

Seminar Report

Environmental Community Awareness Seminar Series

Solid Waste



Prepared by

**Asta-Ja Research and Development Centre (Asta-Ja RDC)
Kathmandu, Nepal**

Supported by

**Non-Resident Nepali Association National Coordination Council (NRNA
NCC) USA, Community Environment Academy, and Asta-Ja USA**

28th August, 2019

Contents

1. Background	3
2. Objectives and Target Groups	3
3. The Seminar on 'Solid Waste'	3
3.1 Contents.....	4
3.2 Discussions	5
4. Conclusions	5
5. Annex 1: Photos of Seminar on Solid Waste Management	7
6. Annex 2: Power Point Presentation Slides	9

1. Background

Environment pollution is of a serious concern to the city of Kathmandu in Nepal. Rapid, but unplanned, urbanization, increasing number of vehicles and energy consumption, emissions from industries, heating, and burning woods and other trash materials; trans-boundary air pollution, chemical uses in agriculture, poor and failing septic systems, exposed ground surfaces leading to excessive dust in the air, poor disposal of solid and hazardous wastes, and other activities are leading to environmental degradation at an alarming rate. Environmental pollution has not only threatened public health, it is adversely affecting the aesthetics, tourism, ecological integrity, and economic activities in the city. Unsafe disposal of hazardous waste, e-waste, and biomaterials is spreading highly toxic substances which are often long lasting in the environment. City inhabitants are already experiencing nontrivial impact of geometric growth of contaminants in air and water, and, there is a strong public call for immediate control on environmental pollution and ecological restoration. As envisioned by the Constitution of Nepal 2015 (Part 3, Article 30), clean environment is the fundamental right of the citizens of Nepal. In order to fulfill the environmental commitment made in the Constitution, the Government of Nepal has declared, on the occasion of the World Environment Day (5 June, 2018), a five-year environmental clean-up program called 'Nepal Clean Environment Campaign'. The campaign aims at achieving pollution free urban and rural areas, well managed solid-waste disposals, and increased green areas and public parks in Nepal. However, due to very high level of environmental degradation coupled with very low level of public awareness and appropriate corrective measures, it is quite challenging for the Government achieving these environmental goals within the stipulated timeframe. With the purpose of contributing to the governmental campaign of making urban and rural areas environmental pollution free, Asta-Ja Research and Development Centre (Asta-Ja RDC) Nepal has initiated a project on monthly "Environmental Community Awareness Seminar Series" with funding support from Community Environment Academy & Non-Resident Nepali Association National Coordination Council (NRNA NCC) USA and technical support from Asta-Ja USA.

Objectives and Target Groups

The overall objective of the seminar series is to raise community awareness on environmental pollution in Kathmandu Valley targeting primarily student communities representing both Colleges and High Schools. Special emphasis has been given to the effects of Global Climate Change on the environment in Kathmandu valley.

2. The Seminar on ‘Solid Waste Management’

The Sixth seminar in this series was held on the topic of ‘Solid Waste’ on 28th August, 2019. A total of 56 undergraduate students covering Bachelors in Business Studies (BBS), Bachelors in Social Work (BSW), and Bachelors in Business Management (BBM) participated in the seminar along with college management team and members of Asta-Ja RDC. The seminar was held at Greenfield National College, Bafal Kathmandu. Mr. Khimananda Sharma, an environment expert

as well as a practitioner, was the resource person for the seminar. Mr Sharma has long experience in environmental project implementation and management in Nepal. Asta-Ja RDC Executive Member Mr. Bishnu Dayal Singh coordinated and facilitated the seminar. Mr. Singh also highlighted about the activities of Asta-Ja RDC with its success stories. In his closing remarks, General Secretary of Asta-Ja RDC, Dr. Bishnu Chapagain, highlighted the importance of seminar in raising community awareness for addressing solid waste problem in Kathmandu valley. Office Coordinator of Asta-Ja RDC, Mr. Hari Bhusal, helped in logistics.

3.1 Contents

The PowerPoint presentation from Mr. Khimananda Sharma included:

- Defining an Environment
- Environment and Development
- Environmental Pollution
- Introduction to Waste
 - Sources of solid waste
 - Types of solid waste in Nepalese context
 - Per capita solid waste
 - Composition of municipal solid waste
- Integrated solid waste management
- Roles and responsibilities on solid waste management
- Solid waste management operational status
- Landfilling
- Problems and issues on solid waste management
- Legislative measures

In his presentation, Mr. Sharma highlighted importance of clean environment to human and other creatures and their interrelationships. Further, students were briefed why development works avoid environment conservation and take it as a burden. The session also focused on environmental pollution and their types. Waste can be resource, can be money and can be source for other products if it is managed correct. In many ways he had convinced waste is waste until it is wasted otherwise it is a resource for somebody else. The economic values and cost of disposal was discussed with students while introducing waste management practices around the globe.

The seminar had emphasized on legal and practical measures on waste management in Nepal with current problems and management options. The role and responsibilities for different stakeholders were also shared among the participants. Mr. Sharma had shared different pictures to trigger the participant's opinion in favor of environmental protection.

Key messages communicated to the participants were:

- Environment is an integral part of human life, it should be protected to save the creatures on earth.
- Environment protection and development activities cannot be separated from each other. Sustainable development emphasizes the wise and limited use of resources from the earth.
- Environmental pollution is increasing day by day and it has alarming impacts on human health.
- Municipal solid waste has highest volume among other sources. Therefore, cities are highly responsible in solid waste management.
- Managing solid waste is people's smart choice of living. Multidimensional methods exist in solid waste management.
- Reducing waste generation is best among all the solid waste management measures whereas dumping is the worst choice. Changing waste into resources, and sources for energy could generate income.
- There is adequate legislative and legal provision with government, now it is time to act and impose them.
- Being responsible is the key to manage solid waste and it requires strong community awareness.

3.2 Discussions

Floor was open for discussion following PowerPoint presentation from the resource person. Questions asked by the participant students during the discussion session were:

- How is urbanization affecting Solid waste problem in Kathmandu and Nepal?
- How a dumping site away from city can affect public health and quality of life?
- How can waste be changed to money? What are success cases?
- How can we manage domestic waste within house? Is it possible to be a zero waste house?

The resource person responded very well to all the questions and concerns raised by the student participants in the seminar.

3. Conclusions

The seminar was very participatory and interactive in conveying the message of solid waste and its environmental impacts in Nepalese context. It can be assured that knowing about solid waste and its opportunity to recycle, the participating students can think of working on it in the future for environmental protection. This was helpful for the student participants to gain knowledge on waste, its types, its impacts, its uses, managing ideas, environmental protection, linkage of waste with public health, ideas of waste to wealth, and overall environmental protection. All participants realized the responsibility of all stakeholders including students and citizens to support and

compliment environmental awareness programs of the campaign undertaken by the different agencies and Government of Nepal for attaining the cleaner environment all around the globe.

4. Annex 1: Photos of Seminar on Solid Waste





5. Annex 2: Power Point Presentation Slides



Seminar on Solid Waste

Organized by :
Astha Ja Research and Development Centre, Kathmandu
Venue: Greenfield National College, Bafal, Kathmandu
Date: 28th August 2019
By: Khimananda Sharma

1

Table of Content

1. Defining an Environment
2. Environment and Development
3. Environmental Pollution
4. Waste
 1. Sources of solid waste
 2. Types of solid waste in Nepali context
 3. Per capita solid waste
 4. Composition of municipal solid waste
5. Integrated Solid waste management
6. Role and responsibilities on solid waste management
7. Solid waste management operational status
8. Landfilling
9. Problems and Issues on Solid waste management
10. Legislative measures

2

Defining an Environment

- A total system encompassing human beings and their surroundings

A. Natural Environment

1. Physical Environment

All surrounding physical conditions of nature :air, water,soil etc

2. Biological Environment

All surrounding biological conditions of nature related to flora and fauna :plants, animals, insects

1

Defining an Environment

- A total system encompassing human beings and their surroundings

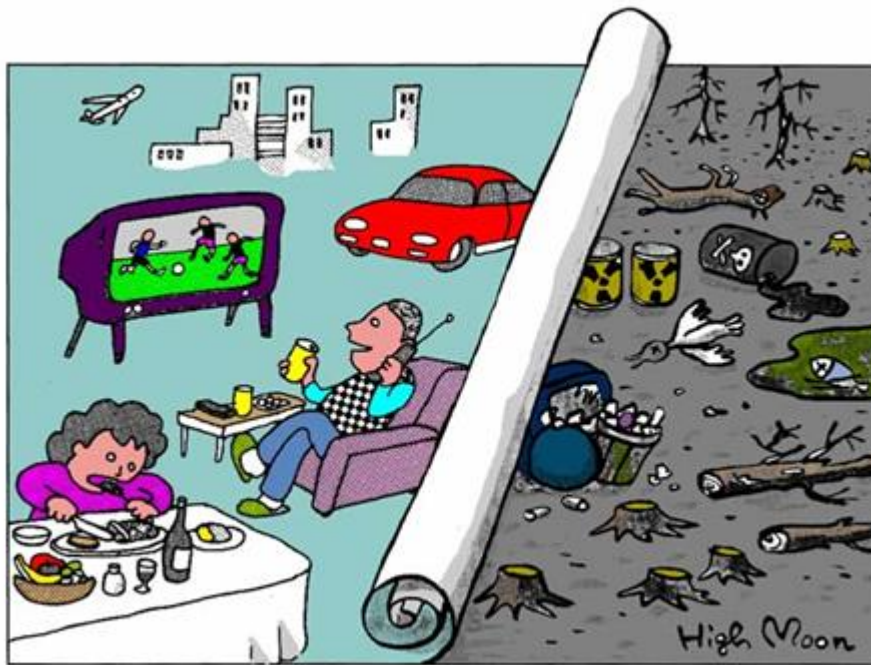
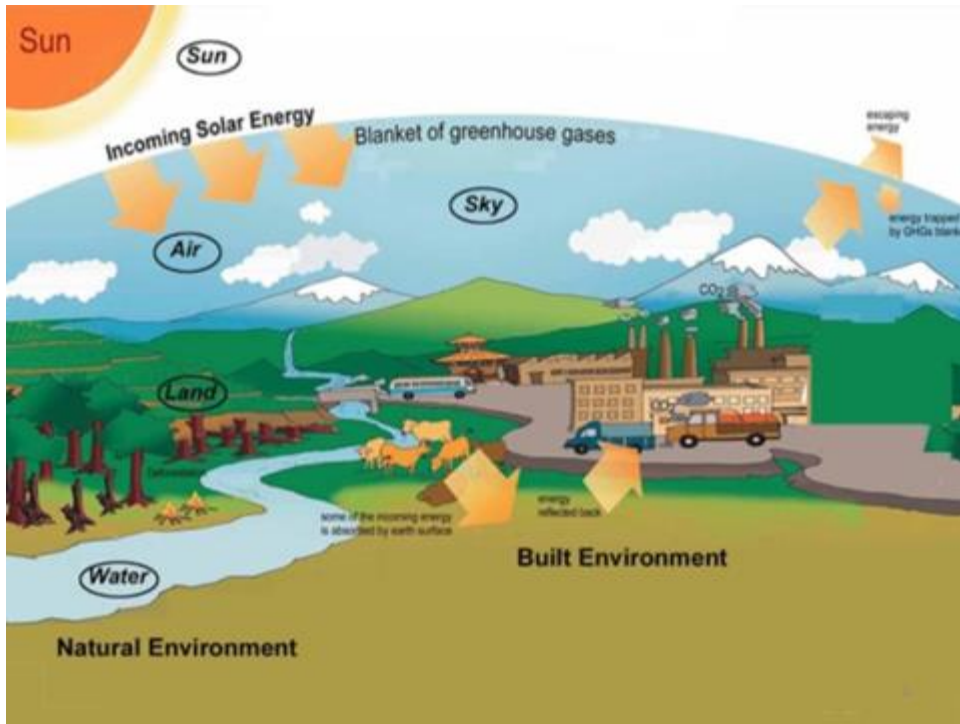
B. Man Made Environment

1. **Built Environment** : environment created by all built structures : roads, buildings, bridges and similar infrastructures

2. **Socio-Cultural environment**

3. **Socio- Economic environment**

4



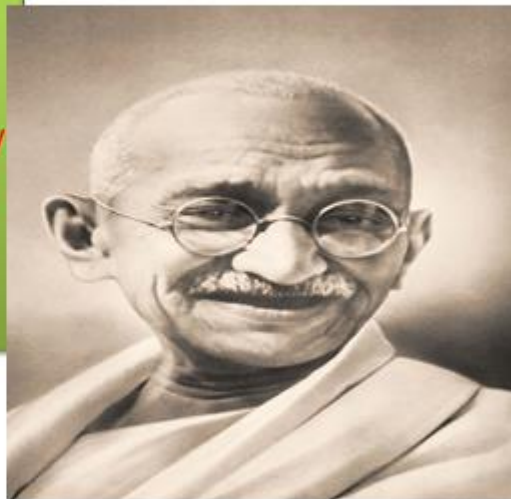
Note: Behind the scenes, what's actually happening?

Environment and Development

Can these exist
together ?

7

"The earth provides
enough to satisfy every
man's NEED but not every
man's GREED" Mahatma
Gandhi



8

Environment and Development

Sustainable Development ??

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

9

Environmental Pollution

➤ Decline in the acceptable quality of environment under which we live

Types of Environmental Pollution

- Air pollution
- Water pollution
- Land Pollution
- Noise pollutionetc.

11

Waste

- A **Material worthless** to somebody and which the person wants to get rid of
(Use and throw definition)
- A **resource** material and a source of **danger** as well ,
depending upon situations

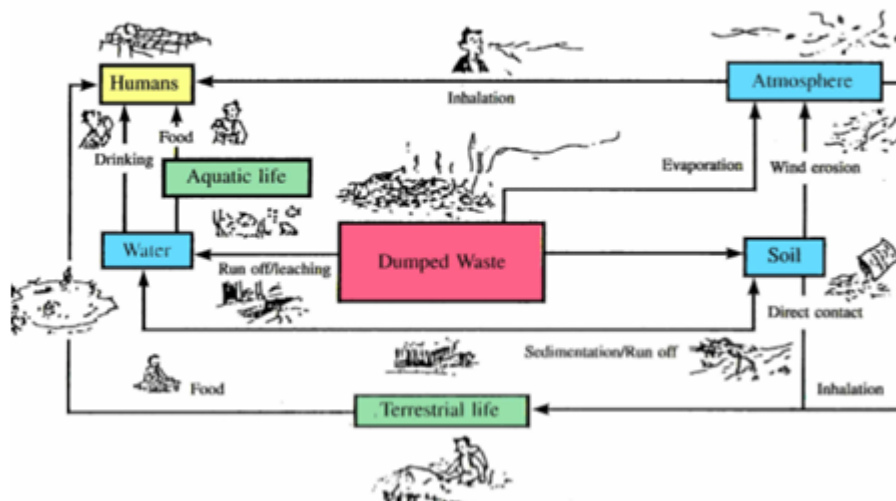
Synonyms : Refuse/ garbage/ Rubbish/ leftover/
surplus/ excess/ unused/unwanted/
discarded/remaining

Solid Waste

A pollutant in solid form that **pollutes bio physical resources** and has ultimate implication on **public health**.

12

Routes of Exposure to Hazards Caused by the Mismatchment of SW



13

Sources of Solid Waste

- Households
- Commercial establishments
- Institutions
- Industries
- Street waste
- Open space defecation
- Agriculture
- Construction and demolition etc...

14

Types of Solid Waste in Nepalese context

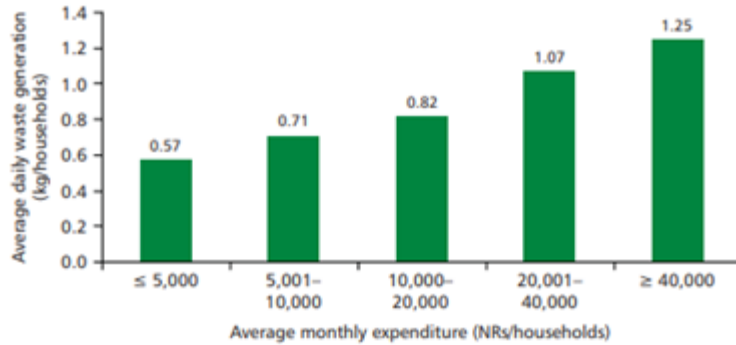
- **Municipal Waste** :Domestic waste, Commercial Waste, Institutional waste, Street waste
(inclusive of Industrial waste, sanitation residues, health care waste, agriculture waste, construction waste)
- **Special Waste** : All wastes of special type generated mainly from special activities other than residential eg. Institutional, Industrial, Commercial etc.

Hazardious waste/Non- hazardous waste

15

Per capita solid waste

Figure 2: Average Household Waste Generation by Monthly Expenditure Level



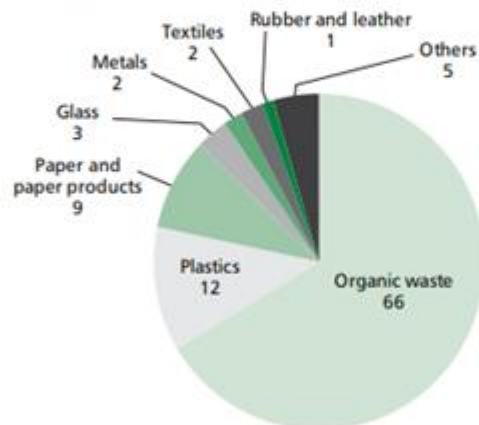
> = more than, < = less than, kg = kilogram.
Source: Asian Development Bank.

Average waste generation 170 gm/capita/day

16

Composition of Municipal Solid Waste

Figure 4: Composition of Household Waste in the 58 Municipalities (%)



Source: Asian Development Bank.

17

Integrated Solid Waste Management



1. Reduce at the Source

- Reducing the waste at source by improving daily habits
 - ✓ Use of least packaging product
 - ✓ Use of reusable bags in stead of polythene
 - ✓ Using goods of longer life Span
- Separation of waste at the source in different fractions to maximize on plot management
- Use of environment friendly products and materials
- Adopting industrial standards for industries
- Adopting “polluters pay principle”

2. Reuse

- Multiple use of products, either for the same purpose or for a different purpose before discarding as waste for recycling or final disposal.

3/4. Recycling/Resource Recovery

- Conservation of natural resources (supplies as raw material)
- Conservation of production charges/energy
- Lessens stress on landfill sites/cost
- Creates job

20

5. Final Disposal

- By Incineration
- By Landfilling

21

Roles and responsibilities

Central/Local Government

- Develop/revise suitable policies/regulations/by-laws
- Provide necessary funding, equipment and institutions
- Develop and implement awareness programs
- Develop incentive/disincentive programs for industries
- Monitor/Review/update

22

Roles and responsibilities

Public

- Waste minimization
- Waste segregation
- Avoidance of littering open spaces and roads

23

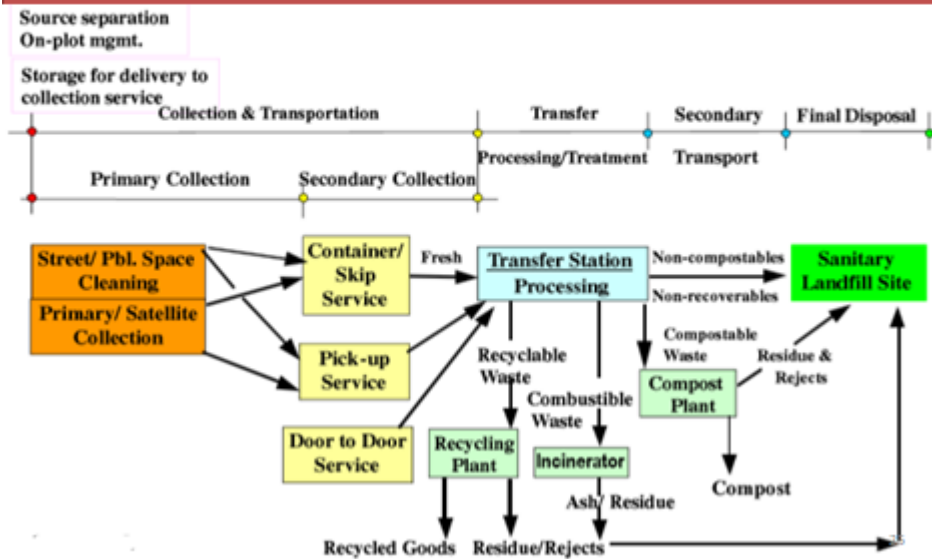
Roles and responsibilities

Industries/Commercial

- Waste recycling
- Research and Development
- Reuse of the products
- Waste processing/disposal

24

Municipal SWM Operational Chart (Typical)



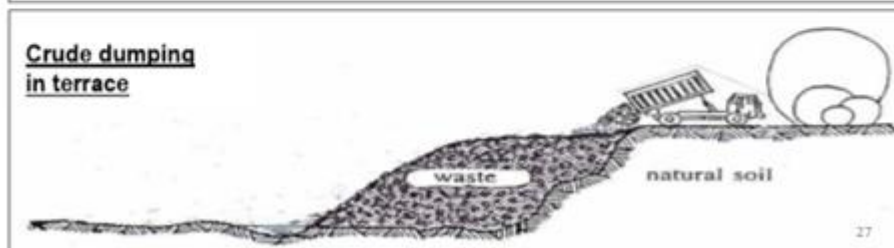
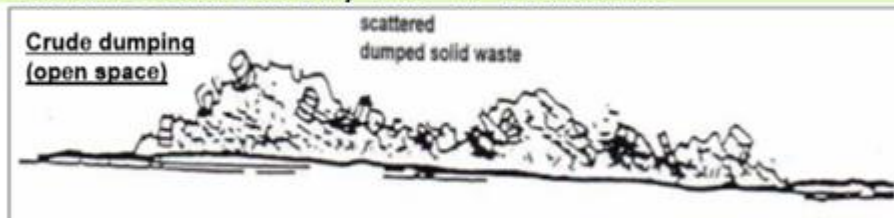
Types of final disposal by landfilling

- Crude/Uncontrolled Dumping
- Dumping/partially Controlled Landfill
- Sanitary Landfill

26

1. Crude Dumping

- Waste is haphazardly disposed of/deposited in excavated hole or natural depression or in open surface without any sort of treatment

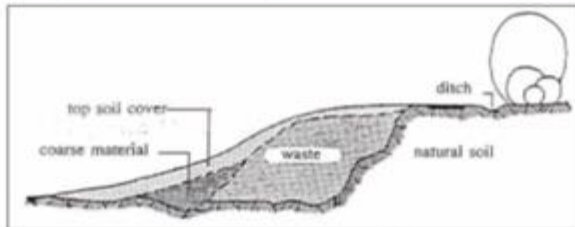


27

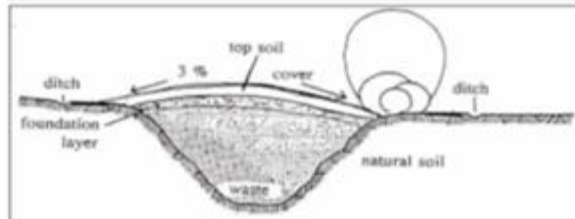
2. Dumping/Partially Controlled

- Waste is disposed of with controlled tipping of the incoming waste and compacting layer by layer with covering of waste surface.

Dumping in terrace



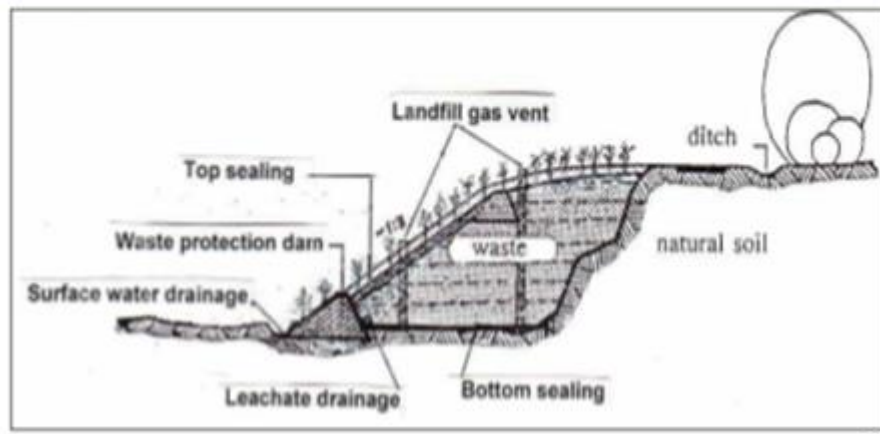
Dumping in valley



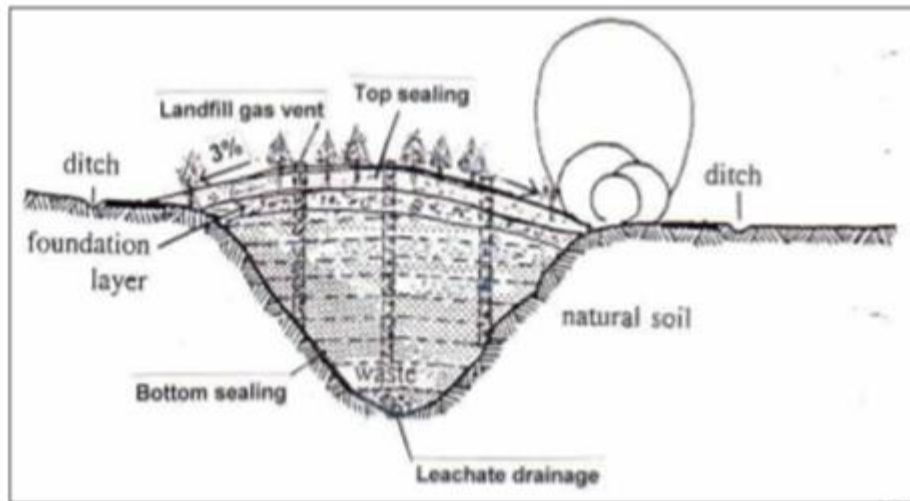
28

3. Sanitary Landfilling

- Only those sites selected which will be improved by change of level associated with landfilling
- Effective engineering techniques used to control the waste



3. Sanitary Landfilling



Problems and Issues of SWM in general

- Less priority for policy makers to recognize SWM as an integral part of overall environmental improvement
- Unplanned Urbanization and inadequate public sanitation
- Lack of strategy to reduce waste at the source and use as a resource material
- Inadequate resources
- Weak enforcement of existing regulations to control mismanagement of waste
- Lack of cooperation and coordination among institutions
- Lack of awareness
- High and dense migration on urban area

Our Landfill Sites

- Gokarna Landfill site : operated until 2000
- Sisdol Landfill site started on 2005 July
- Planned for only 3 years, but still dumping ongoing
- Now, daily about 700 metric ton waste production
- Development of Bancharedada Landfill site is ongoing whose capacity will be 3 million cubic meter

32

BANCHAREDANDA LANDFILL SITE



Legislative measures

- Solid waste (management and Resource Mobilization) Act, 1987 and Rules in 1989
- Establishment of SWMRC as an autonomous body for Plan-Promotion-Infrastructures
- Town Development Act, 1989 : empowered town development committee and allowed penalties for violators
- Industrial Enterprise Act, 1992 : License and EIA mandatory for industries prone to pollution
- Local Self governance Act, 1999: Empowered local levels (VDC and DDC)
- Environment Protection ACT, 1997 : Provision of environmental Inspector and recovery of any damage or loss in the form of compensation from polluter
- Environment protection Rule 1998: EIA and IEE mandatory
- Solid Waste Management Act, 1998 : Provided all right to local levels, allowed private sector involvement
- Constitution of Nepal : clean environment is the fundamental right of the citizens of Nepal.

34

Did you see any waste here?



35

