

PARTICIPATORY STRATEGIC PLANNING
ON
URBAN RIVER POLLUTION



SUBMITTED TO
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ACKNOWLEDGMENT

Participatory Strategic Planning (PSP) in environment management in Nepal is a growing concern among the environment managers, decision makers and students of environmental science. We acknowledge the invigorating interest of the Environment Management Society of Nepal (EMSON) for applying the process of Participatory Strategic Planning in their development projects. The staffs of EMSON who participated in the 5-day workshop and contributed valuable inputs during the process deserve a major part of the credit for the preparation of this report. We would like to express our sincere appreciation for the suggestions provided by Dr. Poorna Kanta Adhikary. We would also like to acknowledge the help extended by Mr. Naresh Sharma and Dr. Bhupendra Devkota in collecting information and certain environment related texts in the course of preparing this document.

Finally, we would like to express our gratitude to individuals living in slums and households, staffs from hotels, hospitals and industries who patiently answered our questions and appeased our appetite for more information on realities of degraded condition of Bagmati River.

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1 BACKGROUND

In partial requirement for the fulfillment of M. Sc. in Environmental Management (2nd semester), "Participatory Strategic Planning (PSP)" course was conducted in the class moderated by Dr. Poorna Kanta Adikary. To apply the theory learnt in PSP course, the team members of our group decided by consensus, to do a Participatory Strategic Planning of a project that addresses the issue of either river pollution or noise pollution.

For this purpose, our team set out in search of an organization that had as one of its objective: to improve the degraded state of the rivers and/or noise pollution. Among six organizations we came across, the **Environment Management Society of Nepal (EMSON)**, a non-governmental organization eager to work on Urban River Pollution Control Project, was found to be the most suitable organization for conduction of PSP by us. Thus, our team-members reviewed EMSON's profile and concluded to conduct a workshop on PSP for EMSON's above-mentioned project i.e. Urban River Pollution Control Project.

We than expressed our objective to apply PSP approach in a real situation for EMSON's project, to its executive members. EMSON agreed upon our proposal to conduct the workshop on PSP for the project to be undertaken by their organization. The executive members of EMSON and our team-members agreed to conduct a five-day workshop on Participatory Strategic Planning.

1.1 PURPOSE

There are a number of reasons for holding a workshop on PSP to launch the project on Urban river pollution control conducted by EMSON. Some Quoted reasons are as follows:

- To contribute to the sustainability and successful implementation of Urban river pollution control project to be conducted by EMSON
- To provide an in depth understanding of Participatory Strategic Planning to EMSON officials for replicating this approach in future projects.
- To improve the efficiency of EMSON

1.2 FACILITATORS

A four-member team of students undergoing Masters level study on Environment Management at the School of Environmental Management and Sustainable Development (SchEMS) affiliated to Pokhara University (PU), were the facilitators for the workshop on Participatory Strategic Planning for the project going to be undertaken by EMSON.

SchEMS is an autonomous, non-profit, academic and research institution, officially established in January 1999 under the Pokhara University Act 1995, SchEMS within the framework of HMG/N education policy of developing specialized human resources related to environment management. The main objective of SchEMS is to prepare skilled human resource for integrated environmental management and sustainable development to fulfill the shortage of trained human resource in environment management for the country in particular and that of the region in general.

1.3 WORKSHOP METHODOLOGY

The workshop was organized in Tilganga at EMSON's office in Kathmandu from 22nd to 26th March 2002 and was attended by 11 participants (directly or indirectly related) to the EMSON and its activities. For information on the workshop schedule and participants, *please refer to annex I and annex II respectively.*

The workshop method was participatory and guided by a four-member student team from SchEMS. Card and chart technique was used in processing the participants' ideas to formalize

decisions. Iterative process of, learning by doing was practiced. Teamwork approach was utilized to engage all the participants in meaningful dialogues, and only those decisions upon which consensus was reached are herewith documented.

Workshop planning meeting was held on 19th March 2002 to workout the contents and procedures of the workshop. Preparation of all the contents, charts, and introductory materials for Participatory Strategic Planning workshop were completed.

During workshop, situation analysis, stakeholder analysis, problem analysis, objective analysis and then the Project Planning Matrix (PPM) using Logical Framework (log frame) were prepared using participatory approach.

The five-day workshop was divided into five components:

1. Introduction session
2. Analysis session
 - 2.1. Field analysis
 - 2.2. Stakeholder analysis
 - 2.3. Problem analysis
 - 2.4. Objective analysis
 - 2.5. Alternative analysis
3. Project Planning Matrix
 - 3.1. Goals
 - 3.2. Purposes
 - 3.3. Results
 - 3.4. Activities
 - 3.5. Objectively Verifiable Indicators
 - 3.6. Means of Verification
 - 3.7. Assumptions & Preconditions
4. Plan Of Operation
5. Closing Session

1.4 LIMITATION

Though the workshop was carried out with best of the efforts, there were some limitations mostly when finalizing the report. Some of those limitations were:

- Lack of sufficient and updated secondary data
- Computer constrains
- Lack of financial resources

In spite of these limitations, we think we have managed to compile a presentable report for your kind perusal.

2 INTRODUCTION SESSION

The introduction session took place at 09:00 to 10:15 am on 22nd March 2002 and was divided in two parts. In the first part, Mr. Rabin Bastola, student of SchEMS, on behalf of the group of facilitator addressed the participants and appreciated the interest shown by EMSON for the workshop. He highlighted the need of the PSP workshop at **EMSON** in order to improve the quality of planning which in turn determines the benefit for the decision-makers and practical project work. Further introduction of other three facilitators from SchEMS Mr. Parag Bijukchhe, Mr. Santosh Nepal and Mrs. Sangita Dhakal was done.

In the second part, the floor was left for Mr. Bidur Lamichhane, an advisor of EMSON. His speech stressed on the need of strategic planning for the improvement in the water quality of Bagmati River and for any developmental project in environmental field for strengthening of the project itself as well as to keep a balance between environment and development. He further appreciated the efforts of SchEMS students in planning the workshop at **EMSON** and expected to have a meaningful conclusion from the workshop in the field of Environment Management. The speech was followed by participants' introduction. Ms. Nisha Dhakal, Chairperson of **EMSON**, in her speech on **EMSON** project profile characterized the project as a non-governmental, non-profitable and self-sustaining organization established with the prime aim of Environment Management. She further added that **EMSON** is an organization working in the field of Environment Management in Nepal. Thus, the principal goal of the organization is innovative Environment Management through proper utilization of Indigenous knowledge and the modern environmental management tools.

3 ANALYSIS SESSION

3.1 FIELD ANALYSIS

After the successful completion of introduction session, the participants decided to conduct a transect walk, semi structured interviews and focus group discussions. Transect walk was conducted by the team around the area between Tilganga Eye Hospital and Sinamangal bridge. Semi-structured interviews were conducted with staffs from Maharaja hotel, vehicle workshop, dyeing industry, handmade paper industry, Tilganga eye hospital and individuals from numerous households. Focus group discussions were conducted with a group of slum residents and a group of local individuals. The team members also decided to gather as much data as possible from secondary source after the transect walk.

Transect walk findings:

- Effluents from hotels, industries, hospitals and individual households were being discharged directly into the Bagmati River.
- Solid wastes were being dumped into the riverbank, not only by individuals but also by municipal collectors and trucks.
- 11 open latrines belonging to the slum residents were found located on the riverbank.

See **Annex III**, for detailed map of transect walk.

Semi structured interviews and focus group discussions' findings:

- Solid waste dumping by municipal trucks and effluent discharge from industries were seen as the main causes of increased pollution of Bagmati river by individuals while the staffs from hospitals, hotels and industries mentioned lack of cheap alternative for effluent discharge and municipal dumping as the main causes.
- Bad odor, polluted and smelly water from tube wells and mosquito problems in summer were mentioned as annoying problems they were facing due to the Bagmati river pollution.
- Kathmandu Municipal Corporation and the Department of Water Supply and Sewerage, were seen as the organizations that should take the responsibility for management of the problem

but many respondents also mentioned that as this wasn't likely to happen in the near future, they hoped some incorrupt and responsible NGO would take the responsibility.

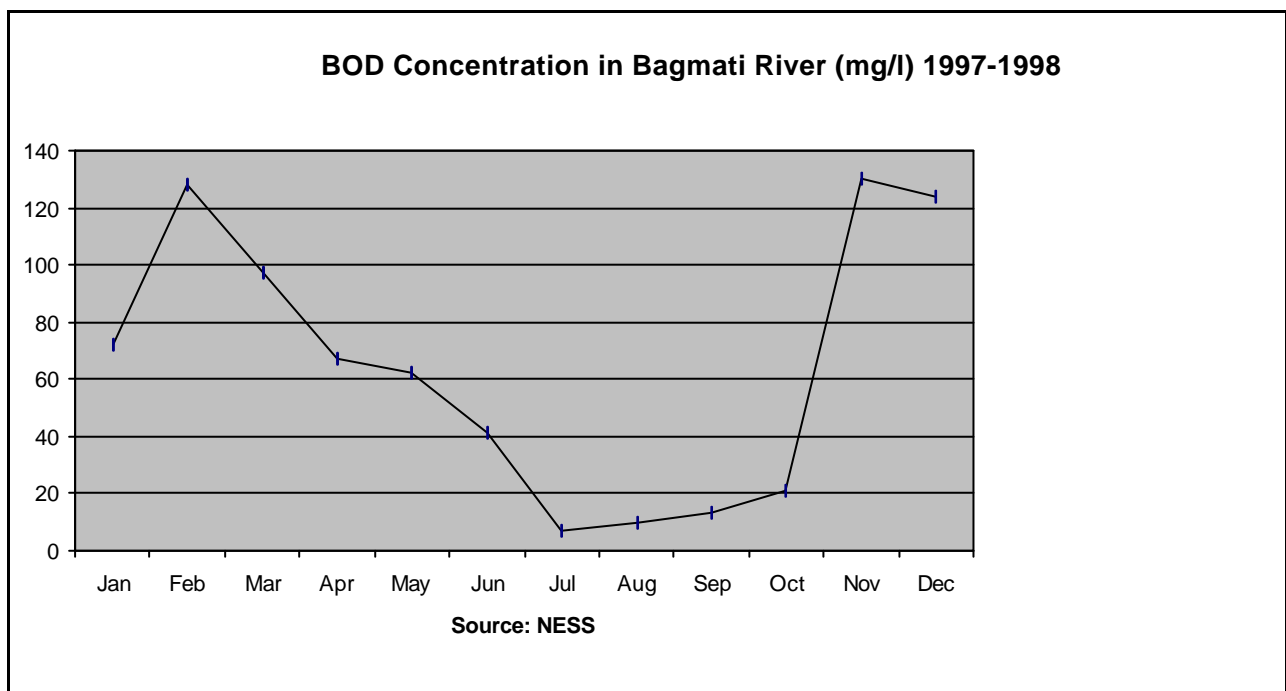
- Establishment of Wastewater treatment plant like the one in Guheshwari and ending to the solid waste dumping in the river bank were deemed as reliable and effective solutions to the problem by the respondents.
- Individuals were willing to pay all from 0 to 100 NRs per month while hotels, hospital and industries were willing to pay their share of the cost calculated on equity basis.

See **Annex IV**, for a sample of the questionnaire used under semi structured interviews and focus group discussions.

Secondary data findings:

The Bagmati River which drains the Kathmandu valley is highly polluted in different stretches and is unfit for human use. Based on water quality and biological features, this river is divided into four sections. They are: (a) a zone of good ecological condition from the source to Guheswari, (b) a zone of slightly polluted condition from Guheswari to the confluence of Dhobikhola, (c) a zone of severe pollution from Thapathali to Chovar downwards and (d) a zone of pollution from Chovar downwards. (Sharma, 1986; Vaidya and Karmacharya, 1986; and NESS, 1995)

One-year water quality monitoring record of the Bagmati River (1997-1998) as shown in figure below indicates of high level of discharge and / or disposal of oxygen demanding wastes in the river. The concentration of BOD has increased from October to March (NESS, 1988).



The participants after a lively discussion came to the consensus that the major causes of Bagmati river pollution were, solid waste dumping on the riverbank and direct discharge of untreated effluent to the river. In addition, they also agreed upon that the management of solid waste dumping was beyond the capacity of the project and hopefully this problem will be solved, with the use of Okharpauwa sanitary landfill site. Participants during their discussion also mentioned that the lack of awareness and indifference attitude shown by some respondents along with lack of treatment plant, should be addressed in the planning process.

The field visit consisting transact walk, semi structured interviews and focus group discussions gave the team members a real picture of the situation and a better understanding of the problems faced by the locals. The secondary data helped participants confirm their beliefs.

3.2 STAKEHOLDERS ANALYSIS

The day after the field-visit and after the discussion on it was completed, a random list consisting of possible stakeholders of the project was created. Thereafter the stakeholders were categorized into major groups and their: interests, motives and attitudes; strengths, resources and potentials; weaknesses, constraints and threats; along with their implications to the project, were visually documented after a brain storming session actively participated by all members. *See stakeholders analysis chart for details.*

Listing of stakeholders and categorizing them into groups went fairly smoothly but it took a while for the team members to understand and agree on the interests, strengths, weaknesses and implications to the project but as they got going, the brainstorming sessions and the discussions flowed more and more smoothly.

Everybody felt that the Stakeholder Analysis provided them with an opportunity to understand and incorporate interests and expectations of the major groups, organizations and institutions significant to the project in the planning process. They agreed that this combined with the knowledge of strengths and weaknesses of the stakeholders would increase the sustainability of the project, if used properly in the planning process.

3.3 PROBLEM ANALYSIS

Day after the stakeholders analysis, the core problem was decided upon by consensus through a brainstorming session after each and every participant had written down one problem they deemed to be the major problem and explained why that particular problem was important. Consensus on core problem was followed up by a lively and vocal discussion, when identifying the direct causes of the core problem followed by identification of, causes of the causes and similarly direct effects of the core problem followed by the effects of the effects. All of these were visually documented as we progressed and a problem tree was created, there after it was reviewed so that it actually reflected the reality of the problems in Bagmati River. *See Problem tree chart for details.*

Problem analysis gave participants an opportunity to reflect on the core problem, major causes of the core problem and its effects. It also gave them an opportunity to visualize the relationship between the causes and the effects.

3.4 OBJECTIVE ANALYSIS

On the same day, the problem tree was rephrased to express positive statements (Objectives) that were not only desirable but also achievable and sustainable. Talking about sustainability the participants felt that new incomes sources should be generated if the project is to be sustainable, hence this objective was added. Creation of objective tree went smoothly and quickly. *See objective tree chart for details.*

Creation of objective tree and mainly visualization of it made clear to the participants the transformation of cause effect relationship into the means to ends relationship i.e. rephrased causes were now had become means to achieve the ends which were mostly rephrased effects. This visualization of objectives gave the participants a good feeling and injected new energy into them.

3.5 ALTERNATIVE ANALYSIS

The following day, participants unanimously and very quickly agreed that all of the objectives were desirable and at first most of them wanted to skip alternative analysis but soon they began to question whether all the objectives were achievable or not. This was followed by a fairly long and intense discussion on which objectives the project could achieve on its own, which objectives could be

achieved with direct influence and achievement of which objectives could be influenced only indirectly. Assessing the various objectives from different perspectives and criteria's the participants finally came to the conclusion that improving coordination among stakeholders and management capacity of DWSS, were two objectives that would be very difficult for them to achieve and thus should be left out from further planning process.

Although the discussion during alternative analysis were fairly long and intense, it made the participants very clear about what was inside their grasp and what was not, taking into consideration various factors like resource availability, probability of achieving success, political feasibility, etc. It in a way, brought participants back to the real world and made clear that some objectives although desirable might not be achievable and as such, it might turn out to be a misuse of limited resource, to go after them.

4 PROJECT PLANNING MATRIX

Provides a one-page summary of, why a project is carried out, its expected achievements and effects. It also provides information about, how it is going to achieve these results, ways to verify achievement of these results and sources of data necessary for verification. In addition, it tells us what external factors are important for the success of the project.

PPM includes both vertical and horizontal logic. The vertical logic takes into consideration of the pre-conditions and assumptions in moving upwards from activities to results to purpose and to the goal in the matrix respectively. The horizontal logic includes narrative description, relationship of matrix components with objectively verifiable indicators (OVIs) and means of verification (MOVs). *See Project Planning Matrix (Log frame) for details.*

4.1 GOALS

Goal is a very high level objective for whose achievement the program can only contribute. The goal of our project is to **Improve the water quality of Bagmati River.**

Water quality is one of the important aspects of river as it determines the purity of water. If the river is able to hold the diversified aquatic population, then it can be regarded as a pure water quality. Water quality of Bagmati is so deteriorated that no flora and fauna can be seen in Bagmati River. The water of the Bagmati smells in such a way that nobody wants to come close to the Bagmati.

Therefore, the improvement in the quality of Bagmati is the most demanding voice now a day. Improvement in the water quality is not possible without sector wise co-ordination and stakeholders' participation. Mainly the **Department Of Water Supply and Sewerage (DWSS)** discharge is responsible for the sewer collection and its treatment. The sewer should be disposed only after the treatment so that the water quality of Bagmati becomes improved.

If the Bagmati water quality were improved then the aquatic organism would appear. The scenic beauty of Bagmati would reappear as it was before 20 years and people would like to spend their time near by Bagmati. Gradually the urban environment improves and several activities like fishing, swimming and Riverside Park helps to increase the national revenue.

4.2 PURPOSES

Project purpose describes the intended impacts or aspired benefits of the project as a precisely stated future condition and contributes to achievement of the project goal. The purpose of our project is that the Effluents are discharged only after treatment.

Bagmati River is getting worse due to the untreated effluents discharged from the industry, factory and households. Due to these activities, the water quality is deteriorated and even toxic substances are

found in river. Effluents are discharged without any treatment and it makes adverse impacts on human health. Although the government has declared the effluent standard for industries, only a few of them are following the standards. Therefore, monitoring and regulatory mechanism should be strengthened. The purpose of our project can be achieved by:

- Establishing Wastewater Treatment Plant (WTP)
- Improve regulatory mechanism
- Stakeholders awareness improved
- Generating adequate resources

4.3 RESULTS

Results are important achievements, which the project management must achieve and sustain. Combined effects of the results must be sufficient to achieve project purpose. Following results could be obtained by implementing our project:

Result 1. Wastewater Treatment plant establish.

Since our main objective is to treat the effluent before discharge into the Bagmati. So, the treatment plant must be established. All the liquid wastes are collected and treated in treatment plant and discharge only after complying the effluent standard.

Result 2. Regulatory mechanism should be strengthened

Regulatory mechanism is one of the most important aspects to make the projects effective. Regulatory mechanism consists of standards, monitoring, compliances and enforcement. The effective regulatory mechanism is able to control the discharge of untreated effluents from industry, household, factory. The polluter should comply with the standard. If the standards are violated, the concerned institution (**MOPE**) should enforce and penalize.

Result 3. Stakeholders awareness improved

It is only through increased awareness among stakeholders that the project can truly realize and sustain its goal of improving the water quality of Bagmati River.

Result 4. Adequate Financial resources generated.

For each of the NGOs working in the country, implementation of the programs always faces the problems of enough budgets. Within the restricted budget, sometimes the program implementations may not be effective or should be left in the half way. EMSON being an NGO, it too faces the problems relating to finding the donors, no timely release of the budget and sometimes the budget being insufficient due to special circumstances arising in the field.

4.4 ACTIVITIES

We write down those activities, which are important to achieve the results/outputs. In contrast to objectives, activities are expressed as an action. Some major activities of our project are:

- Train human resources needed for the operation and management of WTP
- Locate proper place for WTP
- Purchase and install suitable equipments for treatment plants
- Encourage MOPE for the implementation of monitoring and enforcement system
- Encourage MOPE for the production of the qualified human resources
- Help government formulate strong legal framework
- Launch a media campaign
- Integrate it in curriculum at school level
- Training for awareness trainers
- Gather financial support from different sources
- Levy charge on effluent producers on equity basis
- Generate income from the different recreation activities operated along Bagmati river

4.5 OBJECTIVELY VERIFIABLE INDICATORS (OVIs)

Here the focus is on the important characteristics of an objective to be achieved and definition of the performance standard to be reached in order to achieve the objective. These indicators specify if the objective is reached in terms of quality, quantity, time location and beneficiaries. By doing so OVIs provide a basis for monitoring and evaluation.

4.6 MEANS OF VERIFICATION (MOVS)

It tells us how to get the evidence that objectives have been met and where we can find these objectives. Here some important questions to be considered are: availability of the MOVs from normal sources, how reliable are the sources, is data gathering required and if so what will be the cost. If one cannot find MOVs, indicator has to be changed.

4.7 ASSUMPTIONS & PRECONDITIONS

They are the important external factors or conditions that must exist if the project is to succeed but which are not under the direct control of the project. Assumptions are formulated as positive reached conditions assessed according to their importance and probability. They can be derived from the participation analysis and objective tree. These should be precise to allow monitoring by the project team. Preconditions are necessary elements for the activities to be carried out.

5 PLAN OF OPERATION

The plan of operation is prepared through updating and further developing analyses and planning in the project, on location, with the project personnel and counterpart authority. This particular plan of operation is intended to specify the quantities and the cost for each individual activity. In our plan of operation we first determined the responsible person and thereafter the required human resource, material and equipments required to carry out the activities. We then calculated the cost for each individual activity plus the salary of the each individuals involved in the activity. Plan of Operation acts as a guide for the project implementation.

We have only taken six activities to cover up the two results we deemed to be important.

6 CLOSING SESSION

In the closing session, Ms. Sangita Dhakal on behalf of the facilitators expressed her gratitude to all of those who participated and contributed substantially in the five-day workshop. She hoped that that the participants had benefited from the workshop and that it would prove helpful for EMSON and its ongoing projects.

Ms. Nisha Dhakal, chairperson, EMSON in her closing speech highlighted that strategic planning is a necessary tool for any developmental organization and was felt necessary for EMSON. She expressed that the workshop gave a general view on the developmental aspects, which EMSON should consider in future for its projects. Ms. Dhakal, further thanked all the facilitators and other participants for cordial cooperation in the five-day workshop.

7 CONCLUSION

Having learned about the Participatory Strategic Planning and practiced it in a planning of a project, we have reached to the conclusion that PSP is an excellent tool for improving the quality of planning process and thus increase the probability of a successful project implementation. PSP is an excellent tool because it:

- Is a bottom up planning method of learning by doing – iterative process
- Implements participatory approach, and encourages consensus building through teamwork
- Integrates major stakeholders - thus gives the opportunity to see the same problem from different perspectives
- Gives a feeling of project ownership to stakeholders
- Develops transparent and easily understandable documents – uses visualization technique
- Simplifies complex reality and problems
- Set realistic and clear targets and objectives
- Is a gradual procedure with successive planning steps

PSP on Urban river pollution control made us clear that the major stakeholders were effluent producers, EMSON, financial supporters, DWSS, Government organizations, Education & research institutes and Civil-society. It also made us clear that the major problem in Bagmati river is the untreated effluent discharge from various sources. In addition, it made us clear that to improve the prevalent condition, we must fulfill the objectives of establishing a wastewater treatment plant, improving regulatory mechanisms, improving stakeholders' awareness level and generating adequate resources.

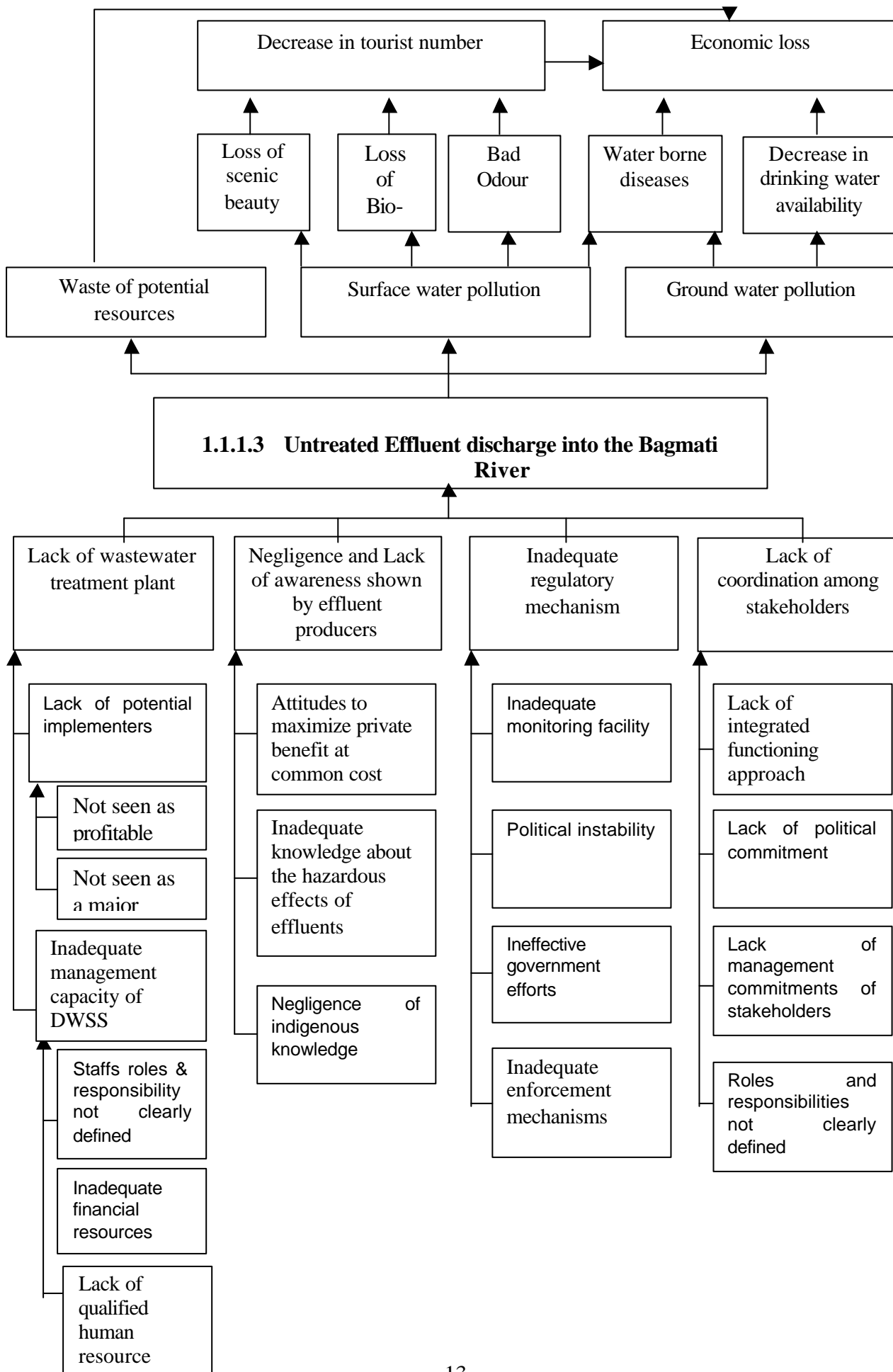
Moreover the team came to the conclusion that EMSON can make remarkable progress in the coming days, if it adopts the findings of this PSP workshop in its project management system.

Finally, we can say that the various aspects of the PSP would be the most crucial part in the success of the project in any sectors of development process. We would like to emphasize upon the positive implications of PSP and recommend it to be followed by every development practitioners.

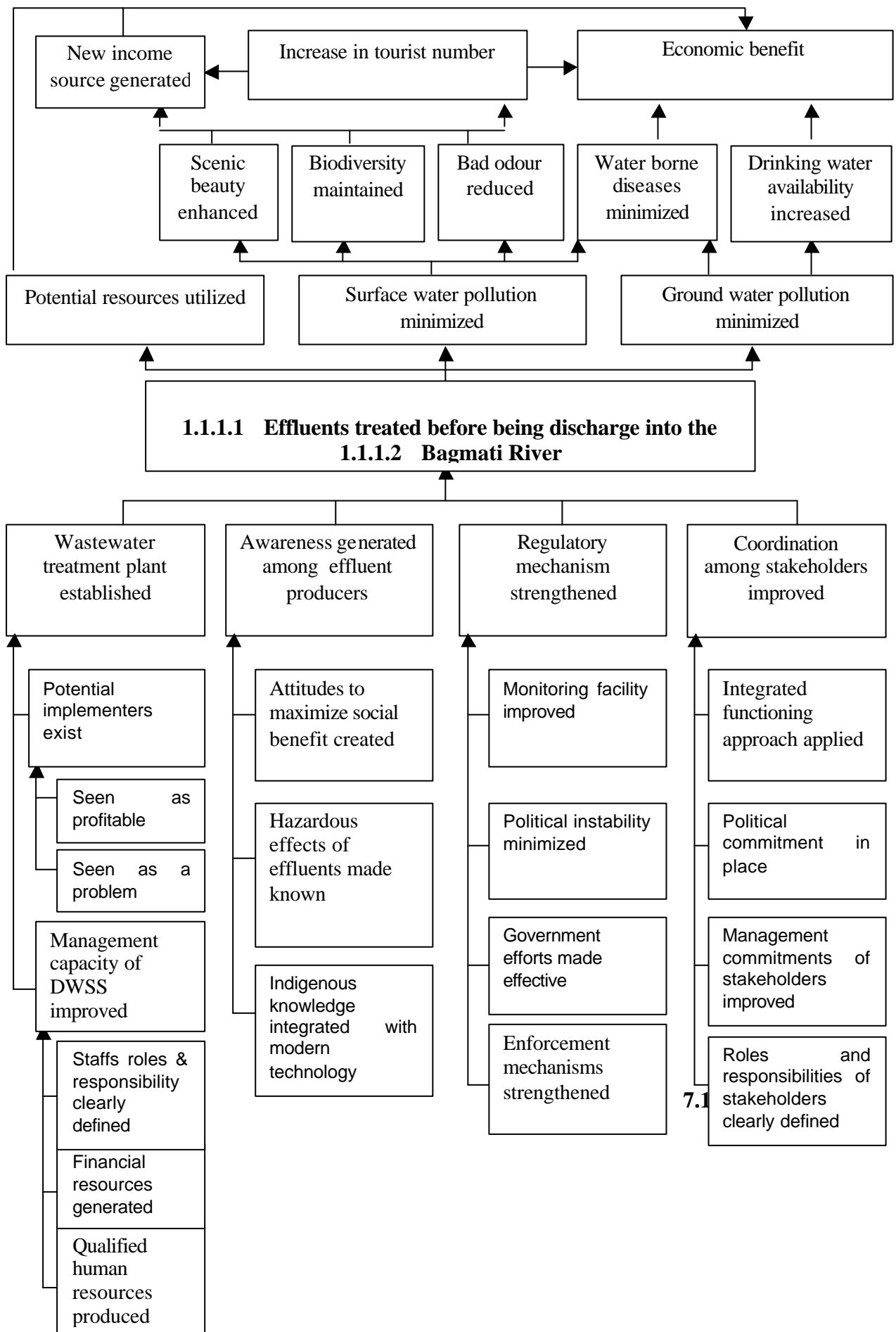
STAKEHOLDERS ANALYSIS TABLE

Project Participants	Interests, Motives, Attitudes	Strengths, Resources Potentials	Weaknesses, Constraints, Threats	Implications to the project
Effluent Producers	<ul style="list-style-type: none"> # Clean environment # Better health # Private profit at common cost 	<ul style="list-style-type: none"> # Financial support # Construction of septic tank # Act as pressure group to HMG. 	<ul style="list-style-type: none"> # Lack of Awareness # No alternatives # Health hazards # Inadequate support to the project 	<ul style="list-style-type: none"> # Implement polluters pay principle # Launch awareness campaigns # Assure efficiency and transparency
EMSON	<ul style="list-style-type: none"> # Environmental management # Staff employment # pollution free Bagmati. # Cooperative attitude 	<ul style="list-style-type: none"> # Enthusiastic and Motivated staffs # Qualified staffs # Sustainable operation management of project 	<ul style="list-style-type: none"> # Non participatory decision making approach # Inadequate resources # Inadequate support 	<ul style="list-style-type: none"> # Generate awareness among staffs and stakeholders # Should be transparent
Financial supporters	<ul style="list-style-type: none"> # Help less privileged # Globalization & market expansion # Self satisfaction # Control over fund utilization 	<ul style="list-style-type: none"> # Sufficient technical and financial resources # Motivation power # Bring change 	<ul style="list-style-type: none"> # Ignorance of indigenous knowledge # Short time # Unsustainable 	<ul style="list-style-type: none"> # Integrate indigenous knowledge with technical solutions # Make project sustainable by being more and more self dependent
Department of water supply and sewerages	<ul style="list-style-type: none"> # Provide drinking water and sewerage # Healthy environment # Indifference 	<ul style="list-style-type: none"> # Sufficient authority # Human and financial resources # Levy charge 	<ul style="list-style-type: none"> # Not strong commitment # Inadequate resources # Negative interventions 	<ul style="list-style-type: none"> # Good coordination with implementing agencies # Good relationship with implementing agencies
Government Organizations	<ul style="list-style-type: none"> # Provide good services related to Bagmati # Stay in power # Co-operation # Decentralisation and participatory approach # Bureaucratic 	<ul style="list-style-type: none"> # Levy charge # Policy formation # Human and financial resources # Authority to change prevailing situation 	<ul style="list-style-type: none"> # Rigid bureaucracy # Lack of good Governance # Lack of coordination # Inadequate resources # Political Instability # Vested Interest # Lack of support 	<ul style="list-style-type: none"> # Good coordination and relationship with governmental organisation # Give favorable inputs
Educational & research Institutes	<ul style="list-style-type: none"> # Produce qualified human resources and new technologies # Increase benefits 	<ul style="list-style-type: none"> # Qualified and experienced HR # Research facility # Change society by increasing awareness 	<ul style="list-style-type: none"> # Profit oriented # Lack of resources # Unhealthy competition 	<ul style="list-style-type: none"> # Strong cooperation with other stakeholders to produce qualified human resources and new technologies
Civil Society	<ul style="list-style-type: none"> # Clean Bagmati # Co-operation # Maximize social benefit 	<ul style="list-style-type: none"> # Social Mobilization # Indigenous knowledge # Professional Knowledge # Human and Financial Resources 	<ul style="list-style-type: none"> # Neglect common # Poor coordination # Diversified focus # Insufficient resources 	<ul style="list-style-type: none"> # Should act as a Pressure group # Capitalise on available human and financial resource # Create awareness # Apply participatory approach # Integrate indigenous and professional knowledge

PROBLEM TREE



OBJECTIVE TREE



PROJECT PLANNING MATRIX (LOGFRAME)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions and Preconditions
Goal: Improve the water quality of Bagmati River	# People started to use Bagmati for various purposes like swimming, rafting, fishing etc. # Increase in the aquatic bio-diversity	# Field visit reports # Different articles and news published in the newspapers and magazines # Statistical data of the different research conducted	
Purpose: Effluents are treated before being discharged into the river	# Ambient (National) water quality standard of Bagmati River is maintained # Water borne diseases around Bagmati reduced	# Laboratory research results from the Environment and Public Health Organization (ENPHO) # Hospital records and special surveys	# Municipality will not dump solid waste at the banks of the Bagmati River # Unplanned and unmanageable effluent production does not take place
Results: 1. Wastewater Treatment Plant established	# WTP observed	# Field study report # Annual reports	# Peace and security remains at present condition # Law and order situation remain as of today # Continued political commitment of political parties as of today # Excessive in-migration to Katmandu does not take place
2. Regulatory Mechanism strengthened	# X amount is collected by penalty operations # Laws formulated found to complied by major stakeholders # Defaulters found to be controlled	# Different related laws # Balance sheet # Court cases	
3. Stakeholders more aware about the hazardous effects of untreated effluents	# Stakeholders are paying charge for the treatment as per the volume of discharge # Results from Opinion survey	# Opinion survey # Receipts of payments	
4. Adequate resources generated	# X % increase in revenue collection by EMSON # X NRs. available from potential donors # X NRs. collected from recreational activities (Fishing, Swimming, Rafting, River side Park)	# Annual Balance sheet of EMSON # Audit report # Data of revenue collection # MOU and load disbursement between Ministry of Finance (MOF) and Donors	

Project planning matrix continued on next page

<p>Result:</p> <p>1. Wastewater treatment plant established</p> <p>Major Activities:</p> <ol style="list-style-type: none"> Train human resources needed for the operation and management of WTP Locate proper place for WTP Purchase and install suitable equipments for treatment plants <p>Result:</p> <p>2. Regulatory mechanisms strengthened</p> <p>Major Activities:</p> <ol style="list-style-type: none"> Encourage MOPE for the implementation of monitoring and enforcement system Encourage MOPE for the production of the qualified human resources Help government formulate strong legal framework <p>Result:</p> <p>3. Stakeholders more aware about hazardous effects of untreated effluents</p> <p>Major Activities:</p> <ol style="list-style-type: none"> Launch a media campaign Integrate it in curriculum at school level Training for awareness trainers <p>Result:</p> <p>4. Adequate financial resources generated</p> <p>Major Activities:</p> <ol style="list-style-type: none"> Gather financial support from different sources Levy charge on effluent producers on equity basis Generate income from the different recreation activities operated along Bagmati river 			<p>Assumptions:</p> <ul style="list-style-type: none"> # Political stability does not deteriorate further # Donors willingness to support continue # Economic recession does not take place # Public interference do not take place to the level to stop the installment of Wastewater Treatment plant # Regulatory measures for effluent mgmt. Continue to be favorable # Stakeholders commitment continue # Peace, safety and security remain favorable (remain at present level) <p>Pre-conditions:</p> <ul style="list-style-type: none"> # Adequate financial/ human resource # Government's amendment of a bill for the provision of authority to DWSS for the operation of WTP
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PLAN OF OPERATION:

PLEASE SEE THE SEPARATE PLAN OF OPERATION (PDF) FILE

REFERENCES

MOPE, 1998. State of the environment of Nepal. HMG, Ministry Of Population and Environment, Kathmandu

MOPE, 2001. State of the environment of Nepal. HMG, Ministry Of Population and Environment, Kathmandu

Dr. Poorna K. Adhikary, Project cycle management and Objectives Oriented Project Planning

Logframe of Solid waste management project in KMC – M Sc students, 2002.

Profile – EMSON

B. Uprety et. al, Strategic Roles and Responsibilities of the MOPE (Environment component), MOPE 1999

ZOPP – An introduction to the method. GTZ, March 1987.

Class notes on PSP and Flip chart copies

Excerpts from Internets

ANNEX I : SCHEDULE FOR THE WORKSHOP ON PARTICIPATORY STRATEGIC PLANNING

Day 1: 22 March, 2002 (9:00 – 18:00 hrs)

09:00 –10:30 Introduction
10:30 –18:00 Field Analysis (Transect walk, semi structured interview, focus group discussion)

Day 2: 23 March, 2002 (9:00 – 17:00 hrs)

09:00 – 11:00 Discussion on field reports
11:00 – 11:30 Tea break
11:30 - 14:30 Stakeholders' analysis
14:30 – 15:30 Lunch break
15:30 - 17:00 Stakeholders' analysis (continued)

Day 3: 24 March, 2002 (9:00 – 17:00 hrs)

09:00 – 11:00 Problem Analysis
11:00 – 11:30 Tea break
11:30 - 14:30 Problem Analysis (continued)
14:30 – 15:30 Lunch break
15:30 - 17:00 Objective analysis

Day 4: 25 March, 2002 (9:00 – 17:00 hrs)

09:00 – 11:00 Alternative Analysis
11:00 – 11:30 Tea break
11:30 - 14:30 Project Planning Matrix (PPM)
14:30 – 15:30 Lunch break
15:30 - 17:00 Project Planning Matrix (continued)

Day 5: 26 March, 2002 (9:00 – 17:00 hrs)

09:00 – 11:00 Project Planning Matrix (continued)
11:00 – 11:30 Tea break
11:30 - 14:30 Plan of operation
14:30 – 15:30 Lunch break
15:30 - 17:00 Closing session

ANNEX II : WORKSHOP PARTICIPANTS LIST

Participants

Ms. N. Dhakal	Chair Person, EMSON
Mr. P. Dahal	Program Officer, EMSON
Ms. T. Bishwakarma	Program Officer, EMSON
Ms. S. Poudel	Human resource Department Chief, EMSON
Mr. D. Smith	Volunteer, EMSON
Ms. P. Poudel	Account Section, EMSON
Mr. G. Thapa	Off. Secretary, EMSON
Mr. N. K. Rai	Tilganga Eye Hospital
Ms. S. Rai	WTP Expert
Mr. S. KC	Ward Chairman, KMC
Mr. Bidur Lamichhane	Advisor, EMSON

ANNEX III : TRANSECT WALK MAP

ANNEX IV: QUESTIONS FOR SEMI-STRUCTURED INTERVIEW AND FOCUS GROUP DISCUSSION.

1. How long have you been living here?
2. What is the present and the past status of Bagmati?
3. Do you have septic tank in your house or (drainage) sewerage drain?
4. Where do you dispose your solid waste usually?
5. Do you have any treatment system for sewerage discharge (Hospital and industries)?
6. What were the practices for solid waste disposal and sewerage treatment before 10-15 years?
7. What do you think are the probable causes for the increase in pollution of the Bagmati River?
8. What exactly is the effect upon you and your family due to this pollution of the river?
9. Who should take the responsibility for its proper management?
10. Suggest us the most reliable and effective ways /methods/ procedures/ indigenous practices that can be followed to solve this problem.
11. Are you willing to pay certain amount of money for the treatment of the effluents?