Themes: Floods, Governance

Tsurumi River Basin Water Master Plan, Japan (#302)

Description & Problems

The Tsurumi River Basin, located in the suburbs of Tokyo, extends over an area of 235 square kilometres and a river length of 42.5 kilometres. The Tsurumi River Basin is regarded as one of the most important and representative river basins in Japan. The basin was largely developed by the rapid urbanization since the 1960s. The transition of the urban area increased from 10 percent in 1958 to over 84 percent in late 2000. As of January 2004, the total population in the basin reached about 1.9 million with a population density of 8,000 people per square kilometre.

The process of the rapid urbanization in the basin generated a great concern to keep advancement of flood control for the region. In other words, the traditional concept of river development became inadequate for securing the safety-level against flood. To formulate adequate solutions, the basin management authority called for the establishment of a committee consisting of experts from the academia, basin municipalities and river administrations. The committee undertook the efforts of simultaneously advancing river development and flood control measures in the basin with the aim to solve water problems basin-wide. In this effort, measures such as those against urban rain runoff increase were addressed in the basin from the stages of the city planning and development by the basin municipalities. This initiative set a precedent for integrated flood control measures in Japan.

Although the integrated flood control measures showed some effects, the continuing rapid urbanization in the basin brought to the surface various additional problems regarding environment, disaster prevention, and flood control, etc. Major issues at that time were:

- Increased risk of flood disasters due to lowered ability to retain water and to control flood.
- Decreased normal river flow rate
- Increased water contamination due to low river flow, decreased land cover and increased pollution load from the basin.
- Environmental degradation due to decreased natural areas (e.g. inhabitation, growth and reproduction of organisms etc.).
- Increased risk to earthquake/fire disaster due to the formation of densely-populated urban areas.
- Poor access to river front and limited space for recreational use.

Given those issues, it was essential to strengthen the perspectives of environmental protection and participatory approach within the integrated flood control plan, while continuing to promote its nature-oriented and multifunctional aspects as well as enhancing the participation of wide ranges of concerned parties.

Therefore, while aiming to regain the rich river-human relationship that was lost in the process of modernization/urbanization, it was necessary to look at cities from the viewpoint of “the whole basin” and to integrate concerned measures under the concept of the “Revitalization of a Sound Water Cycle”.

In order to strengthen/expand basin-based measures under this new concept, it became significant to develop the “Tsurumi River Basin Water Master Plan”. The Master Plan was formulated to enhance comprehensive implementation of plans and measures on water issues. The basic policies, targets, and measures were set under five basin management goals as below:

- Water management during flood disaster
- Water management at normal river conditions
- Natural environment management

- Earthquake and fire disasters management
- Waterfront access and interaction management

Based on this management concept within the Tsurumi River Basin Water Master Plan, action plans, including targets and timeframe for implementation, were prepared in close partnership among citizens, civic groups, enterprises, administrative agencies.

Decisions & Action Taken

As the Tsurumi River Basin Water Master Plan was intended to be carried out through cooperation and collaboration among citizens in the basin, civic groups, enterprises, administrative agencies, opinions from various concerned parties within the basin were incorporated during its formulation process. It was after 30 meetings with various participants in 6 years that the plan was completed.

- **Tsurumi River Basin Preparatory Committee:**
  This preparatory committee consisted of academic experts and other members. It was held seven times in total, through which the "Proposal for the formulation of Tsurumi River Basin Water Master Plan" was created.
- **Tsurumi River Basin Water Committee:**
  The Tsurumi River Basin Water Committee consisted of members from various fields such as academic experts, citizens and administrators. It provided advice on the content and implementation progress regarding individual plans (action plans) that promoted the Tsurumi River Basin Water Master Plan.
- **Tsurumi River Basin Water Master Plan Administrative Conference:**
  The Administrative Conference was held nine times in order to carry out planning of the Tsurumi River Basin Water Master Plan. During the conference planning operations were pursued and readdressed in consideration of the advices from the Basin Water Committee.
- **Tsurumi River Basin Water Commission:**
  In this commission, opinions from citizens and administrative agencies were exchanged consistently, and the plans for river development based on the Tsurumi River Basin Water Master Plan and relevant laws were dealt with. The commission was held three times, and the outcome was reported to the administrative conference.
- **Tsurumi River Basin Water Council:**
  Tsurumi River Basin Water Council evolved from the reorganization of the Tsurumi River Integrated Flood Control Measures Committee. It consists of members from the government, the prefectures and the cities. The "Tsurumi River Basin Water Master Plan" was formulated by this council. The plan was that the council would carry out necessary reconciliations among administrations on the management of implementation progress, revision of the plans and new problems/issues/measures regarding the basin.

The participatory processes above, which reflected the wider opinions from all basin-concerned parties, contributed to the consensus formulation of the Tsurumi River Basin Water Master Plan, which was the first water master plan in Japan to give a far-reaching impact at home and abroad.

By pursuing the Tsurumi River Basin Water Master Plan, the following outcomes were expected:

- Protection of Tsurumi River Basin from flood risk.
- Creation of rich and clean water environment.
- Revival of a city where people would have better opportunities to engage with nature throughout preserving, creating and utilizing the landscape of the basin as well as its biodiversity.
- Protection of the Tsurumi River Basin from earthquake disasters and fire disasters.
- Achievement of pleasant life with increased basin awareness through promoting people's engagement with the river and basin natural environment.

Results/Outcomes

As the Tsurumi River Basin Water Master Plan is intended to be carried out through cooperation and collaboration among citizen in the basin, civic groups, enterprisers and administrators, the opinions from various concerned parties in the basin were incorporated during its formulation process. The completion of the plan required thirty meeting with various participants along a period of six years.

The time frame for each individual plan was set around 20-30 years. Concrete examples are as below:

- By 2005: Formulation and implementation of the Basin Water Damage Countermeasures Plan.
- By 2011: Increase the proportion of river segments where people can swim from current 30% to the total possible that is 50%.
- By 2014 (approximately): Increase the proportion of segment where the river water is available for water supply from current 35% to the total possible river segments that is 50%.
- By 2014: Increase the number of river users from current 2.11 million to 2.5 million approximately.
- By 2024 (approximately): Conserve/create green spaces and keep the proportion of the urban area within 90% in the whole basin.
- By 2034 (approximately): Halve the current area of the impermeable zones.

In order to steadily advance individual action plans of the Tsurumi River Basin Water Master Plan, each main body in the basin was required to effectively implement its designated measures, manage the progress and process of implementation and report the outcomes when appropriate, while sharing data and increasing the awareness of the basin community. The framework of implementation is based on management cycle considering planning, implementation, monitoring and revising are taken. In order to keep the plans suitability and update, revisions in consideration of the changing social conditions was made whenever necessary not only on the individual action plans but also on the Tsurumi River Basin Water Master Plan.

By using measurable indicators for monitoring and reporting, the outcomes of implemented measures were shared among the participants:

- Safety level in the basin: flood scope indicated on maps
- Affluence of water volume: tributary stream
- Water quality: grading based on perspective of citizens, aquatic organism indicator
- Reducing the burden on Tokyo Bay: coverage of advanced sewage disposal system
- Catchment area of osmosis plant, degree of nature richness in the basin: green space around riverhead and its dimension.
- Diversity in nature in the river and its riverways: number of confirmed species
- Segment where the river water was available for water supply
- Popularity of the river: number of visitors to/users of the river counted in different areas for different purposes
- Public relations on river: number of access to the website

Also, in order to advance the Tsurumi River Basin Water Master Plan, extensive campaigns and education programmes were implemented, among which were:

- Promotion of the “Tsurumi River *Baku* (Tapir) Basin Water Campaign”
- Setting and utilizing catchphrases for the Tsurumi River Basin Water Master Plan

Lessons learned

1. The agreement on the water master plan was reached through cooperation and discussion among various administrative sectors (river, sewage, water-supply, roads, parks, cities, environment, agriculture, construction, disaster prevention and education), citizens, enterprises and NGOs. Particularly, the Tsurumi River Basin Commission invited public participation and up to present over hundred individuals from the residents of the basin are registered.
2. To implement the Tsurumi River Basin Water Master Plan, which involved the large number of concerned parties as participants, many years (6 years) and many meetings (30 times) were needed. However, in order to gather a wide range of opinions from all concerned parties and to reflect them in the Master Plan, patience and steady effort was essential for its success even if it took a long time.
3. To implement action plans steadily, it was important to set short-term targets and to conduct continued reviews of its progress.
4. Monitoring by measurable indicators and the reporting of its results were essential tools for concerned parties to share the effects of the implemented measures.
5. By involving various stakeholders in planning and implementation process, diverse methods of finance became available.

Main tools of interest

B1.11 Building Partnerships
B2.1 Participatory capacity and empowerment in civil society
B2.2 Training to build capacity in water professionals
C1.4 Developing water management indicators
C2.2 Basin management plans
C4.3 Information and transparency for raising awareness
C5.2 Shared vision planning
C5.3 Consensus building

Outcomes and relevance of the adoption of an integrated (IWRM) approach

The formulation of a comprehensive and integrated master plan with the aim to revitalize a sound water cycle that is lost in the process of rapid urbanization is an extremely time and effort consuming process. In order to ensure a stead progress towards targets, it is vital for the process of actions to include, in addition to long-term objectives, short-term targets (e.g. to be achieved in a specific period of. five years). Furthermore, it is imperative to define and adopt a set of measurable indicators to monitor the progress of implementing each individual action plan of the master plan. The Tsurumi River Basin Action Plan shows that to ensure success the first priority should be given to feasibility and involvement of all stakeholders from the early stages of the formulation and also during the implementation of the actions. Thus it is believed that this good practice example for the formulation and implementation of the Tsurumi River Master Plan would serve as a useful reference on steady implementations of integrated management and action plans.

Keywords: xxx

- Integrated Water Resource Management (IWRM)
- Institutional Development and Political Process
- Risk Management
- Participatory process
- Public involvement
- Basin Master Plan

Additional information (any links and most relevant contact people)

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