

# Agricultural Engineering Research Development In Nepal

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*Integrated Basin Modeling* - G. W. Kite 2000

River basins are complex areas, combining the natural processes of precipitation, evapotranspiration, surface water and groundwater runoff with man-made features such as dams and reservoirs, diversions and irrigation schemes, and industrial and urban water uses. Computer models may be constructed to represent these natural and man-made processes. Such models are used to help understand processes that are difficult to measure (such as evaporation) and to study the effects of changes in land cover, water management or climate on the natural and man-made processes.

[Agriculture, Natural Resources and Food Security](#) - Jagadish Timsina 2022-11-01

This book explains how a former net food exporting Nepal has become a net food importing country due to a lack of an integrated system-wide approach to planning and governance of agriculture and natural resources. It demonstrates how various components of the food system, such as agronomy, agrobiodiversity, plant health, post-harvest management, livestock and fisheries, and socio-economics including marketing and trade, have been managed in sectoral silos, crippling the very foundations of food systems innovations. The book also explores ways to tackle climate change impacts while considering gender, social equity, conservation agriculture practices, and crop modeling as cross-cutting themes. This book utilizes Nepal as a case study in relation to wider questions of food security and livelihoods facing South Asia and synthesizes lessons that are relevant to the Global South where countries are struggling to harmonize and integrate natural resources management for sustainable and effective food security outcomes. As such, it significantly contributes to the knowledge toward achieving various United Nations Sustainable Development Goals.

*Developing a hydrological model for the Mekong Basin: Impacts of basin development on fisheries productivity* - G. W. Kite 2000

This report describes the hydrological aspects of a CGIAR project to model the effects of water flows on aquatic resource production in the Mekong Basin. The project was carried out by the International Centre for Living Aquatic Resources Management (ICLARM, Penang, Malaysia) and the International Water Management Institute (IWMI, Colombo, Sri Lanka) in cooperation with the Mekong River Commission (MRC, Phnom Penh, Cambodia) together with other institutes and national and regional agencies working in the riparian countries of Cambodia, Lao PDR, Thailand and Vietnam. The project commenced in January 2000 and finished in December 2000. The land cover analysis for the Tonle Sap area was carried out, and the data on existing and proposed dams were collated, by Dilkushi De Alwis, IWMI, Colombo.

**Instituciones de Ingenieria Rural** - Food and Agriculture Organization of the United Nations 1983

*The Literature of Agricultural Engineering* - Carl W. Hall 1992

The second of a seven-volume series, *The Literature of the Agricultural Sciences*, this book analyzes the trends in published literature of agricultural engineering during the past century with emphasis on the last forty years. It uses citation analysis and other bibliometric techniques to identify the most important journals, report series, and monographs for the developed countries as well as those in the Third World.

[From soil research to land and water management: harmonizing people and nature. Proceedings of the IWMI-ADB Project Annual Meeting and 7th MSEC Assembly.](#) - Valentin, Christian 2012-12-02

Soil conservation / Reservoirs / Sedimentation / Environmental effects / Land use / Hydrology / Catchment areas / Rainfall-runoff relationships / Rain / Research projects / Agricultural research / Social participation / Development projects / Erosion / Watershed management / Water resource management / Soil management

**A Framework for Institutional Analysis for Water Resources Management in a River Basin Context** - D. J. Bandaragoda 2000

Presents a framework for institutional analysis, focusing on the three main pillars of institutions - laws, policies and administration. The report provides a brief set of guidelines, supported by an outline of some issues, constraints and prospects for institutional change.

*Comparing Estimates of Actual Evapotranspiration from Satellites, Hydrological Models, and Field Data* - G. W. Kite 2000

An overview of an experiment in which 8 different methods of estimating actual evaporation and transpiration were compared using a common database. Methods based on field data, hydrological models, and satellite data were used and the objectives were to compare results and to assess the utility of each method for various applications.

*A snapshot of agricultural research investment and capacity in Asia* - Stads, Gert-Jan 2015-12-15

Agricultural research was one of the main drivers behind the enormous increases in food production in South, East, and Southeast Asia (referred to as "Asia" in the remainder of this report) during the twentieth century. The implementation of research-based agricultural methods and new technologies enhanced the quantity and quality of agricultural outputs, and led to rapid economic growth and poverty reduction. Despite these tremendous advances, Asia is still home to more than half of the world's poor. Most of them live in rural areas where agriculture remains the main source of employment and income.

**An evolving paradigm of agricultural mechanization development: How much can Africa learn from Asia?** - Diao, Xinshen, ed. 2020-12-07

Agricultural mechanization in Africa south of the Sahara — especially for small farms and businesses — requires a new paradigm to meet the needs of the continent's evolving farming systems. Can Asia, with its recent success in adopting mechanization, offer a model for Africa? *An Evolving Paradigm of Agricultural Mechanization Development* analyzes the experiences of eight Asian and five African countries. The authors explore crucial government roles in boosting and supporting mechanization, from import policies to promotion policies to public good policies. Potential approaches presented to facilitating mechanization in Africa include prioritizing market-led hiring services, eliminating distortions, and developing appropriate technologies for the African context. The role of agricultural mechanization within overall agricultural and rural transformation strategies in Africa is also discussed. The book's recommendations and insights should be useful to national policymakers and the development community, who can adapt this knowledge to local contexts and use it as a foundation for further research.

**Agricultural Development in Nepal** - Yadav Prasad Pant 1969

**The Role of Renewable Energy Technology in Holistic Community Development** - Alexander Zahnd 2014-01-25

This thesis documents almost twenty years of the author's work on the development and implementation of a new approach to holistic community development in remote and disadvantaged villages in Nepal. It describes the theoretical basis of the work, the main research activities, and the practical outcomes of the implemented programs. One of the fundamental cornerstones of holistic community development is the provision of appropriate and sustainable solutions for the long-term development of local communities. This requires that people's own identified needs be recognized and addressed in partnership with them in holistic ways. The author explains the many synergies that result from this holistic approach to community development. Another cornerstone of his approach is to utilise the communities' locally available renewable resources for long-term sustainable development. One of the key findings of the thesis is that improved access to energy services, such as cooking

with a smokeless metal stove in a clean indoor environment, basic indoor lighting, and increased food production and safe food storage (through a greenhouse and a solar drier respectively), need to be at the very heart of any long-term holistic community development project. The thesis demonstrates that tapping into locally available renewable energy resources and converting them, through contextualized and locally manufactured renewable energy technologies, has a central role in long-term holistic community development programs. Such programs are successful because they provide both appropriate technologies and life-changing experiences for the local users involved.

*Overview of the evolution of agricultural mechanization in Nepal: A focus on tractors and combine harvesters* - Takeshima, Hiroyuki 2017-07-21

This study was conducted to understand the evolution of agricultural mechanization in Nepal, specifically its determinants on both the demand and supply sides, as well as impacts on agricultural production and associations with broader economic transformation processes, in order to draw lessons that can be conveyed to other less mechanized countries. Mechanization levels in Nepal, a largely agricultural country, were relatively low until a few decades ago. However, significant mechanization growth, including the adoption of tractors, has occurred since the 1990s, against a backdrop of rising rural wages, particularly for plowing, combined with growing emigration and growth in key staple crop yields and overall broad agricultural production growth, as well as improved market access and participation. This growth in mechanization has taken place despite the general absence of direct government support or promotion. The growth of tractor use in the plains of the Terai zone has transformed agricultural production rather than inducing labor movement out of agriculture, raising overall returns to scale in intensification and enabling the cultivation of greater areas by medium smallholders than by resource-poor smallholders. Tractors have also facilitated the intensification of crop production per unit of land among very small farmers, enabling mechanization growth despite the continued decline in farm size, although these farmers may not have benefited as much as medium smallholders. Potential future research areas with policy relevance include mitigating accessibility constraints to tractor custom hiring services, identifying appropriate regulatory policies for mechanization, and providing complementary support to some smallholders who may not fully benefit from tractor adoption alone. *Catalogue of Research Literature for Development: Food production and nutrition, development and economics, education and human resources, health, selected development areas* - United States. Agency for International Development. Bureau for Technical Assistance 1976

Negotiating Water Governance - Emma S. Norman 2016-03-09

Those who control water, hold power. Complicating matters, water is a flow resource; constantly changing states between liquid, solid, and gas, being incorporated into living and non-living things and crossing boundaries of all kinds. As a result, water governance has much to do with the question of boundaries and scale: who is in and who is out of decision-making structures? Which of the many boundaries that water crosses should be used for decision-making related to its governance? Recently, efforts to understand the relationship between water and political boundaries have come to the fore of water governance debates: how and why does water governance fragment across sectors and governmental departments? How can we govern shared waters more effectively? How do politics and power play out in water governance? This book brings together and connects the work of scholars to engage with such questions. The introduction of scalar debates into water governance discussions is a significant advancement of both governance studies and scalar theory: decision-making with respect to water is often, implicitly, a decision about scale and its related politics. When water managers or scholars explore municipal water service delivery systems, argue that integrated approaches to salmon stewardship are critical to their survival, query the damming of a river to provide power to another region and investigate access to potable water - they are deliberating the politics of scale. Accessible, engaging, and informative, the volume offers an overview and advancement of both scalar and governance studies while examining practical solutions to the challenges of water governance.

Basic Procedures for Agro-economic Research - International Rice Research Institute 1991

**Irrigation Management in Pakistan and India** - Tushaar Shah 2000

These notes present the impressions gathered by a team of Indian and Pakistani economists on contemporary issues in irrigation management

in these two countries. The authors suggest that the two countries can learn important lessons by comparing notes on several issues: [a] what would work best in ensuring equitable access to irrigation - physical rehabilitation being tried out in Pakistan Punjab with the help of the army under the military rule offers interesting possibilities in terms of scale and impact as does the Andhra Pradesh model of irrigation reform, [b] the experience in both countries so far defies the uncritically accepted premise that under farmer-management, irrigation systems will be more equitable, [c] why farmers in Pakistan Punjab have to use 16-20 horsepower (hp) diesel engines to pump groundwater from 25-40 feet while north Indian farmers have been doing the same with 5 hp engines--if it is because of compulsion of habit, appropriate policies can save Pakistan substantial diesel fuel per year, [d] India needs to ask why diesel engines in Lahore cost only 40-50 percent of the retail price they command in Lucknow or Ludhiana--we suggest allowing free imports of Chinese pumps will do away with the need for pump subsidies that keep diesel engines over-priced in India, [e] both Pakistan and India need to pay serious attention to promoting simple pump modifications that can increase fuel efficiency of their pumps by 40-70 percent, [f] India and Pakistan need to compare notes on their rich experience of electricity pricing policies to achieve viability of electricity supply to farmers and to achieve important goals of groundwater management and policy. *Advancements in IIMI's Research, 1992* - International Irrigation Management Institute 1992

Resource Management in Rice Systems: Nutrients - V. Balasubramanian 2012-12-06

Rice is the major staple food in Asia, and food security means rice security for most Asians. By the year 2025, we need to produce about 60% more rice than we do today to meet the growing demand. Efficient use of inputs is vital to safely produce the additional food from limited resources with minimal impact on the environment. This book reviews emerging knowledge-intensive technologies and decision aids for improved nutrient management in rice, technology adoption constraints at the farm level, and innovative approaches for field evaluation and promotion of new technologies to farmers. It is highly useful to rice scientists and development workers, students of agronomy, soil science, and plant nutrition, and crop consultants and extension workers in rice all over the world.

*RICE SCIENCE* - B. Chandrasekaran 2013-02-01

This book is aimed at providing a comprehensive text on rice cultivation/production with major emphasis on rice based integrated farming system models, organic farming aspects, alternate cropping, new techniques like SRI, role of biotechnology etc., in an easily understandable manner. This book will also help to enrich the knowledge of young researchers in various fields of agriculture and in particular, agronomy, as well as to the teachers and researchers of the Agricultural Universities/Research Organisations.

*Water Conflicts and Resistance* - Venkatesh Dutta 2021-07-29

This book presents a systematic study of transboundary, regional and local water conflicts and resistance across several river basins in South Asia. Addressing hydro-socio-economic aspects in competing water sharing and transfer agreements, as well as conflicting regimes of legal plurality, property rights and policy implementation, it discusses themes such as rights over land and natural resources; resettlement of dam-displaced people; urban-rural conflicts over water allocation; peri-urbanisation, land use conflicts and water security; tradeoffs and constraints in restoration of ecological flows in rivers; resilience against water conflicts in a river basin; and irrigation projects and sustainability of water resources. Bringing together experts, professionals, lawyers, government and the civil society, the volume analyses water conflicts at local, regional and transboundary scales; reviews current debates with case studies; and outlines emerging challenges in water policy, law, governance and institutions in South Asia. It also offers alternative tools and frameworks of water sharing mechanisms, conflict resolution, dialogue, and models of cooperation and collaboration for key stakeholders towards possible solutions for effective, equitable and strategic water management. This book will be useful to scholars and researchers of development studies, environment studies, water studies, public policy, political science, international relations, conflict resolution, political economy, economics, sociology and social anthropology, environmental law, governance and South Asian studies. It will also benefit practitioners, water policy thinktanks and associations, policymakers, diplomats and NGOs.

*Land, Water and Development* - Malcolm Newson 2002-09-11

This is a fully revised and expanded second edition of Malcolm Newson's acclaimed book. Exploring in greater depth the meaning of sustainability in river basin development this new edition: \* highlights the rapid evolution of practical concepts since the Rio Earth Summit \* features new illustrations and case studies from Australia, South Africa and Israel \* makes the ecosystem model more explicit throughout \* strengthens coverage of the linkages between land and water management.

Effects of agricultural mechanization on smallholders and their self-selection into farming - Takeshima, Hiroyuki 2016-12-16

This research was undertaken to better assess the role of mechanization in the future of smallholder farmers in Nepal. It addresses the knowledge gap about whether promoting mechanization that is often complementary to land can effectively support smallholders, particularly in the face of a growing nonfarm sector. Rising rural wages in Nepal have increasingly put pressures on smallholder farmers, who tend to operate labor-intensive farming. Agricultural mechanization through custom hiring of tractor services has recently been considered as an option to mitigate the impact of rising labor costs for smallholders. However, the benefit of agricultural mechanization may still be better captured by exploiting the economies of scale of medium to large farmers rather than smallholders. In the meantime, the Nepal agricultural sector still employs a disproportionate share of workers given its share in the economy, potentially depressing agricultural labor productivity. It is therefore an important policy question whether to (1) continue supporting smallholders through custom-hired tractor services or (2) encourage smallholders to rent their farms out to medium-size or larger farmers, while helping smallholders specialize in the nonfarm sector, where their labor productivity may be higher. Using samples from the Terai zone—one of the agroecological belts in Nepal, largely consisting of lowland plains—from the Nepal Living Standards Survey, we assess whether the benefits of hiring in tractor services are greater among medium to large farmers than among smallholders, and how these benefits may depend on smallholders' decision to remain in or leave farming. This study also contributes to the impact evaluation literature by showing that jointly assessing the effects of two treatments (whether to adopt custom-hired tractor services and continue farming, or to search for better options and specialize in off-farm activities) can lead to different implications than assessing them separately. Our analyses suggest that the government should continue to promote custom-hired tractor services not only for medium to large farmers but also for smallholders. If, over time, barriers to specializing in nonfarm activities are lowered and more smallholders start leaving farming, mechanization may no longer benefit the remaining smallholders. Support for mechanization can then be focused more on medium to large farmers, while types of support other than mechanization can be devised for the remaining smallholders.

*Workshop proceedings, Evaluation of Irrigation Management Transfer Process and Performance, Lalitpur, Nepal, 11-12 October 1999.* - Parajuli, U. N 1999-10-01

**Science and Technology for Development** - Robert P. Morgan 2013-10-22

Science and Technology for Development: The Role of U.S. Universities examines the role of U.S. universities in helping to build an indigenous science and technology (S&T) base in developing countries. U.S. university involvement in engineering, agriculture, and science is analyzed, along with conditions for success or failure and limitations to involvement. Successful experiences in developing countries are highlighted. This book is comprised of seven chapters and begins with an overview of the past legislative mandate for U.S. university involvement in S&T for development. The reader is then introduced to U.S. university activity in three fields: engineering, agriculture, and science. Within the analysis of each field, specific past involvements, current thinking, and field-specific issues are explored. The subsequent chapters discuss future roles for U.S. universities, including types of involvement, mechanisms for involvement, and forms of cooperation among U. S. institutions. Eight legislative changes are outlined for expanding U.S. university involvement in international S&T cooperation. This monograph will be of interest to S&T policymakers and university officials.

*Strengthening Policy Research* - Sukhdeo Thorat 2019-03-26

Strengthening Policy Research: Role of Think Tank Initiative in South Asia is a vivid presentation of the diverse journeys of think tanks under the aegis of the Think Tank Initiative (TTI) programme managed by the International Development Research Centre in South Asia. The book extensively discusses the three areas of TTI support to strengthen think

tanks, viz., organizational performance, research quality and policy engagement. It emphatically demonstrates the crucial role of long-term core support in strengthening think tanks for more rigorous research quality as the basis for public policymaking. It presents a rich tapestry of complex pathways that each think tank adopts to engage in policy outreach in their respective domains. The book makes a strong, evidence-based case on how even limited yet assured funding to think tanks leads to enhanced organizational capacities for good quality research, effective policy outreach and improved sustainability. It firmly puts forth the view that governments need to work jointly with private funding organizations to strengthen think tanks, which is in the best interest of evidence-informed and effective public policy-making.

**Participatory Research and Gender Analysis** - Nina Lilja 2013-09-13  
Agricultural development research aims to generate new knowledge or to retrieve and apply existing forms of knowledge in ways that can be used to improve the welfare of people who are living in poverty or are otherwise excluded, for instance by gender-based discrimination. Its effective application therefore requires ongoing dialogue with and the strong engagement of men and women from poor marginal farming communities. This book discusses opportunities afforded by effective knowledge pathways linking researchers and farmers, underpinned by participatory research and gender analysis. It sets out practices and debates in gender-sensitive participatory research and technology development, concentrating on the empirical issues of implementation, impact assessment, and institutionalisation of approaches for the wider development and research community. It includes six full-length chapters and eight brief practical notes and is enhanced by an annotated resources list of relevant publications, organisations, and websites adding to the portfolio of approaches and tools discussed by the contributors. Most of the 33 contributing authors work in the specialised agencies that form part of the Consultative Group on International Agricultural Research (CGIAR). This book was published as a special issue of *Development in Practice*.

*Taming the Anarchy* - Tushaar Shah 2010-09-30

In 1947, British India—the part of South Asia that is today's India, Pakistan, and Bangladesh—emerged from the colonial era with the world's largest centrally managed canal irrigation infrastructure. However, as vividly illustrated by Tushaar Shah, the orderly irrigation economy that saved millions of rural poor from droughts and famines is now a vast atomistic system of widely dispersed tube-wells that are drawing groundwater without permits or hindrances. *Taming the Anarchy* is about the development of this chaos and the prospects to bring it under control. It is about both the massive benefit that the irrigation economy has created and the ill-fare it threatens through depleted aquifers and pollution. Tushaar Shah brings exceptional insight into a socio-ecological phenomenon that has befuddled scientists and policymakers alike. In systematic fashion, he investigates the forces behind the transformation of South Asian irrigation and considers its social, economic, and ecological impacts. He considers what is unique to South Asia and what is in common with other developing regions. He argues that, without effective governance, the resulting groundwater stress threatens the sustenance of the agrarian system and therefore the well being of the nearly one and a half billion people who live in South Asia. Yet, finding solutions is a formidable challenge. The way forward in the short run, Shah suggests, lies in indirect, adaptive strategies that change the conduct of water users. From antiquity until the 1960s, agricultural water management in South Asia was predominantly the affair of village communities and/or the state. Today, the region depends on irrigation from some 25 million individually owned groundwater wells. Tushaar Shah provides a fascinating economic, political, and cultural history of the development and use of technology that is also a history of a society in transition. His book provides powerful ideas and lessons for researchers, historians, and policymakers interested in South Asia, as well as readers who are interested in the water and agricultural futures of other developing countries and regions, including China and Africa.

*Agricultural Mechanization in Asia, Africa and Latin America* - 1998

**Proceedings of the International Agricultural Machinery Workshop** - International Rice Research Institute 1978

*Catalogue of Research Literature for Development: Food production and nutrition* - United States. Agency for International Development. Bureau for Technical Assistance 1976

**Public Participation In Development Planning And Management** -

Jean-claude Garcia-zamor 2019-09-16

This book examines the position held by most development administrators that citizen participation in the planning and management of development projects is crucial to their lasting success. The contributors view inadequate participation as part of the larger problem of ineffective management, policies, and planning. They show that development obje

Pedaling Out of Poverty - Tushaar Shah 2000

Study on the assessment of social impact of treadle pump technology for manual irrigation in South Asia.

**Conservation Agriculture in Subsistence Farming** - Catherine Chan 2015-06-16

Conservation agriculture systems have long-term impacts on livelihoods, agricultural production, gender equity, and regional economic development of tribal societies in South Asia. This book presents South Asia as a case study, due to the high soil erosion caused by monsoon rainfall and geophysical conditions in the region, which necessitate conservation agriculture approaches, and the high percentage of people in South Asia relying on subsistence and traditional farming. The book takes an interdisciplinary approach to analyse systems at scales ranging from household to regional and national levels.

Renewable Resource Utilization for Development - Robert P. Morgan 2013-10-22

Renewable Resource Utilization for Development is a six-chapter text that covers the United States initiatives in field of appropriate, light-capital technology for renewable resource utilization. These initiatives include steps, policies, and programs that the U.S. government might take, adopt, or support to aid developing countries in utilizing appropriate technology for renewable resources for the benefit of the poor majority. The first two chapters describe the technology, advances, design, and utilization of wind energy and biomass. The next chapter focuses on two applications of direct solar energy, namely, solar drying of crops and timber. Another chapter highlights the optimum processing and use of rice bran, which is an important postharvest and rural development problem for rice-growing developing countries. The final

two chapters discuss the utilization of material and products based on agricultural wastes and natural fibers. These chapters also deal with the organizations and mechanisms for implementing the initiatives and with possible next steps to the U.S. initiatives. This book is of value to economists and environmental pollution control researchers.

**Bibliography of Agriculture** - 1964

**Soil Hydrology, Land Use and Agriculture** - Manoj Shukla 2011

Agriculture is strongly affected by changes in soil hydrology as well as changes in land use and management practices and the complex interactions between them. This book aims to develop an understanding of these interactions on a watershed scale, using soil hydrology models and addresses the consequences of land use and management changes on agriculture from a research perspective. It includes case studies that illustrate the impact of land use and management on various soil hydrological parameters under different climates and ecosystems. It is suitable for researchers and students in soil sc

Rice-wheat research end-of-project -

*Productivity and Performance of Irrigated Wheat Farms Across Canal Commands in the Lower Indus Basin* - Intizar Hussain 2000

A study of the enormous differences in agricultural productivity that exist across farms and regions in Pakistan, where, for example, recent farm-level data from Sindh, indicates that irrigated wheat output per hectare varies from 0.5 to 5.4 tons across farms. Looks at the central goal of agricultural policy in the country, viz. improving and sustaining productivity, narrowing the existing productivity gaps, and enhancing resource use efficiencies to meet food requirements of a rapidly growing population.

**Agricultural Research in Nepal** - Ram P. Yadav 1987-01-01

Agricultural plan, policy, and performance; institutional development of agricultural research; Allocation of financial and personnel resources for research; Research management and incentives; Agricultural research priorities and structure.