Water Resource Associates

A network of consultants in hydraulics, hydrology, groundwater & environmental issues

Project title: **South Java Flood Control Sector Project**

Summary: Systems analysis and support for river modeling for flood control design and construction on ten rivers in South Java.

Client: Hydraulics Research, BCEOM	**Financed by:** Asian Development Bank
Period of assignment: 1996 - 1999	**Location**: Java, Indonesia
Project Value: Unknown	**WRA services**: £50 000
In co-operation with:	

Map showing the project area

Background

Floods cause extensive inundation of paddy land and residential areas and they damage infrastructure in the lower reaches of many rivers in Java. Some damage occurs in most years. High littoral drift along the coast blocking the river mouths seasonally and the high sediment loads in the rivers, compound the problem. Water leaving the river can return only at points further downstream and when the flood has passed.

This project included investigation of the historical flooding, river modelling to aid design of flood protection and river-mouth works, as well as coastal and river morphological studies to improve the quality of design.

Monitoring of construction and the benefits provided by the project relative to present conditions are given particular attention.

Scope of work by Water Resource Associates Ltd

Overview of river modelling and the interpretation of overbank flows in terms of depth and area of flooding.

Development of databases for socio-economic data to evaluate present base-line conditions. These data are linked with digital maps held in a GIS.

Development and training in the use of other databases covering project monitoring and evaluation, and the continual monitoring of construction, costs and payments.

Results

Overbank flooding could not be modelled effectively using conventional flood plain models; the flood plains are too complex. Alternative approaches based on terrain modelling were devised and tested against historical evidence of inundation.

Novel linkages were developed between the mapping and the databases by defining all physical and flooding attributes on a hectare grid basis. In this way, data abstracted from the maps could be transferred to a database for processing and analysis - sometimes involving links with Fortran programs.

Considerable interest was shown by Government for application to other areas and other types of project.

Project Number 000001

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