On-line Training of SAARC Professionals on Small, Mini and Micro Hydro Power Generation
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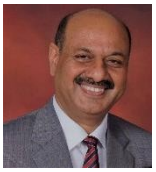
Prof Arun Kumar is a civil engineer with specialization in water resources and hydropower engineering by education is working at Department of Hydro and Renewable Energy, Indian institute of Technology, Roorkee since 1981. He has been awarded MNRE Chair Professor (Renewable Energy) in July 2013 and again in April 2015 by IIT Roorkee. He served as independent director on Board of NHPC Ltd, Govt of India PSU during 2015-2019. His research areas are Hydropower Development, Environmental Management of Water Bodies, Energy Economics and Policy. Prof. Kumar has over 39 years of experience in the field of Hydropower and environmental management of river and lakes. He served CLA for Hydropower on SRREN for IPCC. He has been elected on the board of London based International Hydropower Association and is Vice President of Federation of Indian small hydropower. He is Bachelors in civil engineering and PhD in hydropower from IIT Roorkee, Masters in Civil Engineering from IISc Bengaluru and Hydropower Diploma studies from NTH, Norway. He is Fellow of ASCE, International association of Hydropower, Institution of engineers (India), IWRS. He was appointed as Coordinating Lead Author (chapter 5 on Hydropower) for preparing Special Report on Renewable Energy Sources (SRREN) for IPCC – working group III during 2009–11. He has been involved as international expert in various UN sponsored projects on assessment of small hydropower and Capacity Building in Zambia, Sierra Leone, Tanzania, Cambodia, Sudan and Indonesia.

Prof. Himanshu Jain is an Assistant Professor in the Department of Hydro and Renewable Energy at IIT Roorkee. He has over 10 years of combined research and industry experience in modelling and analysing the impacts of integrating high levels of renewable energy in power systems. Before joining IIT Roorkee, Dr. Jain worked as a Senior Research Engineer and Research Engineer at the National Renewable Energy Laboratory (NREL), Golden, Colorado, USA from February 2017 to February 2021. At NREL, he led projects and tasks worth $1.9 million and worked on several other high impact research projects that focused on improving the reliability and resilience of power systems under high penetration levels of renewable energy resources. Dr. Jain also has two and half years of industry experience having worked at ICF as a Senior Associate and Associate from 2011 to 2013, where, among other things, he led the efforts to develop distribution systems analysis capabilities. Dr. Jain has published 18 peer-reviewed journal and conference articles. He holds PhD, MS, and B. Tech degrees in Electrical Engineering from Virginia Tech, the University of Texas at Arlington, and G.B. Pant University of Agriculture & Technology, respectively.

Prof Sunil Kumar Singal is a civil engineer with specialization in structural dynamics and hydropower engineering by education is working at Department of Hydro and Renewable Energy, Indian institute of Technology, Roorkee since 1984. Presently he is Head of Department of Hydro and Renewable Energy. He has over 36 year experience of research, development, extension and teaching experience in the area of small hydropower and other renewable energy sources. He has been member National committee for development of R&M of SHP stations in Himachal Pradesh and solar and SHP projects in boarder areas for defense establishments in the year 1998. He has worked for developing 27 National Standards/ guidelines for SHP development. He has developed course on Environmental Impact Assessment and Auditing

under National Mission Project on Pedagogy. He has successfully completed many national and international research and development grants, and consultancy projects, and is member of many advisory and editorial boards. He has been involved as international expert in various UN sponsored projects on assessment of small hydropower and Capacity Building in Uganda, Zambia and Cambodia.

Mr. Arun Kumar Tyagi is an electrical engineer with postgraduate in power management. He is working as Chief Project Officer in Uttarakhand Renewable Energy Development Agency (UREDA), Department of Energy, Government of Uttarakhand and has 36 years of progressive experience in the field of renewable energy and energy efficiency. He has developed several innovative and attractive policies in Uttarakhand for the generation of power from hydro, solar, biomass (pine needles), etc through community participation that has resulted not only the green energy generation but also has avoided migration of people from rural hilly places by generating entrepreneurship at the village level. Under his leadership, the Uttarakhand state has been recognized several times by Ministry of New and Renewable Energy (MNRE) & Bureau of Energy Efficiency (BEE) for their outstanding efforts in renewable energy and energy efficiency respectively. During the calamity disaster in Uttarakhand, he has lead the team and ensured the restoration of electricity supply to Shree Kedarnath Temple and camp by restoration of 100 KW SHP on 13 Aug 2013. He has been awarded for "Chief Minister's Excellence and Good Governance Award" for 2019-20, Uttarakhand Eminent Engineers Award-2013. He has been made as an expert in several national and international conferences and involved in several sponsored projects of GiZ, UNDP, ADB etc in Uttarakhand.



Prof. Anand Kumar is currently working as Professor of Practice in Electrical Engineering Department at Indian Institute of Technology, Gandhinagar, Gujarat. Prior to this, he worked as Chairperson of Gujarat Electricity Regulatory Commission & Meghalaya State Electricity Commission. He also served Uttarakhand Electricity Regulatory Commission as Acting Chairperson & Member. He holds Master of Business Administration (Finance) degree and Graduate degree in Electrical Engineering from IIT-Roorkee. He has done Advanced Software Programming training Course from Hitachi, Japan and training in Economics Regulation from National Regulatory Research Institute, at Ohio University USA. Out of some key assignments, was his association in Unbundling and Restructuring of the power sector in Uttar Pradesh and assignments at 4 State Electricity Regulatory Commissions of Uttar Pradesh, Uttarakhand Meghalaya and Gujarat.

Prof Bernhard Pelikan is a civil engineer specialized in hydropower engineering, river regulation, hydromechanics and flood protection. He has been working at the Institute of Water Management, Hydrology and Hydraulic engineering, University of Life Sciences, Vienna, Austria since 1980. Besides his main obligations at the University he served in several activities such as legal expert for "Hydropower exploitation" and 'Flood protection', CEO and owner of a technical engineering and consulting company (since 1990), CEO and senior consultant at Austrian Small Hydropower Association (1986 - 2004), taught at

Carinthia University of Applied Sciences (since 1997), TGM Vienna (2001 - 2018), Technical University of Vienna (since 2006),UNESCO IHE in Delft, Netherlands (2007), Technikum Wien (2009 - 2018), Scientific advisor in UNESCO NBCBN (2006 - 2010), Project evaluator for (a) EC THERMIE project (1995 – 1998), (b)FFG (Austrian Research Promotion Agency) (since 2007) and (c) research council of Norway (since 2008), CEO and Co-owner of Alpenkraft – Energieer zeugungsgesmbH (2006 - 2015), Approved Mediator (since 2003),. President of European Small Hydropower Association (June 2004 – June 2010). Prof. Pelikan participated in a leading function in numerous EU financed projects such as SHERPA, SHAPES, TNSHP, Layman's guidebook on how to develop a small hydropower plant, SHP Stream map and others. He participated in a leading role in the design of approximately 50 SHP mainly located in Austria. His high interest id dedicated to the environmental aspect of SHP engineering focussing on the design of fish bypass facilities. He is owning a patent related to a fish lift. He is an internationally renowned expert in the field of hydropower.

Prof. Mukesh Kumar Singhal has received his B. E (Civil), M. E (Structure) and PhD degree from Indian Institute of Technology Roorkee and is currently working as Associate Professor in Department of Hydro and Renewable Energy at Indian Institute of Technology Roorkee. He is actively involved in teaching, research, development and consultancy work for investigation, planning, designing, preparation of DPRs, technical specifications, techno-economic evaluation reports, costing and financial aspects of SHP projects for last 36 years. He has supervised 76 M. Tech Thesis and published 46 research papers in International/National Journals/ Conferences. His current research include development of software for computer aided planning and designing of civil Works of SHP projects. He is involved in planning, designing the SHP projects and evaluating the DPRs for SHP Projects for different state governments and Private institutions. He has visited U.S.A, Canada, Germany, United Kingdom, Nepal and Bangladesh in relation with training and research in the field of SHP Development.

Prof Rajeshwer Prasad Saini is working as Professor in the Department of Hydro and Renewable Energy, IIT Roorkee. He has research experience of 34 years in the areas of renewable energy especially Small Hydro Power, Solar and Wind. He is also working as MNRE Chair Professor (Renewable Energy) for the Ministry of New and Renewable Energy, Government of India since July 2019. He did his Ph.D. in Mechanical Engineering from IIT Roorkee. He has published more than 320 Research Papers in International/National Journals and Seminars/ Conferences. 27 Ph.D. thesis have been completed and another 17 are in progress under his supervision in the area of renewable energy. He has guided more than 200 M.Tech dissertations/projects. About 268 Consultancy and Sponsored Projects including UNDP have been handled by him. He has also co-ordinated about 35 International/National training courses. Two patents on Micro Turbines from his research have been granting. He has received several awards including 'best teacher award of IIT Roorkee' in 2012 and was adjudged as the 'star performer of IIT Roorkee' in 2003-04 and 2004-05. He has visited more than 22 countries. He is fellow of Institute of Engineers India and has Life Membership of (i) International Association for Small Hydro (ii) Solar Energy Society of India and (iii) Indian Association of Hydrologist.

Er. Ashwani Kumar Goel Graduated in civil Engineering from I.I.T. Roorkee, India in 1970 (Formerly University of Roorkee).He is presently Managing Director of Aleo Manali Hydropower Pvt. Ltd. Own & Operate three hydropower generation projects in Himachal Pradesh, India. He carries a distinguish carrier as contractor, Senior Consulting engineer in Government organization. Fellow TERI (The Energy Resource Institute), Manager Winrock International US based NGO, Hydropower Consultant, developer and operator of three Hydro Electric project in Himachal Pradesh, India. He has over four decade experience in civil and Electrical Engineering field especially for all aspects of SHP covering technical, financial, technological, and managerial and policy related matters. He Participated and delivered talks in many national & International conferences and have contributed more than 35 papers in Hydropower Sector. He visited Hydro Power Projects in many countries viz U.S.A, U.K., Germany, France, China, Netherlands, Switzerland, Hungary, Sri Lanka and Nepal. He has to his credit more than 50 Hydro Electric Projects as designer, consultant & advisor. He has been instrumental in development and implementation of chain of community based Micro Hydel Projects of 10-100 KW range in remote hill area of Uttarakhand, India. These Projects are manned, managed & operated by local village committees and supply electricity to villagers living in remote areas. He Implemented Aleo HEP (3MW) in Manali (HP India) on BOOT basis from concept to commissioning in record time of 14 months. He is instrumental in vast improvement in power generation of Rukti-II (5MW) HEP located in very remote snow bound area of Kinnaur district in Himachal Pradesh, India at an elevation of 3000M.

Dr. Ram Prasad Dhital is member of the electricity regulatory commission in Nepal. He is responsible for planning and monitoring, institutional development, regulatory and external affairs in the commission. He is also the spokesperson of the commission. Mr. Dhital has spent two decades working in the renewable energy sector on national and international levels, in executive, advisory and technical roles. He served as the Executive Director of Alternative Energy Promotion Center under the ministry of energy, water resources and irrigation overseeing operations, strategic and technical initiatives in Nepal. He also worked as the Energy Advisor in Afghanistan for two years and Vanuatu in the south pacific for a year. He has been able to utilize the learning in national level by reforming renewable energy subsidy policies, institutionalizing central renewable energy funds and mobilizing internal and external resources (annually USD 55 million) to realize Nepal government's target of clean cooking and lighting solution to all by 2022. Mr Dhital holds a Masters and PhD degree in Renewable Energy Engineering. He has more than 15 research publications and conference paper written and presented at national and international platform globally representing Nepal. He is also an APMG certified PPP professional, Nepal Engineering Council certified Professional Engineer and National Vigilance Centre certified Technical Auditor.

Mr Satyendra Kumar Tyagi, Chief Engineer (Retd.), UPJVNL, did BE (Electrical) from University of Roorkee (Now IIT, Roorkee) in 1967 and joined UPSEB as Assistant Engineer in Oct 1967 at Hydro Electric Projects, Dehradun, UP, India and rose up to the level and Chief Engineer where he served up to October 2002. During this period he worked in the field of Design, Erection, Testing, Commissioning, Operation and Maintenance, Renovation, Modernisation and uprating of

various Hydro power plants of Uttarakhand and Uttar Pradesh ranging from 3MW to 250MW ROR, Storage, Surface and Underground Power Plants. Since 2007 he worked on various aspects of hydropower for designing and training using Real Time digital Simulator and Hydraulic Turbine Test Laboratory at HRED, IITR. He presented about 30 technical papers on typical problems of hydro power stations in various national and international seminars, most of which fetched best paper and merit awards. He is recipient of prestigious national award "CBIP, GOI- Pandit Jawahar Lal Nehru birth centenary award" for research and development in Hydro Power Engineering in 1995. He is fellow of Institution of Engineer (FIE). He had special training in Hydro Power Engineering in 1985 in Japan under Colombo Plan as JICA participant.