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Solid Waste Management in Lao PDR

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1. Current Status and Emerging Trends

❖ Characteristics of Vientiane City Wastes:

a. Generation rate & density

Waste Types	Generation rate	Density
Residential	0.653 kg/c/d	168 kg/m ³
Shop	8.958kg/shop	170 kg/m ³
Market	1.301kg/stall	227 kg/m ³
Office	0.031kg/empl.	77 kg/m ³
Hospital	0.957kg/bed	139 kg/m ³
Sweeping	58kg/km	56 kg/m ³
Hotel(30 beds)	24kg/hotel	175 kg/m ³
School(250s)	1.5kg/school	80 kg/m ³

b. Physical composition

Composite	Resident	Shop	Market	Office	Hospital	Sweep
Garbage	16.9 %	43.3	61.7	5.9	47.1	0.0
Paper	2.8	20.0	7.3	32.2	13.3	3.7
Textile	1.6	0.3	0.5	0.0	6.2	0.0
Plastic	6.1	7.9	4.3	9.4	11.7	8.3
Wood	38.2	8.8	13.2	36.0	8.3	55.9
Leather	1.1	0.3	0.3	1.2	2.1	0.0
Metal	3.7	5.9	1.9	2.6	1.7	0.8
Glass	9.3	6.7	1.9	5.0	4.3	0.0
Other	20.3	7.2	9.1	7.9	5.3	31.5

c. Chemical composition

Types	Comb.	Moist.	Ash	LCV	C/N
Resident	42.4%	33.8%	23.8%	1707.3	22.7
Shop	37.2	42.2	20.5	1422.8	26.7
Market	36.0	50.5	13.5	1318.0	20.9
Office	53.9	30.3	15.8	2237.5	34.7
Hospital	42.0	44.0	14.0	1623.0	25.7
Sweep	52.5	32.0	15.6	2168.0	23.1

1. Current Status and Emerging Trends

❖ secondary towns wastes :

(a) Generation & density

Town's name	Generation rate (kg/c/d)	Density (kg/m ³)
Luangphabang	0.639	175
Thakhek	0.378	226
Kaysone	0.372	234
Pakse	0.276	200

(c) Chemical composition

Town's name	Combust.	Moisture	Ash	LCV	C/N
Luangpabang	41.1	41.8	17.1	1 598.7	24.8
Thakhek	42.1	33.9	24.0	1 691.1	24.2
Kaysone	36.5	42.7	20.8	1 368.3	23.7
Pakse	44.7	38.2	17.1	1 782.3	23.9

(b) Physical Composition

Compos.	Luangp.	Thakhek	Kaysone	Pakse
Vegetable	32.9	21.2	41.9	24.3
Paper	9.6	5.2	4.2	6.0
Textiles	4.3	1.3	1.3	1.1
Plastics	14.9	13.6	13.1	10.9
Wood	8.4	26.0	10.4	31.3
Leather	1.5	1.7	0.7	4.0
Metal	1.2	3.5	2.7	2.6
Glass	1.9	11.3	6.8	2.7
Bone	1.6	2.8	2.4	0.7
Other	23.7	13.4	16.5	20.0

1. Current Status and Emerging Trends

❖ Land fill site in Vientiane Capital :



- Planning as sanitary landfill site, but using as open dumping site
In rainy season, wastewater is over flow and flow in to the rice field

1. Current Status and Emerging Trends

❖ Waste Management :



- Human waste is discharge in dumping site with out any treatment

1. Current Status and Emerging Trends

❖ Waste Management :



- Waste from hospital it also dump in the landfill same as domestic waste

1. Current Status and Emerging Trends

❖ Impact to health and environment:



- Planning as sanitary landfill site, but using as open dumping site Wastewater from landfill site is discharge directly to the nature and can be the sources of pollution

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2. Current Capacity and Constraints

❖ Current Situation of Waste Collection and disposal

- Vientiane Capital: 48%
- 4 Secondary towns: 47.5%
- 17 Small provincial towns: 47%
- Of 141 District towns only 14 controlled landfill site
- Technology for solid waste treatment
- Financial or budget for solid waste management



2. Current Capacity and Constraints

❖ **Institutional and legal framework for SWM sector :**

- Ministry of Public Works and Transport (MPWT)
- Water Resources and Environment Administration (WREA) of the Prime Ministers Office (PMO)
- Urban Development and Administrative Authority
- Village organization
- Private sector

❖ **Law and regulations**

- Industrial waste discharge (1994)
- Environmental Protection Law (1999)
- Law on Hygiene Disease Prevention and Health Promotion (2001)
- Regulation on hygiene of public places (2004)
- Regulation on landfill site management (2007)

➤ Under consideration

- Urban Sector Strategy drafted by DHUP
- MPWT Ministerial decision on Management of solid waste in towns/municipalities, drafted by DHUP
- Guideline on solid waste management , drafted by WREA and VUDAA

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3. Significant Achievements and Future Vision

- **Need National Urban Wastewater Strategy & Investment Plan**
- **Need National Solid Waste Management Policy, Implementing Strategy & Investment Plan**
- **Need Technical Guideline on Solid Waste Management**
- **Need legal framework for 3R Project**
- **Province strategy for waste management**

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4. Conclusions and Recommendations

❖ Conclusions

- Inadequate legal framework and unclear institutional responsibilities.
- Institutions envisaged to be established in accordance with law, are sometimes not established, nor given the proper mandate in accordance with the law (if established), neither given a budget to enable them to function in accordance to the law. New legislation is often drafted without proper reference to other legislation.
- A considerable amount of waste is illegally dumped into the drainage channels and rivers;
- Collection vehicle fleet is old and subject to frequent break down;
- The institutional and administration structure is not well established
- Public education system and participation programs are not established.

4. Conclusions and Recommendations

❖ Recommendation

- **Preparation of a National Urban Wastewater Strategy & Investment Plan**
- **Preparation of a National Solid Waste Management Policy, Implementing Strategy & Investment Plan**



4. Conclusions and Recommendations

❖ Recommendation

➤ Promoting 3 R and Waste Management Policies

- Promoting awareness in waste reduction among school children, urban community, especially in replacing market plastic bags with traditional baskets from bamboo, rattan or locally produced fabrics
- Public campaign on reusing of plastic bags, plastic and cupboard containers
- Recycling steel, glass and plastic bottles, paper and cupboard

- Thank you very much for your attention