Dr. RAKESH HOOJA MEMORIAL LECTURE

Indian Institute of Public Administration
New Delhi

THIRD DR. RAKESH HOOJA MEMORIAL LECTURE

ON

GOVERNANCE FOR WATER SECURITY IN 21ST CENTURY: FRAMING OF INSTITUTIONAL CHOICES

(November 22, 2017)

by

Prof. Dinesh K. Marothia

Member, State Planning Commission,
Chhattisgarh and President,
National Institute of Ecology

Proceedings Edited by

Prof. C. Sheela Reddy

Chair Professor
Dr. B.R. Ambedkar Chair in Social Justice

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INDRAPRASTHA ESTATE, RING ROAD, NEW DELHI-110002 (INDIA)

T.N. Chaturvedi
Chairman, IIPA
Former Governor of Karnataka
Former Member of Parliament (R.S.)
Former Comptroller & Auditor General of India

Tel : 011 -23705927 (O)
011 -23702400
95120-4214025 (R)

FOREWORD

I am happy to learn that the Third Rakesh Hooja Memorial Lecture is being published. It is indeed a matter of privilege for IIPA to organize Memorial Lectures in honour of Dr. Rakesh Hooja, who was Director, IIPA from August 2010 to September, 2012. He was also a distinguished administrator of Rajasthan Cadre of the IAS and an academic in his own right. This lecture of 2017, the third in the series, was delivered by Dr. Dinesh K. Marothia, a renowned planner and academic in the field of agriculture, on the subject 'Governance for Water Security in 21st Century: Framing of Institutional Choices'. The question of water security is assuming more and more of grave dimension, and wider public awareness of the problem requires to be understood by citizens and others concerned. Action to meet the problems caused due to water security brooks no delay by government as well as other agencies involved.

Undoubtedly, with scarcity of water and sometimes drought and floods, management of water is a key aspect of governance. Water is the source of life and as Rahim said *'rahiman paani raakhiye, binpaani sab soon... paani gaye na ubere moti, manus, choon'*.

I am sure students, scholars and administrators of water resources will find this lecture useful. We are happy to note the contribution that Mrs. Meenakshi Hooja and her family are making to make this series a success. Shri Shekhar Dutt, Dr. T. Chaterjee, Prof. C. Sheela Reddy, faculty of IIPA and other staff have worked hard to make

this possible. It is our endeavour that the lecture series continue not only as an honour to Rakesh's contribution to Public Administration and IIPA but also become valuable for those who seek scholarly practical knowledge and wisdom. I recommend the memorial lecture for circulation to all stakeholders.

T.N. Chaturvedi

ACKNOWLEDGEMENTS

The Indian Institute of Public Administration (IIPA) organized the Third Dr. Rakesh Hooja Memorial Lecture on November 22, 2017. The Memorial Lecture on 'Governance for Water Security in 21st Century: Framing of Institutional Choices' was delivered by Prof. Dinesh K. Marothia, Member, State Planning Commission, Chhattisgarh and President, National Institute of Ecology. Shri T. N. Chaturvedi, Former Governor of Karnataka and Chairman, IIPA presided over the event.

My deep and warm gratitude goes to Shri T. N. Chaturvedi, Former Governor of Karnataka and Chairman, IIPA, for taking keen interest in organizing the event. I am highly beholden to him for writing a foreword to this Memorial Lecture.

I express my gratitude to Shri Shekhar Dutt, Former Governor of Chhattisgarh and Vice-President, IIPA for his guidance and support in organizing the lecture. He was kind enough to suggest Prof. Marothia who has made a significant contribution on the theme to deliver the lecture.

My sincere and heartfelt thanks are due to Dr. T. Chatterjee, Director, IIPA for his support and guidance. I wish to place on record my sincere gratitude to Mrs. Meenakshi Hooja, for constantly being in touch with IIPA, rendering timely advice and facilitating the smooth conduct of this Memorial Lecture.

I am deeply indebted to Prof. Dinesh K. Marothia for setting the stage of this publication by delivering an insightful and erudite lecture.

Last but not the least, my special thanks are due to the Publication Division, IIPA for their contribution in giving a shape to this publication. I would be failing in my duty if I do not acknowledge the support received from Shri Anil, Computer Operator, Dr. Ambedkar Chair in Social Justice for the assistance.

C. Sheela Reddy

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WELCOME AND OPENING REMARKS

Dr. C. Sheela Reddy

This is a solemn occasion as we remember and celebrate the life and achievements of Dr. Rajesh Hooja, an administrator who had a profound academic orientation. On behalf of Indian Institute of Public Administration, it gives me immense pleasure to accord a warm welcome to all on the occasion of the Third Dr. Rakesh Hooja Memorial Lecture. The lecture is being organised in the honour and memory of Dr. Rakesh Hooja who served as Director, IIPA from August 6, 2010 to 7th September, 2012. We are honoured to have amidst us Prof. Dinesh K. Marothia, Member, State Planning Commission, Chhattisgarh and President, National Institute of Ecology, who has kindly consented to deliver the Third Rakesh Hooja Memorial Lecture on the topic 'Governance for Water Security in 21st Century: Framing of Institutional Choices'. We are also privileged to have on the dais, Padmavibhushan Shri T.N. Chaturvedi, Former Governor of Karnataka and Chairman, IIPA, Shri Shekhar Dutt, Former Governor of Chhattisgarh and Vice-President, IIPA, Dr. T. Chatterjee, Director, IIPA and Mrs. Meenakshi Hooja, wife of late Dr. Rakesh Hooja. I am happy that the participants of 43rd Advanced Professional Programme in Public Administration (APPPA) are attending the lecture. Under the aegis of the Department of Personnel & Training, Ministry of Personnel, Public Grievances and Pensions, Government of India, APPPA is a ten months' programme, designed for senior officers of the All India Services, Central and Defence Services. I extend a warm welcome to them.

Dr. Rakesh Hooja was a versatile genius with wide knowledge and varied interests. He had the aptitude for regular work and willingness to take up every responsible task. He had a yearning for lifelong learning. Dr. Hooja emphasized on inter and multi disciplinary approach to critical analysis of problems. He was always conscious of the need to work diligently and had right balance between professional, personal and social interests. The areas of administration and governance were dear to him and wrote extensively on them. He advocated for a combination of techniques to train officers at different

levels in administration to develop required knowledge, skills and attitudes.

It is a proud privilege to us at IIPA and me personally to organize the Third Dr. Rakesh Hooja Memorial Lecture. We await to hear from Prof Dinesh K. Marothia, an eminent Agricultural and Natural Resources Economist, currently Member (Non-official), State Planning Commission, Chhattisgarh and President, National Institute of Ecology. With revered scholastic accomplishments, he has been making unwavering efforts for over four decades to promote teaching, research and public policy analysis in agriculture, natural and environmental resource economics and to support natural resources programs in the context of India and developing countries. He held many distinguished positions in universities, Central and State governments, national and international organizations.

Prof Marothia was Member and Chairman of the Commission for Agricultural Costs and Prices, Government of India, served as Decentralization Expert and Team Leader, European Commission State Partnership Programme in Chhattisgarh, Senior Research Fellow, International Centre for Research in Agro-Forestry (World Agroforestry Centre), South Asia. He is also National Expert for project on Managing Common Pool Resources in Eastern States (Orissa and Chhattisgarh) for Poverty Reduction which is a GoI & FAO Initiative, International Expert for IFAD Capacity Building Program designed for agricultural officers of Ministry of Fisheries and Agriculture, Government of Maldives.

For his outstanding achievements and contributions to agricultural and natural resources teaching, research and policy making, he was elected President of the Indian Society of Agricultural Enrics (ISAE) in 2009, President (Agricultural Sciences) of the Indian Academy of Social Sciences in 1998, and President National Institute of Ecology(NIE)

Presiding over today's function is Shri T. N. Chaturvedi, Chairman, IIPA, an IAS officer of the 1950 batch of Rajasthan Cadre. He held a large number of senior positions of repute in Government of India that headed crucial Ministries such as Home, Education and Justice. He was elected to the Rajya Sabha in 1992 and re-elected in 1998. He

earned respect and recognition for his role as Governor Karnataka. He has been guiding the destiny of the Institute with distinction. I consider it my privilege to welcome him.

I extend a warm welcome to our Director, Dr. T. Chatterjee, Former Secretary, Ministry of Environment & Forests. He has been the driving force behind this Memorial Lecture.

ABOUT Dr. RAKESH HOOJA

(24th November, 1950 – 7th September, 2012)

Dr. Rakesh Hooja was born in London on 24th November, 1950. He spent his early childhood in London, Delhi, Shimla and Rajasthan. He did his Indian School Certificate (ISC) Examination from St. Xaviers, Jaipur in 1966. Later, he obtained his B. A. Honors and M.A. in Political Science from the University of Rajasthan, Jaipur. Dr. Hooja taught Political Science and Public Administration for a brief period before he joined the Indian Administrative Service in 1974 and was allotted to the Rajasthan Cadre. He became the Director, IIPA on August 6, 2010. He had long innings of 36 years in Indian Administrative Service (IAS). Dr. Hooja went on to become the Chief Secretary to the Government of Rajasthan. Earlier, he was Additional Chief Secretary, Development and Training, Development Commissioner and Chairman Board of Revenue for Rajasthan. He was the Director of HCM Rajasthan State Institute of Public Administration, Jaipur. He was the Joint Secretary in the Ministry of Home Affairs in charge of Jammu & Kashmir Affairs under the Government of India (1997 - May 2004). Dr. Hooja's prior assignments under the Government of Rajasthan include District Collector of Jaipur and Sikar, Project Officer, Marginal Farmers and Agricultural Labourers Agency, Ajmer, Additional Area Development Commissioner, Chambal, Command Area Development (CAD) Project at Kota. He was Special Secretary, Agriculture Special Schemes, Director & Special Secretary Agriculture Marketing, Special Secretary Education, Director, Rural Development, and Area Development Commissioner, Indira Gandhi Canal Project, Bikaner. Dr. Hooja also served as the Vice Chancellor of Rajasthan Agriculture University, Bikaner. He was Secretary, Energy Department, Secretary CAD and Water Utilization Department-cum-Commissioner for Agriculture Development Project (March 1994 to October 1997) and Chairman and Managing Director, Rajasthan State Industrial Development and Investment Corporation Limited, Jaipur.

Dr. Hooja took voluntary retirement from IAS in 2010 on his appointment as the Director, IIPA. He was known for his integrity, uprightness and commitment to his duty. The contributions of Dr. Rakesh Hooja have been testified by numerous awards and

certificates including the President of India Silver Medal for Census 1981, State Government Cash Award and merit certificates for books on District Planning (1988) and on Management of Water for Agriculture (2007). He was the recipient of the T. N. Chaturvedi Annual Prize 2009 for the best article published in Indian Journal of Public Administration. Dr. Hooja has the distinction of being declared as one of nine Outstanding Young Persons of India for the year 1981 at the Calcutta National Convention of Indian Jayees. The Second Administrative Reforms Commission of India has acknowledged Hooja's contribution (between 2006 and 2009) in the preparation of a number of its reports. Government of India's IAS Induction Training Syllabus Review Committee (Vaidyanathan Aiyar Committee) has acknowledged Dr. Hooja's contribution in deliberation and preparation of its report (2005-2007). He played a major role in framing the Government of Rajasthan State Training Policy 2008.

Dr. Hooja's credentials testify his multi-faceted personality. A prolific writer, he authored several books, articles and book reviews. His areas of interest were wide and diverse. Among others, they include development studies, public policy, land-water management, decentralized and district planning, rural development, public administration and governance, training and capacity building, state and district administration, panchayati raj, development administration, reforms in higher education, project formulation, participatory irrigation management and management of desert and semi arid areas, federalism, administrative theory and management, urban development, globalization, disaster management, civil service and administrative reform. His writings had vertical depth and broad horizontal spectrum in integrating issues that ranged from measurement issues of a khasra in a village to participation in irrigation management, to functioning of Panchayats, to civil service training and forms of federal system in a globalizing world. He had in-depth knowledge of grassroots level problems which stood him in good stead in shaping and implementing programmes and policies at different stages.

Apart from the academic and professional life, Dr. Rakesh Hooja, as a person, was affable, amiable and accessible to his friends and colleagues. He was also known for his warmth and compassion. Dr. Rakesh Hooja may not be physically with us. But, his legacy inspires and sustains us.

DIRECTOR'S REMARKS

Dr. T. Chatterjee
Director, Indian Institute of Public Administration

Dignitaries on the Dias, Prof. Dinesh K. Marothia, Mrs. Meenakshi Hooja, Ladies and Gentlemen, I welcome you all to this Third Rakesh Hooja Memorial Lecture sponsored by Mrs. Meenakshi Hooja. Dr. Rakesh Hooja Memorial Lecture is an annual feature of IIPA since 2015. The lecture is organized with the support of Mrs. Meenakshi Hooja, in honor and memory of Dr. Rakesh Hooja who served as Director IIPA from August 06, 2010 to September 07, 2012.

Dr. Rakesh Hooja combined in himself the qualities of an able administrator and an equally outstanding academic. He had a passion and an exceptional aptitude for writing. His extensive writings on diverse subjects such as Governance, Public Administration, Water Resources, Panchayati Raj Development, Federalism etc. bring out his understanding of the subject from the grassroots to the national and international level.

The First Dr. Rakesh Hooja Memorial Lecture on 'Challenges of Administration in the 21st Century' (November 19, 2015) was delivered by Shri Ajit Seth, a distinguished administrator, Former Cabinet Secretary, Government of India and also a batchmate of Dr. Hooja.

The Second Dr. Rakesh Hooja Memorial Lecture on 'Bridging Gap Between Academia and Administration' (December 07, 2016) was delivered by Dr. N. C. Saxena, Former Secretary of Planning Commission and a doyen of academic administrative writing, who has been providing practical solution oriented writing about vexing administrative and developmental problems of our country.

Dr. Hooja made immense contribution to the theme of today's lecture through his writings on Participatory Irrigation Management, Conservation of Water in Agriculture and Industrial Sectors, Water Users Associations, Management of Water for Agriculture: Irrigation, Watershed and Drainage, Users in Water Management: The Andhra model and its replicability in India etc. Hence, the theme of Third

Memorial Lecture, 'Governance for Water Security in 21st Century: Framing of Institutional Choices' is a fitting tribute to Dr. Hooja. We are privileged to have Prof. Dinesh K. Marothia to deliberate on the theme.

I thank Mrs. Meenakshi for sponsoring this program and hope that IIPA continues to organize this event, year after year, which is thematic and relevant for officers of today and tomorrow.

REMARKS

Mrs. Meenakshi Hooja

Respected T.N. Chaturvedi Ji, Chairman, IIPA, Shri Shekhar Dutt Ji, Vice-President, IIPA, Director, Dr. T. Chatterjee, Prof. C. Sheela Reddy, Dr. Marothia, very distinguished guests, APPPA participants, friends, family, faculty and staff of IIPA. I am indeed grateful to IIPA for organising the Third Rakesh Memorial Lecture. The previous two lectures were held in 2015 and 2016, and as brought out, were delivered by Shri Ajit Seth and Shri N.C. Saxena and were a matter of great satisfaction and IIPA has also brought out brief booklets on them. Today, Dr. Marothia is here and we look forward to his lecture on a topic dear to Rakesh's heart. In this regard, I express my deep gratitude to Shri T.N. Chaturvedi Ji for his constant encouragement, Shri Shekhar Dutt Ji for taking the initiative for today's lecture, Dr. Chatterjee for his regular support, Dr. C. Sheela Reddy and all staff for carrying out this task with so much passion, commitment, patience and interest.

Some of the distinguished guests present in this audience may know Rakesh and many others may not. Rakesh was greatly attached to IIPA as an institution and became a life member very early. In 1973, he published an article in the Indian Journal of Public Administration (IJPA) in the issue of July-September, on the District Collector, when he was in the University of Rajasthan. Though he wrote regularly, he was very happy and excited to get the Best Article Award in 2009 and, of course, it was a sheer delight for him to get an opportunity to be Director, of IIPA.

Born in London, in U.K., to Usha and Bhupendra Hooja, Rakesh had his early education in Delhi and later in Rajasthan where his father was posted during his service. He did most of his schooling at St. Xavier's, Jaipur where he really got all-round training, including reading widely, writing prolifically and became the editor of X-Rays, which was the prestigious school journal. The school also encouraged him to take part in sports, games, drama, debates. He distinguished himself in a range of activities, but always remained humble and modest. He did his graduation from Rajasthan College and M.A.

from Department of Political Science, Rajasthan University and joined the Indian Administrative Service in 1974. He was a reluctant entrant, as some may know. But, once he got into the service, he worked with a deep sense of commitment and duty. He had the opportunity to serve the Government of Rajasthan as Collector, Jaipur, Sikar, Additional Area Development Commissioner (AADC) at Chambal, Command Area Development (CAD) Kota, Commissioner at Indira Gandhi Nahar Project (IGNP), Bikaner, Joint Secretary, J&K in Government of India, Chairman, Board of Revenue for Rajasthan, and Director, HCM, RIPA. He was widely travelled within Rajasthan, in India and abroad, including USA, U.K., Argentina, Brazil Ethiopia, Egypt, Spain, Nepal, Sri-Lanka, etc and tried to understand the way the world operated at the grass-roots, national and global level.

As I endeavoured to catalogue his writings, even I was quite stumped by the sheer volume and numbers, of which he kept a meticulous record. It was indeed a discovery even for me that he had more than 500 writings, including books, articles, book reviews in the field of Public Administration, Development, Panchayati Raj, Water Resources, Governance etc. Even as a student, he wrote for the Enact Junior Statement, Illustrated Weekly. Therefore, I am particularly glad that IIPA has invited Dr. Marothia, a distinguished academic and a planner on the subject of Water Resources and Agriculture on which Rakesh himself wrote quite extensively and some of his writings are also displayed outside this hall. The subject covered in these publications include CAD at Kota, IGNP, Drainage and Irrigation, Participatory Irrigation Management (PIM), Settler Motivation, Agriculture, Area Development Training. Rakesh was also member of many agencies, including PIM etc.

Rakesh and I knew each other since we were students and often competed in debates. But we came much closer when posted in Ajmer. We really had a compatible and enjoyable life together with Rajat and Rakshat (our sons) who were born in 1977 & 1979 respectively. As a family, we enjoyed our postings, travels, friends and, of course, compulsive reading and writing. Rakesh also always encouraged me to write poetry and helped a great deal in its publications for which many people often say that he had an unstoppable passion.

For us in the family, Rakesh has left behind a huge intellectual legacy which we have to carry on. This lecture series is a very vital link and a way by which we are supported in our goal.

Once again, I thank all at IIPA and specially Dr. Marothia for agreeing to deliver this lecture despite his health problems. I am sincerely thankful to all the distinguished guests, friends, family, faculty, APPPA participants, members and staff of IIPA, who have taken the trouble and made a special effort to attend the lecture. Thank you.

Dr. RAKESH HOOJA MEMORIAL LECTURE "GOVERNANCE FOR WATER SECURITY IN 21st CENTURY: FRAMING OF INSTITUTIONAL CHOICES"

Prof. Dinesh K. Marothia
Member (Non-official), State Planning Commission, Chattisgarh and President, National Institute of Ecology

Shri T.N. Chaturvedi, Chairman, IIPA and Hon'ble former Governor of Karnataka, Shri Shekhar Dutt, Vice-President, IIPA and Hon'ble former Governor of Chhattisgarh, Dr. T. Chatterjee, Director, IIPA, Mrs Meenakshi Hooja and family members of Dr. Rakesh Hooja, Dr. C. Sheela Reddy, Chair Professor, Dr. B.R. Ambedkar Chair in Social Justice, IIPA, distinguished invitees, faculty of IIPA, participants of 43rd APPPA, ladies and gentlemen. I am deeply honored to deliver the Third Dr. Rakesh Hooja Memorial Lecture at IIPA. My brief but quality acquaintance with Dr. Rakesh Hooja makes it especially pleasurable to be invited here.

I am aware that my two distinguished predecessors have added intellectual layers, reflecting on contribution of Dr. Hooja, to our understanding connected to 'Challenges of Administration in the 21st Century' (Shri Ajit Kumar Seth) and 'Bridging the Gap between Academia and Administration' (Dr. N.C. Saxena). Today, at this great institute of administrative learning, I will be talking about Governance for Water Security in 21st Century from an institutional perspective. I have chosen this topic for two reasons. Firstly, Dr. Hooja had incalculably contributed to water policy research, implemented successfully several water-centric rural livelihood and irrigation management projects and mentored numerous water professionals in the process[1]. Secondly, for nearly four decades now, I have been concerned with the role of institutions in sustainable development of renewable natural resources in general and water resources in particular.

I put together thoughts and writings that have evolved over 40 years of research and learning[2] for this lecture. I have also drawn inference from the writings of other scholars who have contributed in water management and also from Dr. Hooja's writings to establish links between water resources, institutional design and livelihood within the broad framework of decentralized or distributed governance. I have gone through almost all the possible papers which I could lay hands on, published by Dr. Rakesh Hooja and I also had an opportunity to interact with the common friends who have been associated with him so that I can get a feeling of his perseverance for water conservation beyond the academic writings which are in black and white. This lecture aims therefore to honor the legacy of Dr. Rakesh Hooja, emphasizing good governance for water security, particularly in agriculture sector, a concern he was deeply passionate about. I will briefly cover in this lecture issues pertaining to water governance and relevance of institutional choices, intersectoral use conflicts, institutional reform in surface and groundwater, convergence between water centric technologies and institutional mechanisms and few emerging governance issues. It is necessary therefore to establish a link between water governance and institutional choices.

I

Water Governance and Institutional Choices

Growing water scarcity problems, competition and conflicts among users pose a serious policy and institutional challenges to policy makers, water managers and researchers in India. It is rather ironical and immensely unfortunate that a country so beautifully endowed with such glorious historical tradition of water management is the epicenter of a deepening global water crisis. Population, economic growth and changes in technological parameters had led to rising demand for water for human and livestock consumption, food production and industrial uses, while opportunities for supply augmentation are becoming prohibitively expensive. One of the common issues in the management of water resources in India is the dominance of agriculture as a water user and the political determination/costs of reallocating water away from this sector to other. Designing institutional structures for governing demand and supply management is increasingly important for coping with

increased water scarcity and intersectoral allocation (Marothia, 2003a, Ballabh, 2008, 2010b). Institutions can be considered as a social tool for management of water scarcity and uncertainty. Institutions are capable of minimizing vulnerability, scarcity, conflict and of enhancing sustainable management of water resources. When resource scarcity is high and the competition for resource use is important, there can be social demand for reforming the existing technological and institutional structures in order to increase productivity of a resource and optimize co-ordination for their interdependent uses (Hayami and Ruttan, 1971, North, 1990). Evolving appropriate institutional arrangements is fundamental to solving the water resource management problem (Vaidyanathan, 1999; Marothia 2003a,b, 2010a). Privatisation and market allocation of a basic common pool resource such as water is neither feasible nor desirable, and therefore the government must play a major role, but one which is very different from its current disposition. It needs to involve user representatives in system management. While the broad directions of the necessary institutional reform are rationally clear, working out its details and implementing them is far from easy. The design of appropriate institutions in the face of variations in agro-climatic situations, agrarian structure and other socio-economic-cultural aspects is complex and implementing the reforms is even more tricky (Vaidyanathan, 1999; Marothia 2003b, 2010a).

Natural resources like water and land are managed and controlled through technical and institutional arrangements. Technical arrangements effectively provide direction to use technologies or growth promoting inputs including water, in the production process of particular crops or farm based activities. The institutional arrangements define ownership and management over the resources and how the technologies or innovations can be applied and scaled up. Technological and institutional arrangements must go together if resources are to be used efficiently, equitably, and sustainably (Gibbs and Bromley, 1989). For example in creating small village common ponds under Mahatma Gandhi National Rural Employment Guarantee Programme (MGNREGP), physical and technical attributes play vital role to ensure rain water retention capacity for life saving irrigation at critical crop growth stages. Institutional arrangements can effectively define mechanism for water sharing among farmers and

labour contribution in maintaining ponds. The nature of institutional arrangements defines the extent of property regime over land, water and other renewable resources. Rights and duties characterising the relationship of co-users to one another with respect to a specific natural resource should be clearly identified and defined (Bromley, 1991).

Property rights in resources exist either under State property regime (resource ownership with the government) or private property regime (resource ownership with individuals or corporation or company) or common property regime (collective ownership by members of organized group) or open access (ownership over resource is non-functional) (Bromley, 1991, Gibbs and Bromley, 1989, Ostrom1990, Challen, 2002). These four categories of resource governance or property rights/tenure regimes have been extended to distributed governance by Townsend and Polley (1995) to recognize that the governance or management of a resource can be shared among States, communities or groups and individuals in a variety of modes at different decision making levels. I have applied Distributed Governance Framework to study efficiency of canal irrigation, village ponds and tank irrigation and multiuse small wetlands. I will be sharing some broad lessons during the course of the lecture.

The basic requirement for any property regime is an authority system (for example, Central or State Governments/Panchayats/ resource development committees/user groups/water users associations/FPOs/SHGs) that can guarantee the tenure security for the rights holders (resource users). When the authority system breaks down, a particular resource regime or tenure arrangement commences depleting. Under such a situation, new institutional arrangements are crafted to define the tenure regimes over natural resources and the authority systems protect the interests of those (resource users) holding the rights or ownership under a particular tenure regime (based on Bromley and Cernea, 1989 CPRs work and Bromley, 1991 writings on Property Rights and Public Policy, Marothia, 1997a, 1997c 2002b,c 2010a on restoring Common pool resources including water resources).

In the Indian context, most of the agricultural technologies and specifically water intensive technologies are adopted by the individual

farmers under private property regime and the incentives in terms of subsidised inputs and diffusion of technological components have also been targeted towards private landowners. Individual cultivators under private property regime may over-exploit water, land and other resources and can potentially create spatial and temporal damages (Marothia, 1997b, 2010a). Most agricultural technologies including water resource intensive and water resource conservation technologies have an element of interdependence between (among) farmers or between (among) users (Marothia, 1997b). Policy failures provide the rationale for improvement of institutional structures, property rights, entitlement and authority system for minimising conflicts and competition between and among multiple use and users of water resources. It is crucial to make sure that the current technological interventions and institutional mechanisms have strong convergence component for sustainable development of water resource or other rural resources (Gibbs and Bromley, 1989). The concepts discussed herein are used in this lecture to examine the opportunities for enhancing sustainable management of water resources in the agriculture sector.

II

Status of Water Resources and Intersectoral Use Conflicts

As far as sector-wise use of water resources is concerned, nearly 84 percent of the country's water is used to irrigate agricultural crops. The industrial sector uses about 12 percent and about 4 percent of the water is consumed for domestic needs. The average consumption per person per year for all uses is around 680 cubic meters, but, it is projected to increase. Demand projected for water in all sectors put together would be much in excess of total average utilisable water resource. In his study, Ballabh (2006) had analysed intersectoral water use competition and conflicts. In the absence of well defined property rights regime, for example, in river or stream flow, surface water resources are *de-facto* open access regime and as a result the riparian doctrine does not encourage socially optimal use of water. The upstream State or region over-appropriates water resources, if a river basin cuts across state boundaries, leading to inter-State conflicts (Ballabh, 2008). Conflicts due to industrial and municipal pollution in water streams, irrigation system and diversion of water to cities and

municipalities from reservoirs are leading to further conflicts among different user sectors. The competitive deepening of wells for irrigation has also adversely affected quantity and quality of drinking water availability in rural areas (Agrawal and Narain, 1997; Ballabh, 2006). Competitive deepening makes the distribution of access to groundwater increasingly skewed in favour of large, resource rich farmers leaving the small farmers at an increasing disadvantage in sharing the benefits of well irrigation (Vaidyanathan, 1996, 1999; Ballabh, 2006). It is imperative to design alternative institutional structures to minimise intersectoral conflicts and competition and to work out the static and dynamic transaction costs emanating from such alternative institutional arrangements (Marothia, 2010b, see also contribution of Hooja, 2003b).

III

Institutional Reforms in Irrigation Management

There is widespread agreement about the need to enhance efficiency of water use and sustainability of irrigated agriculture. However, institutional deficiencies are at the root of the water resource management problems. To this end, I discuss briefly the decentralised interventions in canal, tank and groundwater irrigation management.

Participatory Canal Irrigation: It has been adequately documented that the economic gains from surface irrigation in many projects are not commensurate with the large public investments and subsides given to the farmers (Gulati and Narayanan, 2003; Vaidyanathan, 1999; Marothia, 2002a, 2005b, 2010b). The failure of many large, medium and small irrigation projects to deliver projected benefits to farmers beyond pipe outlets clearly indicates the limitation of State control over canal irrigation, water and inadequate understanding of the fact that the physical and technical attributes of canal irrigation put water resource under the category of common pool resources which is used by numerous farmers under the private property regime (Marothia 2002a, 2005b). Also, efficient and equitable water distribution of canal water among different categories of farmers and across head, middle and tail canal water flow depends upon technical and institutional arrangements. It has recently been claimed that involvement of farmers in managing irrigation systems either

through Participatory Irrigation Management (PIM) or Irrigation Management Transfer (IMT) can effectively arrest the erosion of huge irrigation capital built at a massive investment, increase water and land productivity and improve the farmers well being (Marothia, 2005b). However, PIM programmes have disproved many anticipated benefits even in the States or regions they are generally considered successful (see in-depth analysis by Shah, 2009 on future of flow irrigation). Hooja had written extensively on different phases of implementation of PIM and added ground level insights for making the PIM work (see Hooja 1993b, 1997d, 1998, 1999, 2003a, 2005b, 2006a; Hooja, Pangare and Raju 2002).

In India the impact of Water Users' Associations (WUAs) under PIM arrangements is mixed. They are functioning effectively in isolated cases and have failed largely in other areas. The key reason for the successful WUAs may be attributed to effective functioning of technical and institution arrangements at the main canal system, below the outlet and at the community/farm levels and continuous efforts to invest in capacity building of WUAs (Marothia, 2001b; 2005c,2010b). The sustainability of PIM largely depends on political and the bureaucratic will to share power with farmers and create an apolitical environment for the smooth functioning of WUAs. Due to huge transaction costs associated with system control and poor absorption capacity of the WUAs for transaction costs, they occasionally form on their own and have to be constantly supported (Shah, 2009). Under such situation new institutional arrangements have to be crafted to induce desirable patterns of interactions among farmers and water managers. The new institutional arrangements may reduce transaction costs in long run besides creating environment for collective action and self governance of irrigation water across head, middle and tail ends. Hooja (1997c, 2002, 2004) had analysed many parameters critical for democratic sustainability of WUAs.

Irrigation Institutions: A few successful cases of irrigation cooperative societies and water users' organizations working in the command area of river basins have been documented in past three decades. Distributed governance/shared resource management has been the key to success of these institutions. In most of these cases, the State Department of Irrigation facilitated the formation of

cooperatives and is still maintaining the main water course. However, the internal institutional arrangements related to an equitable and efficient water distribution, recovery of the irrigation fees and maintenance and repairs of the canal system are designed and enforced by the members of the societies (see Marothia, 2002b, 2010b). In the Rajasthan context, Hooja (1979, 1991a,b, 1993a,b, 1997a, 2001) documented functioning of institutional structures at different stages of command area development in Indira Gandhi Irrigation Canal and suggested workable solutions.

Participatory Tank Irrigation Management (PTIM): For several centuries, tanks are used by village communities as common pool resources for irrigation and in many cases for aquaculture and domestic activities under common property regime. Tanks are time saving, cost-effective, micro climatic benevolent and viable solutions/ traditional technology to ensure water and food security. Tanks today lie in the state of bad shape due to rapid adoption of pump irrigation technology in the command and catchment areas of tanks which in turn have basically altered the organic relationship between tanks and tank users communities (Marothia, 1992, 1993, 1995, 2015, Shah *et al. 2002*, Palanisami and Ramasamy, 1997, Raju *et al.* 2003). A few State governments also initiated PIM through WUAs to improve the performance of tanks in terms of water allocation and distribution, water fee collection and infrastructural maintenance and repair. State Department of Water Resources and Tanks User Association (TUAs) jointly participate in rehabilitation process. Tank rehabilitation has largely been a donor driven programme. Donor driven programme have only a short time framework. Thus, even well meaning NGOs, which would like to promote community participation in donor programmes, end up doing nothing but physical rehabilitation (see Shah, 2002; Shah *et al.* 2002, Raju *et al.* 2003).

Groundwater and Property Rights Issues

Ownership of groundwater, under the existing legislative framework, is tied with the ownership of land in India, and the landowners have the right to extract the groundwater beyond any time until it is available (Singh, 1991). The landowner can use the groundwater and market it to other potential users and locations.

Property rights to groundwater are complicated due to the fugitive nature of aquifer, the size of aquifers, the seasonal and secular nature of aquifers and the capability of more than one user to knock the same aquifer. Groundwater is thus neither a true open access resource because of the ability to extract groundwater is limited by well ownership, nor a common property resource as it lacks an identifiable group of users having co-equal use rights (Ciriacy-Wantrup and Bishop, 1975; Veeman, 1978; Marothia, 1997b, 2003a, 2010b). This puts pressure on availability of water for competitive uses. Indiscriminate use of bore well technology for groundwater extraction at phenomenal rates, growing emphasis on cash cropping irrespective of water availability, very low or flat power tariff rates, and ineffective legislative structures are the major factors for mismanagement and contamination of groundwater (Mukherji and Shah, 2002, Saleth 1994).

To use water in the scarcity areas efficiently, equitably and sustainably, Pani Panchayats have designed intra-and inter-institutional linkages. The success of Pani Panchayats in Maharashtra can be attributed to robust institutional design (based on home grown design principles for dynamic process of institutional design). An unanswered question in this case is whether resource scarcity always induces institutional change or at what level of scarcity can institutional change or organizational innovation be reasonably expected. Institutions like Pani Panchayats can be replicated on a large scale particularly in groundwater scarcity zones for an efficient and equitable distribution of water, promoting a less water intensive cropping pattern and effective enforcement of the rules and regulations by Panchayats (Deshpande and Jyotishi, 2002). However, the intra-and inter-institutional linkages of the Pani Panchayat model of Maharashtra has to be graduated into polycentric or distributed governance mechanism if it has to be replicated in different socio-ecological setting to manage multi-use water bodies or other CPRs (Marothia, 2010b). Tube well companies and tube well cooperatives have also performed well in Gujarat. Such hybrid forms of user organizations which have combined features of water user association and irrigation service markets need to be revisited for more extensive research to know the effectiveness of design principles for institutional performance (Shah, 2009).

IV

Convergence between Water Centric Technologies and Institutional Mechanisms

Designing appropriate water-saving irrigation systems, critical analysis of impact of pricing of power and electricity subsidy to agriculture, increasing level of cross subsidization, performance of state electricity boards, legal and regulatory tools, crop diversification through low water requirement crops, revising existing legislative structures to control mismanagement of groundwater, conjunctive use of tank and well irrigation, strengthening the role of cooperatives or group-oriented system, adoption of river basin approach are the effective ways to sustain quantity and quality of surface and groundwater (Joshi, 2002, Rathore, 2002, Shah, 1993, Dhawan, 1995, Vaidyanathan, 1996, Saleth, 1994; Palanisami and Ramasamy, 1997, Marothia, 2003a).

Rainwater harvesting and watershed development can meet the people's basic needs as also improve food and livelihood security. Initially started as soil and water conservation programmes, watershed management has undergone many paradigm shifts over the years. From the mid-1990's, watershed management emerged as a new paradigm for transparency, decentralization, people's participation, planning, development and integrated management of natural resources with a focus on imaginative social and institutional processes. This has now further graduated to place added emphasis on livelihoods, equity, gender, poor, landless, asset less and non-land based income generating activities (Rao, 2000, Marothia, 2010b). Even with new unified approach, "Common Guidelines for Watershed Development Projects-2008" (NRAA 2008), the most important consideration, implementation of watershed programmes required designing multilayered institutions to minimize conflicts at various levels of governance (see Marothia 2005a, 2010b for institutional architecture in watersheds; also see Hooja 2005a and 2006b for watershed programme performance in Rajasthan).

There can be no better strategy for water management and improving water security than promoting farm ponds and restoring traditional tanks. This will facilitate groundwater recharge and/or

retention of water, which improves soil moisture, helps increase the green cover, and traps silt and nutrients that can be recycled to fields at intervals of three or four years. Planting fruit and fodder trees around the ponds will prevent evaporation losses, and yields income from fodder or fruit. They can contribute to the national effort to mitigate climate change through long-term carbon storage. Water can be withdrawn from deeper tanks (4-6 m) by installing solar panels to energies small pumps. This will not only save energy from the grid, but may also be able to feed the grid. The use of micro-irrigation will help reduce water consumption and optimally use the harvested water (Gopal and Marothia, 2016). Fish can also be raised in ponds where the water stays for several months (Marothia, 1997C, 2012). Once the ownership of farm ponds and their benefits are assured, farmers will readily adopt new measures. Appropriate property rights and an institutional hierarchy have to be established to restore and manage common water bodies under the Repair, Renovation and Restoration (RRR) scheme and *Pradhan Mantri Krishi Sinchayee Yojana* (Marothia, 2012, 2015; Gopal and Marothia, 2016).

Hydroponic techniques for cultivating high value crops and nutritional cattle fodder provide water and nutrients optimizing solutions. My experience in China, Maldives, other south Asian countries and field work in Chhattisgarh and other Indian States confirms this adequately. Some Agriculture Universities have also conducted such experiments at multi-locations with encouraging findings. Hydroponic fodder production technique can reduce burden on village common lands and can be promoted by village Panchayats to meet fodder requirements for farm animals. Cluster farming, common pool farming systems, Farmers Producers Organizations are also emerging as resource saving and income multiplier innovations in tribal areas of Chhattisgarh and elsewhere. Farmer groups have achieved economies of scale in few crops like vegetables and flowers through adopting complete value chain system.

Drip and sprinkler irrigation technologies have appealed initially to large and commercial farmers for cultivating plantation and high value crops. In recent years, attempts have also been made by NGOs to adopt these technologies and promote them as income-livelihood-creators for the poor in water scarce areas of the country (IWMI-

Tata Water Policy Program, 2003). Drip and sprinkler irrigation technologies are also being adopted by Farmers' groups with technical support from Krishi Vigyan Kendras (KVKs) even in paddy dominated rainfed areas of Chhattisgarh. With drip system paddy bunds in Chhattisgarh are also being converted to nutritional bunds by introducing cultivation of fruits, vegetables, pulses and drumsticks. Farmers have designed informal institutional arrangements and enforced them for efficient functioning of the system. Such lessons can also be replicated in eastern Indian States. Affordability, supply chain, water, credit, power and electricity pricing and availability, awareness, market linkages and income levels are the major issues in scaling up micro-irrigation technology to the masses (IWMI-Tata Water Policy Program, 2003).

Water quality continues to deteriorate in the rivers, canals, tanks, village ponds, streams and groundwater in several parts of the country. The main sources of water pollution are domestic sewage, industrial effluents and agriculture run-off. Arsenic, fluoride and even cocktail of contamination have emerged as a big problem in some parts of the country. Rapid depletion of water quality is the major factor for health hazards of human and livestock population in many parts of the country displacing large number of people from their surroundings and reducing their status to environmental refugees. Efforts should be directed towards understanding the groundwater-drinking water linkages and quantifying the socio-economic impact of arsenic, fluoride and other chemical contamination of groundwater. Alternative technologies for wastewater treatment, economic incentive structures to minimise pollution to the prescribed standards, roles of Central and State Groundwater Boards and State and Central Pollution Control Boards, Water Pollution Control Laws need a hard look. An understanding of the water-food-energy nexus in the wider context of natural ecosystems and their ecosystem services is essential to develop strategies for achieving water, food and energy security in a climate changing world. The implications of water-food-energy-climate change nexus extend to the entire domain of the United Nations Agenda for Transforming Our World through Sustainable Development by 2030.

Solar-based desalination has been a game changer for remote locations like Solawata, a small village in Jaipur district barely 10

kilometers away from Sambhar-India's largest saline lake in Rajasthan, which is off the water-energy grid. Prayatna Sansthan, an affiliated local partner NGO of Barefoot College, Tilonia, has been actively working here since the 1990s on community-based sustainable solar solutions. Prayatna had long been working on the fabrication and installation of solar components that go into various solar lighting solutions like lanterns that are adopted by the villagers. The installation of the plant came as a breather to the people here as the village did not have a single source of sweet water. There is strict rationing of water and each household gets water as per its needs. The *Pani Samiti* does surprise checks to find out if households are wasting potable water. The waste water from the plant is used by the households for other domestic purposes like washing clothes and bathing. The idea is to make pure water available every single day for drinking and recycle wastewater. This way, communities that lack clean drinking water can get it with minimum energy footprint and in a decentralised manner (based on India Water Portal 29.06.2017 Story). The State needs to invest in these systems to encourage renewable energy technologies. Such innovations need scaling up in other parts of the country. Similarly desalination technology of seawater is emerging as a solution to global water crisis. India too can benefit from it. Desalination technologies are advancing rapidly, and sea water can now be reclaimed (India Water Portal, 10.06.2017 Story). However, choice of the suitability of the technology and institutional arrangements are important.

V

Emerging Governance Issues

Before I conclude, I would like to bring to your attention four recent water governance issues that require serious debate. First, several attempts had been made to document the wetlands in the country after India joined the Ramsar Convention as a Contracting Party in 1981 and designated 26 wetlands under the Ramsar Convention. The Ministry of Environment, Forests and Climate Change has issued DRAFT Wetland Conservation and Management Rules 2016 which will replace the Wetland Conservation and Management Rules of 2010. These rules empower the States to make their own Rules and identify wetlands within the State. The DRAFT

Rules of 2016 require that the concerned State Government or Union territory shall prepare a report for each of the wetland identified for notification, providing certain basic information. The Rules also provide for the setting up of State Wetland Authorities with a recommended composition that provides for representation of several concerned Ministries/Departments and experts from different disciplines. A few States, including Chhattisgarh, have recently constituted State Wetland Authority under the 2010 Rules but these authorities are yet to become fully functional**.** Ecosystem services linking with appropriate institutional mechanism can ensure sustainable development of wetlands (Marothia, 2001, 2004, 2015; Marothia, *et al*., 2017, Gopal *et al.*, 2016; Gopal and Marothia 2017, Gopal, Marothia and Prakash, 2017).

Secondly, in recent years, irrigation experts and political leadership have placed a heavy emphasis, based on successful Integrated River Basin Management (IRBM) evolved over centuries in European nations, U.S.A. and Australia, on transferring of water from one river basin to another with a view to meeting the requirement of water-short areas. According to Shah (2002) in most of the developing countries, these models have failed because they are not designed to deal with the climate and hydrological conditions, demography, socio-economic and strong community institutions for managing monsoon rains. In India, water management centers on rainfall and has not managed water (Shah, 2002). Expensive mega projects with large reservoirs such as the Ken-Betwa link take decades to plan, design, and implement, and cause enormous environmental damage (Gopal and Marothia, 2015, 2016). These reservoirs have failed to solve our problems. This was expressed succinctly by the Chief Minister of Maharashtra, Devendra Fadnavis, in the State Assembly on 21 July 2015*, "Maharashtra has the country's 49 percent large dams, but 82 percent area of the State is rainfed. We have moved away from our vision of watershed and conservation… we did not think about hydrology, geology and topography of a region before pushing large dams everywhere. But this has to change."* The viable alternative, which can be implemented speedily with the active participation of the people at a very low cost, is returning to traditional tanks and farm ponds. Recognizing the importance of Common Pool Resources (CPR) in general and water bodies in particular, the Supreme Court

of India noted in a judgment on 28 January 2011, "*our ancestors were not fools. They knew that in certain years there may be droughts or water shortages and water was also required for cattle to drink and bathe. Hence, they built a pond attached to every village, a tank to every temple"*. It directed all state governments to prepare schemes for the eviction of those occupying water bodies and other village commons and to restore them to the community. Unfortunately, there has been petite compliance with this directive so far.

Thirdly, the Ministry of Water Resources, River Development and Ganga Rejuvenation has prepared a National Water Framework Bill (NWFB, May 2016) which places special emphasis on integrated river basin development and management, as also on river rejuvenation as central pillars of national policy. Recognising that *"water in all its forms constitutes a hydrological unity.. .."* and also *"the integral relationship between surface and groundwater"*, it stresses that *"each river basin, including associated aquifers, needs to be considered as the basic hydrological unit for planning, development and management of water, empowered with adequate authority to do the same"*. The NWFB lays further emphasis on river rejuvenation and enjoins the appropriate government to *"strive towards rejuvenating river systems with community participation"*. Thus, it is becoming clearer that water governance must consider participatory community-based approaches for managing water resources at village and farm level.

Fourthly, is the Mihir Shah Committee Report (July 2016) entitled *"A 21st Century Institutional Architecture for India's Water Reforms"* calling for a restructuring of the country's two main institutions- the Central Water Commission and the Central Ground Water Board. The Committee recommended the setting up of a fully autonomous and accountable, multi-disciplinary National Water Commission (NWC) *"as the nation's apex facilitation organisation dealing with water policy, data and governance"*. The NWC with its presence in every river basin was to be charged with the responsibility of, *inter alia*, 'improved water resource management and water use efficiency' and 'create an effective promotional and regulatory mechanism that finds the right balance between the needs of development and environment, protecting ecological integrity of nation's rivers, lakes, wetlands and aquifers, as well as coastal systems'.

While reflecting on the theme of this lecture, I believe, if Dr. Rakesh Hooja had been around, he would have given us a lucid and comprehensive assessment of the on-going water resource reforms at the face of climate change. I pay my tribute at this hour to the intellectual legacy of Dr. Hooja and once again would like to thank Shri T. N. Chaturvedi, Chairman, IIPA, Shri Shekhar Dutt, Vice-President of the IIPA, Dr. Chatterjee, Director of the IIPA for this rare opportunity given to be with you here today, and I thank all of you for giving me a patient hearing.

NOTES

1. Hooja, R. (1979, 1991a, 1991b, 1993a, 1993b, 1997a, 1997b, 1997c, 1997d, 1998, 1999, 2000, 2001, 2002, 2003a, 2003b, 2004, 2005a, 2005b, 2006a, 2006b)

2. *This lecture is heavily drawn from my work on water governance spanning from 1981 till today (cited in reference list) jn*

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PRESIDENTIAL REMARKS

Shri T. N. Chaturvedi
Former Governor of Karnataka and Chairman, IIPA

We have had a very comprehensive coverage of a subject, the complexities of which we are hardly aware of. Water, as such, is a very dry subject and a difficult problem. The institutional arrangements made so far have failed to deliver and achieve the desired results. In many of the institutional arrangements, the problem is that of technologists vs. technologists dilemma. There are many groups who give diverse opinions and the Government and the people are quite indifferent about the long-term implications of this problem.

As mentioned in the lecture, the Supreme Court directions are also not being carried out. Water scarcity has been an international problem for the last three or four decades which is linked with the problem of climate change. The complexity of the issues gets more and more accentuated but the kind of focussed attention that is called for, somehow or the other, does not seem to be there. Probably, the institutional arrangements may differ also from region to region, but they have to be implemented, with utmost sincerity. I was very glad to see that Prof Marothia has also tried to link what Dr. Rakesh Hooja contributed in this particular area through his writings and books. Rakesh Hooja, a civil servant, was both a thinker and a man of action, a rare kind of personality. I am glad that a number of distinguished public servants happen to be here this forenoon to listen to this lecture and also remember Dr. Rakesh Hooja. Rakesh Hooja himself was the inheritor of an intellectual legacy. The family that he belonged to had a very deep and intense Arya Samaj influence and social orientation. I remember when I was in Rajasthan, his grandmother, trying to motivate and activate the younger officers of Rajasthan cadre to go to slums and villages to awaken the women in rural areas and even in different parts of the city. His uncle himself, an IAS officer, was a very senior colleague of mine. He took a lot of interest and it was not just an official interest, but complete identification with the problems of National Extension Service, Community Development, etc. that were discussed at that point of time. Similarly, Dr. Hooja's father, who was with the B.B.C., through special recruitment came and

joined the IAS much later was posted to Rajasthan. He had the same kind of proclivities and tendencies of social security. He himself did a lot of work and was also interested in literature and the revolutionary movement etc. He was the first to locate what have now come to be known as the Notebooks of Bhagat Singh and published in different versions by different publishers. Meenakshi Hooja also comes from a family of academicians and distinguished civil servants. Her father, another senior colleague of mine, was a public servant of his own kind, an old St. Stephens Graduate, and very outspoken on a number of things. He would always call a spade a spade. He might even call a spade, something much more, but that was in tune with his interest in *sher-o-shairi,* Urdu poetry and *shikar.* But one serious thing which I might note, listening as a layman to the lecture, is that the water problem is a complex one which is discussed nationally and internationally. I was on the Executive Board of UNESCO and I found that problem was raised in almost every session, and later on in the General Body because the Middle-Eastern countries and South-Asian countries had the same problems. But, unfortunately, solutions have not yet been found. So far as our country is concerned, I think one of the biggest problems is that we talk of cooperative federalism but do not operationalize it. Our Constitution makers also framed our Constitution in such a manner that the States and the Centre will work harmoniously. But somehow or the other, that is not happening in most of the cases.

The persisting conflict between Karnataka and Tamil Nadu over Cauvery waters is a case in point. The concept of cooperative federalism is much talked about, but unfortunately, the spirit of the same seems to be missing to tackle issues related to water between the Centre and States. Now, for almost a year, we have been reading in the newspapers about the situation of water in Delhi and surrounding areas. Prof. Marothia also referred to the contamination of water at different places. In Karnataka, in two or three *Tehsils* of districts, the bones of the children are affected by fluoride. In Eastern U.P., parts of Bihar and West Bengal the same kind of contamination of water exists. I recall that I had the opportunity to be present during the First Memorial Lecture by Ajit Seth, when he addressed us and gave an insight into the working and the policies of the Government. He gave a very lucid lecture which was wide-ranging

and was published later. Unfortunately, because of my own personal reasons, I could not attend last year's lecture despite my interest in how to bridge the gap between academia and administration, the vision of the founding fathers of IIPA. I am happy that Prof. Marothia has spoken on a subject to which the attention of the people and authority has to be drawn again and again.

On behalf of the Institute, I thank Prof. Marothia, the distinguished 43rd APPPA participants and audience who are present here this morning. I must thank Prof. C. Sheela Reddy and her colleagues who have organised this programme. Thank you all very much.

CLOSING REMARKS

Dr. C. Sheela Reddy

Prof. Dinesh K. Marothia shared his rich experience and expertise on the theme of the lecture. His educative, informative and analytical lecture covered many issues systematically and sequentially. He made things easy for us in understanding a topic involved with lot of complexities. Notwithstanding his busy schedule, Prof. Marothia could make it convenient to deliver the lecture. We are deeply indebted to him for his invaluable insights. Despite his sensitive health, he wanted to honour this commitment because he had given a word to deliver the Memorial Lecture.

I am profusely thankful to Shri T.N. Chaturvedi Ji, distinguished Chairman, IIPA for his erudite presidential remarks. His constant support and guidance enthuses all of us at IIPA to work with renewed vigour and spirit.

I am extremely grateful to Shri Shekhar Dutt Ji, Vice-President, IIPA for his benign presence and taking keen interest in organising this event.

I express my sincere thanks to Dr. T. Chatterjee, Director, IIPA for his inspiration and encouragement in all our endeavours. His timely suggestions and advice facilitated the smooth conduct of this lecture.

I also express my gratitude to Mrs. Meenakshi Hooja who has worked very hard and planned this event. This event would not have been possible but for her persistent and enduring efforts.

My heartfelt thanks to all the invitees, including the family, friends of Dr. Rakesh Hooja, 43rd APPPA participants, faculty and staff of IIPA for their presence.

My special thanks to Shri Ajit Kumar Seth, Prof. S.N. Mishra, Dr. Yogendra Narain, Shri U.C. Agarwal and Prof. Arvind K. Sharma for their presence.

I thank wholeheartedly the entire administration, IIPA, specifically Shri Amitabh Ranjan, Registrar, IIPA and Shri Mithun Barua, Deputy Registrar, Academic Support for making the timely arrangements.

Last but not the least, I thank Shri Vinod Tiwari and his staff in our R&C Unit, and the staff on Ambedkar Chair, Mr. Anil for their support.

I would be failing in my duty if I do not thank Dr. Mamata Pathania, my dear colleague and a great support in the APPPA programme.

Finally and personally, it is a matter of gratification to me that I am associated with this event. I always looked up to Dr. Rakesh Hooja for support and advice when I joined the Institute in 2011 when he was the Director.

INVITATION CARD

Director
Indian Institute of Public Administration
New Delhi

Cordially invites you to attend the
3rd Dr. Rakesh Hooja Memorial Lecture
by
Prof. Dinesh K. Marothia
Member, State Planning Commission,
Chhattisgarh and President, National Institute of Ecology
on

"Governance for Water Security in 21st Century: Framing of Institutional Choices"

Shri T. N. Chaturvedi
Former Governor of Karnataka and Chairman,
IIPA has consented to preside

Date and Time: Wednesday, November 22, 2017 at 11:00 a.m.
Venue: Conference Hall, IIPA, Ring Road, New Delhi-110002

R. S. V. P.
Dr. C. Sheela Reddy: sheelachavva@gmail.com
Shri Mithun Barua: 011-23468305

Programme
Overleaf

Programme

11.00 AM – 11.05 AM	:	***Welcome and Opening Remarks*** Dr. T. Chatterjee, Director, IIPA
11.05 AM – 11.10 AM	:	***About Dr. Rakesh Hooja*** Mrs. Meenakshi Hooja
11.10 AM – 11.40 AM	:	***3rd Dr. Rakesh Hooja Memorial Lecture*** Prof. Dinesh K. Marothia Member (Non-official), State Planning Commission, Chattisgarh and President, National Institute of Ecology
11.40 AM – 11.55 AM	:	***Presidential Remarks*** Shri T. N. Chaturvedi Former Governor of Karnataka and Chairman, IIPA
11.55 AM – 12.00 PM	:	***Closing Remarks and Vote of Thanks*** Dr. C. Sheela Reddy Chair Professor, Dr. B. R. Ambedkar Chair in Social Justice

Theme of the Memorial Lecture	Lecture Delivered by	Date
First Memorial Lecture on 'Challenges of Administration in the 21st Century'	Shri Ajit Kumar Seth Chairman, Public Enterprises Selection Board and Former Cabinet Secretary, Government of India	November 19, 2015
Second Memorial Lecture on 'Bridging the Gap between Academia and Administration'	Dr. N. C. Saxena, IAS (Retd.) Former Secretary of Planning Commission	December 07, 2016

SOME PHOTOGRAPHIC GLIMPSES

Lighting of the Lamp: Shri T. N. Chaturvedi, Shri Shekhar Dutt, Dr. D. K. Marothia, Dr. T. Chatterjee and Mrs. Meenakshi Hooja

Shri T. N. Chaturvedi, Dr. D. K. Marothia, Mrs. Meenakshi Hooja on the Dias: Dr. T. Chatterjee presenting a bouquet to Shri Shekhar Dutt

Dr. Marothia delivering the Memorial Lecture

Shri Shekhar Dutt addressing the gathering

Shri T. N. Chaturvedi presenting memento to Dr. K. Marothia

Mrs. Meenakshi Hooja with family and friends over lunch

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