

# **COLLABORATIVE DECISION MAKING WITHIN INTEGRATED WATER RESOURCES MANAGEMENT: TOOL FOR TRANSBOUNDARY WATERS MANAGEMENT**

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The concept of Integrated Water Resources Management (IWRM) was already recognized in agenda 21 of the United Nations “Earth Summit” on Environmental and Development that was held in Rio de Janeiro in 1992. At the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, the international community has also taken an important step towards more sustainable patterns of water management by developing IWRM and water efficiency plans with support to developing countries (Mokhtar, et al, 2004).

IWRM may be defined as “a process that promotes the co-ordinated development and management of water, land and related resources in order to maximise the resultant economic value and social welfare in an equitable manner without compromising the sustainability of vital ecosystems” (GWP-TEC, 2004). IWRM is a comprehensive approach to the development and management of water, addressing its management both as a resource and the framework for provision of water services.

The scope of IWRM is wide and it is addressed through the integration of natural and human systems that include integration of different components of water, integration of water with related land and environmental resources and, integration of water with social and economic development. The key challenge for water policy and management is to move from competition and conflict to co-operation. Water knows no political boundaries, and its optimal management is best achieved when done at the basin level, across political boundaries where necessary. Co-operation is thus a critical element in regional water management, when inter-basin water transfers may in certain cases be a preferred option. Quantity and quality must be considered simultaneously and jointly when thinking about co-operative or co-ordinated management of water among users and across political boundaries (UNESCO, 2002).

Changing water practices to achieve goals of IWRM and of IRBM requires change of attitudes in individuals, institutions, professionals and organisations within civil society. The key to encouraging an

IWRM and IRBM oriented civil society lies in the creation of shared visions, through joint diagnosis, creation of options, implementation, and monitoring. This itself requires broad stakeholder participation in water planning and operating decisions, and is another strong tool for encouraging such new civil orientation (GWP-ToolBox, 2003). Towards this, the CDM involving all stakeholders that are related to water resources management is suitable mechanism in achieving the IWRM goals.

Collaborative Decision Making (CDM) is an important mechanism in water resources management because of its potential in improving the present water resources management system. The definition of CDM is a joint effort among government agencies, private sectors, NGOs, the public, universities and other relevant stakeholders aimed at improving the present management system through increased information exchange among the various parties in the community and improved decision support tools (Elfithri *et al.*, 2002, 2004a,c; Mokhtar *et al.*, 2004; Elfithri 2006).

CDM offers an opportunity for more proactive and collaborative approaches to resolving environmental problems and it can be used in water resources management related issues. In turn, this will require the participation and involvement from stakeholders within a larger context of shared understanding (Mokhtar & Elfithri 2005). Particular attention is paid to the issues that emerge as a result of multiple stakeholder involvement within environmental problem situations. **Figure 1** shows the key elements of CDM and **Figure 2** shows the participants of CDM.

CDM provides individuals and organizations the opportunities to better listen, to develop a more honest approach, and to demonstrate follow-through or modify commitments. In doing so, trust is developed, and individuals and organizations more easily work together to develop new approaches or creative ideas. CDM provides a forum for discussion that permits diverse points of view to be aired which leads to issues being defined in terms of joint problem solving (Bauer and Randolph, 1998). Achieving trust among participants with diverse interests occurs when the parties are capable of looking beyond their positions. An open dialogue can demonstrate that opposing parties may actually share interests, values and concerns. Thus, collaborative processes can lead to a shared vision of the future, resolve conflicts, and result in creative solutions. **Figure 3** shows the importance of CDM and **Figure 4** shows the mechanisms of CDM.

CDM is needed in order to improve the existing water management system, where the agencies and other related bodies have to sit together to discuss about the settlement of the issues together. CDM is a suitable and appropriate way within framework of IWRM and IRBM where CDM is needed as enabling environment towards IWRM, mechanism of CDM allow and provide institutional frameworks, at the same time CDM can also become a tool for management instruments as shown in **Figure 5** (Elfithri 2006).

To collaborate in decision making requires both elements to navigate egos, boundaries and trusts. Often the first step in developing any sort of collaboration includes an understanding of the current structure of management and decision making in any given area, especially that which is transboundary in nature. Such is the case of water management. The idea of an integrated approach requires a coming together of diverse interests within a management and decision making context (Elfithri *et al.* 2004c).

The concepts of CDM are being used and applied in several countries involving many aspects of natural resources management. Several groups are pursuing collaborative approaches to natural resource management and their experiences offer valuable insights into the process, the people, the successes, and the pitfalls. This study use CDM within the context of IWRM as a tool for resolving transboundary waters management issues as an approach towards sustainability governance, especially in Langat River Basin, Malaysia, as it involves various and cross boundaries stakeholders in Langat River Basin at various levels.

The Langat River Basin, which is located adjacent to the highly developed Klang Valley metropolitan in Peninsular Malaysia, administratively involves two states and a federal territory viz. the state boundaries of Selangor State, Negeri Sembilan State and the Putrajaya Federal Government Administrative Center. The Basin is currently the fastest developing area in the country. A number of large scale social-economic projects have either currently taking shape or are already completed in the Basin. This include the new federal government administrative centre of Putrajaya, the Multimedia Super Corridor (MSC) for the information technology industry, the BioValley for biotechnology research/industry, Cyberjaya, the Kuala

Lumpur International Airport (KLIA), the Sepang Formula One Grand Prix Circuit and several other institutions of higher learning including universities. **Figure 6** shows the map of Langat River Basin.

Under the Malaysian Constitution, water is a state matter. Nevertheless when it comes to water resources development, utilization and management, both the federal and state governments are involved. This is because the responsibility for water resource administration is fragmented and is shared among a number of federal and state agencies, each of them have their own specific involvement in water related issues (Welch & Lim, 1987). Their interest in water related matters could be viewed as from any one or more of the following three aspects: (i) The planning, development and management of water resources aspect; (ii) The protection and conservation of water aspect; and (iii) The land-use control and watershed management aspect.

There are a number of government agencies, private sectors, local authorities, NGOs and universities that are involved in managing river and water resources in the Langat Basin and had initiated to a certain degree activities pertaining to realization of goals of an integrated water resources management approach (Elfithri *et al.*, 2004b). The problem of integrated management lies in developing cooperation and collaboration among the agencies to ensure the well being of the basin itself. This includes issues of conflict resolution, information management and transboundary organization.

For the Selangor State in which most of the basin encompasses geographically, this has been largely dealt with by the formation of the Selangor Water Management Authority (SWMA) or LUAS as a coordinating body. But in fact water resources management in Langat Basin includes the Selangor State, the adjacent Negeri Sembilan State and also a newly formed Putrajaya Federal Government Administrative Center. There is no other formation such as this in the other states.

The administration of rivers and water resources in this basin is being carried out by the federal and various state government agencies. The federal agencies are generally responsible for the studies, planning and development of the water resources. The state agencies are responsible for water supply infrastructure development including financing, operation and maintenance. The Federal Government agencies include the Department of Environment (DOE), Malaysian Meteorological Service (MMS), Public Works Department (PWD), Health Department, Department of Agriculture (DOA) and the National hydraulic Research Institute Malaysia (NAHRIM). The State Government agencies include Water Supply Department (JBA), Forestry Department, Selangor Water Management Authority (SWMA), Local Authorities (PBT) and Land Office. Agencies which were established both at the Federal and State levels include the Department of Irrigation and Drainage (DID), Department of Town and Country Planning (JPBD), Fisheries Department, Wildlife Department and Veterinary Department.

There are substantial overlaps among the functions of agencies. For example river water quality monitoring and management in Langat Basin are carried out by the Department of Environment, Department of Irrigation and Drainage, Health Department, Fisheries Department, Department of Wildlife, Veterinary Department, SWMA and the Local Authorities. If there is occurrence of any problem related to river water quality in Langat Basin, the general public is often uncertain about which agency to refer to because too many agencies are handling the issue. Among the agencies themselves there are also uncertainties due to unclear boundaries about their functions and roles, except on specific issues that are handled only by specific agencies. However, at any given time there are two or more agencies handling the same issue, or in the obverse, there is no agency handling the problem, each thinking that another agency is responsible. Coordination among various agencies will help prevent conflict and duplication of functions and roles.

CDM is important and compulsory to be adopted and applied in the management of water resources in this basin as an approach towards IWRM. It can be used to seek common grounds from which the diverse agencies can collaborate in managing the basin as well as determining areas of conflict, especially because of areas in this basin involved the transboundary issues of waters management and development. There is a need to develop and understanding of the concept and mechanism of CDM, as well as its potential benefits and how best to put it into practice.

## References

- Elfithri, R., Mokhtar, M. B., Shah, A.H.H. & Idrus, S. 2002. *Collaborative Decision Making Issues in Sustainable Water Resources Management: A Case Study on Langat Basin*. In Jahi, J.M., Nor, M.M.J., Sopian, K., Sahid, I and Shah, A.H.H. (Editors). 2002. Proceedings of the International Conference on Environmental Management: Ten Years After Rio. Realising Agenda 21. October 22 and 23, 2002. Organised by Environmental Management Programme, Centre for Graduate Studies, Universiti Kebangsaan Malaysia. Equatorial Bangi Hotel, Selangor, Malaysia. Pp. 304 – 314. **ISBN 983-2446-64-3**.
- Elfithri, R., Mokhtar, M. B., Shah, A.H.H. & Idrus, S. 2004a. *Pembuatan Keputusan Kolaboratif Antara Agensi-agensi Dalam Pengurusan Sumber Air di Lembangan Langat*. In Mokhtar, M. B., Idrus, S. & Aziz, S. (Editors). 2004. Ecosystem Health of the Langat Basin. Proceedings of the 2003 Research Symposium on Ecosystem of the Langat Basin. Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia. Pp. 81 – 96. **ISBN 983-9444-57-3**.
- Elfithri, R., Mokhtar, M. B., Shah, A.H.H. & Idrus, S. 2004b. *The Management of Water Resources in Langat Basin, Malaysia*. Conference on Water Management for Sustainable Environment. 25 and 26 August 2004. Hotel UiTM, Sham Alam, Selangor, Malaysia.
- Elfithri, R., Mokhtar, M. B., Shah, A.H.H. & Idrus, S. 2004c. Collaborative decision-making as one of best practices in integrated water resources management: A case study on Langat Basin, Malaysia. In Jahi, J.M., Arifin, K., Surif, S., and Idrus, S. (Editors). 2004. Proceedings 2nd Bangi World Conference on Environmental Management. Facing Changing Conditions. 13<sup>th</sup> – 14<sup>th</sup> September 2004. Organised by Environmental Management Programme, Centre for Graduate Studies, Universiti Kebangsaan Malaysia and Environmental Management Society (EMS) Malaysia. Equatorial Bangi Hotel, Selangor, Malaysia. Pp. 109 – 116. **ISBN 983-2975-27-1**.
- Elfithri, R. 2006. *Pembuatan Keputusan Kolaboratif dalam konteks Pengurusan Sumber Air Bersepadu di Lembangan Langat, Malaysia* (English translation: Collaborative Decision Making within the context of Integrated Water Resources Management in Langat Basin, Malaysia). PhD Thesis. Universiti Kebangsaan Malaysia (UKM), Malaysia.
- GWP-TEC. 2004. *Integrated Water Resources Management*. Global Water Partnership Technical Committee (TEC) Background Paper No. 4 ([www.gwpforum.org](http://www.gwpforum.org)).
- GWP-ToolBox. 2003. *Sharing Knowledge for Equitable, Efficient and Sustainable Water Resources Management*. Global Water Partnership ToolBox Integrated Water Resources Management. ([www.gwpforum.org](http://www.gwpforum.org)).
- Mokhtar, M. B., Elfithri, R. & Shah, A.H.H. 2004. *Collaborative Decision Making as a Best Practice in Integrated Water Resources Management: A Case Study on Langat Basin, Malaysia*. Proceedings (Technical Papers), First Southeast Asia Water Forum. 17-21 November 2003, Chiang Mai, Thailand, Volume 2: pp. 333-354. **ISBN 974-241-776-8**.
- Mokhtar, M. B. & Elfithri, R. 2005. *Participatory Management for Integrated Water Resources Management Through Collaborative Decision Making*. IWRM Consultation for Senior Executives in the Public Sector. 27-29 Julai 2005. Port Dickson, Negeri Sembilan, Malaysia: Malaysian Network on Capacity Building in IWRM (MyCapNet) & Malaysian Water Partnership (MyWP).
- UNESCO. 2002. *Water and Conflict*. Hydrology for the Environment, Life and Policy (HELP) - United Nations Educational, Scientific and Cultural Organization (UNESCO). (<http://portal.unesco.org/>).
- Welch, D. N & Lim Teik Keat. 1987. *Water Resources Development and Management in Malaysia*. In Water Resources Policy for Asia. A. A. Balkema. Rotterdam. Netherlands.

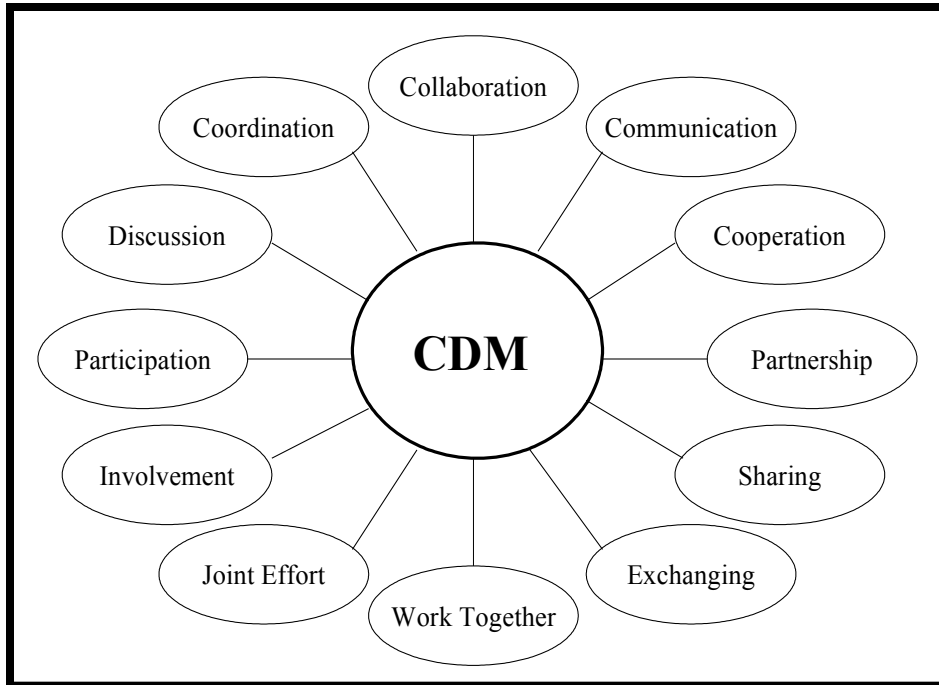


Figure 1. Key Elements of CDM  
(Source: Elfithri 2006)

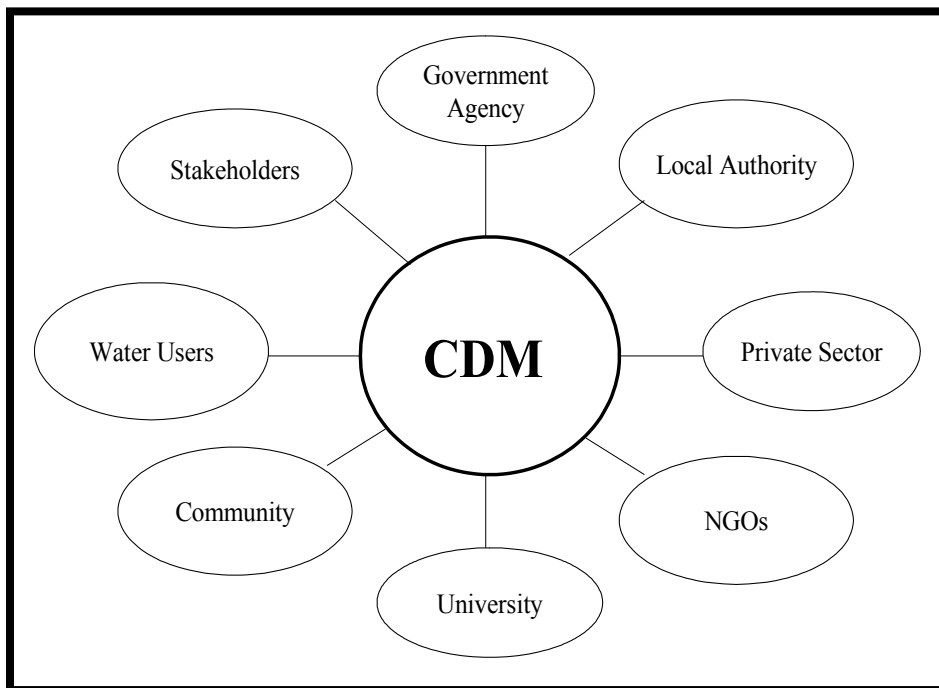


Figure 2. Participants of CDM  
(Source: Elfithri 2006)

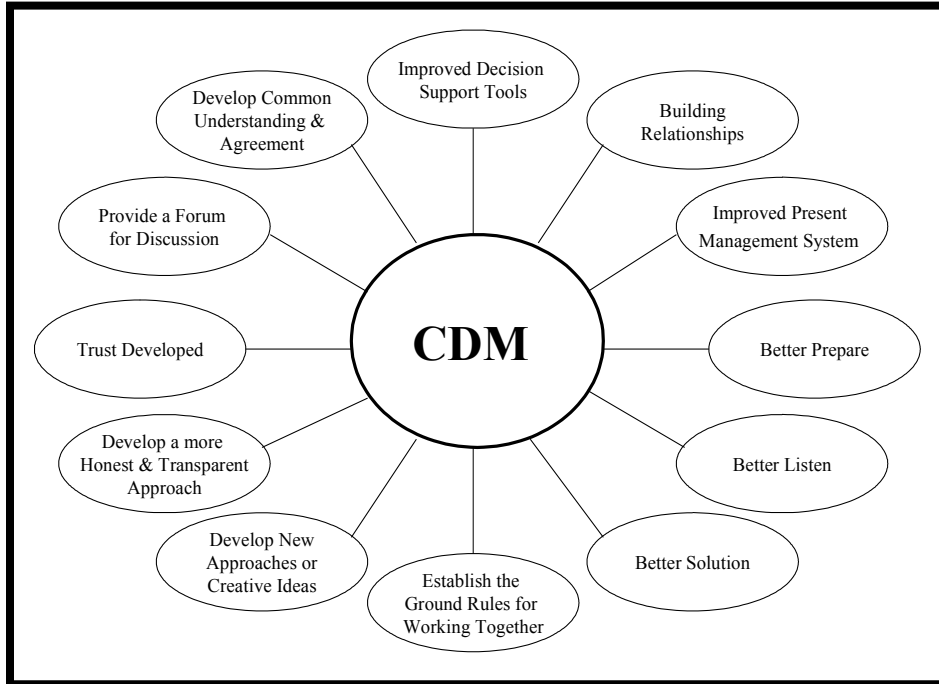


Figure 3. The Importance of CDM  
(Source: Elfithri 2006)

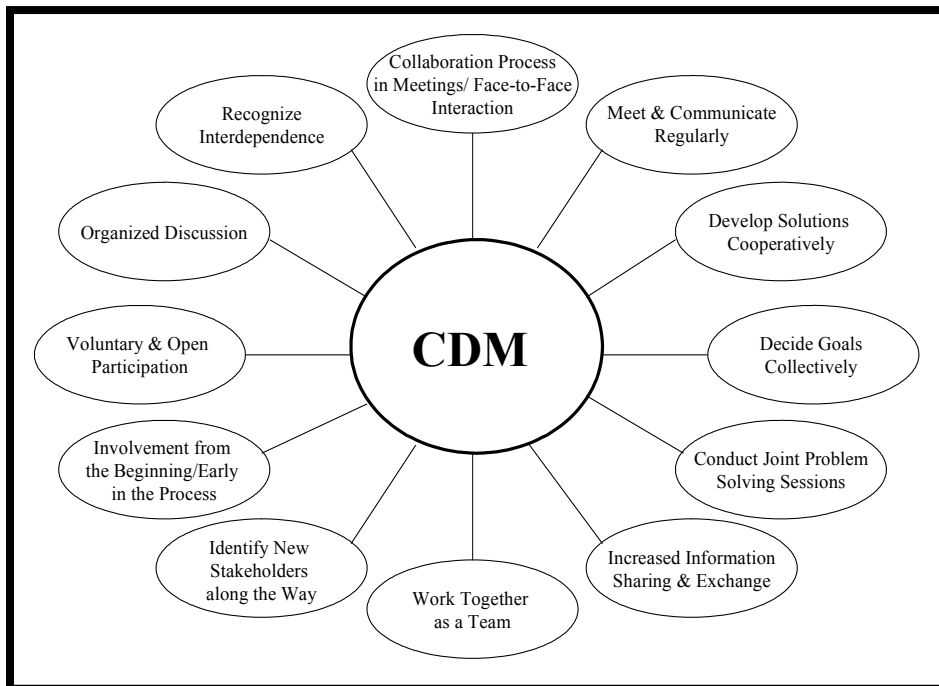


Figure 4. Mechanism of CDM  
(Source: Elfithri 2006)

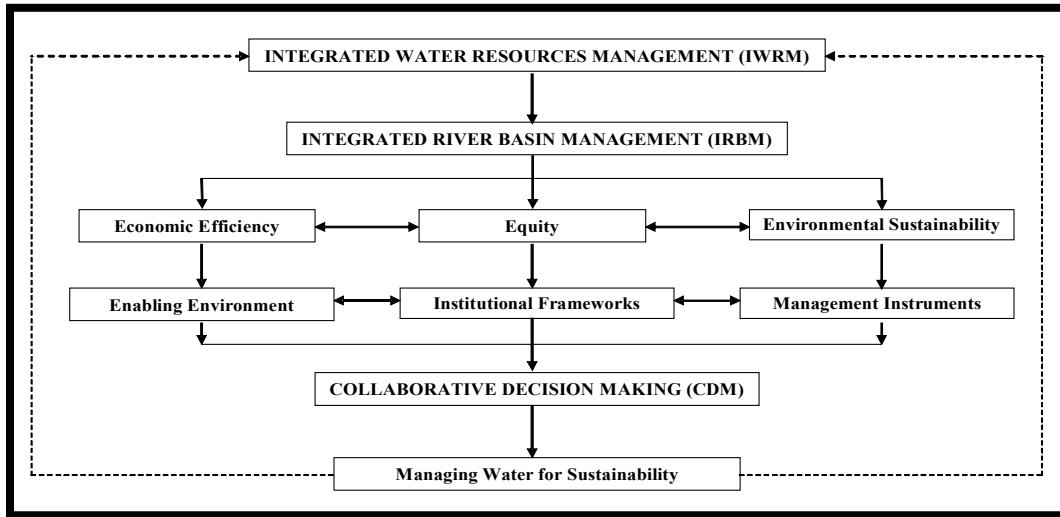


Figure 5. Framework of IWRM and IRBM that showed the importance of CDM  
(Source: Elfithri 2006)

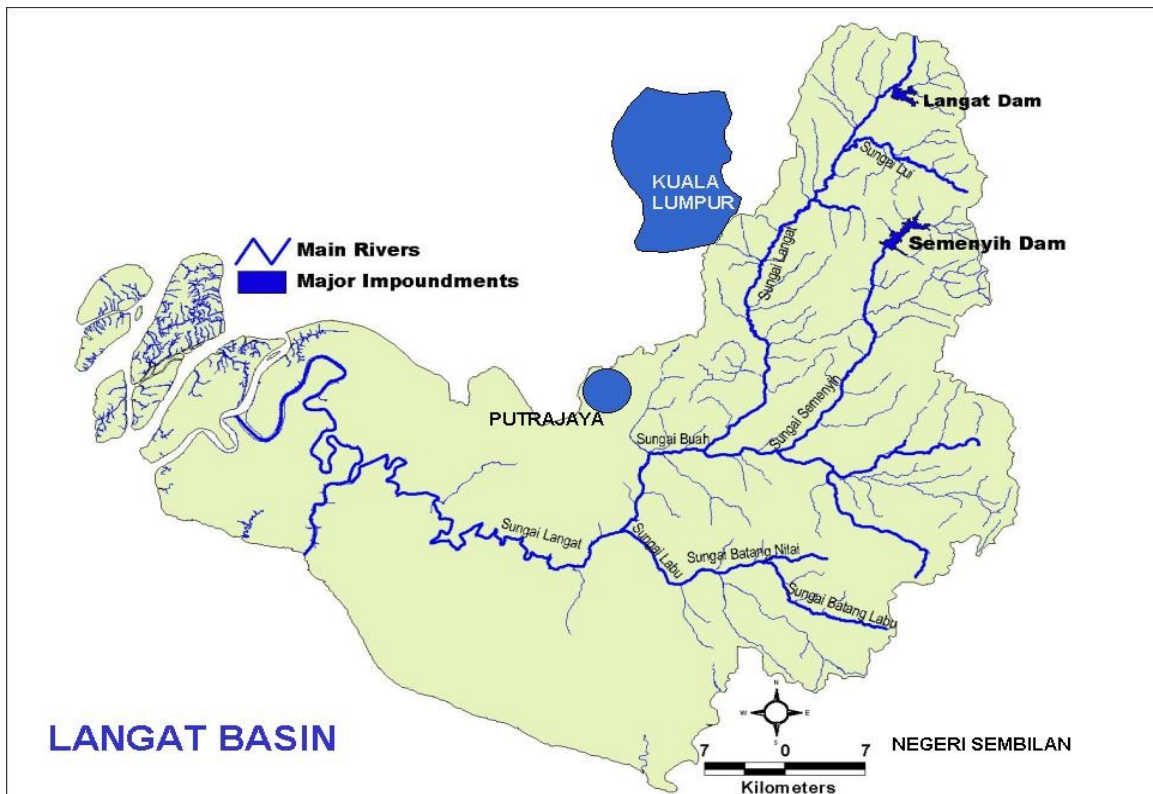


Figure 6. Map of Langat River Basin, Malaysia  
(Source: Elfithri 2006)