

**Workshop on Environment Statistics for
the South East Asian Countries
Hanoi, Vietnam, 5 – 7 December 2011**

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I. Overview

- Lao PDR is landlocked country in South-East Asia. It shares borders with China to the north, Viet Nam to the east, Cambodia to the south, Thailand to the west, and Myanmar to the northwest.
- Country's area: 236,800 km².
- Total population is 6,265,197 people in 2010 and population density is 26 people per km².
- GDP (growth rate) is 8,4 in 2010 and GDP per capital is 1,088 US\$ And expected growth of 8.6% in 2011

The border of Lao PDR Country



II. Policies, law and regulation related to environment

Policies:

- The Action Plan on tropical forest, 1989
- The Social-economic development strategy to years 2020
- National Strategy on Environment to the years 2020 and Action Plan for the years 2006-2010
- National Strategy on Education and Environment Awareness to the years and Action Plan for the years 2006-2010 (2004)
- National Biodiversity to the years 2020 and Action Plan to the years 2020 (2004)
- The Hydropower Sustainable Development Strategy
- The Forest strategy to years 2020

II. Cont.

Law and Regulation:

- The promulgation of the Constitution, 1991 and the new Constitution, 2003
- The Environmental Protection Law (EPL), 1999
- In addition to the EPL there are other Laws that have provision for Environmental protection, namely: Forestry Law, 11/10/96; Law on Water and water resources, 11/10/96; Land Law (amended version 21/10/03); Law on Electricity, 12/04/97; Law on Mining, 12/04/97; Law on Road Transportation, 12/04/97; Law on Agriculture, 03/04/99 and etc.

II. Cont.

Law and Regulation:

- Decree on the Implementation of the Environmental Protection Law, 2002
- Decree on the Environmental Protection Fund, 2005
- Decree on the Compensation and Resettlement of Development Project, 2005
- Regulation on Environment Assessment in the Lao PDR, 2003
- Regulation on Environment Assessment for Road, Electricity, Mining and Industrial projects and etc.

II. Cont.

Vision

1. Environmental Management in the country should be implemented in a systematic and effective manner to ensure environmental protection and natural resource conservation,
2. Environmental management should be well balanced with economic, social and cultural development and parallel with national defense and public security.
3. Environmental Management should go hand in hand with the development of policy, strategy, legal framework, institutional reform and capacity building.
4. Environmental Management should go hand in hand with environment education and awareness in order to encourage public understanding and participation in environmental protection, mitigation and rehabilitation.
5. The establishment of financial mechanisms and promote investment in environmental activity.
6. The use of the strong environmental position of the county to seek opportunity for international coordination and cooperation.

III. Environment Concern

State of environment report 2001

1. Deforestation
2. Water Resource Bio-diversity
3. Land degradation
4. Urban Environment Management

[Daft of State of environment report 2012](#)

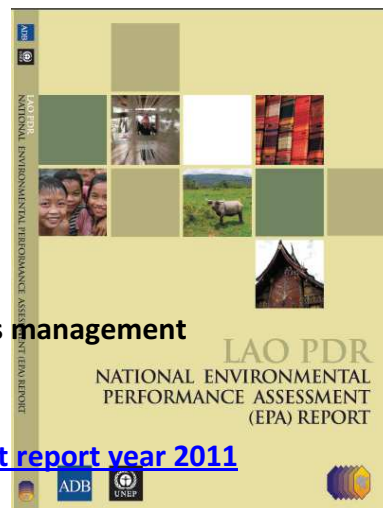


Environment performance assessment report year 2006

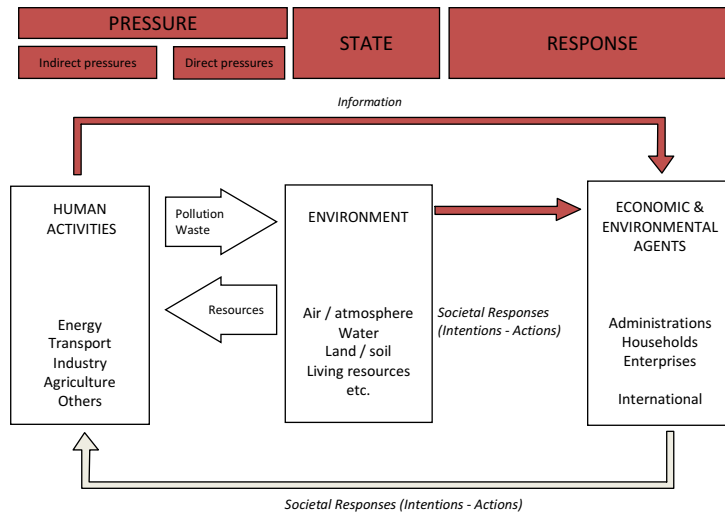
1. Forest Resources depletion
2. Water Resources
3. Fish resources
4. Threat to Biodiversity
5. Land Degradation
6. Inadequate waste management
7. Inadequate hazardous substances management
8. Climate change

[Environment performance assessment report year 2011](#)

[P-S-R Model to analyze](#)



THE PSR MODEL



Source: OECD

III. Cont.

- **How to Selection of Environmental Concerns**

According to national plans, goals, targets, objectives such as the National Growth Poverty Eradication Strategy (NGPES) 2003, National Socio-economic Development Plan 2006-2010, Millennium Development Goals (MDGs), background document on achievements, challenges and future direction within the implementation of the national strategies and policies, sector strategies and action plans to the year 2020 and extensive consultations with various line ministries and stakeholders, important environmental concerns were selected.

III. Cont.

Methodology

All data collected is gathered from secondary sources such as sectoral publications from relevant ministries, published reports from international journals, and organizations like the World Bank, ADB, and other official statistic online data.

- *The criteria used to select “environmental priority concerns”:*
- Link to a policy target relevance;
- Analytical soundness
- Measurability

III. Cont.

The criteria used to select “indicators”:

- Relevant environmental concern;
- Alignment;
- Clear causal links;
- Quality and reliability;
- Accessibility;
- Practical to collect;
- Availability;
- Regular refinement of indicator set;
- Appropriate time and spatial scales.

✓. Developing Environment Concerns and Indicators

Example using the Urban Air Quality D-P-S-I-R Matrix

DRIVER (D)	PRESSURE (P)	STATE (S)	IMPACT (I)	RESPONSE (R)
<ul style="list-style-type: none">• Economical and population growth• Urbanization	<ul style="list-style-type: none">• Increase in emissions from vehicles and energy production	<ul style="list-style-type: none">• Urban air quality	<ul style="list-style-type: none">• Human health	<ul style="list-style-type: none">• Controls on vehicle use• Transport demand management• Urban planning• Cleaner energy

✓. Developing Environmental databases

The screenshot shows a web browser window titled "Update Database" displaying a web application interface. The main heading is "Web Mapping - WREA". On the left, there is a map of a region with various colored areas. On the right, there is a list of environmental indicators, each with a checkbox:

- Wastewater
- Air Quality
- Soil contamination
- Solid Waste
- Water Quality for Rivers
- Water Quality for Reservoirs
- Back to Main Switchboard

At the bottom left, it says "Grontmij | Carl Bro - 2008-11". At the bottom right, it says "Problems? [Mail Henning](#) [Start Web Mapping](#) Version 1.7 - March 2011".

Environmental Indicators

ນ້ຳເສີຍ

1. ສະຖານີ

ສີ່ຫຼ່ືດ	ຊື່ລາດ	ລະຫັດ	ແຂວງ
Station N. 02 (Hong Ton 2)	ສະຖານີເລກ 2 (ຮອງຄອງ 2)		Vientian
Station N. 03 (Hong Khouakhao 1)	ສະຖານີເລກ 3 (ຮອງ ລົດຂາວ 1)		Vientian
Station N. 04 (Hong Khaukhaio 2)	ສະຖານີເລກ 4 (ຮອງ ລົດຂາວ 2)		Vientian
Station N. 05 (Ban Fai)	ສະຖານີເລກ 5 (ບ້ານ ຝາຍ)		Vientian
Station N. 06 (Ban Hongke)	ສະຖານີເລກ 6 (ບ້ານ ຮອງລາ)		Vientian
Station N. 07 (That Luang)	ສະຖານີເລກ 7 (ທາດຫຼວງ)		Vientian
Station N. 09 (Nam Passack 1)	ສະຖານີເລກ 9 (ນ້ຳ ປາສັກ 1)		Vientian
Station N. 10 (Nam Passack 2)	ສະຖານີເລກ 10 (ນ້ຳ ປາສັກ 2)		Vientian
Station N. 11 (Nam Passack 3)	ສະຖານີເລກ 11 (ນ້ຳ ປາສັກ 3)		Vientian
Station N. 12 (Nam Passack 4)	ສະຖານີເລກ 12 (ນ້ຳ ປາສັກ 4)		Vientian
Station N. 13 (Nam Passack Hong Keng 1)	ສະຖານີເລກ 13 (ນ້ຳ ປາສັກ ຮອ)		Vientian
Station N. 14 (PhonKeng)	ສະຖານີເລກ 14 (ໂພນເກັງ)		Vientian
Station N. 15 (Hong Kai Keo)	ສະຖານີເລກ 15 (ຮອງ/ກຳເລັດ)		Vientian
Station N. 16 (Phon Than)	ສະຖານີເລກ 16 (ໂພນທັນ)		Vientian
Station N. 17 (Hong OuyLouy)	ສະຖານີເລກ 17 (ຮອງອອຍລອຍ)		Vientian
Surpond (Ban Namsanam)		WTSQ6	Kha
Nam Hai Upstream (Upper Ban Namsanam)	ສະຖານີນ້ຳໄຮ (ເດີນເອີນ)	WTSQ7A	Kha
Nam Hai (Ban Vangdao Before Nam Namsanam)	ສະຖານີນ້ຳໄຮ (ເດີນວັງດາວ ກ່ອນ)	WTSQ8	Kha
Nam Hinboun (Ban Napoak)	ສະຖານີນ້ຳໄຮ (ເດີນນາປອກ)	WTSQ9A	Kha

2. ຈື່ງຍ່າງ

ລະຫັດ: 1

ສະຖານີ: Station N. 02 (Hong Ton 2)

ເວລາເອົາຕົວຢ່າງ: 1/1/2002

ປັດຍ:

2.1 ສິ່ງທວດກນ

ຈື່ງທວດກນ	ຄຸນຄ່າ
pH ()	7.08
Conductivity (µS/cm)	320
Alkalinity (mg CaCO3/l)	173
BOD5 (mg O2/l)	20
COD (mg O2/l)	125
Temperature (oC)	20

Records: 1 of 24

Environmental Indicators

ຄຸນນະພາບອາກາດ

1. ສະຖານີ

ສີ່ຫຼ່ືດ	ຊື່ລາດ	ລະຫັດ	ແຂວງ
Air Station 1	ສະຖານີປັບອັດຕະໂນມ ສະພາບອາກາດ		Vier
Air Station 2	ສະຖານີປັບອັດຕະໂນມ ສະພາບອາກາດ		Vier
Air Station 3	ສະຖານີປັບອັດຕະໂນມ ສະພາບອາກາດ		Vier
Air Station 4	ສະຖານີປັບອັດຕະໂນມ ສະພາບອາກາດ		Vier

2. ຈື່ງຍ່າງ

ລະຫັດ: 364

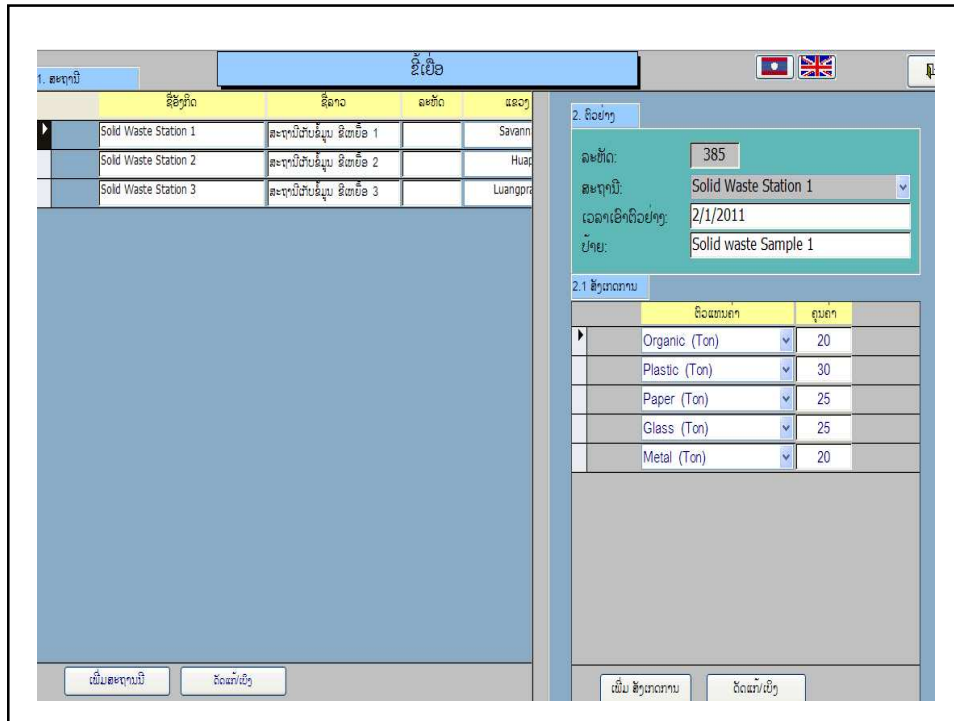
ສະຖານີ: Air Station 1

ເວລາເອົາຕົວຢ່າງ: 1/1/2011

ປັດຍ:

2.1 ສິ່ງທວດກນ

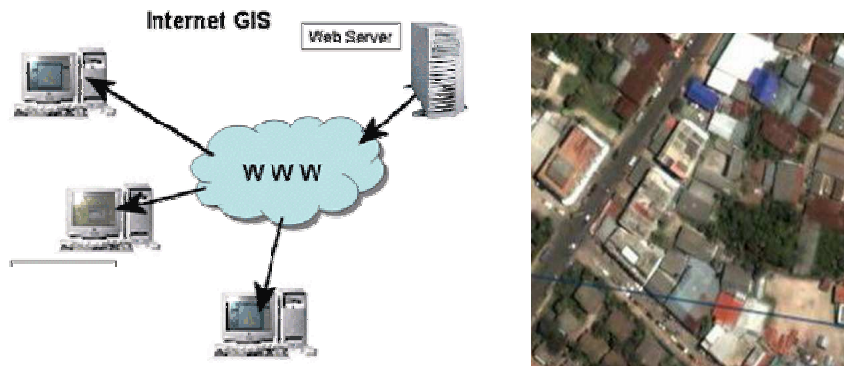
ຈື່ງທວດກນ	ຄຸນຄ່າ
Nox (µg/m3)	22
O3 (µg/m3)	2
SO2 (1 hr) (µg/m3)	33
SO2 (24 hr) (µg/m3)	11
PM10 (µg/m3)	10
Wind speed (m/s)	1.4
Wind direction (degree)	350
NH3 (µg/m3)	21



Web mapping +Google Earth

GIS layers + WWW → Internet GIS

Map viewer without using a GIS Software



IV. State of statistics and environment statistics

State Government on statistical work

- State Government promotes statistics by defining policies, regulations, statistics organization system, human resources and competence development and staffing; and financing the Strategy for the Development of National Statistical System (SDNSS) and action plan in each period to assure the sustainability of statistical work;
- State Government promotes, motivates and encourages individual person, juridical person and organization, domestic and foreign, for support and contribution through supplying the data, intellectual/technical and financial support.

IV. Cont.

- Developing a good, efficient and effective National Statistical System (NSS) is necessary and crucially important for the country to improve the quality of official statistics as according to statistical scientific approaches and methodologies with the appropriate production and dissemination processes.
- Developing a good, efficient and effective NSS is necessary and crucially important for the country to improve the quality of official statistics as according to statistical scientific approaches and methodologies with the appropriate production and dissemination processes.
- The SDNSS aims to improve and strengthen the foundation for the development of statistical production both in term of quantity and quality, to ensure that the NSS is comparable to international standards, and to increase credibility of the NSS with best practices

IV. Cont.

Legislative Framework and Implementation

- The Statistic Law was approved by National Assembly of the Lao PDR on 30 June 2010.
- National Statistics Organization: Lao Statistics Bureau, ministries, ministry-equivalent organizations, provincial authorities, which are players in the National Statistical System (vertical and horizontal organizational network), have improved organizational structure and strengthened statistical activities under their responsibility.

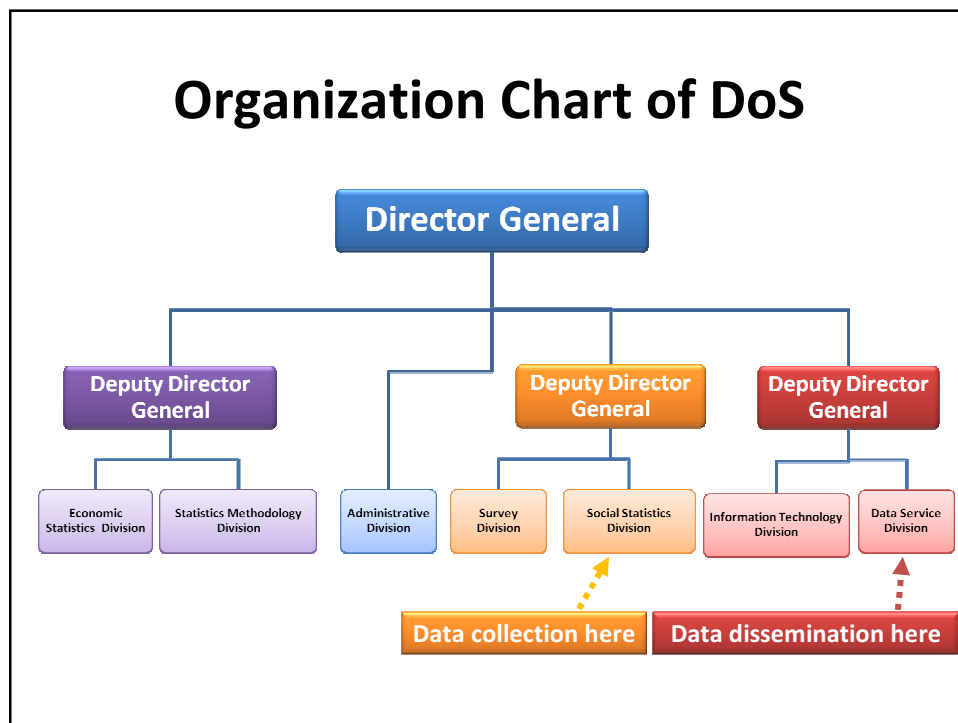
IV. Cont.

Legislative Framework and Implementation (Cont.)

- **Department of Statistics (DoS)**
 - ✓ **Established: 11 March 2008**
 - ✓ **Divisions: 7**
 - ✓ **Staff: 63 Female: 27**
- **Lao Statistics Bureau was established in 30 June 2010**

IV. Cont.

- Though it is still insufficient for operational needs, number of statistical staff of Department of Statistics has increased from 15 staff in 1983 to 60 at present, and from 5 divisions in 2005 to 7 divisions at present as following:
 - ✓ Administrative Division
 - ✓ Social Statistics Division
 - ✓ Economic Statistics Division
 - ✓ Survey Division
 - ✓ Methodology Division
 - ✓ Information and Technology Division
 - ✓ Data Service Division



The Role of the Lao Statistics Bureau

- Collecting, compiling, processing, analyzing and reporting official statistics on socio-economic
- It is a center of socio-economic statistics supplying to all organizations of the party, government, various sectors, local and others
- Center for cooperation among various agencies responsible for statistics in different sectors and locals
- center for the providing technical advice on data collection, surveys, and supplying socio-economic data

Type of statistics

There are 4 types of statistics as follows:

- Economic statistics
- Social statistics
- Environment and natural resources statistics
- Security and stability statistics

Environment Statistics

- Environment and natural resources statistics are those data that reflect the activities of the development in the areas of environment and natural resources on country's geography, mine, hydrology, topology, disaster, pollution, wastage and waste management
- These environmental area indicators have been published in Statistical Year Book such as average maximum and minimum temperature, humidity, sunshine direction, rainfall and normal meteorology by year, which these data have reported by Department of Meteorology and Hydrology, Water Recourse and Environment Administration.

V. Challenges and limitations

- There are several, interrelated challenges and limitations in the current process that will need to be addressed in continuing and expanding conduct:
- Lack of institutional set-up/coordination
- Lack of financial resources
- Lack of human resources
- Lack of access to training material
- Availability of data
- Quality of data
- Capacity development and data sharing protocols would need to reflect decisions made on institutional mandates
- Lack of metadata and uncertainties about which agencies have what data.
- Often a lack of timely and robust data corresponding
- Lacking good data
- data gaps are compounded by weak data sharing and management systems
- Environmental data is currently not catalogued, data and reports are not published systematically
- Awareness of MONRE partners in priority environment issues has not been systematically measured.

THANK YOU