



# TRAINING ON INTEGRATED SOLID WASTE MANAGEMENT

**THE URBAN UNIT**  
Urban Sector Policy & Management Unit  
P & D Department, Punjab



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## ACRONYMS & ABBREVIATIONS

ATO	Assistant Tehsil Officer
CBO	Community-based organizations
CDG	City District Government
CEO	Chief Executive Officer
DDO	Deputy District Officer
DSD	Duales System of Deutschland
DO SWM	District Officer Solid Waste Management
EDO	Executive District Officer
EPR	Extended producer responsibility
ESAs	External support agencies
KOICA	Korea International Cooperation Agency
KEI	Korea Environment Institute
KRRRC	Korea Resource Recovery & Reutilization Corporation
LFS	Landfill Site
MID	Manager Institutional Development
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
MOE	Ministry of Environment
NGO	Non-governmental organizations
P&D	Planning & Development Department
PMDFC	Punjab Municipal Development Fund Company
PSP	Private Sector Participation
R&D	Research & Development
SWM	Solid Waste Management
SLC	Sudokwon Landfill Site Management Cooperation
SW	Solid Waste
TMA	Tehsil Municipal Administration
TO(R)	Tehsil Officer Regulations
UU	Urban Unit
USEPA	United States Environment Protection Agency
VBWF	The Volume-based Waste Fee
WTA	Willing to accept
WTP	Willing to pay
3 R's	Reduce, Reuse & Recycle

## EXECUTIVE SUMMARY

The Government of the Punjab (GoPb) recently embarked on a Devolution Program that is supposed to address institutional deficiency for urban service delivery at local level. The GoPb has thus prepared for a capacity enhancement program for the two levels of local governments, City District Government (CDGs) and Tehsil Municipal Administration (TMAs). Within the context of municipal service delivery, GoPb has identified service areas, including solid waste management (SWM), to be of a critical concern to the population.

The World Bank (WB) has responded to the Government's devolution and the urban development program on several fronts. One of the subsequent projects, entitled "Study on SWM in Pakistan," was initiated in order to facilitate the improvement of SWM in the Province. The study was sponsored by the Public-Private Infrastructure Advisory Facility (PPIAF) and the Korean International Cooperation Agency (KOICA). The Urban Unit (UU) in collaboration with the WB, KOICA, SWM experts from Korea Environment Institute (KEI) and Sudokwon Landfill Site Management Corp (SLC). This training was arranged to share Korean experience in SWM and capacity building of the staff from CDGs, TMAs, Cantonments, Defence Housing Authority and private sector. The training was focused on general and theoretical concepts / knowledge transfer about SWM. The four day training program included lectures and presentations from Korean experts and participants took active part in consultation to share their experiences.

Dr. Nasir Javed, Project Director gave brief introduction about the Urban Unit. He thanked the WB, KOICA, KEI and SLC to provide an excellent opportunity to the local staff working in SWM to get acknowledged with the Korean experience. The chief guest, Mr. Akhlaq Ahmed Tarar, Secretary Local Government and Rural Development lauded efforts of the organizers and stated that this training program will help long way to build capacity of the officials involved in SWM. The training program encompassed the following topics on SWM:

and formal feedback was also taken from the

- General Understanding of SWM
- Generation and Composition of MSW
- Public Education and Participation for SWM
- Solid Waste Transformation Technology
- Waste Treatment Technology: Landfill
- Economic and Financial Aspects of Urban SWM
- Development of SWM policies and institutions in Korea

Local scenario and status of SWM in Punjab Participation session was held at the end of day four Participants to assess the lecture contents, level of understanding and reading material provided to the participants. Successful participants were awarded with the certificates at the end of the training program.

## 1. INTRODUCTION OF THE TRAINING PROGRAM

The Government of the Punjab recently embarked on a Devolution Program that is supposed to address institutional deficiency for urban service delivery at local level. The Provincial Government of Punjab has thus prepared for a capacity enhancement program for the two levels of local governments, City District Government (CDGs) and urban Tehsil Municipal Administration (TMAs). Within the context of municipal service delivery, GoPunjab has identified service areas, including solid waste management (SWM), to be of a critical concern to the population.

The World Bank (WB) has responded to the Government's devolution and the urban development program on several fronts. One of the subsequent projects, entitled "Study on Punjab SWM in Pakistan," was initiated in order to facilitate the improvement of SWM in the Province. Moreover, WB proposed that the project receive technical assistance through funds of the Public-Private Infrastructure Advisory Facility (PPIAF) and the Korean International Cooperation Agency (KOICA).

This training program was arranged by the Urban Unit (UU) in collaboration with the World Bank, KOICA, SWM experts from Korea Environment Institute (KEI) and Sudokwon Landfill Site Management Corp (SLC).

This training was also presented in order to transfer operational knowledge about and experiences of Korea in SWM. The training was focused on general and theoretical concepts/ knowledge transfer about SWM with lectures from Korean experts and presentation/ participation of SWM officers in Punjab.

### 1.1 INAUGURAL SESSION

The inaugural session of four days Training Program on *Integrated Solid Waste Management in Punjab* (15<sup>th</sup> - 18<sup>th</sup> January 2007) was chaired by Mr. Akhlaq Ahmed Tarar, Secretary Local Government and Rural Development Department. The session was started by Mr. Muhammad Ali of Urban Unit by reciting the verses from The Holy Quran. The training program was facilitated by Khalid Majeed, SWM specialist from the Urban Unit.

The inaugural session was designed as an introductory and informative session for the participants of the training.



*Group Photo: Training Program on Integrated Solid Waste Management*

## 1.2 BACKGROUND

Dr. Nasir Javed, project director of the Urban Unit gave brief introduction about the Urban Unit. He stated that the Urban Unit and the World Bank feel privileged to jointly arrange a four day comprehensive training program by the Solid Waste Management experts from M/s. KEI and M/s. Sudokwon Landfill Site Management Corporation (SLC), Korea. He further discussed the existing condition of solid waste in Pakistan. He stated that like most of the developing countries, the urban centers of Pakistan are under serious threat from ever increasing pollution and environmental degradation. Solid Waste Management (SWM) is one of the major issues, which are continuously causing irreversible damage to the environment and public health. The local authorities have so far not been able to provide safe living environment to the citizens. The administration is now grappling with the problems of high volumes of waste, the cost involved and impact of waste on local as well as global environment. There is a general consensus among decision makers that a comprehensive policy is direly needed to resolve waste management issues.

He mentioned that this training program has been designed to create an understanding how better Solid Waste Management (SWM) practices can improve our quality of life. The training shall also apprise the participants about SWM practices and policies in Korea including technical, economic and financial aspects, public education & participation and review of present status of SWM in Punjab with suggestions for improvements. He also emphasized that sharing of international experience with various local stakeholders will help to build capacity and creating awareness



*Dr. Nasir Javed : The Project Director, Urban Unit*

## 1.3 AIM OF THE TRAINING

The aim of the training program was to:

- Develop understanding of SWM among waste managers
- Build capacity of waste managers
- Learning from the Korean experience in SWM practices in the areas of technical, economic and financial aspects, public education & participation
- Review present status of SWM in Punjab with suggestions for improvements

## 1.4 LEARNING OUTCOMES

This training program will help to create comprehensive understanding about SWM and enhancing capacity in the following areas:

- SWM policies and institutions in general
- Generation & composition of solid wastes
- Waste treatment & disposal technologies
- Economic & financial aspects of urban waste management
- Public education & participation
- Development of SWM policies and institutions in Korea
- Reviews on the status of SWM in the major cities of the Punjab and improvement options



*Mr. Akhlaq Ahmed Tarad: Secretary Local Govt. & Rural Development.*

Subsequently Mr. Akhlaq Ahmed Tarar, Secretary Local Government and Rural Development lauded efforts of the Urban Unit and also thanked the World Bank and Korea Environment Institute for jointly holding this training program. He stated that this training program will help long way to build capacity of the officials involved in SWM in CDGs and TMAs throughout the Punjab. He also assured that Government of Punjab is more than willing to invest money in this sector now it is responsibility of cities to utilize this money in a proper way to keep the cities clean.

## ***2. DAY ONE***

## 2.1 LECTURE ONE: UNDERSTANDING OF SOLID WASTE MANAGEMENT

*Lecturer: Dr. Jang Min CHU (Korea  
Environment Institute)*

Dr. Jang Min CHU gave the basic understanding of solid waste management issue in his lecture. It was an introductory lecture in which he briefed the participants about what solid waste is, what are its negative impacts and how we can get benefit from waste considering this new phenomenon that waste is no more waste. Following are key points of his lecture.

### What is Solid Waste Management?

Dr. CHU defined Solid waste as material that no longer has any value to the person who is responsible for it, and is not intended to be discharged through a pipe. It does not normally include human excreta. It is generated by domestic, commercial, industrial, healthcare, agricultural and mineral extraction activities and accumulates in streets and public places. The words "garbage", "trash", and "rubbish" are used to refer to some forms of solid waste.

### Negative impacts of solid waste

He explained that if solid wastes are not managed properly, there are many negative impacts that may result. Although the relative importance of each depends very much on local conditions, some of the most important are mentioned in the following list:

- Uncollected wastes often end up in drains, causing blockages which results in flooding and in sanitary conditions
- Flies breed in some constituents of solid wastes, and flies are very effective vectors that spread disease
- Mosquitoes breed in blocked drains and in rainwater that is retained in discarded cans, tyres and other objects. Mosquitoes spread disease, including malaria and dengue
- Rats find shelter and food in waste dumps. Rats consume and spoil food, spread disease, damage electrical cables and other materials and inflict unpleasant bites.

### Waste Management for Cleaning

Dr. CHU stated that in the early stage of solid waste management, it focuses on cleaning like waste disposal and human/animal waste treatment. The most commonly recognized methods for the final disposal of solid wastes are:

- Dumping on land
- Plowing into the soil
- Feeding to livestock
- Reduction and
- Incineration.

### Waste Management for Recycling

According to Dr. CHU, despite fluctuations in our economy and changes in consumption and production, we remain a society that throws away vast amounts of materials. Sanitation treatment as disposal of huge amount of waste became constrained.

### Waste Management for Resource Circulation

Dr. CHU confirmed that the approach towards recycling is improving; environmental policy has begun to focus on establishing the resource circulation society rather than waste reduction as pollution alleviation and damage prevention at the end of pipe approach. He explained that the resource circulation society assumes to recycle used resources instead of developing raw materials. This can be broken down into three main thoughts.