

89/2a



**IRRIGATION MANAGEMENT NETWORK**

**NEWSLETTER**

## **Agricultural Administration Unit, Overseas Development Institute, London**

The Overseas Development Institute (ODI) is an independent, non-profit making research institute. Within it, the Agricultural Administration Unit (AAU) was established in 1975. Its mandate is to widen the state of knowledge and flow of information concerning the administration of agriculture in developing countries. It does this through a programme of policy-orientated research and dissemination. Research findings and the results of practical experience are exchanged through four Networks on Agricultural Administration (Research and Extension), Irrigation Management, Pastoral Development, and Social Forestry. Membership is currently free of charge to professional people active in the appropriate area, but members are asked to provide their own publications in exchange, if possible. This creates the library which is central to information exchange.

## **The International Irrigation Management Institute, Colombo**

The International Irrigation Management Institute (IIMI) is an autonomous, non-profit making international organisation chartered in Sri Lanka in 1984 to conduct research, provide opportunities for professional development, and communicate information about irrigation management. Through collaboration, IIMI seeks ways to strengthen independent national capacity to improve the management and performance of irrigation systems in developing countries. Its multidisciplinary research programme is conducted on systems operated both by farmers and by government agencies in many co-operating countries. As an aspect of its dissemination programme, it has joined ODI in the publication of the Irrigation Management Network papers, to enable these to appear more frequently to an enlarged membership.

The ODI/IIMI Irrigation Management Network is sponsored by:



The Overseas Development Administration (ODA),  
Eland House, Stag Place, London SW1E 5DH;

and



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## NEWSLETTER

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## **Credits**

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## NEWSLETTER

### 1. NEWS FROM THE EDITOR

As the new Research Fellow responsible for the Irrigation Management Network, I would like to take this opportunity to introduce myself, and tell you about some of the research interests I myself will be developing at ODI. My academic background is in geography and hydrology, but my work as a lecturer at the School of Development Studies, University of East Anglia, has given me both a range of practical consultancy and research experience in water resources development, and an appreciation of the wider issues of theory and policy in rural development. I hope therefore, I can continue to promote discussions and Papers on themes relevant to the interests of members, as well as continuing to encourage the debates between disciplines and interests in irrigation which are a key focus for ODI.

My own research focus will be evolving within the overlap of three irrigation issues; groundwater development and management, decentralisation, and irrigation in semi-arid areas. I have a particular interest in the development problems of irrigation in water-scarce and technically challenging environments, having worked in hardrock areas of central India, and the mountains of the Yemen Arab Republic. So, please contact me if you also have interests in this area.

Mary Tiffen will continue to spend part of her time working on irrigation, but I will be looking after the Network, so please direct Papers and correspondence to me from now on.

The Network also has new support staff. Amanda Barton is replacing Jyoti Bardwaj. We would like to thank Jyoti for her help in developing Network activities.

Linden Vincent

## 2. NETWORK PAPERS FOR DISCUSSION

The four Papers presented cover a number of themes regularly presented in this network; modernisation, farmer participation, technology policy and water charges. The Papers by Vermillion, and Levine and Coward raise complementary questions on equity and local knowledge, and their use in designing and modernising irrigation schemes. The Papers by Morton and Asaduzzaman reflect different aspects of tubewell development in Bangladesh, and Morton's paper joins that of Vermillion's in raising questions on the adequacy of design procedures in defining, for example, land capability for irrigation, and for calculating farmers' water needs.

Paper 89/2b, by Gilbert Levine and Walter Coward, *Equity Considerations in the Modernization of Irrigation Systems*, presents a critique of equity questions raised by irrigation schemes, focusing on issues relating to water allocation. They show how these concepts of equity can vary in space between different social groups, and over time, as the value of water changes or the social milieu itself changes. These concepts of equity result in different water distribution requirements, thus affecting structures, manpower and data collection needs. Differences in perception of what is, and what delivers, 'equity', between farmers and designers/managers are often the cause of poor performance and poor relations in irrigation schemes. Modernisation projects should study whether they are requiring, or enforcing, changes in concepts of equity, when changing the production environment or water distribution system. The authors provide a methodology for incorporating equity considerations in design decisions which should be read by all Network members involved in rehabilitation. It also seems a methodology relevant in the design of new schemes.

Douglas Vermillion provides paper 89/2c, on *Second Approximations: Unplanned Farmer Contributions to Design*. Using case studies from Indonesia, Vermillion studies the changes which irrigators made to a water distribution system, the ideas behind these changes, and then classifies these 'redesign criteria'. He then compares these 'farmer criteria' with conventional design criteria to show if they are compatible, incompatible or additional criteria. The paper shows that farmer participation is highly relevant to the design process, not just to 'social aspects', and illustrates by practical example several of the issues raised by Levine and

Coward. Vermillion suggests that we should have feedback systems in design that enable us to learn from farmer experience. The editor agrees and would like to say that the criteria defined as 'incompatible' or 'additional' are not impossible for engineers to use. They rather reflect the standardisation of procedures of design that fail to allow for local variations and needs in the first place. The known weaknesses of standard design procedures for defining land capability, or drainage and seepage calculations, are also reflected among the 'additional' criteria developed by farmers. Can we have some feedback from Network members on local design criteria, how to find out about them, and keep up the debate on how to make standard design procedures more flexible?

Paper 89/2d is by James Morton on *Tubewell Irrigation in Bangladesh*. It provides a critique of theories for the poor performance of tubewells in Bangladesh, and proceeds to focus on two issues. Firstly, Morton examines the relationship between variability in performance and the physical environment served. Secondly, he examines the effects of subsidies on well costs and thence on area irrigated, and also the way such a relationship affects the costs of water sold. Morton then shows how both of these are important in defining a strategy for the replacement of shallow tubewells by deep tubewells. We suspect that Morton's paper may be controversial to designers of pumping requirements, to those studying water markets and officials trying to operate zoning policies in Bangladesh or elsewhere. Please send in your own findings on these issues.

Paper 89/2e by M Asaduzzaman reports on the *Irrigation Charges in the Barind Integrated Area Development Project: A New Approach*. This paper describes procedures for recovering irrigation charges, and their use in covering recurrent costs, which have been developed in this project as a consequence of discussions in these Network Papers. The features which have made the experience of the Barind project different from other irrigation programmes in Bangladesh include clear statements of responsibilities, a mixture of incentives and penalties, and above all prompt service and maintenance that farmers can equate with charges paid. We have kept details in the paper on agreements between the farmer and the project as an illustration of relationships needing to be established. We do not have a discussion of the processes by which these major changes in ideas on cost recovery were achieved. The editor would like to hear of

any studies which help us to analyse better how individuals interact with their environments to effect change.

### 3. NETWORK DEVELOPMENTS

With so many new staff in post this autumn, some work has been unavoidably delayed. The new Register of Members will be circulated Spring 1990.

We will be launching an Africa-focused Newsletter and set of Papers in 1990, and are now compiling our mailing list. We plan that the first African Newsletter will be mailed in February. For financial and administrative reasons we cannot send all three sets of Papers per year to all Network members, so we are proposing the following arrangement. All current members will continue to receive the two 'general' Newsletters and sets of Papers per year. These Newsletters will carry details of material in the Africa set, which members can send for; key Papers from the African material will also be reproduced. People listed for the African Newsletter will receive the 'African' set and both the 'general' sets, i.e. 3 sets of Papers per year. These three sets will be sent automatically to all Network members with addresses in Africa, *who do not need to fill in any additional form. If you are not resident in Africa, but have good professional reasons for wanting to receive the Africa-focused papers, please fill in the form enclosed.*

### 4. NEWS FROM IIMI

IIMI's five year work plan and strategy, and several new projects, were among the topics tabled at the 28 October meeting of IIMI's Support Group. The Support Group meets in Washington D.C. every October to consider the Institute's accomplishments and plans, and to make funding pledges for the following year, in this case 1990.

David Bell, IIMI Board Chairman, briefed the Group on the shift of IIMI's Headquarters in August from Digana Village to Colombo. The move was necessary, he said, to improve IIMI's communications systems and to assess serious operational

difficulties caused by recent unsettled conditions in Sri Lanka. However, the transition has now been completed and all operations were functioning smoothly. As to the Institute's progress, Bell remarked that IIMI, though a young organisation, had established research activities in ten countries, developed a clear strategy and enacted an organisational structure to implement the strategy. Research, he said, was now starting to yield substantive results.

The Chairman also announced five IIMI new Board members for 1990: Ms N. Al-Shayji from Kuwait, Mr Robert Rangeley from United Kingdom, Dr M. S. Swaminathan from India, Mr Zaki Azam from Pakistan, and Dr Tsutsui Hikaru from Japan.

Dr Roberto Lenton, IIMI's Director General, followed the Chairman with a briefing on the Institute's progress since last year's meeting. Referring to the 1988 Annual Report, the Director General commented on several recent publications, including a synthesis of lessons learned from research on irrigation management for crop diversification, a set of case studies on irrigation financing, results from a study on internal decision-making in Sri Lankan irrigation organisations, and the culmination of studies in various country operations. (Further information on IIMI publications is available from Francis O'Kelly, Head, IIMI Information Office, Box 2075, Colombo, Sri Lanka.)

Dr Lenton said IIMI concluded several important projects during 1989 including a study on crop diversification in rice-based systems; two projects in Indonesia, one which investigated the match between water demand and supply, and another which looked at improved methods of turning over management responsibilities to farmers in small systems; and a study of the efficiency of farmer managed systems in the hills of Pakistan.

Among IIMI's new ventures, Dr Lenton singled out a major initiative on performance definition and quantification, a large project on the prevention of water logging and salinity in Pakistan and a training needs assessment in Malaysia.

Charles Abernethy, the Director of IIMI's Program Division, concluded IIMI's presentation with a series of slides summarising IIMI's 1990-94 Work Plan. Mr Abernethy said IIMI proposed to increase international staff strength from 35 in 1990 to 60 in 1994. It was proposed that staff continue their work in Sri Lanka,

Pakistan, Indonesia, Philippines, Bangladesh, India, Nepal, Morocco, Sudan and West Africa, including Mali, Niger, Senegal, Burkina Faso and Nigeria. Towards the end of the five year period, Abernethy said HMI hoped to initiate new country programs in Mexico, Egypt and China. To accommodate the increased effort, the plan proposed an increase in HMI's budget from roughly \$9 million in 1990 to almost \$16 million in 1994.

The Director General added HMI's past overall growth rate, coupled with prospects for increased funding from new and existing donors, gave HMI the confidence to make these ambitious growth projections.

Several Support Group members paid tribute to HMI's continued performance, and the quantity and quality of research, under difficult circumstances. Other members commented on HMI's success in bridging the gap between national departments of irrigation and agriculture through collaboration in research.

## 5. NEWS FROM NETWORKERS

Networkers may be interested in a new brochure entitled *Technology Information on Water Resources* which began in 1988, published by NADLIN (National Documentation Centre Library and Information Network), Pakistan. This reports on developments in water technology and consultancy services marketed by companies in developing countries. Countries reporting are Brazil, China, Egypt, India, Kenya, Mexico, Pakistan, Peru, Philippines and Zimbabwe. So far 4 issues have been published. NADLIN are also producing *Water Resources Abstracts*, which will cover international material as well as information on Pakistan. To obtain these publications write to Nuzhat Yasmin, NADLIN, PO Box 2313, Islamabad, Pakistan.

Are you looking for appropriate and accessible technical manuals in hydrology? *HOMS (Hydrological Operational Multipurpose System)* is a new assistance programme developed by the World Meteorological Organisation, for the transfer of technical information on operational hydrology. WMO have developed over 400 useful components ranging from descriptions of equipment to explanations of analyses and computer programmes. Components

include planning, network design, instrumentation, data storage and processing issues for all parts of the hydrological cycle, and also analyses relevant to economic evaluation of projects and their operating policies. The programme is being developed internationally through national HOMS offices. For details of the materials and your local HOMS office, write to: HOMS, Hydrology and Water Resources Department, World Meteorological Organisation, Case Postale No. 2300, CH-1211 Geneva 2, Switzerland. UK Organisations can get information from the UK HOMS Centre - the Institute of Hydrology, Wallingford, Oxon OX10 8BB, UK - phone: 0491 38800. Contact: Howard Oliver).

A research Network on *Scarcity Water Management* is being initiated by the Water Technology Unit, Tamil Nadu Agricultural University. For more details, see the workshop on *Groundwater Use and Management in Low Rainfall Hard Rock Areas* discussed on page 15.

USAID have published a useful review of the work and achievements of its Water Management Synthesis II Project. It is called *Developing Irrigated Agriculture: A Socio-Technical Approach*. In addition to summarising their main programmes in Asia, Africa and Latin America, with their foci on design, management, diagnostic analysis, training and farmer participation, the report lists all WMS reports and videotapes. The two successor programmes are also described. These are ISPAN (Irrigation Support Projects for Asia and the Near East) and ISMAR (Irrigation Management Support and Research Project (focusing on Africa and Latin America and on irrigated agriculture, interpreted broadly to mean various types of agricultural production that involve the use and management of water resources). The report is available from Dr L. Worth Fitzgerald, Bureau of Science and Technology, USAID, Washington DC 20523, USA.

Tony Garvey has been appointed Project Director of ISPAN, located at the Technical Support Centre, 1611 North Kent Street, Arlington, Virginia 22209, USA, Tel:(703)-243 7911. ISPAN provides services to bilateral projects being implemented in Asia and the Near East. Its initial work has been much concerned with monitoring and evaluation, in conjunction with regional and country organisations, to ensure programmes attain goals and are modified as necessary. Amongst the reports published so far are:

1. Indonesia, Facilitators' Report, SSIMP Second Implementation Workshop
2. Pakistan ISM Project Evaluation: Rehabilitation and Institutional Strengthening Components
3. India, Review of the Hill Areas Land and Water Development Project
5. Pakistan, Mid-Term Evaluation of the Command Water Management Project (2 volumes)
6. India, Evaluation of the Irrigation Management Training Component
7. Second Regional Irrigation Management Workshop, Kathmandu
15. Sri Lanka, Project Review Workshop for the Irrigation Systems Management Project
16. Nepal, Irrigation Management Project Midterm Evaluation Report
18. Egypt, Evaluation of the Structural Replacement and Project Preparation Unit Components of the Irrigation Management Systems Project.

To obtain a copy of any of these, write to Tony Garvey, briefly outlining the reason for your request.

ISPAN has also produced two fuller Studies. The first is the *Eastern Waters Study (1989)*, by Peter Rogers, Peter Lydon and David Seckler, one of several reports commissioned on strategies to manage floods in Bangladesh, which are to be reviewed at a meeting in London in December 1989, (the others being a UNDP study led by a British consortium, and French and Japanese studies). The second is *Medium Scale Irrigation Systems in Northeast Thailand: Future Directions (1989)*, by five senior Thai experts, Peter Reiss and Sam Johnson. This study raises important issues which will affect the operation and design of many other irrigation projects, such as the way the private sector is now expanding into activities previously carried out by the public

sector, the critical importance of markets for non-rice crops, the role of water user associations, and competing water requirements within a river basin.

ISPAN is also moving into the training area. In addition to conducting a number of 'project start-up workshops', ISPAN has collaborated with EDI of the World Bank to produce *Guidelines for Preparing Strategies and Programs in Public Sector Irrigation Training*, (see page 27). The guidelines illustrate the process which can be used by irrigation agencies to develop comprehensive training programs based on clearly articulated agency goals and objectives and a training needs assessment (TNA). Using these guidelines, TNA is being undertaken by HMI in Malaysia, and ISPAN is planning to collaborate with HMI and EDI to assist similar efforts in Egypt, and possibly Pakistan and Morocco.

Operations Evaluations Department, World Bank, have carried out some very useful comparative impact evaluations of irrigation projects. In one case the comparison is between two Moroccan and two Mexican projects; a later study relates to projects in the Philippines and North East Thailand. It is hoped to bring these out shortly in blue covers - documents in the public domain. Because they follow a similar format, these documents provide a better basis for deriving planning lessons than previous World Bank Impact Evaluations, where each evaluating team seem to have had their own agenda. In particular, in these cases, the IRR some years after completion has been recalculated. The British ODA have also completed evaluations of two projects which it had supported, in Mauritius and Pakistan.

In 1986 Mary Tiffen completed a study commissioned by the UK Overseas Development Administration, which reviewed some fifty evaluations of irrigation schemes, to derive recommendations for the improvement of feasibility study planning. The main conclusions, that the IRR should not be the dominating criteria for project acceptance, since farm incomes and funding for operation and maintenance have a greater influence on project sustainability, and that projects must be designed to fit local circumstances as well as national needs, were summarised in Network Papers 87/1b and 87/3c respectively. The findings aroused a lot of interest, and Mary has also given a series of papers and seminars on the subject. She now intends to use the new material from the Bank, USAID and ODA to update her previous study, and to publish it complete

with the ten detailed case studies on which it was based. The aim will be to bring out the lessons in a relatively condensed format, since most people will not have time to study the bulk of material now available, but at the same time, to provide sufficient detail to illustrate the salient points. The updating should be completed in the first part of 1990.

Mark Svendsen of IFPRI is working with IIMI on a framework and methodology for assessing irrigation performance. He is distinguishing 'performance indicators', which are internal to the organisation, and 'impact indicators', which link irrigation to external systems. He is also working on a typology of irrigation systems. A small workshop, to be hosted by Hydraulics Research, Wallingford, is being held in February 1990 to discuss the preliminary drafts.

After the 1987 Casablanca meeting the International Commission on Irrigation and Drainage (ICID) asked the World Bank to take an initiative to enhance technological research efforts relevant to developing country needs. Preliminary studies and discussions took place in 1988 and 1989. These led up to a study aimed at an analysis of the present status of irrigation and drainage research, identifying gaps, and presenting alternative scenarios for the structure and functions of organisations which could support an international research programme. The study was authored by W. R. Rangeley and W. Field and supported by the Bank and the UK ODA. It identified needs particularly in the control of water logging and salinity, in maintenance problems and methods, and in the adaptation of modern technologies to the needs of developing countries. In addition, there is an area, the interrelationships of management and design, which overlaps with HMP's concerns. The relationship between IIMI and international research in the technological field is one aspect of the alternative scenarios; relationships with the CGIAR system is another. There will be further meetings early in 1990 to consider next steps. For further information contact Guy Le Moigne or Hervé Plusquellec, at the World Bank.

## 6. CONFERENCES

### CONFERENCE REPORTS RECEIVED

*International Conference on Irrigation Theory and Practice, 12-15 September 1989, Southampton, United Kingdom.*

Some 300 people attended this conference to celebrate 25 years of irrigation studies at the Institute of Irrigation Studies, Southampton University. Over 85 papers were presented, relating to virtually every dimension of irrigation, by a wide diversity of irrigation officials and representatives, researchers and consultants. Areas of discussion included: assessing crop water requirements; design details; the use of computers; upgrading existing technology and infrastructure; water conveyance and distribution; drainage projects; mini-project technology; farmer participation; institutional deficiencies; health issues; environmental impact and operation and maintenance issues.

The major implications of these papers were that the era of new project development is passing, so that existing resources must be better utilised and marginal resources developed. Performance and financial problems are forcing turnover or improvements in cost recovery. Operation and maintenance issues are getting better emphasis, but infrastructural deficiencies, (from design, funding and construction problems) persist and are widespread, as are weaknesses in conceptualising training and management needs to overcome these deficiencies.

Despite the impressive array of topics discussed, the irrigation community represented were still in a self-critical mood, and quite sombre on issues of gaps in design and financial planning, and the magnitude of modernisation needs. The audience agreed the need for definition of better methodologies and case studies on all the items mentioned in the first paragraph, and also pointed out some important gaps in the coverage. These included: field training needs (the engineers who aren't trained to operate), weather prediction and climatic change, pollution, environmental constraints of the future, the failure to look really into the future, (the '7th generation' view), and competition and reallocation pressures on water resources. More fundamental still was the gap of remembering why irrigation is being developed, with no paper covering the issue of poverty reduction.

Nevertheless, this was an impressive set of papers, and very impressively organised. The papers are available as a book *Irrigation Theory and Practice*, edited by J. R. Rydzewski and C. F. Ward (1989), available from Pentech Press, price £79 (\$142). This high price puts it beyond individuals, but this would be a valuable book for any library, as it represents a "state-of-the-art" collection of papers. For more information write to: Alison Thomas, John Wiley & Sons Ltd, Baffins Lane, Chichester, West Sussex PO19 1UD, UK.

*Workshop on Groundwater Use and Management in Low Rainfall Hardrock Areas, 4-6 October 1989, Water Technology Centre, Tamil Nadu Agricultural University, Coimbatore, India.*

This workshop, organised by the University and the Ford Foundation, drew participants with interests throughout the dry areas of central and southern India. Twenty two papers were presented covering both technical and socio-economic issues in groundwater development, as well as more general studies of aquifer parameters and watershed management.

Papers were presented over six sessions which covered historical perspectives, current policies, case studies and approaches. With the discussion of current policies, it was still felt that the problem needed better discussion of what policies have been tried, a critique on the processes by which they are implemented, and how poor people benefit from them. It was also important to think of the variability of management needs of groundwater in relation to resources available, and the presence of tanks or canals in the vicinity. Hardrock areas need much more reliable resource data, and better financial costings of development.

A wide variety of case studies were presented, covering technologies of extraction (dug wells, tubewells, dug-cum-bore wells, percolation tanks), financial assistance with costs (banks, NGOs) and studies of farmers' conceptualisation of groundwater availability and types of well. An immense amount of information was presented, which showed that while some themes could be generalised, we had to pay very careful attention to different management needs and the impact of groundwater depending on what other sources of water were available. Robert Chambers summarised issues under '3Ds' - data, diversity and decentralisation. All the case studies showed the problem of finding out 'the truth', emphasised the variability of conditions so

that standard designs (and related standard policies) were hard to develop, and thus led to the question of to what extent decentralisation could solve problems of investigation, analysis and action.

The 'approaches' section looked particularly at water harvesting and water saving irrigation methods, where issues of diversity of findings and impact again came to the fore.

The participants then split into discussion groups on: improved methods of data collection, analysis and dissemination; innovations in water saving; equity issues; costs of groundwater development, credit and subsidy; watershed-based planning and management; conjunctive planning and management of surface and groundwater. The discussion summaries give an excellent overview of what the current critical issues are, for research on groundwater in dryland India, and in turn, the scale of research needed if groundwater development is really to achieve the role scheduled for it in achieving both production and equity goals.

The workshop papers will be initially published as working papers of the Water Technology Centre, and the discussions of papers have been assembled as *Recommendations of the Workshop*. These can be obtained from: P. Kandaswamy, Water Technology Centre, Tamil Nadu Agricultural University, Coimbatore 641003, India. The Water Technology Centre is initiating a research Network on *Scarce Water Management*. This Network will be collecting and disseminating information about related research, with the focus on Indian work or initiatives relevant to Indian conditions. If you are interested to join, write to Dr Kandaswamy at the above address.

*Issues in the Development and Management of Groundwater Resources in East Uttar Pradesh*, by Shashi Kolavalli, A. H. Kalro and V. N. Asopa (July 1989), draws upon material discussed at a workshop at the Narendra Development University of Agricultural Technology at Faizabad, India, arranged with the support of the Ford Foundation. The report considers reasons for the slower rates of development and utilisation of groundwater in eastern Uttar Pradesh (U.P), India, compared with western U.P, and asks how conjunctive use of groundwater and surface water can be promoted, and groundwater utilisation advanced. Eastern U.P provides technical and economic challenges in decisions about irrigation strategy. While well endowed with rivers, these bring flood risks.

While high water tables favour groundwater development, well development and operation costs may be hard to offset as supplemental irrigation is required in rabi only, and electrification has been slow. Surface water irrigation by canals has been the main strategy, but this has brought waterlogging and salinisation. The report concludes with a research agenda covering prospects for different kinds of groundwater development and the development assistance required; the influences of flooding, waterlogging and salinity on technology adoption and farm strategies, and reclamation of saline soils. The paper is published by the Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad, India.

*Efficiency and Equity in Groundwater Use and Management* by Vishwa Ballabh and Tushaar Shah (March 1989), provides an overview of the workshop on *Efficiency and Equity in Groundwater Use and Management*, discussed in the last Newsletter. The workshop was held in Anand, Gujarat State, India, organised jointly by the Institute of Rural Management and the Ford Foundation. The report summarises points on the general groundwater resource position in India, and then discusses key points for the Eastern-Gangetic region, the North-West region, and hardrock areas of the Southern Peninsula. Other sections cover institutional arrangements for public and community tubewells, legal issues in water organisation and groundwater markets. The report ends with an agenda for future research and actions recommended in these areas. It is available as *Workshop Report 3*, from the Publications Officer, Institute of Rural Management, PO Box 60, Anand 388001, India.

The conference on *The Role of Social Organisers in Farmer-Managed Systems*, May 15-20 1989 held in Khon Kaen Province, Thailand is reported in the latest edition of *TRIMNET (Thailand Research on Irrigation Management Network)*. Key sections of the conference included: defining 'farmer participation' and developing supporting policies for it; understanding alternative approaches to generating farmer participation; understanding the training and support needs of social organisers (S.O); appreciating issues of flexibility and sustainability of S.O programmes; institutionalisation of S.O. TRIMNET can be obtained from the Editor, TRIMNET, FPSS Project, PO Box 26, Khon Kaen University, Khon Kaen 40002, Thailand.

We have also received papers from the workshop on *The Role of NGOs in Minor Irrigation Improvement in Sri Lanka*, held 17 March 1989 in Digana, Sri Lanka. For more details contact M. H. S. Dayaratne, IIMI, Sri Lanka.

#### FORTHCOMING CONFERENCES

*Land Drainage for Salinity Control in Arid and Semi-Arid Regions. February 26-3 March 1990. Cairo, Egypt.* Contact: ILRI, PO Box 45, 6700 AA Wageningen, Netherlands, or Drainage Research Institute, Irrigation Building, 13 Giza Street, El Giza, Cairo, Egypt.

*International Conference on Water and Wastewater. April 24-27 1990. Barcelona, Spain.* The publishers of *Water and Wastewater International* are organising this conference for professionals in water resources development, including irrigation. For information write to: Conference Organiser, Pamela Wolfe, PO Box 125, Scotch Plains, NJ 07076, USA.

*International Congress on Irrigation and Drainage. April 29-4 May 1990. Rio de Janeiro, Brazil.* For information contact: The Secretary, International Commission on Irrigation and Drainage (ICID), 48 Nyaya Marg, Chanakyapuri, New Delhi 110021, India.

*International Symposium on Development of Smallscale Water Resources in Rural Areas. May 21-25 1990. Khon Kaen, Thailand.* Contact: Carl Duisburg Gesellschaft, c/o Asian Institute of Technology, PO Box 2754, Bangkok, Thailand.

*Infrastructure for Low Income Communities. August 27-31 1990. WEDC Conference, Hyderabad, India.* For information contact: Professor John Pickford, WEDC, Loughborough University of Technology, Leics LE11 3TU, UK.

*Water Resources in Mountainous Regions. August 27-1 September 1990. Lausanne, Switzerland.* Details from Aurele Parriaux EPFL, GCBB (Ecublens), CH-1015, Lausanne, Switzerland.

*International Seminar on Groundwater Resources Management. November 1990. Bangkok, Thailand.* Details from Dr Asit K. Biswas, President, IWRA, 76 Woodstock Close, Oxford OX2 8DD, UK.

1991

*Water for Sustainable Development in the 21st Century. May 13-18 1991. Rabat, Morocco. Contact: The Secretariat, VIIIth World Congress on Water Resources, Administration de l'Hydraulique, Direction de la Recherche et de la Planification de l'Eau, Rue Hassan Ber Chekroun, Agdal-Rabat, Morocco, or Dr A. K. Biswas, President, IWRA, 76 Woodstock Close, Oxford OX2 8DD.*

*17th International Congress on Large Dams. June 1991. Vienna, Austria. Contact: International Congress on Large Dams, Secretariat, 151 Blvd Haussman, 75008, Paris, France.*

## 7. TRAINING COURSES

*Water, Engineering and Development Centre (WEDC), Loughborough University of Technology, Leicestershire LE11 3TU, UK. Diploma course from January 3-23 March 1990 on Irrigation and Water Resources.*

*The Institute of Irrigation Studies, The University, Southampton, SO9 5NH, UK, will run a short course on Rehabilitation and Management of Irrigation Projects, 21 May-28 July 1990. The course is run in association with Mott MacDonald International, Consulting Engineers, Cambridge. For details contact Mr. Martin Burton at the above address.*

*International Institute for Land Reclamation and Improvement (ILRI) are running their 29th International Post-graduate Course on Land Drainage (in English) from August 20-30 November 1990. For details write to: The Director, International Agricultural Centre, PO Box 88, 6700 AB Wageningen, The Netherlands.*

*CEFIGRE (International Training Centre for Water Resources Management), BP 113 Sophia Antipolis, 06561 Valbonne Cedex, France. Short courses will be offered on: Rehabilitation et Maintenance des Perimetres Irrigues May 28-15 June, Bamako, Mali.*

*Planning, Design and Implementation of Irrigation Schemes September 24-19 October, Bangkok, Thailand.*

*Enseignement Intelligemment Assisté par Ordinateur (EIAO) dans le Domaine de l'eau*, 19-30 November, Ouagadougou, Burkina Faso.

Write to CEFIGRE in France for details and for the full list of international training courses.

*Mananga Agricultural Management Centre, PO Box 20, Mhlume, Swaziland* (in association with Silsoe College, UK). 19-13 April 1990. *The Management of Irrigation Projects*. This four week course is for experienced irrigation managers and planners. Closing date for applications is 22 January 1990.

*Centre for International Irrigation Training and Research, 217 Royal Parade, Parkville, Victoria, Australia 3052*, will offer its six month course in *Irrigation Engineering Management*, June 18-23 November 1990, and 8 October 1990 - 22 March 1991. They also offer a Diploma course in *Irrigation Engineering* and a Masters course in *Irrigation Engineering Management*. For details write to Hector M. Malano at the above address.

*Colorado Institute for Irrigation Management, 410 University Services Centre, Colorado State University, Fort Collins, CO 80523, USA*, will be offering the following short courses in 1990. For details write to the Shortcourse Coordinator.

July 2-20, *Drainage for Irrigated Lands*; July 9-10 August, *Modern Irrigation Project Management*; July 23-10 August, *Modern Surface Irrigation Design and Management*; August 13-7 September, *Flow Regulation & Measurement in Irrigation Systems*; September 3-28, *Monitoring, Evaluation, Feedback and Management of Irrigated Agricultural Systems*; October 1-26, *Training of Trainers for Irrigation Management*; October 29-16 November, *Water Users Associations in Irrigation*; November 19-14 December, *Irrigation Systems Rehabilitation*.

*International Institute for Civil Engineering, Colorado State University, Fort Collins, CO 80523, USA*, will be offering short courses on *Microcomputer Applications in Irrigation Data and Project Management* from January 5-19 1990 and July 2-27 1990, and on *Microcomputers for Engineering Analysis of Irrigation Systems* from July 23-3 August 1990.

*International Irrigation Centre, Utah State University, Logan, Utah 84322-4150, USA*, will be running a variety of courses on irrigation during 1990, including: *Computer-Assisted Irrigation System Management*, January 7-15 December; *Waterlogging, Drainage and Salinity Control*, March 25-5 May; *On-Farm Irrigation Design and Evaluation*, May 6-16 June; *On-Farm Irrigation Scheduling*, June 17-7 July; *Main System Irrigation Scheduling*, July 8-28; *Farmer Participation and Irrigation Organisation*, August 26-15 September; *Instructional Methods and Products for Irrigation Training*, July 29-25 August; *Design of Wells and Pumps for Irrigation*, August 26-29 September; *Maintenance of Pumping System Components*, September 30-20 October; *Operation, Maintenance and Management of Irrigation Delivery Systems*, September 30-10 November. Some of these courses are in Spanish, as well as English.

## 8. NEW PUBLICATIONS

### GENERAL

### BOOK REVIEW ARTICLE

1. Robert Chambers, N. C. Saxena & Tushaar Shah, (1989), *To The Hands of the Poor: Water and Trees*. Oxford and IBH Publishing, Co. India ISBN 81-204-0428-9. (To be published by ITDG late 1989).
2. Bertin Martens, (1989), *Economic Development That Lasts: Labour Intensive Irrigation Projects in Nepal and the United Republic of Tanzania*. International Labour Office, Geneva. ISBN 92-2-106400-X.
3. Norman Long (ed), (1989), *Encounters at the Interface: A Perspective on Social Discontinuities in Rural Development*. Wageningen Studies in Sociology, 27.

These three books are all good examples of a rather rare commodity - studies which attempt to examine why we use irrigation in rural development, critically evaluate these policy interventions, and develop a framework for understanding why interventions go wrong. All too often, alas, we lose sight of these issues in a plethora of technical workbooks or generalised case studies.

*To The Hands of the Poor* by Chambers, Saxena and Shah concentrates on the potential of lift irrigation schemes (L.I.S), particularly groundwater, and of trees, to alleviate rural poverty in India, using Indian case study material. Although in the introduction and conclusions the authors seek to show the scope of water and tree programmes jointly in rural development initiatives, there is also a large section specifically on groundwater development, and also one on tree programmes. The book is extremely well written, in a style easy to read, with excellent abstracts at the beginning of each section. It also manages to provide very neat summaries of issues in phrases and tables which will be a bonus to fieldworkers and students. Meanings of poverty, (and escape from it) are studied through themes of 'survival, security and self-respect', and the potential of anti-poverty programmes looked at for providing land reform, asset provision and income and consumption support. The authors also take on considerations of practical political economy in studying the potential of different strategies to happen and effect change.

The practical development policies reviewed for L.I.S are: state tubewells, institutional and credit support, subsidies for resource-poor farmers, spacing and licensing norms, rural electrification and electricity pricing and management. However, the discussion focuses heavily on water markets and on electricity tariffs, with the authors strongly in favour of flat tariffs (to a degree likely to be controversial to proponents of other tariffs). Coordinated institutional support in power pricing, power management and support to resource-poor farmers is seen as crucial. However, the authors try to show that different policies have different potential for 'water abundant' and 'water scarce' regions.

The strength of this book lies in its summary of issues, but therein lies its one weakness. While the book has good case study material on 'water abundant' areas, and on the 'core' poverty area of India, it is less strong on the 'water-scarce' regions, and particularly some of the resource planning issues and high costs and risks of some groundwater development. Also, perhaps deliberately, it does not encompass a study of the kind of bureaucratic changes required to promote these beneficial interventions. We can only hope that this highly readable and informative book stimulates further policy debate and development initiatives that the authors can document in another book in the near future.

Special public work programmes (SPWP) have been used as development interventions in many countries. *Economic Development That Lasts* by Bertin Martens discusses SPWP projects funded by ILO in Nepal and Tanzania. The book first discusses the development of theory supporting the promotion of labour-intensive public works in developing countries. Three case studies are then used to test these theories, to show the kind of economic studies which should be used to test the viability of SPWP (and the weakness of existing methods), and finally to show the problems in developing SPWP and managing infrastructure installed. The case study in Nepal is Bhorletar in Gandaki zone, and in Tanzania the case studies are the Mnenia project in Dodoma region and Mto wa Mbu in Arusha region.

The book ends with a synthesis of findings in the areas of investment cost, construction technology, employment creation, popular participation, income generation and distribution, and sustainability and replicability.

This should be a useful book for planners involved with public works programmes, which all too often happen for pragmatic political reasons rather than the altruistic aspirations of the theory. The book shows that the 'self-help' ethos which some may associate with public works is neither that common nor that easy to develop. However, in the case studies the costs of the employment generated are outweighed by local and national benefits from the infrastructure, as the theory suggests, though not without some adverse local differentiation.

The book does not give detailed information of ideas on how to organise labour and budgets or develop participation. However, through the case studies and conclusions it does demonstrate pitfalls in certain approaches and highlights important issues to be considered. Key points are made in the areas of funding, labour organisation, execution, equity, participation and sustainability.

Jointly the case studies provide an extremely useful illustration of the way failures to think about the balance of 'self-help' labour with wage labour, the methods of construction of primary and local structures, and about maintenance, have substantial effects on prospects for local participation and the sustainability of the project. The Tanzanian case studies also show the problems of declining labour productivity in an environment of inflation and

currency depreciation. Equity concerns include differences between short-term and long-term beneficiaries, and differentiation as a result of the project and the wider effects of the expenditure on the locality.

The writer has made a commendable attempt to keep the text as simple as possible, while at the same time providing statistical and econometric studies to validate his work. The focus of the study is economic and social rather than technical; there is no sophisticated irrigation jargon, but a non-economist might need help in following up some of the statements relating to cost-benefit, exchange rates and shadow pricing. However, the book is written so that one can follow the arguments of the text regardless of specific detail.

Occasionally, the concise style of writing does make for difficult reading as points, facts or arguments are made in a series of short sentences. This seems mainly a problem with the Tanzanian studies, and may reflect what were clearly substantial problems in obtaining data and summarising it in a meaningful way. However, overall, it is an accessible and informative book.

*Encounters at the Interface*, edited by Norman Long, introduces the concept of an 'interface' to analyse interventions in the rural sector, with papers demonstrating this idea with extensive case study material on irrigation in Mexico. Long defines a 'social interface' as a 'critical point of intersection or linkage between different social systems, fields or levels of social order where structural discontinuities, based upon differences of normative value and social interest, are most likely to be found'. Long sees such a concept as useful in three urgent areas for research in rural development: (1) to develop a better analytical approach to understanding relationships between policy, implementation and outcomes; (2) to develop a sounder comparative analysis of the processes by which 'target' and 'non-target' populations respond to planned interventions; (3) to resolve serious theoretical gaps in the analysis of social change and rural development. Long's analysis of these three points is important, as is another theoretical paper by Jan Ubels on understanding irrigation development as an interactional process. Ubels summarises a number of important issues in irrigation literature, and suggests one conclusion from all of them - 'problems relate, not so much to the handling of the water itself, but to the ways in which people act and interact in response to the issues posed by the particular irrigation system'.

However, as Ubel points out, translation of this simple conclusion into concrete guidelines and concepts for the management of irrigation projects is often missing. His general points thus relate with the analyses of Levine and Coward, and Vermillion in this set of papers.

The theoretical papers are put together with a somewhat idiosyncratic set of ethnographic and agricultural studies, drawing heavily on Mexican irrigation experience (also Ecuador, Sri Lanka and Tunisia), as well as broader agricultural studies from Peru, the Dominican Republic and Indonesia. This latter group has some very interesting material on indigenous knowledge systems. Overall, it is a somewhat eclectic set of papers, possibly written in language too academic for many Network readers, but important for all workers concerned to improve the outcome of irrigation in rural development. The book helps to define the characteristics of investigations required, and the kind of research methodologies which are useful for these investigations of interaction.

This book, despite some abstruse sections, is a real reminder of the important contribution sociology and anthropology can make to methodology and theory in irrigation development, far removed from the restricted and insignificant role they are all too often given in planning and implementing irrigation projects.

The book by Chambers, Saxena and Shah may soon be available through ITDG 'Books by Post'. For their catalogue and order form write to: IT Publications, 103-105 Southampton Row, London WC1B 4HH, UK.

For the book edited by Norman Long, the ordering address is: Pudoc, PO Box 4, 6700 AA Wageningen, The Netherlands, or your bookseller.

#### OTHER BOOKS RECEIVED

David Freeman et al, *Local Organisations for Social Development: Concepts and Cases of Irrigation Organisation*, Westview Press, 1989. This is an important book which not only reports on case studies of farmer organisation - or lack of organisation - in particular sites in the Punjab, Pakistan, Madhya Pradesh, India and in Sri Lanka, but also uses them to construct an analytical concept and to draw out practical conclusions. The basic idea derives from

Drucker 'The best structure will not guarantee results and performance, but the wrong structure is a guarantee of non-performance', and applies it to water user associations. In WUAs, as in many other human activities, there is the basic problem of how to deny benefits to free riders who are naturally inclined to take advantage of the communal efforts of others. There is a need for a middle level organisation between the public irrigation system delivering water to a certain point and individual farmers; its structural requirements are 'local control over resources and appropriate linkages with the public organisation'. The case studies test the thesis that water control is an important determinant of crop yields and of farmers' willingness to act collectively to secure maintenance and equitable distribution. The organisational arrangements in each case have varying degrees of inadequacy, affecting yields and setting in motion a vicious circle.

*Food & Agriculture Organisation (1989), Spate Irrigation. Land and Water Development Division Working Paper AG/UNDP/RAB/84/030.* This is the published version of the *Proceedings of the Sub-regional Expert Consultation on Wadi Development for Agriculture in the Natural Yemen*, held 6 - 10 December 1987 in Aden. We first discussed these proceedings in the Newsletter 88/1a.

Spate irrigation refers to the use of seasonal flood waters for irrigation, which is a traditional form of irrigation practised in many arid countries, especially in the Middle East and North Africa. This report offers a 'state-of-the-art' collection of papers, which examine the technical and social options and issues in this irrigation technique. The challenges of modernisation, and of more general wadi development, are important themes. Country statements are given for PDR Yemen, Yemen Arab Republic, Algeria, Egypt, Morocco, Pakistan, Somalia, Sudan and Tunisia. Recommendations are made for: active study of traditional spate systems; information exchange; wadi hydrology; diversion structures; sediment control; flood protection and wadi training; distribution and field irrigation systems; agricultural aspects of spate irrigation; groundwater development; training, operation and maintenance.

If you have any difficulties obtaining this report, please contact Swayne F. Scott, Chief, Water Resources, Development and Management Service at FAO.

*International Rice Research Institute (1988), Vector-Borne Disease Control in Humans Through Rice Agroecosystem Management, (in collaboration with the WHO/FAO/UNEP Panel of Experts on Environmental Management for Vector Control).* This is the Proceedings of the workshop on *Research and Training Needs in the Field of Integrated Vector-Borne Disease Control in Rice Land Agroecosystems of Developing Countries*, held 9-14 March 1987. Twenty two papers are included. The first papers give an overview of tropical rice ecosystems and their links with disease, then a second section studies the impact of engineering, agronomy and water management on disease vectors. The last two sections look at strategies of control, both of the vectors and of the diseases in individual and integrated strategies. Several papers provide regional overviews for Africa, Southeast Asia and the West Pacific, as well as case studies from Japan, China and Indonesia. Diseases discussed include Japanese encephalitis, malaria, filariasis and rodent-related diseases. The papers attempt to answer questions like why vector-borne diseases are rare in some irrigation schemes and endemic in others, and how public health management can be better integrated with water management. IRRI Publications can be obtained from: Publications, IRRI, PO box 933, Manila, Philippines.

*International Commission on Irrigation and Drainage (1989). Planning the Management, Operation and Maintenance of Irrigation and Drainage Systems. A Guide for the Preparation of Strategies and manuals. World Bank Technical Paper 99. ISBN 0-8213-1231-6.* This book has been prepared to help organisations responsible for operation and maintenance of irrigation and drainage systems to develop strategies and prepare plans for proper and effective operation and maintenance. It provides the basis for the preparation of manuals necessary for managers and staff to perform needed activities at the proper time. The guide provides a comprehensive list of issues that should be addressed in operation and maintenance manuals for irrigation and drainage systems, and a listing of published materials and working papers which will assist in the formulation of plans for operation and maintenance.

Sections of the book look respectively at: operation and maintenance responsibilities at different stages of project development; detailed aspects of system operation and system maintenance; administration; water users; budget development and programming; monitoring and evaluation. Annexes provide: studies

of documents necessary for operation and maintenance work and case studies on the Royal Irrigation Department, Thailand; the Narmada River Development in Madhya Pradesh, India; the Rural Water Commission of Victoria, Australia.

This guide should serve as a valuable tool to help improve performance of irrigation and drainage systems. It was prepared to assist managers in developing and improving effective organisations to serve water consumers better.

*Public Sector Irrigation Training: Guidelines for Preparing Strategies and Programmes*, May 1989, is a companion document to the manual just cited. It reviews approaches to training and discusses some important choices which managers must make in planning appropriate training strategies. The annexes include: lists of international and national institutions involved with irrigation training and techniques for conducting a training needs assessment. The report is presented jointly by the Economic Development Institute of the World Bank and USAID.

These two World Bank reports are available from the Publications Sales Unit, Department F, The World Bank, 1818 H Street NW, Washington, DC 20433, USA.

Dhawan, B. D. (1989), *Studies in Irrigation and Water Management*, Commonwealth Publishers, New Delhi, India. This volume is a collection of papers, published by the author since 1987, reviewing issues in irrigation management in India. The papers cover many critical topics for Indian irrigation, such as big dam development, the productivity of canal irrigation, promoting and controlling groundwater development, and conjunctive use of resources. The author uses both policy documents and field research to illustrate his points.

Plusquellec, H. (1989), *Two Irrigation Systems in Colombia: Their Performance and Transfer of Management to Users' Associations*. *World Bank Working Paper 264*. Two Colombian projects show how local farmers can manage an irrigation system in a developing country if the management and personnel are well-trained and motivated, and if the infrastructure is in good condition at the time management is turned over to the farmers. Copies are available free from The World Bank, 1818 H Street NW, Washington DC

20433, USA. This study has been carried out in collaboration with IIMI.

## IIMI PUBLICATIONS

For information contact the Information Office, International Irrigation Management Institute, 64 Lotus Road, Colombo 1, Sri Lanka.

The summaries presented here are abstracts or summaries taken from the books themselves.

IIMI Country Paper - Sri Lanka, No.1. Namika Raby and Douglas J. Merrey (1989), *Professional Management in Irrigation Systems: A Case Study of Performance Control in Mahaweli System II, Sri Lanka*, (97 pages), ISBN: 92-9090-119-5. IIMI Pub 86-03. This book presents a descriptive study on decision-making in irrigation management. The authors have selected an irrigation management agency in Sri Lanka and have examined in detail the goals, alternatives, the formal and informal dimensions of the managerial process within the agency, and the outcomes of this process. Though the study focuses on Sri Lanka, its findings are applicable not just to Sri Lanka but to irrigation management the world over. The study will be of value to professional irrigation managers in particular and to the broader professional and academic community working on irrigation management problems.

IIMI Country Paper - Pakistan, No.3. Edward J. Vander Velde (1989), *Irrigation Management in Pakistan Mountain Environments*. (48p). ISBN: 92-9090-152-7. Although the mountains of northern Pakistan are, in large measure, the source of water for the large irrigation systems that dominate the Indus Basin, comparatively little is known about irrigation systems there or elsewhere in the mountains of Pakistan. However, Pakistan's mountain environments are increasingly becoming the focus of substantial rural development projects that seek to expand or strengthen the agricultural base of the economy in what are, arguably, the poorest regions of the country. Such programs are likely to require a different approach to irrigation system development as well as a more comprehensive water management strategy if the objective outcomes of such projects are to be sustained. This paper is an initial attempt to determine the extent of irrigated agriculture in Pakistan's mountains, to focus attention upon changes already

underway in some areas as a result of irrigation development activities, and to identify important knowledge gaps that will need to be filled by more systematic and multidisciplinary research.

IMI Case Study No.2. (Sri Lanka). A. M. S. Sunil Gunadasa (1989). *The Kimbulwana Oya Irrigation Scheme: An Approach to Improved System Management.* (52p). ISBN: 92-9090-111-X. HMI Pub 87-10. This case study describes the problems which existed in the scheme prior to its rehabilitation in 1979 and the associated irrigation management innovations introduced by the author, who was assigned as a technical assistant by the Irrigation Department that year. Some of the management innovations included the provision of a simplified form of technical guidance to farmers and using organised farmer participation in the operation and maintenance of the system through a Water Issue Board. A systematic rotational distribution of water was introduced, with an advance in the cultivation calendar, and increase in cropping intensity. Farmers were motivated to take over the responsibility for the maintenance of the system from the government, and to continue to improve the physical and operational condition of the system.

#### HMI REPORTS

Study on Irrigation Systems, Rehabilitation and Improved Operations and Management, for ADB Regional Technical Assistance 5273, (3 Volumes).

*Vol. I. Activity A: Rehabilitation and Improvement for Management.* This report makes a management-oriented critique of main canal operations, studying the implications of planning and design of main systems for their management and performance. Case studies used are from the Mahaweli Authority, Sri Lanka, the Kirindi Oya Irrigation and Settlement Project, Sri Lanka, the Rajangan Irrigation Scheme, Sri Lanka and the Upper Pampang River System in the Philippines. Main canal regulation has been analysed from three points of view: its impact on the distribution of flows from the main canal; its contribution to the manageability of the physical systems; its implications for managerial requirements. Field investigations and analyses, based on data collected 1988, examine the actual conditions under which (a) canal operators exert control on the flow of water, (b) decision-making for canal regulations

takes place at various operational levels. The report gives both general and specific recommendations.

*Vol.2. Activity B: Dry-Season Irrigation Management for Rice-Based Systems.* This report gives a synthesis of IIMI's research on irrigation management for crop diversification in Indonesia, the Philippines and Sri Lanka. The report also summarises the various activities connected with the preparation and organisation of a research network on irrigation management for crop diversification which culminated in a planning and organisational workshop held at the Asian Institute of Technology (AIT) Centre in Bangkok, in early December 1988. Write to Dr Senen Miranda at IIMI if you would like more information about this network.

*Vol.3. Financing the Costs of Irrigation.* Details of this volume will be given in the next Newsletter.

## 9. JOURNALS RECEIVED

The last two sections of the *International Journal of Water Resources Development* have several articles pertinent to regular themes in our Network Papers. In Vol. 5(3) Mahmoud Abu Zaid looks at *Environmental Impacts of the Aswan High Dam - A Case Study* (pg 147-157), and Yacov Teur et al use Israeli groundwater conditions as a study for *Fossil Groundwater Resources as a Basis for Arid Zone Development? An Economic Case Study* (pg 191-201). S. T. Somashekara Reddy contributes to the debate on groundwater in India in *Declining Groundwater Levels in India* (pg 169-174), while Umesh C. Chaube documents the controversies of larger schemes in India in *Rehabilitating Oustees in the Narmada Basin, India* (pg 174-182). Indian water resources were a strong feature also of the previous section, Vol.5 (2). R. Vidyasager Rao looks at *Large and Small Dams In India* (pg 136-142); Syed I. Hasnain looks at *Himalayan Glaciers as a Sustainable Resource* (pg 106-112), and Kumar and Pathak look at *Optimal Crop Planning for a Region in India by Conjunctive Use of Surface and Groundwater* (pg 99-105). Other countries also represented include Egypt, where Fatma Abdel Rahman Attia also considers groundwater development and regional conjunctive use in *Use of Groundwater for Irrigation in the Nile Valley* (pg 91-98), and Nigeria, where Are Kolawola joins the debate on performance with

his article *Underperformance of Nigerian Irrigation Systems: Design Faults or System Mismanagement?* (pg 125-135).

*Water Resources Management* 3(2), 1989, includes two technical communications on the Chi River Basin, Thailand. B. S. Piper et al look at *A Simulation Model for Planning Water Resource Developments in the Chi River Basin* (pg 141-154), and at *The Chi River Basin Irrigation Demand Model* (pg 155-164).

*WAMANA* 4(3), 1989, has three papers relating to gravity-flow irrigation systems and their management in India, and a paper by S. Satish (pg 31-41), on public tubewells in Uttar Pradesh which continues the debate on the returns to investment on these types of groundwater development. The studies of surface water irrigation are by Satnarayan Singh, writing on *Issues in Canal Operations in South India* (pg 1-13), G. N. Kathpalia, who gives a study of the *Command Area Development Programme in India* (pg 14-23), and R. Venkataswamy, who documents a success story of a farmers' organisation in a tank system in Tamil Nadu (pg 24-30).

The *ODU Bulletin, No.15*, for July 1989, focuses on studies in reclaiming saline clay soils. This edition covers both a review of problems and details of studies from Turkey. The Bulletin also lists publications by Hydraulics Research on salinity in clay and sandy soils. For more details write to Dr Sanmangunathan, ODU, Hydraulics Research, Wallingford, Oxfordshire OX10 8BA, UK.

In the *ICID Bulletin, Vol.38(1)* for 1989, Oad and Podmore (pg 1-12), report data from Central Java, Indonesia in *Irrigation Management in Rice-based Agriculture: Concept of Relative Water Supply* in a study relevant to issues of crop diversification and management needs; Stegman (pg 31-41) looks at the relationship of expansion and markets in Brazil in *On Choosing Cropping Patterns and Rates of Implementation of Large Irrigation Projects*; Oad and McCornick (pg 42-53) look at *Methodology for Assessing the Performance of Irrigated Agriculture*.

*Irrigation and Drainage Systems* 3(2), 1989, includes articles by Small (pg 125-142) on *User Charges in Irrigation: Potentials and Limitations*; by Constable, Tregear and Foley (pg 169-180) on *Strategy and Programme Development for International Irrigation Training* looking at new training developments in Australia; Ahmad and Heerman (pg 193-203) report on *Irrigation Scheduling and*

*Water Availability at Watercourse Command in Pakistan. In Vol.3(1), 1989, Frederiksen (pg 63-82) reports results from a questionnaire on Operation and Maintenance Experience with Various Canal Linings based on American projects.*

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