
 - Water pollution
 - Soil and Air pollution
 - Waste water treatment
 - Dumping site: leatache
 - Solid waste collection and treatment
 - Shortage of water

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Master plan: Cut trees for road construction

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Road constructed over natural sand hills

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Too near beach as a result...

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Too near the beach and then result...

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Solid waste collection



TRANSPORTER



COLLECTORS

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

**Solid waste
management**



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Environment
al Education

Composition	Rate(%)
Organic	51.9
Inorganic	16.1
Papers	2.7
Plastic	3
Leather, rubber, wood	1.3
Fabric	1.6
Glass	0.5
Ceramic, sand, clay	6.1
Metal	0.9
Particles <10mm	31.9
Total	100

Example of composition of municipal solid waste

Source: MOC, 2015

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

MOTIVATION

Traditional Waste Recycling Activities:

- Waste reused and recycling are more common and implemented by individual garbage buyers and collectors;
- VN households separate **recyclable waste** to sell to the garbage collector;
- These activities can contribute to reduce 15-20% of solid waste discharged;

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

MOTIVATION

Modes for recycling waste in Vietnam:

- Lead waste;
- Steel/iron waste;
- Plastic waste;
- Paper waste
- Oil waste
- Rag/wool

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



MOTIVATION: 3R in Vietnam

**PROJECT
IMPLEMENTATION SUPPORT FOR 3R
INITIATIVE IN HANOI CITY
TO CONTRIBUTE TO THE DEVELOPMENT
OF A SOUND MATERIAL-CYCLE SOCIETY**

3R-HN

Source: prof. Nguyen Kim
Thai, 2011

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Biogas
producti
on



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Water pollution

- Water pollution: March 15th, 2010 (Danang City)



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Dam Rong Lake: Before



Urbanization!!!

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

After



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

LIEN CHIEU
IZ

Industrial development

THO
QUANG IZ
HOA
KHANH IZ

HOA CAM IZ



WATER
FACT



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

ISSUES IN DANANG

Danang City



Han River 12/11/2007



Hoa Vang prefecture



Natural Disasters



*Hoa Chau, Hoa Vang
15/11/2007*

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG





5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Flood
mark

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

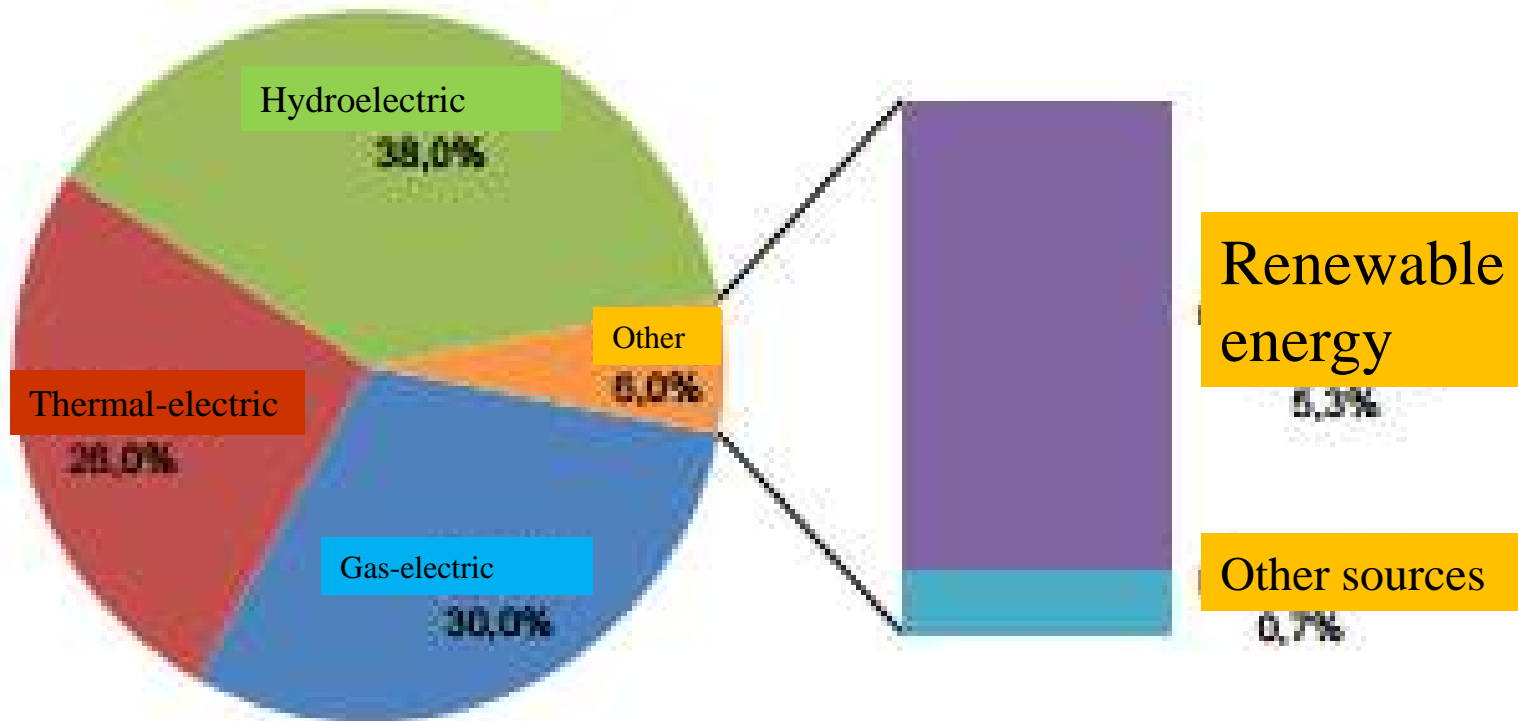
Hydro-power problems

- Have bad influence for minority ethnics: Cotu (Katu) Ethnic...
- + Unfamiliar house
- + Lackage of land for agriculture...
- Depend on support or aid from outsides



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Electric power structure



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Water development works: such as:

Reservoir	Catchments (km ²)	Volume (bill.m ³)	Irrigated Area (ha)	Hydropower (MW)
Hoa Binh	51,700	9,450		1,920
Thac Ba	6,100	2,940		108
Tri An	14,600	2,760		4200
Dau Tieng	2,700	1,580	72,000	
Thac Mo	2,200	1,370		150
Yaly	7,455	1,037		720
Phu Ninh	235	414	23,000	
Song Hinh	772	357		66
Ke Go	223	345	17,000	

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

ISSUES IN DANANG



Door closed
from that time..



Living on
the ground

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG



Better?



Traditional vs Modern

5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG

Conservation and Environmental Thought



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4. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN VIETNAM
5. ECONOMIC DEVELOPMENT & ENVIRONMENTAL ISSUES IN DANANG
- 6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT**

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Sustainable development concept:

"Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs."

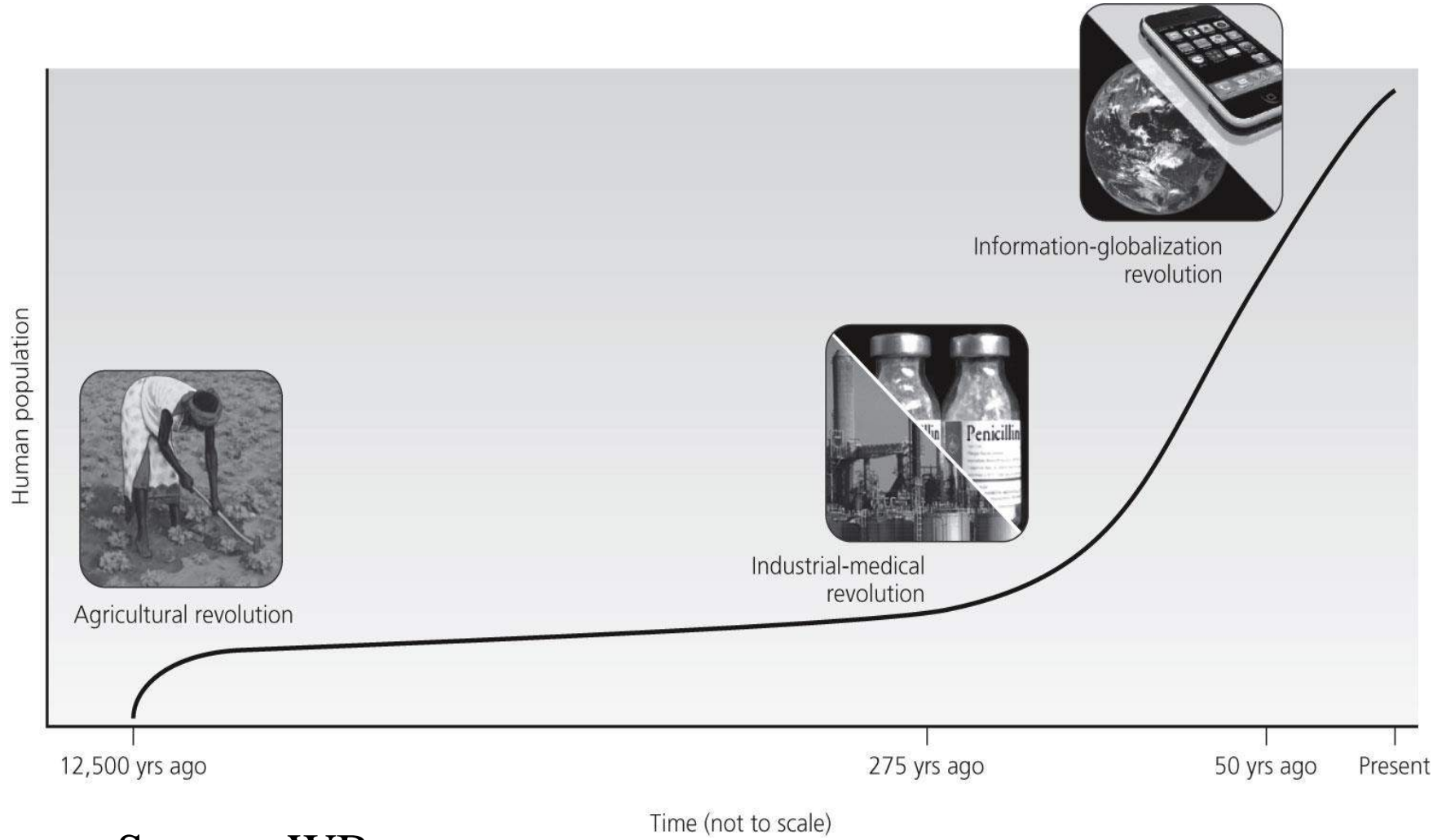
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

We Are Living Unsustainably

- **Environmental degradation**: wasting, depleting, and degrading the earth's natural capital
 - Happening at an accelerating rate
 - Also called **natural capital degradation**

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Technology Increases Pollution



Source: WB

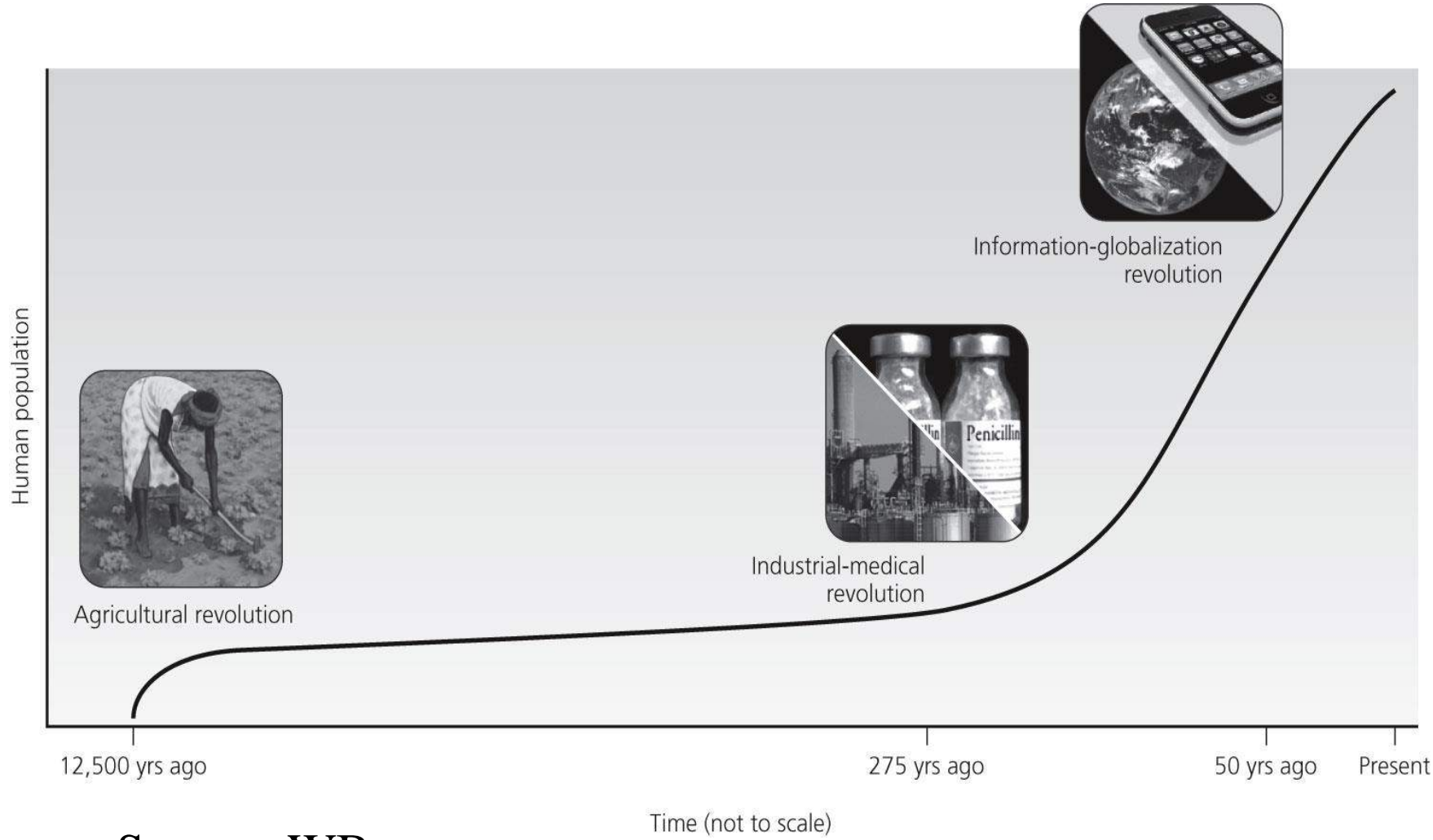
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Harmful Environmental Effects

- Harmful environmental impact due to
 - High levels of consumption
 - High levels of pollution
 - Unnecessary waste of resources

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Technology Increases Pollution



Source: WB

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Harmful Environmental Effects

- Harmful environmental impact due to
 - High levels of consumption
 - High levels of pollution
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6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Nature's Survival Strategies for Sustainability

1. Reliance on solar energy

- The sun provides warmth and fuels photosynthesis

2. Biodiversity

- Astounding variety and adaptability of natural systems and species

3. Chemical cycling

- Circulation of chemicals from the environment to organisms and then back to the environment

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Environmentally Sustainable Society

“... responsible & ethical management of products & processes from the point of view of health, safety and environmental aspects.”

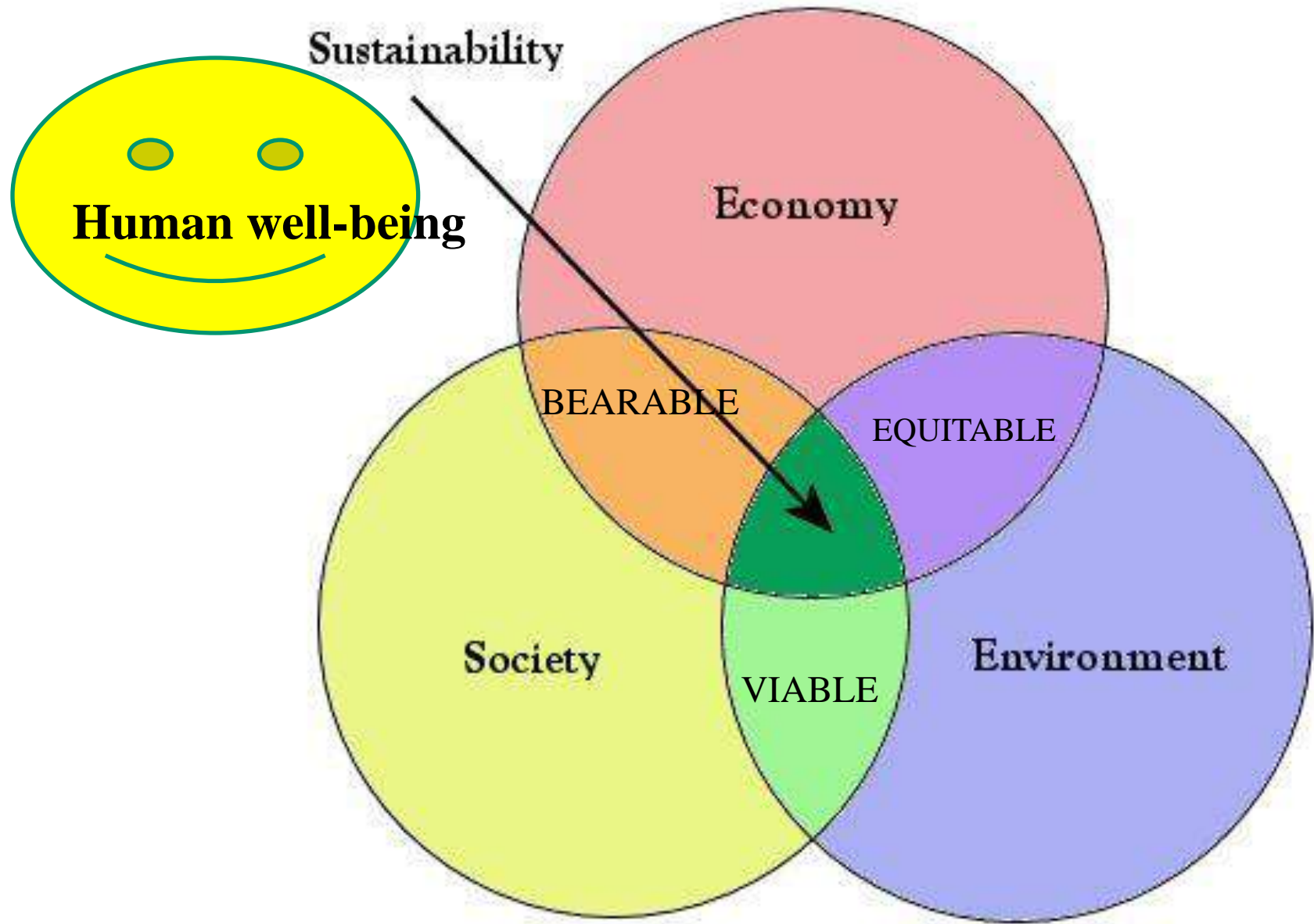
“Towards this end, business and industry should increase self-regulation, guided by appropriate codes, charters and initiatives integrated into all elements of business planning and decision-making, and fostering openness and dialogue with employees and the public.”
(Chapter 30 of Agenda 21 (1992))

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Principles of Environmental Sustainability

- **Environmental Policy Integration**
- Transparency, Public Participation, and access to Information and Remedies
- **Precaution;**
- **Polluter-Pays; (PPP, BPP, W-W)**
- Responsibility for trans-boundary Ha
- Subsidiarity & Decentralisation





6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Sustainable Development

Source:



Sustainable Development (SD) Framework consists of three pillars:

- Economic (Goal: Growth?)
- Environment (Goal: Conservation?)
- Social/Livelihood (Goal: Equity?)

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Economic

Source:



Commonly accepted considerations:

- Maximize human well-being.
- Ensure efficient use of all resources, natural and otherwise, by maximizing rents.
- Seek to identify and internalize environmental and social costs.
- Maintain and enhance the conditions for viable enterprise.

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Environmental

Source:



Commonly accepted considerations:

- Promote responsible stewardship of natural resources and the environment, including remediation of past damage.
- Minimize waste and environmental damage along the whole of the supply chain.
- Exercise prudence where impacts are unknown or uncertain.
- Operate within ecological limits and protect critical natural capital.

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

What is Environmental Ethics?

Source:



Environmental ethics:

- **guides humans behavior and relations** with nature and other species on earth.
- **deals with the moral relationships** between humans, nature and other species on earth.
- **addresses the ethical dimensions** of humans' relations with and behavior towards nature and other species on earth more generally.

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Renewable and Nonrenewable Resources

- **Resource**
 - Anything we obtain from the environment to meet our needs
 - Some directly available for use: sunlight
 - Some not directly available for use: petroleum
- **Renewable resource**
 - Solar energy, wind power, tide power...

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Renewable and Nonrenewable Resources

- **Renewable resource**
 - Several days to several hundred years to renew
 - E.g., forests, grasslands, fresh air, fertile soil
- **Nonrenewable resources**
 - Energy resources
 - Metallic mineral resources
 - Nonmetallic mineral resources

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Renewable and Nonrenewable Resources

- **Sustainable yield**
 - Highest rate at which we can use a renewable resource without reducing available supply
- **Sustainable yield**
 - Highest rate at which we can use a renewable resource without reducing available supply
- **Reuse**
- **Recycle**

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

- **Key Achievements in Green Growth**

Under national **Green Growth Action Plan**, several activities are advancing on several fronts:

- Examining institutional arrangements for green growth
- Revision of master plans
- Promotion of technology transfer
- Business promotion, enterprise development, PPPs
- Reviewing fiscal and financial arrangements



• Future Directions

Overview of activities:

- Provide technical training and support to undertake marginal cost curve studies and relevant research to define GHG emission targets and policy options for preparation of GG action plans of transportation sectors and target provinces.
- Design the joint training of trainers (TOT) programme on climate change and green growth.
- Review investment policies and barriers to identify gaps for new policies to stimulate green investments, including renewable and clean energy.



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

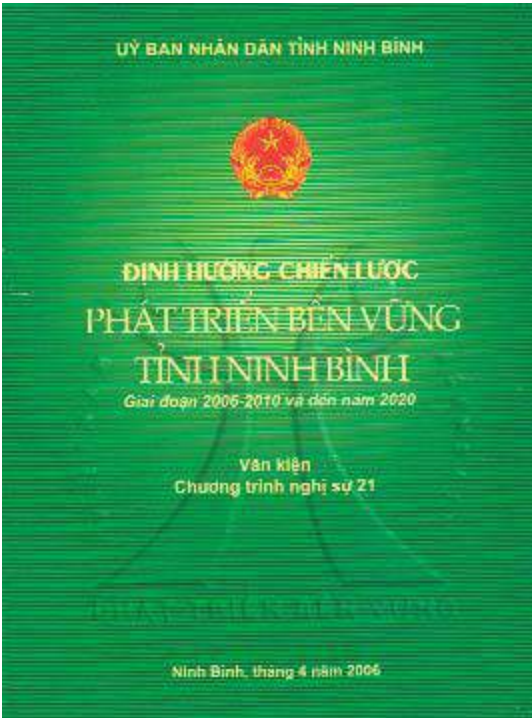
• Future Directions

Overview of activities:

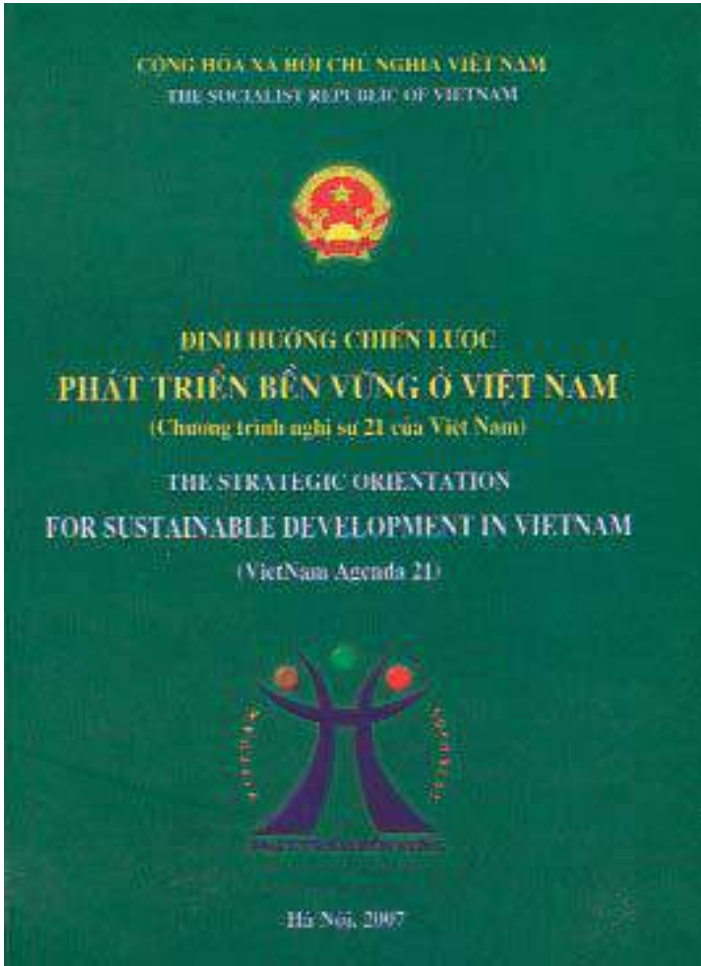
- Revised/new public green procurement and expenditure investments policies introduced.
- Provide technical advice and inputs for the formulation of feasible fiscal policy frameworks and fiscal tools (e.g., environment and resources taxes, levies) to advance green growth in Viet Nam.
- Improve Viet Nam's climate finance architecture for green growth, as well as reporting on effective planning, budgeting, and tracking of climate finance spending.



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT



At local



At Central

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Advances in energy use and supply in Vietnam

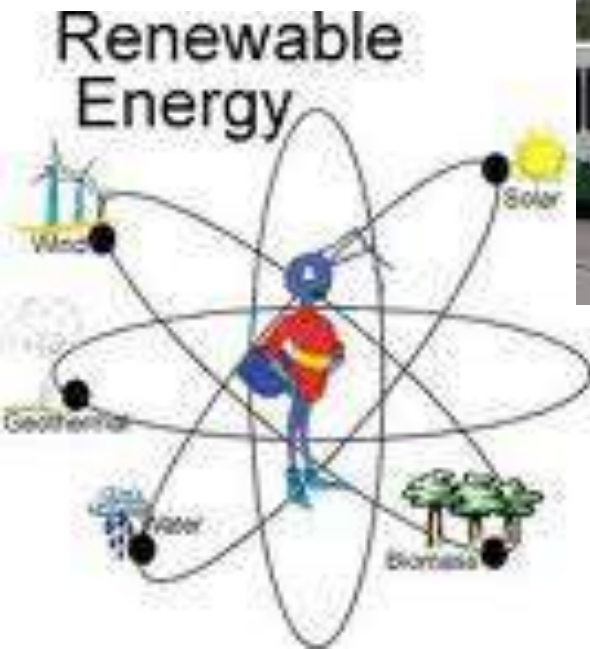
Major advances in reducing environmental impact of energy supply can be achieved through shifts in energy mix e.g. from wood, coal, and oil to gas, hydroelectric power, and nuclear power.

Biofuels are and will continue to be an important source of energy in Asia. Hence, management of a more efficient biomass energy systems is essential.

(Dr. Eduardo T.
Gonzalez,2005)

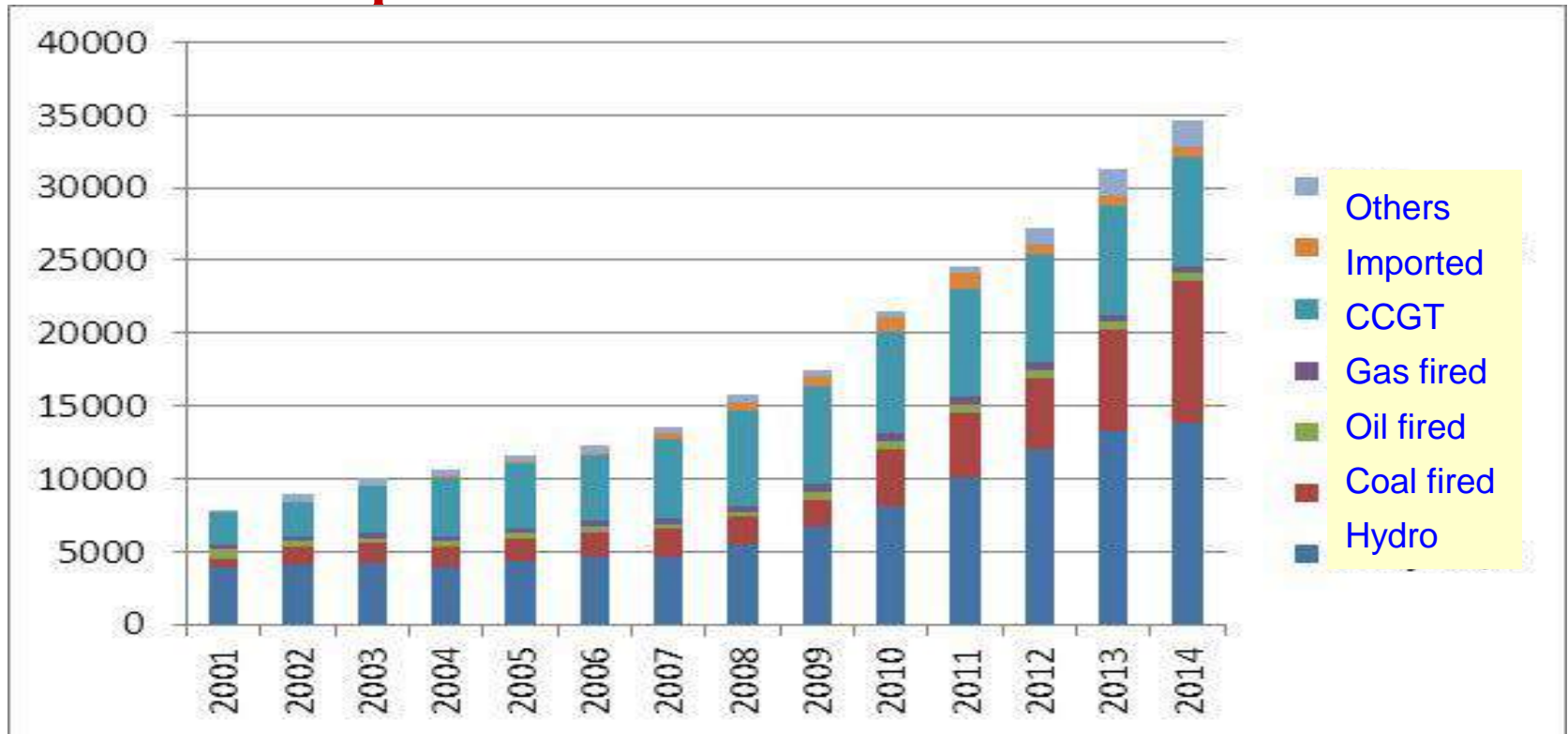
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

- Research and promote clean and renewable energy ;
- Encourage officers to use public transportation instead of private car...;



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Power sector development 2014

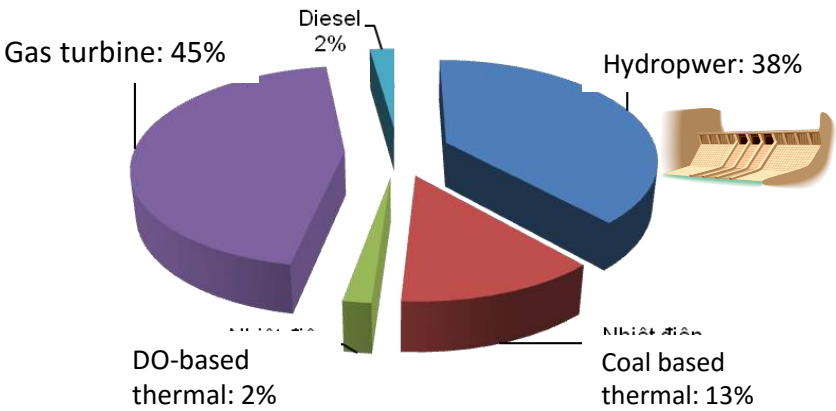


- **Total installed capacity by Dec. 2014: 34 GW (peak load 22. GW)**
- **42% of installed generation capacity comes from renewable energy and hydro power projects**

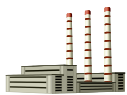
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Power sector development 2014

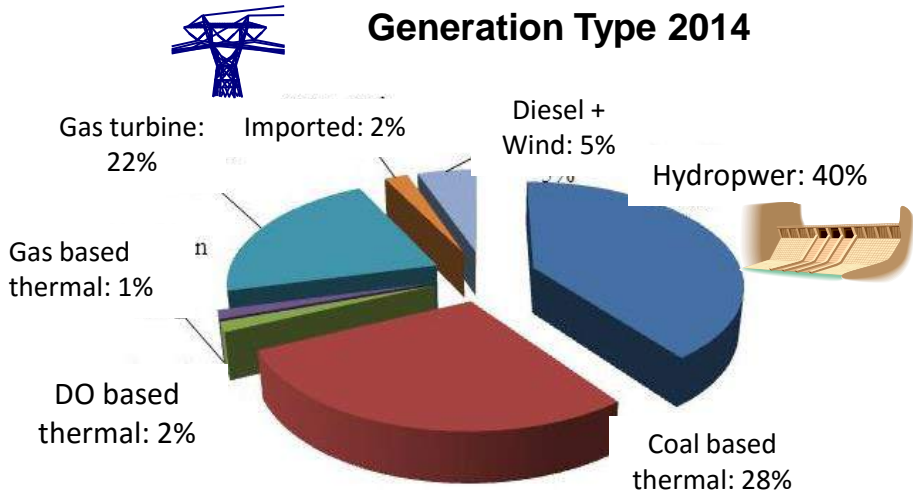
Generation Type 2005



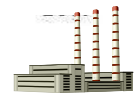
P installed = 11.6 GW



Generation Type 2014



P installed = 34 GW



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Wind energy development

Development Plan and Supporting mechanism for WPP

Development Plan

- **Draft Master Plan for potential development area of wind energy**
- **Provincial Development Plan for Wind Power**
 - Bình Thuận, July 2012: up to 700MW by 2020;
 - Ninh Thuận, April 2013: up to 220 MW by 2020;
 - Sóc Trăng, May 2014: up to 200MW by 2020;
 - Bến Tre, March 2015: up to 150 MW by 2020;
 - Quang Tri, June 2015: up to 110 MW by 2020

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Wind energy development

Development Plan and Supporting mechanism for WPP

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 - Sóc Trăng, May 2014: up to 200MW by 2020;
 - Bến Tre, March 2015: up to 150 MW by 2020;
 - Quang Tri, June 2015: up to 110 MW by 2020

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Regulations and supporting mechanisms for WPP

- Decision No. 37/2011/QD-TTg issued by the Prime Minister dated 29/6/2011 on mechanisms to support development of wind power projects.
 - Power purchase responsibility: EVN must take and pay electricity generated from WPP
 - FIT for grid-connected wind power project: 7.8 US\$/kWh (VAT exclusive; subject to VND/USD fluctuation)
- Circular No. 32/2012/TT-BCT dated 12/11/2012 promulgating implementation of WPP development and standard PPAs for wind power projects.
 - Procedures for development of wind power projects
 - Application for price support from VEPF.
 - Registration sequence for the development of off-grid wind power projects.
 - SPPA for wind power projects
- Circular No. 06/2013/TT-BCT dated 8/3/2013 promulgating content, order, procedure for formulation, appraising and approving wind power planning

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Other supporting mechanisms for WPP

- Import tax: Import tax exemption for equipment which is not domestically manufactured.
- Corporate income tax:
 - Tax rate: 10% for the first 15 years, possible extension up to 30 years
 - Tax exemption for the first 4 years, 50% reduction for next 9 years
- Fast depreciation: 1.5 times faster than normal projects.
- Exempt land-use tax/charges.
- Exempt environmental protection fees.

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Action plan for development of WPP

- Developing the spatial map on Renewable energy including wind energy
- Review and assesment of prevailing mechanism and suggestion for new FIT: 2015 – 2016
- Developing the national standard for wind energy technology equipment: 2016 - 2020
- Building the mechanisms to support development of local equipment production filed and services in the solar energy field;
 - ✓ Assessment of status: 2016
 - ✓ Research and proposal on supporting mechanisms: 2017 - 2018
- Implementing capacity building programs for PBs, universities and vocational training units: 2016 - 2020

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER



Education for Sustainable development



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

What Does Educating for Sustainability Include...

- Knowledge
- Skills
- Values and Attitudes
- Behavior
- Preparing students, so that, as adults, they are able to deal with the challenges of living sustainably on both a local and global level.

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT: WIND POWER

Current status of WEEE treatment and recycling

- Unused equipments are often sold to some collecting people to manually dismantle for precious metal.
- Unrecyclable material are brought to the landfills.



Source:
Internet

Waste of Electrical and Electronic Equipments (WEEE)

6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

- ✓ Planting and observation on trees
- ✓ Drawing contest on environmental activities
- ✓ Games and tests on environmental activities
- ✓ Eco-camping
- ✓ Training for school teachers
- ✓ Publish environmental educational materials

Activities with Schools





Sustainable coastal development by ICZM is appropriated management method to harmonize the biodiversity, climate change and livelihood improvement



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Source: Hua Chien
Thang, 2012

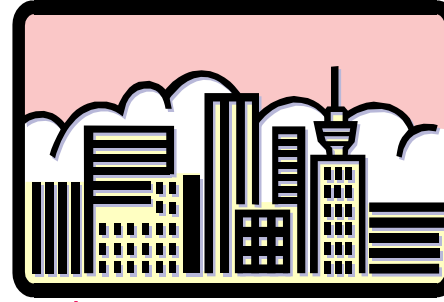
Pressures on the Việt Nam

Marine Resources and Environment

Increase of Population



Fast in Urban Development



Natural disaster



Agriculture



Forestry



Mining



Tourism



Industries



Energy



Fishery



Marine Transport



Source: Hua Chien Thang, 2012



CORAL PLANTATIONS



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT



Food
safety
educati
on

Polluted water treatment



Heliconia psittacorum Sess

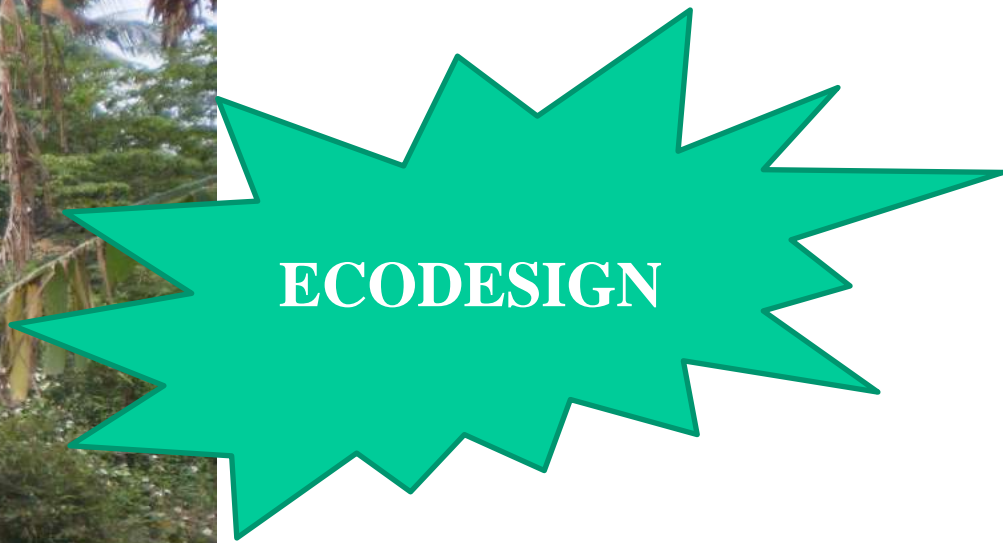


Vetiver grass. L



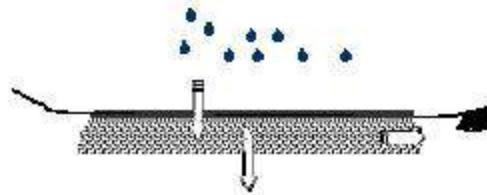
Canna indica Bail.





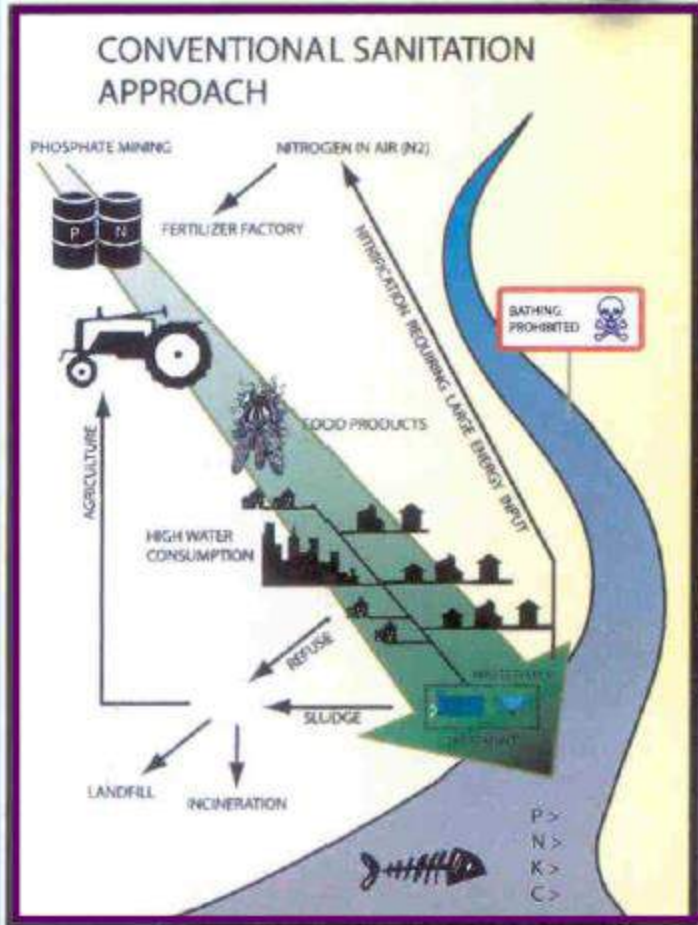
6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

New concept: Rainwater harvesting and grey water reuse

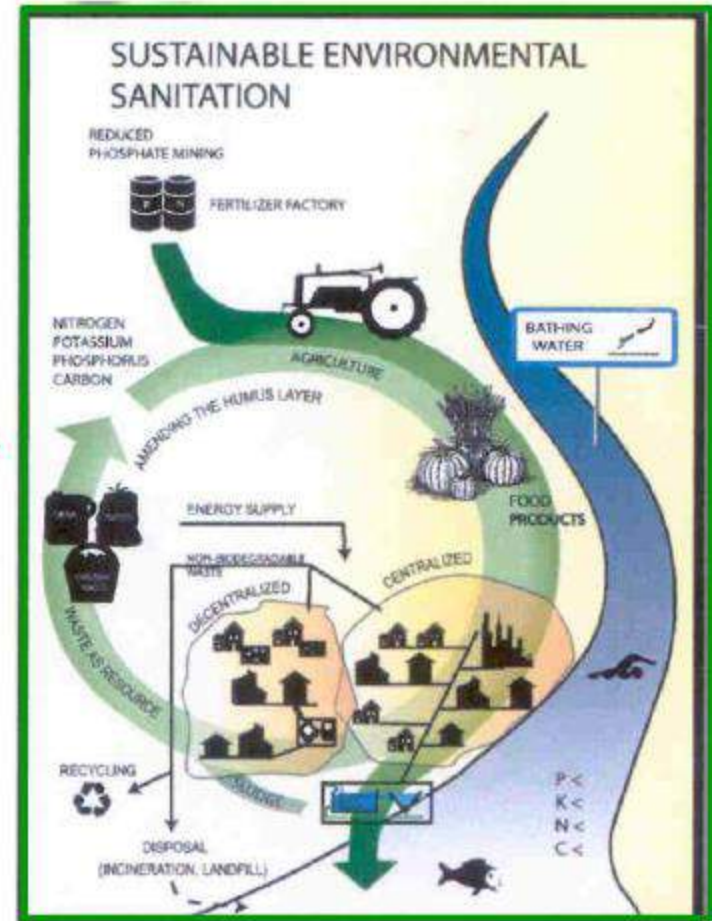


THE PAST

...

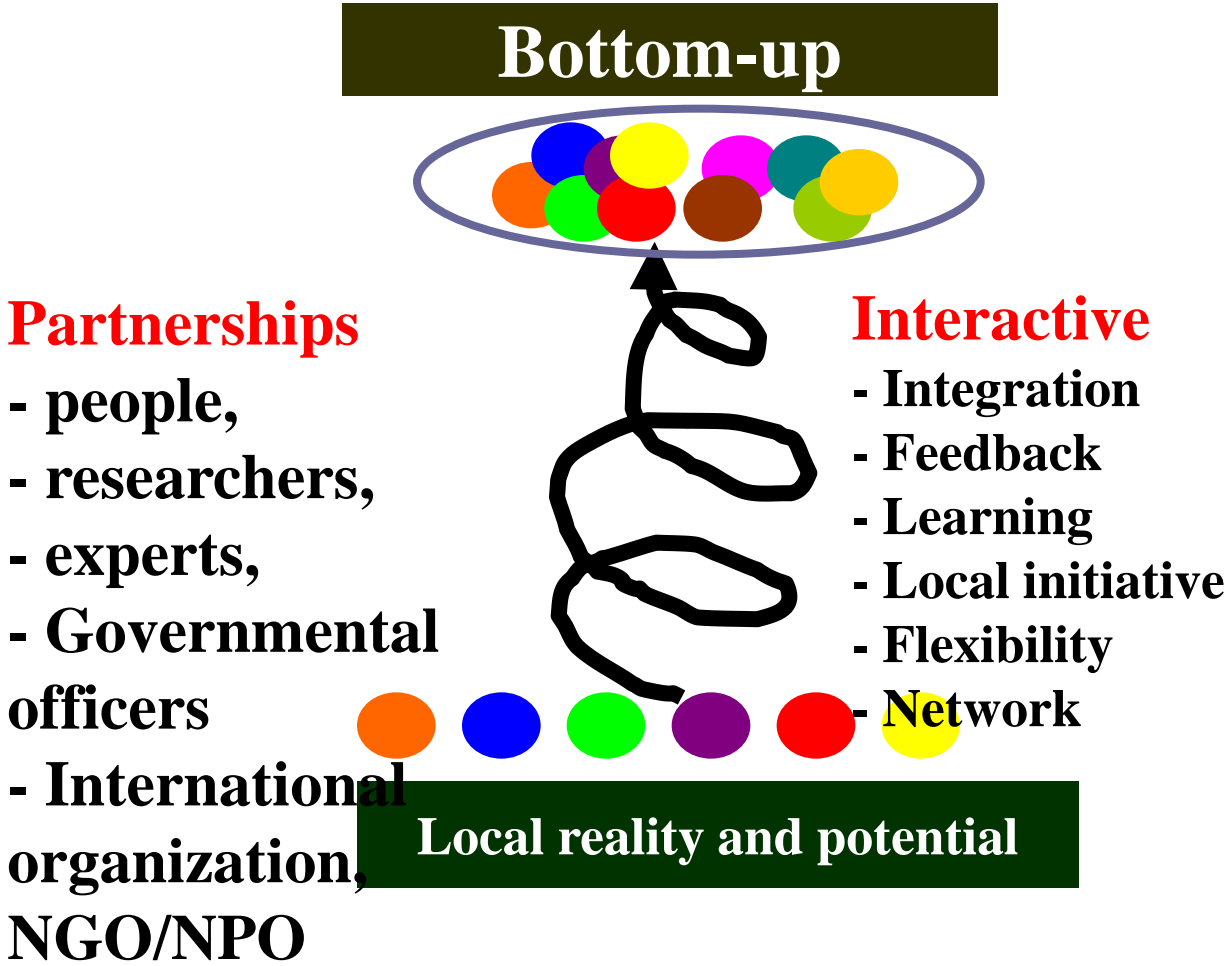


THE FUTURE



6. CHALLENGE FOR SUSTAINABLE DEVELOPMENT

Researching Methodology





CO₂ Labels Proposed for Beer Cans by '09



THINK GLOBALLY, ACT LOCALLY!!!



A bouquet of fresh green asparagus spears with white flowers, set against a dark blue background. The asparagus spears are vibrant green and appear to be freshly harvested. The white flowers are small and delicate, adding a touch of elegance to the arrangement. The background is a solid, deep blue color, which makes the green of the asparagus and the white of the flowers stand out prominently.

**Thank you for your
attention !**

ご清聴有難うございました！



The University of Danang





The University of Danang (UD)

- Established in 1994, merging existing universities and colleges in Danang city
- Public university
- National university (one of five two-level universities in Vietnam)
- Multidisciplinary university
- Multi-level university (Vocational, Bachelor, Master, Doctoral degrees)
- One of the 17 key universities of Vietnam
- High autonomy
- Located in Danang City