STRATEGIC PLANNING AND MANAGEMENT OF WATER RESOURCES

STRATEGIC PLANNING AND MANAGEMENT OF WATER RESOURCES IN MALAYSIA: LANGAT RIVER BASIN CASE STUDY

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1. Introduction

Malaysian Government through the Economic Planning Unit (EPU), Department of Irrigation and Drainage (DID), and Malaysian Water Partnership (MyWP) initiatives has conducted a two days workshop on Strategic Planning and Management for the Langat River Basin from 21st to 22nd July, 2003. Altogether, over 70 senior experts from various national agencies, local authorities and NGOs related to the Langat River Basin attended the workshop including the Executive Committee of MyWP and Mr. Ti Le-Huu, Economic Affairs Officer of the Water Resources Section of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

The Langat River Basin was chosen as the prime/case study for this project since this basin exhibits interesting conflicts among the stakeholders. Among these are (i) one of the most studied river basin in Malaysia, (ii) shared between Federal Territory, State of Selangor and State of Negeri Sembilan, (iii) serve as the core natural river within premier development activities like Putrajaya, Cyberjaya, Kuala Lumpur International Airport (KLIA), Nilai, Ulu Langat and Puchong industrial estates, commercial and housing estates, and at least 4 higher learning institutions, and (iv) there are sensitive environmental issues/landmarks such as incinerator at Broga, water supply dam and intake points as well as North and South Langat peat swamps.

2. Background of Langat River Basin

Langat River Basin is a unique basin since it passes through three distinct administrative regions of (i) Federal Territory of Putrajaya and Cyberjaya, (ii) State of Selangor and (iii) State of Negeri Sembilan. The entire basin is slightly less than 2400 sq. km. with its uppermost stretch originates from the Titiwangsa main range of the State of Selangor and Negeri Sembilan. The total length of this river has been recorded at 200 km and ends its journey into the Strait of Malacca. In this process it flows through the nation heart of Putrajaya and Cyberjaya. Putrajaya holds the new Central Government Administrative Complex while Cyberjaya locates the major international IT industries. Plate 1 shows the Langat River Basin base map. For the benefit of the entire study, this basin has also been divided into 10 strategic zones that reflect on the degree of economic and social interests.

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3. Objective of the Workshop

The workshop was meant to identify the various issues underpinning the water resources sectors within the Langat River Basin. Five main issues that have been elaborated and discussed, which include:-

- Land Use;
- Biodiversity and Water Quality;
- Domestic, Industries and Agricultural Water Supply;
- Floods; and
- Support and Capacity Building.

The second objective is to lay out the plan of actions in such a way that the problems are comprehended by the various stakeholders while at the same time enable control measures to be strategically imposed according to short and long terms approaches. The third objective is to identify the key factors and forces that will ensure the specified action plans are implemental and sustainable within the context of Langat River Basin especially and in Malaysia generally. The final objective is to synthesize the action plans based on the Integrated River Basin Management (IRBM) plan for the five main issues. This technique speculates on:

- Determination of lead agency;
- Expected Output and;
- Priority Short Term Plans.
Finally, all the objectives were gathered and recommendations arisen were strengthened and polished further into acceptable plan of actions within the context of IRBM plan that could be utilized by the three respective administrative regions within the Langat River Basin.

3. Outcome of the Workshop

3.1. Issues Identification

Fig. 1 indicates the main issues that have been discussed by the groups and the issues arisen from the discussion process. Each main issue has been contemplated further with several sub issues. Only three sub issues have been prioritized for each main issue. Further analysis shows that some of the sub issues are inter related with several main issues like ‘Lack of Political Will’, which connects to the ‘Inadequate Support and Capacity Building’ as well as ‘Pressure on Domestic, Industrial and Agricultural Water Supply’. Other sub issues that fall under these categories are ‘Lack of awareness’, ‘River Water Pollution’, and ‘Improper Land Conversion/Expansion on Urbanisation’.

The analysis also indicates that sub issue of ‘Improper Land Conversion/Expansion on Urbanisation’ is related to three main issues that are ‘Poor Land Use Management’, ‘Floods’ and ‘Depletion of Biodiversity and Water Quality Deterioration’. This is a clear indication why integrated approach is the favorable step towards holistic planning and management of the entire river basin i.e. IRBM.

3.2. The Plan of Actions

Fig. 2 lists down all the action plans for the five main issues. Only two action plans are related to several main issues that are ‘Strengthen Enforcement’ and ‘Educate and Establish Public Awareness Program’. The former is related to three main issues, which are ‘Poor Land Use Management’, ‘Floods’, and ‘Depletion of Biodiversity and Water Quality Deterioration’ while the latter are ‘Poor Land Use Management’ and ‘Floods’.

The rest of the action plans stand by their own, which speculate that fragmented planning and management are required to be implemented in order to tackle each respective main issue. These indications are the unlikely approach towards holistic measures. To apprehend the outcome towards holistic strategic planning and management approach, the groups are given the benefit to reevaluate and conclude the plan of actions by focusing on Integrated River Basin Management (IRBM) for the Langat river basin.
4. Integrated River Basin Management (IBRM)

The groups are required to conduct brainstorming sessions and further discuss on three major points that include (i) determine the Lead Agency, (ii) expected outcomes, and (iii) priority short term plans. Finally, all groups were required to summarize their findings in the conclusions and recommendations.

4.1. Lead Agencies

The ‘Land Use’ group specified that a river authority should be established namely the ‘Langat River Authority’. The chairman shall be rotated among the Federal (Putrajaya) and respective States (Selangor and Negeri Sembilan) representatives. Similar enactments like in Selangor should be set up in Putrajaya and Negeri Sembilan. The group of ‘Biodiversity and Water Quality’ suggested that a ‘National River Basin Authority’ should be set up. These should cater not only the Langat river basin area but also the whole country. The Department of Irrigation and Drainage (DID) should be the interim caretaker as well as the IRBM secretariat.

The third group of ‘Domestic, Industrial and Agricultural Water Supply’ proposed the ‘Ministry of Water Resources’ as the leader supported by Federal and State Water Agencies.
The group of ‘Floods’ specified the lead agency comprises DID and Local Authority. Other agencies involved as members are Department of Environment (DOE), Department of Town and Country Planning (JPBD), Land Office, Department of Mineral and Geosciences (JMG), Department of Agriculture (DOA), State Water Agencies (LUAS, PUAS etc), Ministry of Health, Forestry Department, Public Work Department (PWD), Malaysian Highway Authority (MHA), NGOs, General Public Representatives.

The final group of ‘Support and Capacity Building’ listed DID, DOE, State Water Agencies, Sewerage Services Department (SSD), JPBD, Negeri Sembilan Exco, Department of Local Government, Perbadanan Putrajaya and NGOs. The committer should be chaired by Selangor State Government while DID as the secretariat. The Selangor State Government was chosen to chair since most of the Langat river basin is located within Selangor. Table 1 summarises the proposals from each group.
Table 1: Lead Agencies

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Lead Agency</th>
<th>Agency in Committee</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use</td>
<td>Langat River Authority</td>
<td>-</td>
<td>Insist power rotation between Federal and State Governments</td>
</tr>
<tr>
<td>Biodiversity and Water Quality</td>
<td>National River Basin Authority</td>
<td>State Water Authority (LUAS, PUAS etc.)</td>
<td>DID as interim caretaker as well as IRBM secretariat</td>
</tr>
<tr>
<td>Domestic, Industrial and Agricultural Water Supply</td>
<td>Ministry of Water Resources</td>
<td>State Water Authorities and Federal Agencies (DID, DOE etc.)</td>
<td></td>
</tr>
<tr>
<td>Floods</td>
<td>DID and Local Authorities</td>
<td>DOE, JPBD, Land Office, JMG, DOA, LUAS, PUAS, Ministry of Health, Forestry Dept, PWD, MHA, NGO and public</td>
<td>-</td>
</tr>
<tr>
<td>Support and Capacity Building</td>
<td>Selangor State Government</td>
<td>DOE, LUAS, SSD, JPBD, Negeri Sembilan EXCO, Dept Local Government, Perbadanan Putrajaya and NGO</td>
<td>DID as secretariat</td>
</tr>
</tbody>
</table>

4.2. Expected Outcomes

Fig. 3 depicts the expected outcomes for each group. Interesting results have been collated in these processes whereby the numbers of action plans that are inter-connected with the main issues increase quite substantially. In this respect the numbers increase from two to six (three folds). This is a positive indication that integration between the action plans is implemental.

The analysis also indicates that action plans for ‘Support and Capacity Building Group’ need more integrated approach due to the fact that these action plans are also belong to ‘Land Use Group’, ‘Floods Group’, and ‘Biodiversity and Water Quality Group’. These action plans are ‘Expediting gazettement of river reserve’, Create awareness through public participation’, and ‘Coordinated collaboration and performance’.

Others action plans that are also inter-connected to several main issues are ‘Rehabilitate river water quality’ that belongs to ‘Domestic, Industrial and Agricultural Water Supply Group’ and ‘Land Use Group’. Moreover, action plans of ‘Established IRBM committee’ and ‘Set up Langat’.

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The River Basin Information System belongs to the Floods Group as well as the Biodiversity and Water Quality Group.

### 4.3 Priority Short Term Plans

Fig. 4 portrays the short term plans that are urgently need to be addressed by the stakeholders. Altogether there are 19 plans that need immediate actions. Out of these numbers five are inter-connected to the main issues. The most urgent plan are ‘Gazette the river corridor reserve’ and ‘Class II water quality by 2008’. The former belongs to three main issues i.e. ‘Land Use Group’, ‘Biodiversity and Water Quality Group’, and ‘Support and Capacity Building Group’ while the latter belongs to ‘Floods Group’, ‘Domestic, Industrial and Agricultural Water Supply Group’ and ‘Land Use Group’.

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**Fig. 3: Expected Outcomes**
Three other plans that are inter-connected are (i) ‘Land use/alienation/conversion control’ that is related to ‘Floods Group’ and ‘Land Use Group’, (ii) ‘Reduce solid waste by 2005’ that belongs to ‘Floods Group’, and ‘Support and Capacity Building Group’, and (iii) ‘Prepare awareness program modules/syllabus in school etc’ that is connected to ‘Support and Capacity Building Group’, and ‘Domestic, Industrial and Agricultural Water Supply Group.

4.4. Group Conclusions and Recommendations

Fig. 5 shows the final outcome of the Strategic Planning and Management of Water Resources for Langat River Basin. None of the recommendations merge with each other denoting these issues have been converged into several essentials action plans. These plans are meant for both the short and long terms measures.

5. Benefits of SPM Approach

Among the benefits obtained from the SPM approach are:

- Convenient and straight forward technique to identify problems and propose solutions,
- Issues identification at the lowest level by various sectoral experts,
- Suggest appropriate short and long terms solutions based on each issue,
- Lay generic and specific action plans for each issue,
Pave way the cross sectoral solutions,
Collate and integrate the solutions into strategically and manageable measures,
Line up integrated plan of actions through holistic means

In short, the Malaysian Government has implemented some of the recommendations listed by the Workshop using the SPM approach such as:
- Establishment of Ministry of Natural Resources and Environment in Mac, 2004,
- Gazettement of water catchment areas (Cabinet Directive November, 2004),
- Formulation of River Law (in process),
- Squatters free by 2005,
- Love Our Rivers Campaign (on going)
- Study on Integrated River Basin Management (IRBM),
- River rehabilitation and restoration programs,
- Establish National Rivers Blueprint and etc.

6. Challenges of SPM Approach

Among the challenges discovered by employing the SPM approach are:
• The ability of each expert to accept other viewpoint and reach agreeable solutions,
• The ability to voice out their points into simple and comprehendible means,
• The willingness to be transparent during discussion,
• Needs strong and dependable vehicle to bring up the recommendations

7. Plans for Sustaining SPM Approach

Practical plans that could adduce the sustainability of SPM approach are:

• Reliable technique utilized during discussion (card, matrix, SWOT etc),
• Create small but effective action group (champion) to implement action plans,
• Powerful and continuous sponsor to fund project,
• Follow up by experts on periodical/monthly basis,
• Establish networking among the partners

8. Concluding Remarks

The workshop was able to bring up important issues and propose solutions generated from five identified main issues through implemental action plans. The workshop was conducted by dividing the participants into ten groups denoting two groups per issue. The initial process was to diverge the issues through brainstorming sessions by using various facilitations techniques. Most of the groups utilized card techniques to extract ideas. For choosing the appropriate solutions, action plans and recommendations, most groups used matrix technique.

The concept of Strategic Planning and Management (SPM) introduced in this workshop has enabled the water resources stakeholders within Langat River Basin to convene and discuss on the basic issues, solutions and action plans that are vital for the formulation of Integrated River Basin Management Plan (IRBM) in Malaysia. Some of the inputs and outcomes that have been put through in this workshop last year have been applied and harnessed by the Government recently and further improvement on the overall concept of IRBM is moving progressively. With these positive steps, the utilization of SPM technique in Malaysia is heading towards the right track and could be utilized also for the same purpose on other strategic management issues in the country.