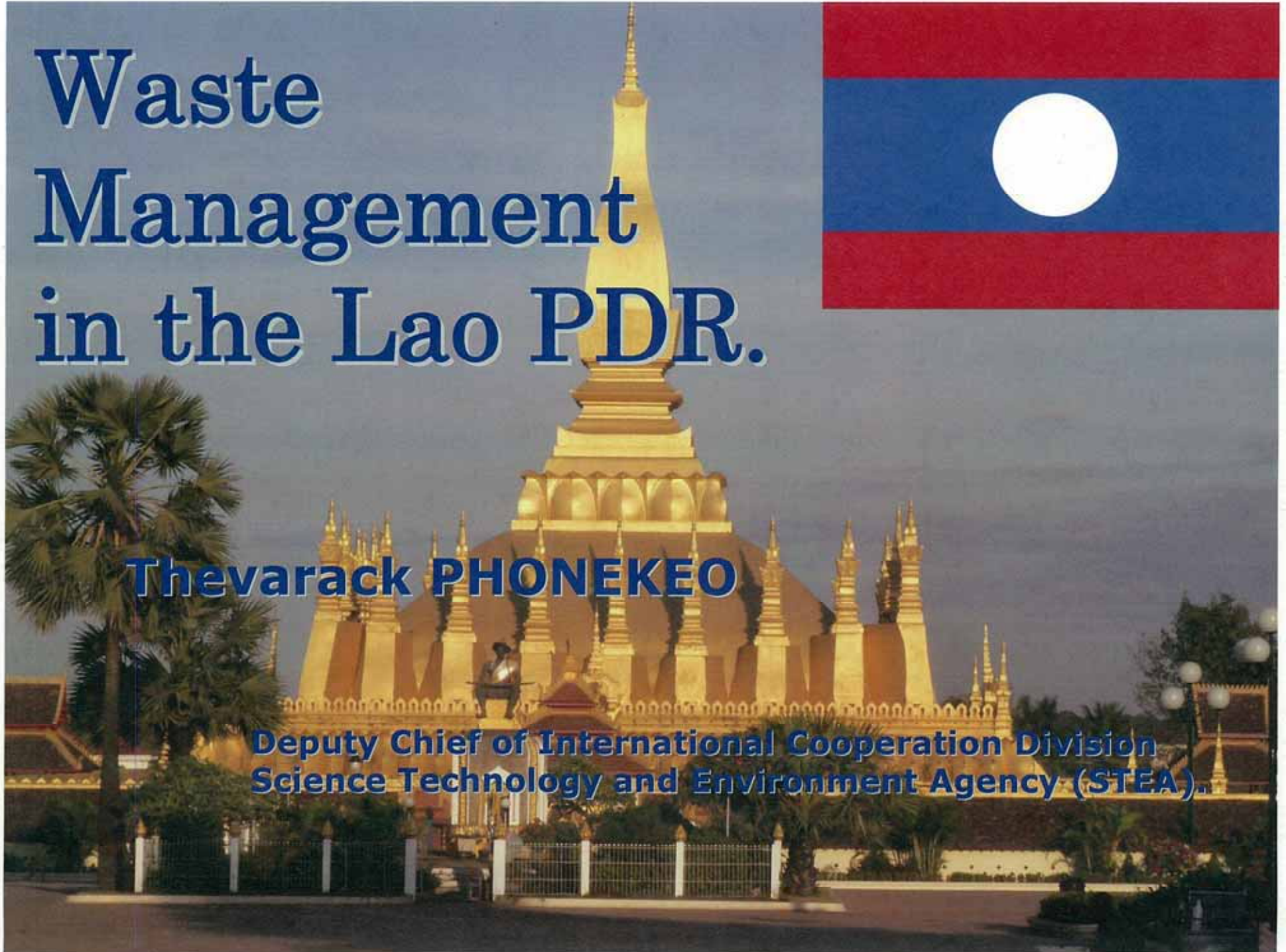


# Waste Management in the Lao PDR.

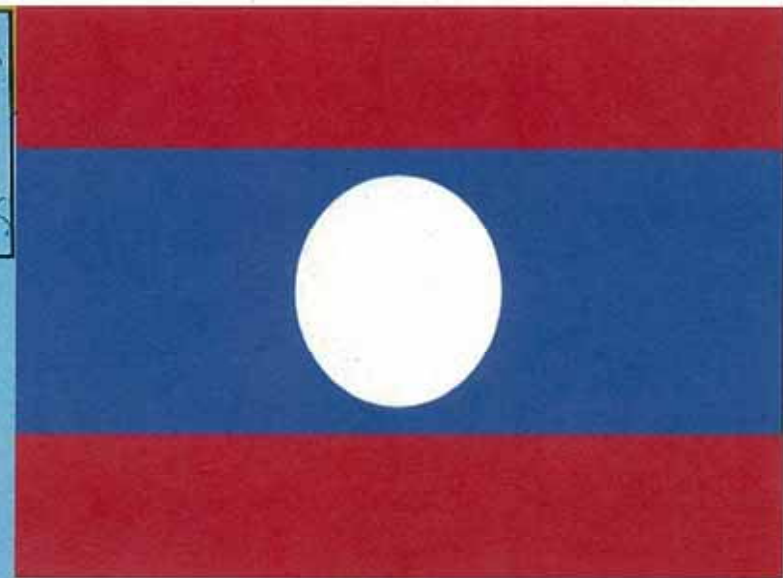


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# Lao PDR Environmental



- **Population:** 6.2 million
- **Labour Force:** 2.6 million
- **Labour Force by Occupation:** 80% Agriculture
- **Natural Resources:** timber, hydropower, gypsum, tin , gold , gemstones...

# Policy on Environment Protection.



1. Environmental Protection Law.
2. Decree on the Implementation of the Environment Protection Law.
3. Regulation on Environment Impact Assessment.
4. National Strategy on Environment to the years 2020 and Action Plan for the years 2006-2010.
5. National Strategy on Environment Education and Awareness to the years 2020 and Action Plan for the years 2006-2010.

# Processing Industry.



- Processing Industry Law.
- Agreement on Environment Impact Assessment for Processing Industry.
- Regulation on Waste Water from Processing Industry.

# Background



- Vientiane is the capital city of Lao PDR.
- Land area of 3,920 square kilometers.
- The population of Vientiane is 639,326 (Vientiane Capital City, 2003).
- Vientiane Capital City consists of 9 districts.
- The waste management infrastructure currently mainly services in four of these districts: Chanthaboury, Sikhottabong, Sisattanak and Xaysettha Districts.



- Waste collection at the landfill was 41,489 t/year in 2001 and 42,704 t/year in 2002 or about 200-250 t per day. This equates to on average 0.75 kilograms of solid waste per capita per day.
- There is one dumping site in Vientiane.
- The composition of waste collected by the waste pickers' is different from waste found at the landfill, informal sector, recycling, using in home gardens, burning and dumping





# Key issues of solid waste management in Vientiane Capital City.

- Lack of awareness on the proper disposal of solid waste.
- Excess of waste collection taken to the dumping sites.
- Problems arising due to poor waste management include bad odors, numerous flies and no separation of waste into different containers;
- The generally dirty urban city and environment;
- Solid waste-related activities for poor waste pickers posing a serious threat to public health as well as an aesthetic problem in the city.



# Market waste data in Vientiane Capital City October 2006



Market Name	Quantity of waste T/day	Expenditure for waste transportation (kip/month)	Expenditure for waste collection and waste transportation (kip/year)
Thong khankham 1	4	6.500.000	15.100.000
Sikhay 1	0.9	720.000	4.720.000
Thatluang 1	2.4	10.800.000	13.175.000
Thatluang 2	1	3.900.000	6.750.000
Khuadine	9	8.000.000	13.300.000
Sikhay 2	0.375	1.200.000	1.700.000
Suane Mone	0.5	2.200.000	3.100.000
Huakhua	1.2	4.500.000	7.125.000
Huanehong	0.24	540.000	1.740.000
Morning Market	2	6.000.000	14.010.000
Thongphanthong	0.5	2.000.000	5.600.000
Lao-China Friendship	0.25	900.000	2.500.000
Thangone	0.5	450.000	1.350.000
Dan xang	0.571	1.100.000	1.460.000
<b>Total</b>	<b>23.436</b>	<b>48.810.000</b>	<b>91.630.000</b>



# How can reduce waste in Vientiane Capital City?



**Tips to reduce waste are the following:**

- **Reduce:** The amount of waste production, source reduction, waste prevention, consuming and no throwing away. It can be as complex as redesigning a product to use less raw material in production or to use material again and dissemination awareness to people about the proper disposal of waste.
- **Reuse:** Reusing items by repairing, or giving to someone who can repair it, donating and selling also reduces waste.
- **Recycle:** Recycling is one of the best for the environment. recycling includes buying products with recycled content. After collection, materials (e.g., glass, metal, plastics, and paper) are separated for sale also creating jobs, reducing pollution, reducing waste to the landfill, incinerator and increasing income.

# Training of the waste pickers in the market



- Purpose:
1. To separate waste at the source generation,
  2. Make waste work for economy
  3. Solve the organic waste problem on the right way by making compost

# Method of collecting waste.

The method of collecting waste at the bus station:

- Separate the different types of waste into different containers.
- Create awareness about the proper disposal of waste through advertisement by the announcer at the bus station.
- Create fines for violation of waste disposal rules.
- Improve the environmental management.
- Protect waste workers' health with protective clothing, gloves, boots and masks.

- Recycling waste can lead to income gained and money saved on disposal as well as reduction of waste to the landfill.
- After the waste is separated it can be sold to the recyclable dealer.
- The materials included:
  - Metal 70%, aluminum 70%, plastic 70% and paper 50%.
  - Some glasses can recycle for reuse , for wood waste can not be sold so it must be disposed of at the landfill.

# Workers' income at the land field by selling recyclable materials.



No	Type of waste	Reuse and Recycling (Kg)	Price (kip)	Amount/day/ Month (Kip)	Amount/year (Kip)
1	Metal	10	3,000	30,000 900,000 (Month)	10,800.000
2	Aluminum	10	8,000	80,000 2,400.000 (Month)	28,800.000
3	Bottles	-	-	-	-
4	Paper	100	2,500	250,000 7,500.000 (Month)	90,000.000
5	Plastic	150	1,100	165,000 4,950.000 (Month)	59,400.000
6	Food and other waste	-	-	-	-

# Urban Waste

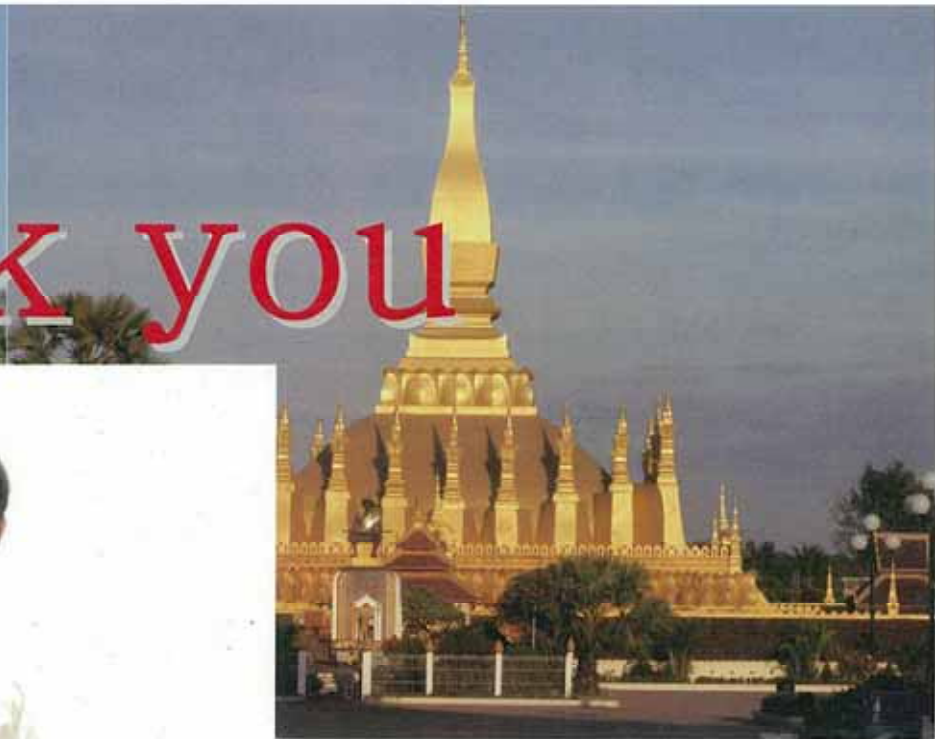


# Conclusion



The number of people in urban areas in Lao PDR is beginning to grow more rapidly and the amount of waste is increasing. Therefore, good methods of waste management and also appropriate new technologies for monitoring need to be developed. Promoting waste markets and recycling would also create awareness to reduce the total volume of waste at the landfill. There is a need to improve the data system of solid waste for the monitoring and management to support environmental reports has been improved, for example, by the GIS methodology explained in this paper.

Thank you



Welcome To Laos

