

## Report on presented paper at Hydro-2014 International Conference

1. Paper Code:- HYDRO-14\_376\_1

### Title:- FUZZY LOGIC BASED MODELLING OF RESERVOIR OPERATION: A CASE STUDY OF UKAI DAM, TAPI BASIN, INDIA

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**Abstract:** The emerging soft computing technique of fuzzy logic can be efficiently used for reservoir operation. A fuzzy rule based model is developed to derive operating rules for the reservoir. Operation rules are generated on the basis of various criteria's such as hydropower, industrial and irrigation demands, flood control as per rule level and downstream flow regulation. The fuzzy rule-based model operates on an "if-then" principle, where the 'if' is a vector of fuzzy input variables or premises and 'then' of fuzzy consequences. The reservoir storage level, inflows and demands are used as the premises and release from the reservoir is taken as the consequence. Split sampling of historical data such as 10 Daily time series of inflow, elevation, demands, and releases are used to train and validate the rules. The fuzzy logic based model is developed for Ukai Reservoir. Different statistical parameters and indices are computed for assessing performance of developed model. The computed and predicted releases are in fair agreement for the fuzzy logic based model.

**Keywords:** Fuzzy Logic: Reservoir operation, fuzzy logic, fuzzy rules, decision making, optimal releases.

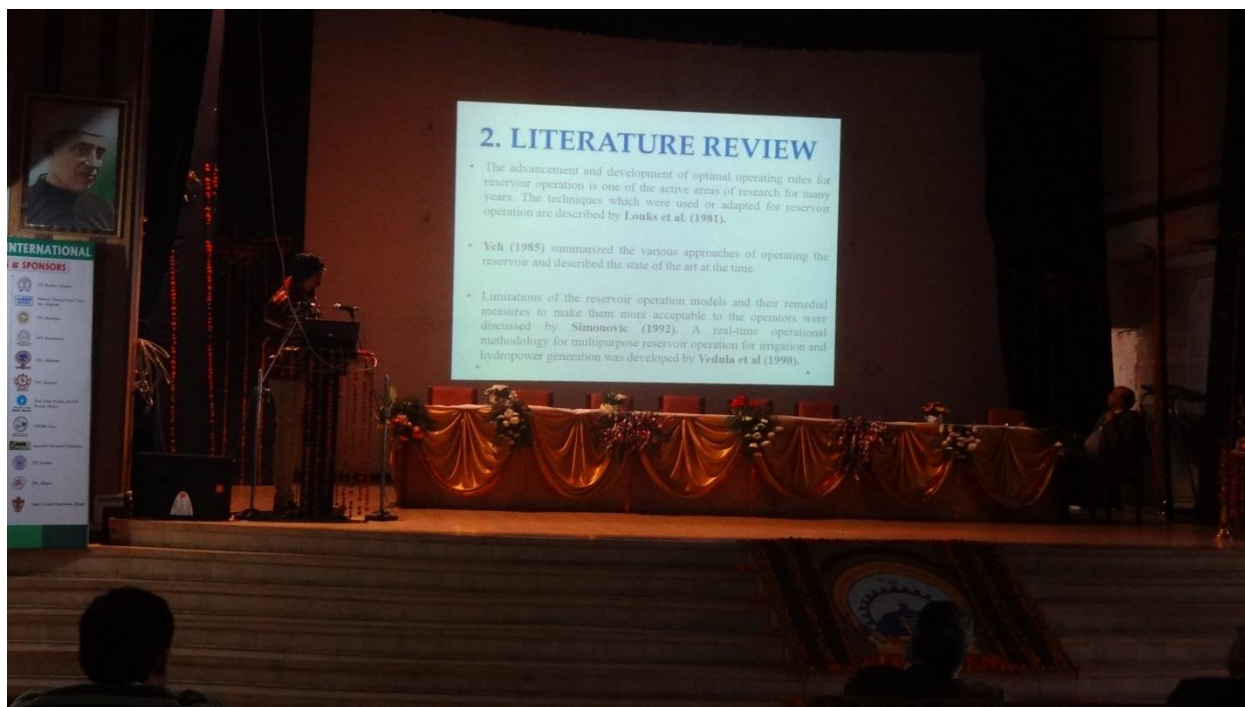
## Brief About Hydro-2014

Hydro 2014 means 19<sup>th</sup> International Conference on Water Resources, Coastal and Environmental Engineering (HYDRO 2014), one of the main well known International conference organized in country and hosted by renowned IIT's and NIT's. This time it was organised by Maulana Azad National Institute of Technology, (M.A.N.I.T.) Bhopal from 18/12/14 to 20/12/14. The papers were invited in main 15 themes of water resources and environmental. Hydro-2014 organisers received about 400 abstract and 300 full length papers and around 290 papers were selected for paper presentation. Among 290 papers 30 papers of authors those are ISH (Indian Society of Hydraulics) members, were published in ISER Journal and 120 were selected for main ISBN International conference publication's book. The ISBN no. for the published book is ISBN: **978-93 -84935-04-7**. Among those 120 papers in 290 my paper (Utkarsh Nigam, Asst. Prof., SRPEC, Unjha) has been also selected for publication.

Registration was completed on the first day i.e. 18/12/14 at 08: 30 AM -10:00 AM and my scheduled presentation was on 20/12/14 in Technical session no. 25 between timings 11.30 AM to 01.00 PM. The brief schedule, and keynote lectures timings are written as below.

## Brief Schedule, Invited Talks and Key Note Lectures

<i>Date</i>	<i>Time</i>	<i>Programme</i>
18/12/14	08: 30 AM -10:00 AM	Registration at SAC (Radha Krishnana Auditorium) Ground
18/12/14	10:00 AM - 11:00 AM	Inauguration at SAC (Radha Krishnana Auditorium)
18/12/14	11:00 AM - 11:30 AM	High Tea In front of SAC
<i>Sr. No.</i>	<i>Key-Note Lecture</i>	<i>Key Note Lecturer</i>
1	Key Note-1 & S N Gupta Memorial Lecture, Date:18/12/14, Time:11:30 AM – 12:00 N	MULTICRITERION DECISION MAKING IN SUSTAINABLE WATER RESOURCES PLANNING <b>Prof K Srinivasa Raju</b> Student Activity Centre, SAC, MANIT, Bhopal, MP.
2	Key Note-2, Date:18/12/14, Time: 12.00 N – 12:30 AM	MODERN TOOLS AND TECHNIQUES IN HYDROLOGY <b>Dr R D Singh</b> Student Activity Centre, SAC, MANIT, Bhopal, MP.
3	Key Note-3, Date:18/12/14, Time: 12.30 AM – 01.00 AM	REJUVENATION OF RIVER GANGA: TECHNICAL AND SOCIETAL ISSUES <b>Dr C S P Ojha</b> Student Activity Centre, SAC, MANIT, Bhopal, MP.
4	Key Note-4, Date:19/12/14, Time: 09.30 AM - 10:00 AM	WATER-ENVIRONMENT-ENERGY-FOOD (WEEF) NEXUS <b>Dr. V P Singh (USA)</b> Student Activity Centre, SAC, MANIT, Bhopal, MP.
5	Key Note-5, Date:19/12/14, Time: 10:00 AM – 10:30 AM	COMPARISON OF SURFACE DRAINAGE SCHEMES IN DIFFERENT PARTS OF WEST BENGAL <b>Prof V R Desai</b> Student Activity Centre, SAC, MANIT, Bhopal, MP.
6	Key Note-6, Date:19/12/14, Time: 10:30 AM - 11:00 AM	DISCHARGE ESTIMATION AND RATING CURVE DEVELOPMENT AT UNGAUGED RIVER SITES <b>Prof Muthiah Perumal</b> Student Activity Centre, SAC, MANIT, Bhopal, MP.



**Picture 1. During Presentation**



**[(Left to Right) Darshan Mehta, Jignesh Pingul, Prof. Vipin Yadav, Dr. V.P. Singh, I(Utkarsh Nigam), Rahul Yadav, Gaurav Nimana]**

**Picture 2. With Dr. V.P. Singh, Distinguished Professor, A&M, University, Texas, USA.**





**Picture 3. At HYDRO-2014 International Conference**



**Picture 4. [(Left to Right: Jignesh Pingul, I (Utkarsh Nigam), Organiser Hydro 2014, Dr. H.L.Tiwari (Secretary Hydro-2014), Organiser Hydro 2014, Rahul Yadav, Gulshan Yadav, Gaurav Nimana)]**