

CONTENTS

Foreword	(v)
----------	-----

HYDRO POWER POLICIES AND DEVELOPMENT STRATEGIES

Discussion Papers

1. Existing policies of hydro power construction in Maharashtra – V.D. Bafna and V.N. Pendse	I-1
2. A vision for hydropower development in India – S.C. Sharma and S. Javed Mohsin	I-11
3. Exploitation of hydropower potential of Himachal Pradesh – Vision 2020 and beyond – Devendra K. Sharma	I-19
4. Strategies in the hydro power development – K.G. Natesan, A. Stephen and T. Amutha	I-25

Communication Papers

5. Impediments-in and catalysts-for speedy hydro development (hydro-civil aspect) – Pavan Kumar Kohli, Ajit Kumar Awasthi and Trilok Chand Sharma	I-37
6. What ails speedy and cost - effective implementation of hydro-power projects? – Pavan Kohli, S.K. Gupta and A.K. Awasthi	I-47

HYDROLOGY AND PLANNING

Discussion Papers

1. Planning of a hydro project with derisory data – V.G. Bhawe and M.S. Shitole	II-1
2. Advantages of runoff simulations of Himalayan rivers in hydropower generation – Pratap Singh	II-12
3. Prediction of floods of various return periods using L-moments for sub-Himalayan region – Rakesh Kumar and R.D. Singh	II-17
4. Development of hydropower in Dibang basin Arunachal Pradesh – H.S. Mina, S.K. Dubey and Vikram Ravuru	II-27
5. Linear programming for optimal multi-reservoir operation – A case study – K.G. Karnik, S. Mruthunjaya and T.S. Balaraman	II-36
6. An evolutionary approach to hydrothermal scheduling – E. Nallathivan and S. Ravichandran	II-49

Communication Papers

7. Rainfall trends over Himachal Pradesh, western Himalaya, India
– *Vijay Kumar, Pratap Singh and Sharad K. Jain* II-63
8. Geotechnical appraisal of underground power house, Dibang
multipurpose project, lower Dibang valley district, Arunachal Pradesh
– *S.S. Ameta, S.S. Garhia, and Jaydip Mukherjee* II-72
9. Geotechnical evaluation of a concrete dam in Narmada valley,
Madhya Pradesh
– *Mohd. J. Ahmed and Rolf Wilhelm* II-82
10. Rock mass characterization at power house complex of Ghatghar
pumped storage hydroelectric project, Thane, Maharashtra
– *J.M. Shirke, B.K. Saha and A.K. Ghosh* II-100

DESIGN ASPECTS

Discussion Papers

1. Key design aspects of intake structures for hydro power projects -
A case study for Larji HEP (126MW) HP
– *Dharam Paul Gupta, Rajesh Mohan Gupta and Pavan Kohli* III-1
2. Improvisation of construction and design of surge shaft in
Dhauliganga hydroelectric project (Uttaranchal) India
– *Vishal Kumar Saini and A. Narayana* III-10
3. Diversion of Satluj for Koldam – Some design concepts
– *Arvind Kumar, C. Vasudevan, Vipin Arora and Y. Appa Rao* III-24
4. Prediction of throw distance and maximum scour location
downstream of flip-bucket spillway
– *H. Md. Azmathullah, M.R. Bhajantri, V.V. Bhosekar
and P. B. Deolalikar* III-34
5. Selection and procurement of steel plates for cost and
time effective design of penstock with special reference to
UHL hydroelectric project (100 MW)
– *Anirudh Raj Gupta and A.K. Awasthi* III-44
6. Restoration of peaking benefits of 1500 MW Nathpa
Jhakri hydroelectric project
– *R.S. Chauhan, J.P. Mahajan, H.K. Sharma and Ranjodh Singh* III-56

Communication Papers

7. Use of polypropylene and steel fiber reinforced concrete in
water resources sector
– *A.K. Mullick* III-67
8. Nonlinear heat transfer analysis in mass concrete
– *Vinod Batta* III-77
9. Experimental study on labyrinth spillways for higher discharges
– *Devadutta Das, Nayan Sharma and Gopal Das Singhal* III-89

INSTRUMENTATION AND ELECTRO-MECHANICAL & HYDRO-MECHANICAL EQUIPMENT

Discussion Papers

1. Recent developments for electro-mechanical equipment in hydro projects
– *P.S. Agrawal and Y.P. Taneja* IV-1
2. Instrumentation in desilting chambers of Tala hydroelectric project in Bhutan Himalayas
– *Sripad, K. Sudhakar, R.N. Gupta, Rajbal Singh and D.P. Goyal* IV-16
3. Dam instrumentation - With reference to 60.5 m high concrete gravity dam of 1500 MW Nathpa-Jhakri hydroelectric project
– *H.K. Sharma* IV-26
4. Importance of on-line sediment monitoring for hydroelectric projects - A case study
– *H.K. Sharma, Y.N. Apparao and Ranjodh Singh* IV-35
5. Problems encountered and lessons learnt - An NHPC experience
– *S. Krishnamurthy and Sanjay K. Jain* IV-42

Communication Paper

6. Instrumentation in hydroelectric power projects : A study of Chamara hydroelectric project stage-I
– *Virender Salman* IV-55

SMALL HYDRO POWER DEVELOPMENT, ENVIRONMENTAL ISSUES AND PRIVATE SECTOR PARTICIPATION

Discussion Papers

1. Development of private small hydropower
– *A.K. Goel* V-1
2. Performance testing of hydropower stations :
Need, scope and recommendations
– *H.K. Verma, Arun Kumar, R.P. Saini and B.K. Gandhi* V-8
3. Mini hydel project at Tungabhadra dam high level canal sluices – A case study under private sector
– *T. Viswanatha Sastry* V-15
4. Prospects of hydro power development in the backdrop of Kyoto protocol
– *Devadutta Das* V-28
5. Private sector participation in hydropower development in Himachal Pradesh
– *S.P. Bansal* V-37

Communication Paper

6. Water quality status of Dindi reservoir in AP state - A case study
– *S. Ramakrishnaiah, P. John Victor and R. Vishwanatham* V-47

CONSTRUCTION ASPECTS

Discussion Papers

1. Engineering marvels of 126 MW (low head and discharge intensive)
Larji hydroelectric project in sub-mountainous Himalayas
– Pavan Kohli and A.K. Awasthi VI-1
2. Time and cost aspect of tunnel construction in weak rock mass
in Bhutan Himalayas
– Rajbal Singh, Subhash Gupta, R.K. Saini, D.P. Goyal and
R.N. Khazanchi VI-11
3. Erection of silt flushing gates - A case study
– H.K. Sharma and D. Wadehra VI-20
4. Load testing of anchorage system for radial gate –
A review of relevance
– Mukulesh Debnath VI-28
5. Repair, rehabilitation and retrofitting of steel fibre reinforced
shotcrete (SFRS) in desilting chambers at Nathpa Jhakri power project
– H.K. Sharma VI-34
6. Contract management in development of a hydropower project
– A.S. Chaudhary, D.P. Goyal and R.N. Khazanchi VI-44

Communication Papers

7. RCC dam - Design and layout considerations - A case study of
Ghatghar hydroelectric project Maharashtra state
– P.R. Bhamare, V.D. Kulkarni and I.S. Chaudhari VI-55
8. Vibratory compaction in the construction of rock-fill dams and highways
– Jagman Singh VI-65
9. A co-ordinated approach adopted for accelerated progress of civil works
of diversion barrage structure of Larji hydroelectric project (126 MW)
– Pavan Kohli, Ajay Patial and B.S. Mann VI-76
10. Milestone of 2100 m tunnelling in Dhauliganga HE project –
A case study
– S.K. Aggarwal and K.D. Sah VI-83
11. Back slope treatment in the powerhouse of Parbati hydroelectric
project stage-II, Himachal Pradesh, India
– A.K. Mishra, R.G. Virmani and J. Sahni VI-92

SILTING & SEDIMENTATION PROBLEMS AND REHABILITATION & RESETTLEMENT

Discussion Papers

1. R&M initiatives at silt affected Salal power station
– V.K. Kanjlia and V.K. Singh VII-1
2. Abrasion resistant measures for structures on rivers with high concentration of sediments with reference to diversion barrage and desanding basin of 126 MW Larji hydroelectric project
– Pavan Kohli, Ashok Sharma, Sunil Thakur and Arun Kapoor VII-8
3. Review of storage capacity and effect of siltation on some major and mini hydropower schemes in Maharashtra
– D.M. More, A.M. Deshmukh and S.K. Kalvit VII-17
4. Sedimentation studies for Loharinag Pala project
– V.G. Bhawe, Neena Isaac and M.S. Shitole VII-27
5. Delta formation in Bhakra reservoir
– N.K. Bhatia and K.K. Garg VII-38
6. Planning, implementation and monitoring of environmental and social aspects of Indira Sagar project (1000 MW), in MP on Narmada river, India : A success story
– S.K. Dodeja and V.B. Bhatt VII-46

Communication Paper

7. Strategies of resettlement and rehabilitation for project affected families
– Brahmeshwar Kumar VII-67

BIOGRAPHICAL DETAILS OF THE AUTHORS

1