

WORKSHOP

**FINANCING AND PRIVATE
SECTOR PARTICIPATION IN
WATER RESOURCES PROJECTS**

6th November, 1998
New Delhi, India

PROCEEDINGS

Editors

C.V.J. Varma
N. Visvanathan
A.R.G. Rao

Organised by

The Indian Committee on Large Dams (INCOLD)

Central Board of Irrigation and Power (CBIP)

Committee for International Geosynthetic Society - India (CIGSI)

Geographical Committee of International Water Resources Association (India)

CO-ORGANISERS

**JAIPRAKASH INDUSTRIES LIMITED
NATIONAL HYDROELECTRIC POWER CORPORATION LTD.**

SPONSORS

**BHAKRA BEAS MANAGEMENT BOARD
CENTRAL WATER COMMISSION
CONTINENTAL CONSTRUCTION LTD
ESSAR PROJECTS LIMITED
GAMMON INDIA LIMITED
HINDUSTAN CONSTRUCTION COMPANY LIMITED
IRRIGATION DEPARTMENT, GOVERNMENT OF MAHARASHTRA
IRRIGATION DEPARTMENT, GOVERNMENT OF RAJASTHAN
KARAM CHAND THAPAR & BROS. (C.S.) LIMITED
PATEL ENGINEERING COMPANY LIMITED
SKANSKA INTERNATIONAL CIVIL ENGINEERING AB**

SUPPORTERS

**HOUSING & URBAN DEVELOPMENT CORPORATION LTD.
KVAERNER ENERGY a.s.**

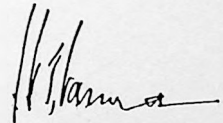
Foreword

Construction of Water resources projects in many countries till recent times was undertaken by the governments concerned especially the developing countries. In such countries, these projects suffered usually from constraints of funds leading to delay in completion of the projects with consequent time and cost over runs. Besides benefits that accrue due to these projects were inordinately delayed leading almost to economic stagnation. It is incumbent that water resources projects are completed within minimum time to facilitate rapid all around development in all spheres.

With globalisation, combined with economic liberalisation, has lead to reassessment for inviting adequate financing through private sector participation in water resources projects. Any private investor will look forward to reasonable return on the finance invested by him on such projects. While drinking water supply or hydro power projects may adequately compensate the private investor by the anticipated revenue, the scenario is different in case of irrigation projects, which generally do not give adequate returns considering the low water rates prevailing. For sustained development of water resources for accelerated economic growth, private financing must be ensured by providing adequate incentives.

There are many success stories in this regard in many countries in raising private finances for water resources projects. In the days to come, private financing will be much in vogue. To enable exchange of experiences a half day's Workshop on "Financing and Private Sector Participation in Water Resources Projects" has been arranged during the 66th ICOLD Annual Meeting in which about nine papers, focussing on financing of water resources projects, will be presented. It is hoped this workshop will be of immense benefit to the delegates. The authors are to be congratulated for contribution of papers.

The various organisations, which supported the workshop financially, deserve our heartfelt gratitude.



C.V.J. Varma
Chairman ICOLD

Contents

Foreword	iii
Organising Committee	vii
Finance Committee	viii
Technical Committee	ix
1. Private Sector Participation in Irrigation Sector – <i>A.S. Kapoor</i>	1
2. Financing and Private Sector Participation in Urban Water Supply Projects : Indian Experience – <i>V. Suresh</i>	10
3. Benefits of Risk Management - Underlying Thinking and Recent Examples – <i>Jean Binquet, Ascensio Lara and Bernard Tardieu</i>	21
4. Implementation and Financing Strategy for Three Gorges Project – <i>Zhang Jinsheng, Xu Keda and Dai Huichao</i>	29
5. Assessing the Options of Large Hydro Power Project Financing – <i>R.P. Dubey, A.K. Ganguly and D.K. Mitra</i>	46
6. Privatization of Irrigation Management in Damanganga Irrigation Project - A Conceptual Case Study – <i>B.J. Parmar and B.M. Rao</i>	60
7. Private Sector Hydro Power - Promoter's & Financier's Perspective – <i>N. Visvanathan and R.N. Misra</i>	72
8. Modalities for Private Sector Participation in Irrigation Projects – <i>Ram Kishore Gupta</i>	83
9. Private Sector Participation in Irrigation Sector - Optimisation of Project Benefits by Enhancement of Storage by Gated Control in Existing Water Resources Projects – <i>M. Gopalakrishnan and A.K. Bajaj</i>	91