

NWFP-EPA started their part of assignment from mid November, 2003 to early January 2004 for collection of data on Urbanization, water cycle and solid characteristics.

Pak-EPA study team comprising Mr. Zia-Ul-Islam, Director, EIA/Monitoring, Mr Ahsan Rafi Kiani, Deputy Director and three staff members from the Pak-EPA laboratory along with Dr. Zulfiqar H. Lodhi, Chief Chemist/JICA study launched the actual implementation study on water sampling and analysis and also extended cooperation to NWFP-EPA on their part of study on solid waste management. Spot testing was performed for certain parameters, those tend to change significantly with passage of time.

Portable equipment was used for in situ testing. For laboratory analysis, samples were preserved by the addition of certain chemicals to stabilize the parameters of concern.

Topographic survey was conducted by the surveyor from CD & MD under the supervision of Director General, NWFP-EPA.

Draft report submitted to OECC by the end of February, 2004, while the final report after the approval of OECC submitted.

5- ACTUAL ACTIVITY ON HAYATABAD

5-1 General Information of Hyatabad

Housing is a basic need and thousand families are struggling to have a roof over their heads. Rapid population growth, scarcity of government resources, urbanization and the developing imbalances between urban and rural areas has compounded the housing problem.

Due to imbalance supply and demand of housing, the housing backlog is increasing rapidly. The yearly addition to housing stock hardly caters to the 40 % of the population increase. The worsening supply & demand position manifests itself in overcrowding, deteriorating housing stock formation, katchi abadies, slums and encroachments.

To meet the challenge “Shelter for each”, the Peshawar Development Authority played its role and developed Hayatabad Satellite Township. The initial planning of the township was completed and developmental work was completed in 7 phases. The latest phase Ie phase VII was announced in 1992 and housing construction has very recently started in this last phase.

5-2 Data Collection

Data generated in this study was collected from different departments. The list of those departments who extended help during this study is given below in Table-4.

TABLE-4

LIST OF THE DEPARTMENTS WHO EXTENDED HELP IN THE INVESTIGATION

	Survey Items	Departments
1	Urbanization (land use, vegetation, impermeable area, etc)	City Development & Municipal Department (CD & MD)
2	Urban Population	Population Census Organization, Govt. of Pakistan
3	Production amount of factories at Hayatabad	Sarhad Development Authority
4	Urban Planning	Planning & Development Department, Govt. of NWFP
5	Monthly rainfall in Peshawar	Pakistan Meteorological Department
6	Water quality	Pak-EPA
7	Solid waste management	Chief Officer, Town Municipal Administration, Hayatabad
8	Solid Waste Quantity and Quality	NWFP-EPA

5-3 Field Survey on river water

Field survey on river water on pre-selected sampling points were undertaken by Pak-EPA Officers and laboratory staff.

Table- 5 shows water survey point with brief description of location.

TABLE-5

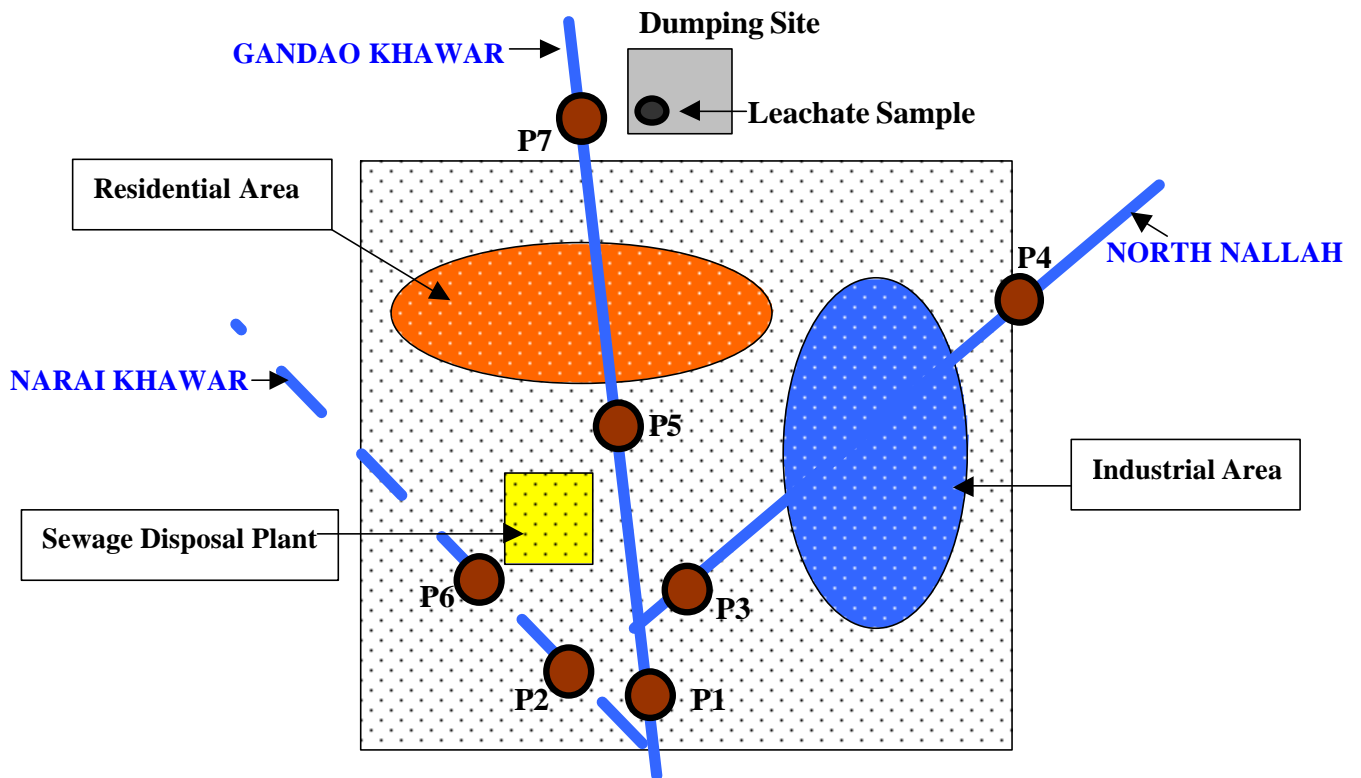
WATER SURVEY POINTS AND LOCATION

Survey Points	Location
P1	On Gandoa Khawar after leaving Hayatabad area before mixing with Narai Khawar
P2	On Narai Khawar after leaving Hayatabad area
P3	Industrial waste water coming through North Nallah before joining main stream
P4	North Nallah before entering industrial estate
P5	Mid stream point on Gandao Khawar
P6	Domestic/Municipal waste water coming from sewage Plant without any treatment
P7	Next to solid waste dumping site on Gandao Khawar

Schematic diagram of survey points on river water are shown in Figure-2.

FIGURE-2

SURVEY POINTS OF WATER CHANNELS IN HAYATABAD AREA



Dumping site in Phase-VII is not a proper landfill site. Therefore to collect the leachate sample from this site was a matter of great concern. After thorough visit of the dumping area by Pak-EPA officers, a site was selected in the depression, where still more solid waste dumping required. A hole of 0.5 meter wide and 1.5 meter deep was dug for this purpose. Soon after digging, a hole was filled with leachate and the sample was collected for analysis.

PHOTO-1

LEACHATE SAMPLE IS BEING COLLECTED FOR LAB ANALYSIS



Gandao Khawar (storm water channel) coming from upstream of Hayatabad passes through the Hayatabad area and next to the solid waste dumping site. A water sample from P7 sampling point was taken to see the quality of water coming from upstream.

Hayatabad area, a water sample was collected at P5 sampling point. The purpose of sampling at this point was to see the pollution load at mid stream. On the same channel, water sample was collected at sampling point P1 to see the pollution load at down stream.

Narai Khawar (another storm water channel) passes close to Hayatabad area. Sewage treatment plant (it's no more functional) is discharging sewage water of Hayatabad in this channel. To know the quality of sewage water, a water sample at sampling point P6 was taken for laboratory analysis. Another sample was taken at sampling point P2 on the same channel, when it leaves the Hayatabad area to know the impact of pollution on this channel.

Industrial estate is situated on the south-west of Hayatabad. To observe the impact of water pollution by the industrial estate in Hayatabad area, two water samples were collected. One on the North Nallah before entering the Industrial area at P4 sampling point and the other sample on the same Nallah, when it leaves the industrial area at P3 sampling point.

Besides surveying the surface water in Hayatabad, two drinking water samples were also collected from two different sources. One sample of the drinking water was collected from the public point at Phase-VII sector from the Municipal water supply. The other drinking water sample was collected from the private bore hole.

PHOTO-2

**DRINKING WATER SAMPLE IS BEING COLLECTED FROM
PUBLIC POINT FROM THE MUNICIPAL WATER SUPPLY**



5-4 Field Survey on Solid Waste

Field survey on solid waste was conducted with the collaboration of NWFP-EPA. The original survey was based around four components of the waste stream:

- Total quantity of discharged waste
- Total quantity of collected waste
- Total quantity of the waste carried to landfill site (disposal site)
- Total quantity of dumped waste (assumed from the topographic survey)

Not only the quantity of waste was determined at different stages, the quality of waste was also characterized accordingly.

TABLE-6

WASTE CLASSIFICATION

Primary Classification	Secondary Classification (Examples)
1- PAPER	<ul style="list-style-type: none"> - Newspaper - Magazines - Printed materials - Paper board - Photocopy paper
2- TEXTILE	<ul style="list-style-type: none"> - Non leather - Carpet - Curtain cloth - Clothes
3- PLASTIC RUBBER	<ul style="list-style-type: none"> - Soft drink bottles - Milk bottles - Retail carry bags - PVC - Tyres - Rubber products - Rubber pipes
4- METAL	<ul style="list-style-type: none"> - Ferrous (steel cans, steel pipes, electrical appliances etc.) - Non-ferrous (aluminum cans, copper pipes, aluminum windows soft drink cans)
5- GLASS	<ul style="list-style-type: none"> - Glass bottles - Jars - Jam jars - Window glass
6- BOXES	<ul style="list-style-type: none"> - Boxes from edible meat
7- WOOD	<ul style="list-style-type: none"> - Wood pieces - Wood pieces from furniture - Plywood - Sheets - Tree clippings
8- BREAD	<ul style="list-style-type: none"> - Traditional wheat bread baked at Tandoor (Oven) - Bakery bread - Home made bread (chapatti)
9- NAPPIES & SANITARY	<ul style="list-style-type: none"> - Disposable nappies - Sanitary nappies - Pampers
10- TEA LEAVES	<ul style="list-style-type: none"> - Used tea bags - Used tea leaves
11- KITCHEN WASTE	<ul style="list-style-type: none"> - Vegetables - Fruits - Food scraps

The purpose of this survey was to obtain a quantitative estimate of the composition of solid waste from domestic premises within the survey area. Sampling at “Source” (at the individual household level) has the advantage of allowing statistics on waste generation per household to be derived. Sampling methodologies and detail will be discussed in Part 2 (Implementation of the study). Sampling at source is also more likely to give representative results.

In Hayatabad study area, there is no discrimination between the municipal solid waste generated from residential, commercial, institutional sources and hazardous waste generated from the hospitals and industrial sources. Therefore all types of waste generated from any source falls in the category of municipal solid waste.

For transportation purposes, no mechanical equipment or vehicle are used from collection points to dumping sites. Donkey carts are being used for this purpose. 38 donkey carts are actually hired by the TMA for this purpose but many unregistered donkey carts are also collecting the solid waste for their livelihood.

Dumping site is situated in Phase-7, Hayatabad. Due to complaints and immense pressure from the people residing in nearby houses, NWFP-EPA sends the notice to TMA to close this dumping site. Now no more dumping is taking place at this site since December 2003.