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**A SELECTED
BIBLIOGRAPHY
ON IRRIGATION MANAGEMENT**

(Documents entered in the Irrigation Management Information Network
(IMIN) Database in 1988)
Volume 2, Number 1

Library and Documentation Service
International Irrigation Management Institute

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BIBLIOGRAPHY
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Volume 2, Number 1

International Irrigation Management Institute
Digana Village via Kandy,
Sri Lanka

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PREFACE

The Bibliography compiled by the IIMI Headquarters Library & Documentation Service is a semi-annual computer produced listing of literature on irrigation management and related topics from the Irrigation Management Information Network database. This volume of the bibliography supplements the earlier volumes. It is not an exhaustive coverage of the literature in this area, but many significant writings across a spectrum of disciplines that address irrigation management are covered and may stimulate interest among researchers, policy makers and extension workers.

The citations are organized according to broad Dewey Decimal Classification divisions. As the majority of the documents fall in the area of irrigation management, that subject has been further expanded by IIMI to better distinguish particular aspects. Within each category entries are arranged in alphabetical order of author and title. Abstracts are included where feasible.

In addition to the categorical divisions, each citation has been assigned specific keyword and geographical terms, bringing together the citations on more specific topics

regardless of the category in which they are located in the main body of the bibliography. Author and title indexes are included to facilitate access to the individual citations.

Entries are added to the Bibliography as they are acquired by collaborating units rather than according to date of issue. Therefore citations include old as well as new documents.

It is expected that the bibliography will assist those interested in irrigation management to locate a wide variety of materials on the subject. All documents included in the bibliography are housed in the collaborating institution(s) indicated by the location code.

Requests for searches, compilation of bibliographic information from the database, and photocopy services may be addressed to the IIMI Library and Documentation Service. IIMI will provide photocopies of non-copyright materials available at headquarters, or help obtain documents through inter-library loan.

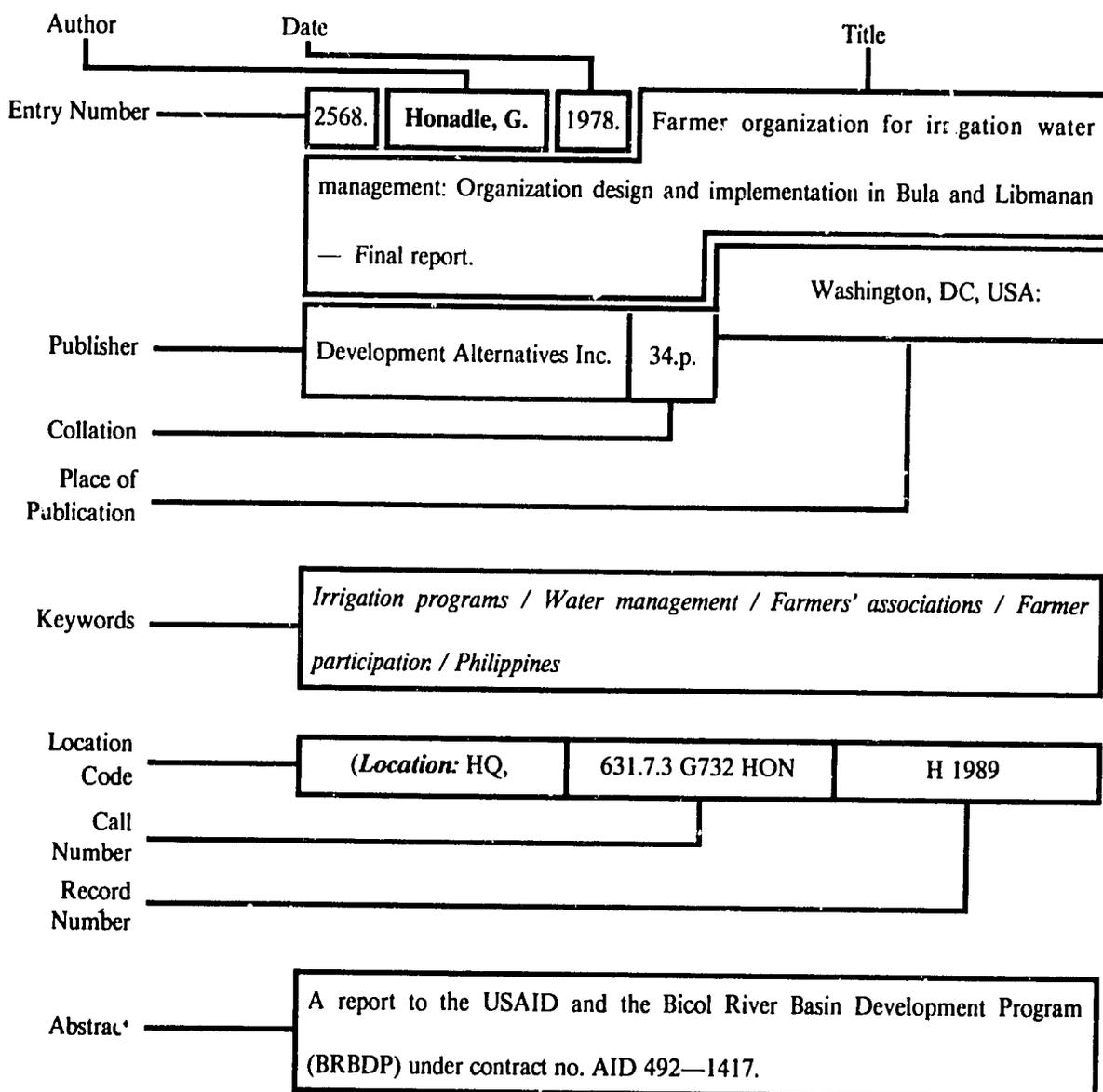
ACKNOWLEDGEMENTS

In the compilation of this second volume of the Bibliography, I have been assisted by a number of people both here at IIMI and at our collaborating institutions. I would like to thank them for their support in preparing records for the database, and willingness to follow the strict standards set for this cooperative venture.

Helpful suggestions on the keywords were made by many of the research staff at IIMI headquarters.

Ramya de Silva
Documentalist
Library and Documentation Service
29 March 1989

GUIDE TO ENTRIES



ABBREVIATIONS

Abbreviation Name

ADB	Asian Development Bank
CIDA	Canadian International Development Agency
FAO	Food and Agriculture Organization of the United Nations
ICARDA	International Centre for Agricultural Research in the Dry Areas
ICID	International Commission for Irrigation and Drainage
IDRC	International Development Research Centre
IIMI	International Irrigation Management Institute
IRRI	International Rice Research Institute
ODI	Overseas Development Institute
UN	United Nations
UNDP	United Nations Development Programme
US	United States
USAID	United States Agency for International Development
WHO	World Health Organization

LOCATION CODES

HQ	IIMI Headquarters, Digana Village, Sri Lanka
IND	IIMI Indonesia Field Operations Office, Jakarta, Indonesia
ODI	Overseas Development Institute, London, UK

GENERALITIES

2365. Hull, C. H.; Nie, N. H. 1979. SPSS update: New procedures and facilities for releases 7 and 8. New York, NY, USA: McGraw-Hill. xc, 172 p.

Computer software / Data processing

(Location: HQ Call No: 000.6425 G000 HUL
Record No: H 2501)

Research

2366. Kerlinger, F. N. 1973. Foundations of behavioral research. New York, NY, USA: Holt, Rinehart and Winston Inc. xx, 741 p.

Probability analysis / Research / Regression analysis

(Location: HQ Call No: 001.4 G000 KER
Record No: H 2541)

2367. Means, G. P. Survey research in peasant society: Some research experience from Indonesia. Typescript. 25 p.

Research / Surveys / Indonesia

(Location: HQ Call No: 001.4 G662 MEA
Record No: H 2594)

Communication

2368. 1979. Conference on the Communication Responsibilities of the International Agricultural Research Centers, Los Banos, Philippines, 14-19 May 1979. Papers presented at the conference. v.p.

Communication / Institutions / Agricultural research

(Location: HQ Call No: 001.51 G000 CON
Record No: H 2257)

2369. Lindh, G. 1986. Scenarios for the preparation of guidance and audio-visual material for planners and decision-makers. Paris, France: UNESCO. ix, 19 p. (Technical documents in hydrology - IHP - III Project 12.1.b)

Information services / Problem analysis / Benefits / Case studies

(Location: HQ Call No: 001.553 G000 LIN
Record No: H 2575)

Electronic data processing

2370. Verwey, A. (Ed.) 1985. International colloquium on the role of micro-computers in hydraulic and hydrological research and education, Delft, 14-15 June 1984. Paris, France: UNESCO. ii, 93 p.

Computers / Hydraulics / Research / Education

(Location: HQ Call No: 001.64 G000 VER
Record No: H 2566)

Computer programs and programming

2371. Jenkins, D. 1986. dBase III: Tips and tricks. New Jersey, NJ, USA: Hayden Book Co. 160 p.

Computer software

(Location: HQ Call No: 001.642 G000 JEN
Record No: H 2401)

2372. Nie N. H.; Hull, C. H.; Jenkins, J. G.; Steinbrenner, K.; Bert, D. H. 1975. SPSS statistical package for the social sciences. New York, NY, USA: McGraw-Hill. 675 p.

Computer software / Statistics / Data processing

(Location: HQ Call No: 001.6425 G000 NIE
Record No: H 2502)

2373. Tufte, E. R. 1986. The visual display of quantitative information. Connecticut, CT, USA: Graphics Press. v. p.

Computers / Data processing / Information / Statistics / Design / Graphics

(Location: HQ Call No: 001.6443 G000 TUF
Record No: H 2715)

SOCIAL SCIENCES

2374. Blalock, H. M. Jr. 1984. Basic dilemmas in the social sciences. Beverly Hills, CA, USA: Sage. 184 p.

Social science

(Location: HQ Call No: 300 G000 BLO Record
No: H 2307)

2375. Babbie, E. R. 1973. The practice of social research. Belmont, CA, USA: Wadsworth Publishing Co.

Analysis / Research

(Location: HQ Call No: 300.72 G000 BAB
Record No: H 2543)

2376. Geertz, C., Geertz, H.; Rosen, L. 1979. Meaning and order in Moroccan society: Three essays in cultural analysis. Cambridge, UK: CUP. xi, 510 p.

Sociological analysis / Anthropology / Morocco

(Location: HQ Call No: 301 G236 GER Record
No: H 2719)

2377. Uphoff, N. 1986. Local institutional development: An analytical sourcebook with cases. Connecticut, CT, USA: Kumarian Press. 421 p.

Institution building / Natural resources / Developing countries / Resource management / Agricultural development / Health / Economic aspects / Rural development

(Location: HQ Call No: 302.35 G000 UPH
Record No: H 2008)

Culture and institutions

2378. **Green, E. C.** (Ed.) 1986. Practicing development anthropology. Boulder, CO, USA: Westview Press. xi, 283 p. (Westview special studies in applied anthropology)
Anthropology / Case studies / Irrigation effects / Development
(Location: HQ Call No: 306 G000 GRE Record No: H 2215)

2379. **USAID.** 1983. Institutional development. Washington, DC, USA : USAID. Bureau of Program and Policy Coordination. 10 p.
Development / Analysis / Institutional constraints / Non-governmental organizations / Technology transfer
(Location: HQ Call No: 306 G000 USA Record No: H 2362)

Communities

2380. **Korten, D. C.** (Ed.) 1986. Community management: Asian experience and perspectives. Hartford, CT, USA: Kumarian Press. xxii, 328 p.
Community development / Economic development / Water management / Resource management / Rural sociology / Social aspects / Policy / Asia
(Location: HQ Call No: 307.7 G570 KOR Record No: H 2718)

Rural sociology

2381. 1985. International Conference on Rapid Rural Appraisal, Khon Kaen, Thailand, 2-5 September 1985. Khon Kaen, Thailand : Khon Kaen University. v. p.
Project appraisal / Rural sociology / Farming
(Location: HQ Call No: 307.72 G000 INT Record No: H 2510)

2382. **Cohen, J. M.; Uphoff, N. T.** 1980. Participation's place in rural development: Seeking clarity through specificity. World Development, 8:213-235.
Rural development / Development projects
(Location: HQ Call No: 307.72 G000 COH Record No: H 2569)

2383. **Krause, G.; Perera, J.** 1977. The role of local groups in rural development: A case study of a village in the Class II coconut area - Colombo District. Colombo, Sri Lanka: ARTI. 33 p. (ARTI research study series no. 20)
Rural development / Case studies / Agricultural production / Institutions / Sri Lanka
(Location: HQ Call No: 307.72 G744 KRA Record No: H 2495)

2384. **Lebbe, T.; Wickramasinghe, G.; Krause, G.** 1977. The role of local groups in rural development - Mawegamm village: A case study of a village in the North Central Province. Colombo, Sri Lanka: ARTI. iv, 40 p. (ARTI research study series no. 21)

Case studies / Rural development / Agricultural production / Employment / Institutions / Sri Lanka
(Location: HQ Call No: 307.72 G744 LEB Record No: H 2496)

2385. **Moore, M. P.; Wickramasinghe G.** 1978. Managing the village environment. Colombo, Sri Lanka: ARTI. 26 p. (ARTI research study series no. 16)

Employment / Environmental control / Farming / Deforestation / Irrigation / Drainage / Sri Lanka
(Location: HQ Call No: 307.72 G744 MOO Record No: H 2494)

2386. **Panditharatne, N. G. P.** 1984. Mahaweli settlers and the problems of rural credit. Colombo, Sri Lanka: Central Bank. 20 p. (Central Bank occasional papers no. 9)

Settlement patterns / Rural sociology / Development projects / Credit policy / Sri Lanka / Mahaweli Project

(Location: HQ Call No: 307.72 G744 PAN Record No: H 2545)

Abstract: Third anniversary lecture of the Rural Banking and Staff Training College.

2387. **Ratliff, C. E.** 1975. Rural development in Pakistan. Pakistan Economist, 15(16):14-20.

Rural development / Living conditions / Pakistan
(Location: HQ Call No: 307.72 G730 RAT Record No: H 2553)

2388. **Wanasinghe, U. A. D. S.** 1982. Galnewa township. In Wimaladharma, K. P. (Ed.), Land settlement experiences in Sri Lanka. Colombo, Sri Lanka: Karunaratne & Sons. pp. 123-138.

Rural development / Social development / Irrigation programs / Sri Lanka
(Location: HQ Call No: 631.7.8 G744 WIM Record No: H 2623)

Statistics

2389. **Sri Lanka. Ministry of Plan Implementation. Department of Census and Statistics.** 1987. Statistical abstract of the Democratic Socialist Republic of Sri Lanka 1985. Colombo, Sri Lanka: Department of Census and Statistics. xv, 395 p.

Social aspects / Statistics / Agriculture / Forestry / Labor / Employment / Population / Sri Lanka
(Location: HQ Call No: 310 G744 SRI Record No: H 2592)

2390. **Sri Lanka. Ministry of Plan Implementation. Department of Census and Statistics.** 1986. Statistical pocket book of the Democratic Socialist Republic of Sri Lanka 1986. Colombo, Sri Lanka: The Department. xiii, 214 p.

Statistics / Agriculture / Population / Social development / Sri Lanka

(Location: HQ Call No: R 310.02 G744 SRI Record No: H 2593)

Economics

2391. **Central Bank of Sri Lanka. Statistics Department.** 1985. Economic and social statistics of Sri Lanka. Vol. VIII. Colombo, Sri Lanka: Central Bank. ii, 108 p.

Economic analysis / Statistical analysis / Population / Financing / Trade / Agriculture / Sri Lanka

(Location: HQ Call No: 330.0212 G744 CEN Record No: H 2640)

2392. **Central Bank of Sri Lanka. Statistics Department.** 1987. Sri Lanka socio-economic data 1987. Colombo, Sri Lanka: Central Bank. 36 p.

Data collection / Statistics / Economic analysis / Sri Lanka

(Location: HQ Call No: R 330.90212 G744 CEN Record No: H 2597)

Labor economics

2393. **Senaka Arachchi, R. G.** 1985. Non farm employment in the rural sector of Sri Lanka: Trends and prospects. Colombo, Sri Lanka: Department of Economics, University of Colombo. 36 p. (Department of Economics seminar paper no. 4/85)

Rural sociology / Employment / Labor / Economic aspects / Farms / Sri Lanka

(Location: HQ Call No: 331 G744 SEN Record No: H 2505)

Financial economics

2394. **Gunawardene, P. J.** 1981. Agricultural credit schemes under the Kurunegala Rural Development Project: An evaluation. Colombo, Sri Lanka: ARTI. vi, 57 p. (ARTI research study no. 49)

Agricultural policy / Rural development / Agricultural credit / Sri Lanka

(Location: HQ Call No: 332.71 G744 GUN Record No: H 2504)

2395. **Sri Lanka. Ministry of Finance and Planning. National Planning Division.** 1984. Rural credit: Trends and prospects. Colombo, Sri Lanka: The Ministry. 34 p. (National agriculture, food and nutrition strategy special report no. 4)

Agricultural development / Rural economy / Credit policy / Sri Lanka

(Location: HQ Call No: 332.71 G744 SRI Record No: H 2493)

Land economics

2396. **Barker, R.** 1978. Some observations on agrarian reform and rural development in Asia. Paper prepared for USAID/FAO seminar, Washington, DC, USA, 11-12 October 1978. v.p.

Land resources / Crop yield / Agricultural production / Farming

(Location: HQ Call No: 333 G570 BAR Record No: H 2570)

2397. **Ellman, A. O.; de S. Ranaweera, D.; Silva, K. T.; Wickramasinghe, G.** 1976. Land settlement in Sri Lanka 1840-1975: A review of the major writings on the subject. Colombo, Sri Lanka: ARTI. 113 p. (ARTI research study series no. 16)

Settlement patterns / Land reform / Policy / Sri Lanka

(Location: HQ Call No. 333 G744 ELL Record No: H 2506)

2398. **Moore, M. P.; Wickramasinghe, G.** 1978. Thattumaru - Kattimaru systems of land tenure. Colombo, Sri Lanka: ARTI. v, 52 p. (ARTI research study series no. 26)

Land tenure / Case studies / Conflict / Sri Lanka

(Location: HQ Call No: 333.3 G744 MOO Record No: H 2507)

Land resources

2399. **Little, P. D.; Horowitz, M. M.; Nyerges, A. E.** (Eds.) 1987. Lands at risk in the third world: Local level perspectives. Boulder, CO, USA: Westview Press. xiii, 416 p. (Monographs in development anthropology)

Land resources / Resource management / Agricultural production / Irrigation

(Location: HQ Call No: 333.73 G000 LIT Record No: H 2716)

Rural lands

2400. **Blaikie, P.** 1985. The political economy of soil erosion in developing countries. New York, NY, USA: Longman Group Ltd. 188 p.

Economic aspects / Erosion / Developing countries / Soil conservation / Policy / Political attitudes / Agriculture

(Location: HQ Call No: 333.76 G000 BLA Record No: H 1963)

Water resources

2401. **Jorden, W. P.** (Ed.) 1985. Water and water policy in world food supplies: Proceedings of the Conference, College Station, Texas, USA, 26-30 May 1985. Texas, TX, USA: Texas A & M University Press. 452 p.

Water supply / Water policy / Irrigation / Food production / Salinity / Agricultural development / Water management / Water resources development / Energy

(Location: HQ Call No: 333.91 G000 JOR
Record No: H 2578)

2402. **Lundqvist, J.; Lohm, U.; Falkenmark, M.** (Eds.) 1985. Strategies for river basin management: Environmental integration of land and water in a river basin. Dordrecht, Holland: Reidel. 346 p.

River basin development / Land use / Environmental control / Water resources development

(Location: HQ Call No: 333.91 G000 LUN
Record No: H 2325)

2403. **Majov, D. C.; Lenton, R. L.** 1979. Applied water resources systems planning. New Jersey, NJ, USA: Prentice Hall. viii, 248 p.

Water resources development / Mathematical models / Simulation / Irrigation design / Planning / Argentina / Rio Colorado

(Location: HQ Call No: 333.91 G510 MAJ
Record No: H 2641)

Production

2404. **Esman, M. J.; Uphoff, N. T.** 1984. Local organizations: Intermediaries in rural development. New York, NY, USA: Cornell University Press. 391 p.

Rural development / Agriculture / Organizations / Innovations

(Location: HQ Call No: 334.6 G000 ESM
Record No: H 2500)

Agricultural production

2405. **Barker, R.; Herdt, R. W.; Rose, R.** 1985. The rice economy of Asia. Washington, DC, USA: Resources for the Future. xxi, 324 p.

Rice / Economic aspects / Statistics / Farming systems / Irrigation / Agricultural production / Labor / Technology transfer / Research / Asia

(Location: HQ Call No: 338.1 G570 BAR
Record No: H 1942)

Abstract: Appendix to The rice economy of Asia: Rice statistics by country, tables with notes, published separately by B. Rose is a companion volume.

2406. **Moore, M. P.; Wickramasinghe, G.** 1980. Agriculture and society in the low country - (Sri Lanka) Colombo, Sri Lanka: ARTI. v, 176 p. (ARTI research study series no. 37)

Agricultural development / Labor / Employment / Poverty / Social aspects / Farming / Rural sociology / Sri Lanka

(Location: HQ Call No: 338.1 G744 MOO
Record No: H 2498)

2407. **Richards, P.** Indigenous agricultural revolution: Ecology and food production in West Africa. London, UK: Hutchinson. 192 p.

Agricultural policy / Food production / Environmental effects / Ecology / Farming systems / West Africa

(Location: HQ Call No: 338.1 G190 RIC
Record No: H 2713)

2408. **Sri Lanka. Ministry of Finance and Planning. National Planning Division.** 1984. A review of prices and agricultural incentives. Colombo, Sri Lanka: The Ministry. 47 p. (National agriculture, food and nutrition strategy special report no. 6)

Agricultural production / Rice / Price policy / Agricultural policy / Sri Lanka

(Location: HQ Call No: 338.1 G744 SRI
Record No: H 2492)

Economic development and growth

2409. **Norgaard, R. B.; Dixon, J. A.** 1984. Project design and evaluation using economic and coevolutionary criteria. California, CA, USA: University of California.

Development plans / Economic analysis / Decision making / Cost benefit analysis / Project appraisal

(Location: HQ Call No: 338.9 G000 NOR
Record No: H 2559)

2410. **van der Meer C. L. J.** 1981. Rural development in northern Thailand. An interpretation and analysis. Groningen, The Netherlands: Krips. x, 293 p.

Economic situation / Social aspects / Land use / Agriculture / Rural development / Thailand

(Location: HQ Call No: 338.9 G750 VAN
Record No: H 2000)

Poverty

2411. **Carner, G.; Korten, D. C.** 1982. People centered planning: The USAID/Philippines experience. Washington, DC, USA: NASPAA. 29 p. (NASPAA working paper no. 2)

Methodology / Welfare economics / Planning / Poverty

(Location: HQ Call No: 339.46 G732 CAR
Record No: H 2567)

2412. Mia, A. (Ed.) Overview of Bangladesh case studies. 24 p.

Welfare economics / Poverty / Case studies / Development plans / Bangladesh
(Location: HQ Call No: 339.46 G584 MIA
Record No: H 2218)

Biological and agricultural research

2413. Sri Lanka. Ministry of Finance and Planning. National Planning Division. 1984. A review of the agricultural research system. Colombo, Sri Lanka: The Ministry. 25 p. (National agriculture, food and nutrition strategy special report no. 5)

Agricultural research / Agricultural policy / Sri Lanka
(Location: HQ Call No: 341.76757 G744 SRI
Record No: H 2491)

PURE SCIENCES

Statistical mathematics

2414. Hays, W. L. 1963. Statistics. New York, NY, USA: Holt, Rinehart and Winston Inc. xi, 713p.

Statistics / Sciences
(Location: HQ Call No: 519.5 G000 HAY
Record No: H 2542)

Geology, meteorology, general hydrology

2415. Clarke, R. T. 1981. Statistical methods for the extrapolation of data from research and experimentation basins. Paris, France: UNESCO. iv, 88 p. (Technical documents in hydrology - SC-81/WS/59)

Basin irrigation / Development plans / Water management / Regression analysis / Hydrology
(Location: HQ Call No: 551 G000 CLA Record No: H 2661)

2416. UNESCO. 1984. UNESCO/Norway fifth regional training course for hydrology technicians, Harare and Mutare (Zimbabwe), 9 January-4 April: Final report. Norway: UNESCO. 52 p.

Training / Hydrology / Personnel
(Location: HQ Call No: 551 G000 UNE Record No: H 2662)

2417. UNESCO. 1986. UNESCO sponsored international post-graduate courses in hydrology. Paris, France: UNESCO. 76 p.

Higher education / Hydrology
(Location: HQ Call No: 551 G000 UNE Record No: H 2663)

Rivers and streams

2418. McMohan, T. A. 1982. Hydrological characteristics of selected rivers of the world. Paris, France: UNESCO. 40 p. (Technical documents in hydrology - SC-82/WS/51)

Water distribution / Flow discharge / Hydrology
(Location: HQ Call No: 551.483 G000 MCM
Record No: H 2664)

TECHNOLOGY

Agriculture

2419. Thurston, R. V. 1972. Informational feedback in agricultural development programs. Unpublished thesis presented to the Graduate Council of the University of Tennessee in partial fulfillment of the requirements for the Degree of Master of Science. vii, 108 p.

Information services / Developing countries / Agricultural development / Development plans / Decision making / Venezuela
(Location: HQ Call No: 630 G536 THU Record No: H 2250)

Miscellany and scientific principles

2420. Winrock International. 1987. Agricultural development indicators. Morrilton, AR, USA: Winrock International. 12 p.

Agricultural development / Statistics / Developing countries
(Location: HQ Call No: 630.20112 WIN Record No: H 2263)

Maps

2421. Huke, R. E. 1982. Agroclimatic and dry-season maps of South, Southeast, and East Asia. Manila, Philippines: IRRI. 15 p. + 5 maps.

Agronomy / Climate / Rice / Rain / Soil moisture / Maps / South Asia / South East Asia / East Asia
(Location: HQ Call No: 630.2516 G000 HUK
Record No: H 1960)

Agricultural research

2422. El-Akhrass, H. 1986. Syria and the CGIAR centers: A study of their collaboration in agricultural research. Washington, DC, USA: World Bank. x, 51 p. (CGIAR study paper no. 13)

Agricultural research / Institutions / International cooperation / Syria
(Location: HQ Call No: 630.72 G746 ELA
Record No: H 2318)

2423. Gomez, A. A. 1986. Philippines and the CGIAR centers: A study of their collaboration in agricultural research. Washington, DC, USA: World Bank. xii, 70 p. (CGIAR study paper no. 15)
Agricultural research / Agricultural production / Agronomy / Institutions / International cooperation / Philippines
 (Location: HQ Call No: 630.72 G732 GOM Record No: H 2322)
2424. Isarangkura, R. 1986. Thailand and the CGIAR centers: A study of their collaboration in agricultural research. Washington, DC, USA: World Bank. x, 94 p. (CGIAR study paper no. 16)
Agricultural research / Institutions / Agronomy / International cooperation / Thailand
 (Location: HQ Call No: 630.72 G750 ISA Record No: H 2324)
2425. Paz Zilva, L. J. 1986. Peru and the CGIAR centers: A study of their collaboration in agricultural research. Washington, DC, USA: World Bank. xii, 136 p. (CGIAR study paper no. 12)
Agricultural research / Institutions / International cooperation / Crops / Agronomy / Agricultural production / Peru
 (Location: HQ Call No: 630.72 G530 PAZ Record No: H 2319)
2426. Sanchez, P. A.; Scobie, G. M. 1986. Cuba and the CGIAR centers: A study of their collaboration in agricultural research. Washington, DC, USA: World Bank. xiv, 120 p. (CGIAR study paper no. 14)
Agricultural research / Institutions / International cooperation / Food production / Crops / Cuba
 (Location: HQ Call No: 630.72 G318 SAN Record No: H 2321)
2427. Southeast Asian Regional Center for Graduate Study and Research in Agriculture. 1976. Agricultural research management Asia. Laguna, Philippines: SEARCA. 2 vols. ; vii, 387 p.; vii, 340 p.
Agricultural research / Performance evaluation / Research policy / Forestry / Training / Asia
 (Location: HQ Call No: 630.072 G570 SOU Record No: H 2308)
2428. Torres, R. P. 1986. Ecuador and the CGIAR centers: A study of their collaboration in agricultural research. Washington, DC, USA: World Bank. x, 75 p. (CGIAR study paper no. 11)
Agricultural research / Institutions / International cooperation / Ecuador
 (Location: HQ Call No: 630.72 G524 TOR Record No: H 2320)
- Crops and their production**
2429. AID. 1986. Energy for agriculture. Publication of the Office of Energy, Bureau of Science and Technology. 84 p.
Developing countries / Agricultural production / Rural development / Project appraisal / Energy
 (Location: HQ Call No: 631 G050 AID Record No: H 2359)
Abstract: Project to strengthen the technical capacity of developing countries to increase agricultural productivity by assuring sustainable energy supplies and improved energy efficiency in agricultural systems
2430. Chiangmai University; Chulalongkorn University. Social Research Institute. 1983. Agricultural Development Project in lower northern Thailand. The Universities. 3 vols.; 40 p.; 374 p.; 216 p.
Agricultural production / Crop production / Development plans / Farming systems / Technology transfer / Extension / Soil management / Thailand
 (Location: HQ Call No: 631 G750 CHI Record No: H 2306)
Abstract: Vol. I: Executive summary; Vol. II: Main report; Vol. III: Appendices
2431. Ekanayake, S. A. B. 1982. Agricultural production in the Galnewa region. In Wimaladharma, K. P. (Ed.), Land settlement experiences in Sri Lanka. Colombo, Sri Lanka: Karunaratne & Sons. pp. 153-164.
Labor / Agricultural production / Sri Lanka / Mahaweli Project
 (Location: HQ Call No: 631.7.8 G744 WIM Record No: H 2625)
2432. Sri Lanka. Ministry of Agricultural Development and Research. 1984. Crop agricultural development strategy: A contribution to the national agriculture, food and nutrition strategy. Colombo, Sri Lanka: The Ministry. 69 p.
Agricultural research / Crop production / Agricultural production / Marketing / Farming systems / Extension / Sri Lanka
 (Location: HQ Call No: 631 G744 SRI Record No: H 2490)
2433. Sri Lanka. Ministry of Finance and Planning. National Planning Division. 1984. National agriculture, food and nutrition strategy: A change in perspective. Colombo, Sri Lanka: The Ministry. 104 p.
Agricultural development / Planning / Agricultural policy / Marketing / Price policy / Rice / Irrigation / Sri Lanka
 (Location: HQ Call No: 631 G744 SRI Record No: H 2489)

Soil science

2434. **IRRI**. 1985. Soil physics and rice. Manila, Philippines: IRRI. v, 430 p.

Rice / Soil management / Soil fertility / Soil water relations / Cropping systems / Food production / Water use efficiency

(Location: HQ Call No: 631.43 G000 IRR Record No: H 1958)

2435. **IRRI**. 1985. Wetland soils: Characterization, classification, and utilization: Proceedings of a workshop, 26 March to 5 April 1984. Manila, Philippines: IRRI. 553 p.

Soils / Food production / Rice / Soil classification / Soil water / Soil fertility

(Location: HQ Call No: 631.46 G000 IRR Record No: H 1961)

IRRIGATION MANAGEMENT

General and miscellaneous

2436. 1987. Morocco venue ideal for ICID. World Water, August 1987:20.

Conferences / Water management / Morocco

(Location: ODI Record No: L 873239)

2437. 1986. Seminar on Human Resources Development for Irrigation Management, Darjeeling, India, 14-15 November 1986. Unpublished manuscript. 29 p.

Irrigation management / Resource management / Human resources / Training

(Location: HQ Call No: 631.7 G000 SEM Record No: H 2290)

Abstract: Includes Recommendations, comments on the background paper, and Background paper

2438. 1987. South American irrigation. Agribusiness Worldwide, July/August 1987:12-15.

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(Location: ODI Record No: L 873308)

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Conferences / Water management / Design criteria / Project planning

(Location: ODI Record No: L 873226)

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Research projects / Small scale systems / Domestic water / Water supply / Water resources development / Evaluation / Water users' associations / Farmer participation / Equity / Thailand

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2444. **Attia, H.** 1982. Evaluation a posteriori du projet de vulgarisation agricole dans les primetres irrigus du gouvernorat de Sidi Bouzid dans les Hautes Steppes de la Tunisie Centrale. [Evaluation of an agricultural extension programme in the irrigated areas of Sidi Bouzid district in the Steppes of Central Tunisia] Paper prepared for the Centre Nationale des Recherches Scientifiques, University of Tunisia. 19 p.

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(Location: ODI Call No: 8310 Record No: L 8310)

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Irrigation / Women / Bibliographies
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2449. **Coward, E. W. Jr.** 1987. Designing projects for irrigation development using external consultants. Ithaca, NY, USA: Water Management Synthesis II Project. 4 sides. (WMS Professional paper no 2)
Design / Projects / Manpower / Institutional constraints
(**Location:** ODI **Call No:** 8001u **Record No:** L 8001u)
2450. **Dikshit, D. D.** 1986. Agriculture, irrigation and horticulture in ancient Sri Lanka (from the earliest times to 186 A. D.): A study based on the Pali Vamsa literature of Sri Lanka. New Delhi, India: Bharatiya Vidya Prakashan. xxiii, 356 p.
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2453. **Frost, D. H.** 1987. Developing water resources in low rainfall areas. In J. Pickford (Ed.), Developing world water. London, UK: Grosvenor Press International. pp. 75-77.
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2457. **ICID. British Section; Hydraulics Research.** 1986. United Kingdom register of research on irrigation, drainage and flood control. Wallingford, UK: Hydraulics Research. 91 p.

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Irrigation / Indonesia

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Irrigation programs / River basin development / Development plans / Thailand

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Irrigation / Drainage / Water resources development / Projects / Italy

(Location: ODI Call No: 8226 Record No: L 8226) **Abstract:** Contains 9 papers on varied topics associated with irrigation development in Italy (including 1 paper on irrigation schemes in foreign countries carried out by Italian engineers, see analytical entry under Linoli, A. and Visentini, G.)

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Irrigation / Basic needs / Tunisia / Garaat Ennam

(Location: ODI Call No: R-IDA Record No: L 873197)

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Water harvesting / History / Research / Traditional farming / Appropriate technology / Arid zones / Israel

(Location: ODI Record No: L 873241)

2466. **Linoli, A.; Visentini, G.** 1987. Planning, design and construction works for irrigation schemes in foreign countries performed by Italian engineering. In Italian Committee for Irrigation & Drainage, irrigation and drainage in Italy: On the occasion of the Thirteenth International Congress on Irrigation and Drainage. Rome, Italy: Ministry of Agriculture & Forestry. pp.57-73.

Irrigation programs / Construction / Design / Africa South of Sahara / Asia / Central America / North Africa / Middle East

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2467. **Lock, C. J.** 1986. Some economic aspects of Thailand's rice irrigation. Dissertation submitted to the Dept. of Agricultural Economics, University of Reading for MSc degree. 110 p.

Rice / Diversification / Rehabilitation / Cost recovery / Irrigation programs / Marketing / Economic aspects / Prices / Economic analysis / Thailand

(Location: ODI Call No: 8323 Record No: L 8323)

- Abstract:** Thailand's agricultural economy is undergoing a period of transition in response to the changing technological environment. Irrigation has for some time been seen as a major factor in improving agricultural productivity, particularly for rice crops. This dissertation examines some current economic issues in Thailand's irrigation sector in the light of current international and domestic market conditions for rice. A case study of the Mae Nam Prachantakham irrigation project is included to illustrate how the market conditions for rice may influence the economic feasibility of Thai irrigation projects.
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Irrigated farming / Small scale systems / National planning / Ethiopia
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National policy / Small scale systems / Farmer participation / Land tenure / Research priorities / Zimbabwe
(Location: ODI Call No: 8321 Record No: L 8321l)
2471. **Mitchell, T. B.** 1986. Constraints and economies of scale in water development in Zimbabwe. Paper prepared for the joint Kenya/Zimbabwe Workshop on Irrigation Policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 5 p.
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2474. **Oosterbaan, R. J.; Kortenhorst, L. F.; Sprey, L. H.** 1986. Development of flood recession cropping in the inoIapos of the Okavango Delta, Botswana. ILRI Annual Report, 1986:8-29.
Seasonal variation / Swamps / Farming / Cattle / Livestock production / Fishing / Drought / Food for work / Flood control / Bunds / Irrigated pasture / Botn: ODI Call No: D-ILRI 86 Record No: L 873220)
2475. **Overseas Technical Cooperation Agency.** 1971. Feasibility report on Way Djepara Irrigation Project. Consultant's report prepared by the Overseas Technical Cooperation Agency. 88, 31 p.
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(Location: IND Call No: 631.7 G662 OVE Record No: J 553)
2476. **Pazvakavambwa, S.** 1986. Irrigation farming in Kenya and Zimbabwe: Areas of irrigation policies and perspective in Zimbabwe. Paper prepared for the joint Kenya/Zimbabwe Workshop on Irrigation Policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 4 p.
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Irrigation / Zimbabwe

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(Location: ODI Call No: 8321 Record No: L 8321n)

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2483. **D'Silva, B. C.** 1986. Sudan's irrigated subsector: Issues for policy analysis. Washington, DC, USA: US Department of Agriculture. 31 p. (Economics research service staff report no. AGES860811)

Irrigation / Resource management / Exports / National planning / Agricultural policy / Sudan / Gezira

(Location: ODI Call No: 8227 Record No: L 8227)

Abstract: Sudan's present economic crisis suggests a need for evaluating the role of its irrigated subsector, the largest in Sub-Saharan Africa, in agricultural and economic recovery. The present system of production in the subsector results in a suboptimal use of imported inputs like fertilizer. The need for such an evaluation centers on changes in cropping patterns, in institutions, and in production technologies that will help generate foreign exchange earnings, Government revenues, and farm sector income.

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Irrigation programs / Pumps / History / Philippines / Talaksan

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Water use efficiency / Irrigation programs / Water management / Vietnam

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(Location: ODI Call No: 8318 Record No: L 8318)
2491. **Wallace, I.** 1987. Appropriate water technology in Baringo Kenya. In J. Pickford (Ed.), Developing world water. London, UK: Grosvenor Press International. pp. 308-310.
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History / Agricultural development / Irrigation / China / Taiwan
(Location: HQ Call No: 631.7 G592 WAN Record No: H 1967)
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(Location: ODI Record No: L 871602)
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Sprinkler irrigation / Farm equipment / Crops / Water requirements / UK
(Location: ODI Call No: ACG (Pic) Record No: L AE 74)
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(Location: ODI Call No: ACG (Pic) Record No: L AE 75)
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Irrigation efficiency / Water management / Soil salinity / Soil water movement / Waterlogging / India
(Location: HQ Call No: 631.7.1 G635 KAN Record No: H 2537)
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Irrigated farming / Flow discharge / Water use efficiency / Automation / USA
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River basins / Water balance / Water management / Water demand / Project planning / Case studies
(Location: HQ Call No: 631.7.1 G000 KIT Record No: H 2660)
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Agricultural development / Irrigation systems / Irrigation canals / Water storage / Water distribution / Optimization / China
(Location: HQ Call No: 631.7.1 G592 LIU Record No: H 2599)
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Open channels / Flow / Mathematical models / Irrigation systems / Velocity
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(Location: HQ Call No: PER Record No: H 2647)
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Irrigation programs / Economic impact / Labor / Settlement / Farms / Irrigation efficiency / Green revolution / Social aspects / Sri Lanka / Mahaweli Project
(Location: HQ Call No: 631.7.3 G744 EKA Record No: H 2213)

Abstract: New technologies, irrigation and changes in the broader socio-economic environment are often major causes of disequilibria in the decision making environment of farmers in developing countries. The pace and pattern of their adjustment to new situations has concentrated on the adoption process of new technologies as a whole or in terms of particular component practices. However, situations where farmers are required to adopt and adjust to a single component practice while other elements of their environment remain static are rare. Technologies often appear in the form of packages and accompany broader socio-economic changes.

In this thesis a conceptual framework which draws heavily on human capital theory is developed to

address broad issues of farmer adjustment to simultaneous changes in many aspects of their environment. This framework is applied to farm survey data gathered from a sample within the Pilot Phase of the Mahaweli Project. The empirical analysis utilizes stochastic frontier production functions to obtain measures of technical and allocative efficiencies of individual farmers which reflect their technical and allocative abilities. The analysis was conducted at two levels, using market and economic prices.

The findings show that different types of human capital have significantly different impacts on the ability of farmers to adjust to specific changes in technological and environmental factors; the major source of losses to the economy is shown to be farm level inefficiencies rather than price distortions; and the differential performance of farmers resulting from varying ability to adjust to disequilibria and the heterogeneity in farm micro environments are shown to result in an unequal distribution of income unanticipated by planners, but significant in terms of future consequences.

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Rural women / Social participation / Division of labor / Africa South of Sahara
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Water management / Farmers' associations / Farmer participation / Pakistan / Punjab
(Location: HQ Call No: 631.7.3 G7330 FRE Record No: H 2483)

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Watershed management / Evaluation / Organizations / Resource management / Asia
(Location: HQ Call No: 631.7.3 G570 GIB Record No: H 2343)

2566. **Gladwin, C. H.** 1983. Contributions of decision-tree methodology to a farming systems program. *Human Organization*, 42(2):146-157.

Farming systems / Methodology / Decision making
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2567. **Groenfeldt, D.** 1986. Farmer organizations and irrigation management: A reconsideration. In Proceedings of the workshop on selected irrigation management issues, Digana Village, Sri Lanka, 15-19 July 1985. Digana Village, Sri Lanka: IIMI. pp. 24-25. (IIMI research paper no. 2)

Farmers' associations / Farmer participation / Cooperation
(Location: HQ Call No: IIMI RP No. 2 Record No: H 2766)

2568. **Honadle, G.** 1978. Farmer organization for irrigation water management: Organization design and implementation in Bula and Libmanan - Final report. Washington, DC, USA: Development Alternatives Inc. 34 p.

Irrigation programs / Water management / Farmers' associations / Farmer participation / Philippines
(Location: HQ Call No: 631.7.3 G732 HON Record No: H 1989)

Abstract: A report to the USAID and the Bicol River Basin Development Program (BRBDP) under contract no. AID 492-1417.

2569. **Hungwe, A.** 1986. The need for a design manual for small scale irrigation schemes. Paper prepared for the joint Kenya/Zimbabwe workshop on Irrigation policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 3 p.

Small scale systems / Feasibility studies / Design criteria / Zimbabwe

- (*Location:* ODI Call No: 8321 Record No: L 8321d)
2570. **Hunt, R. C.** Organizational control over water: The positive identification of a social constraint on farmer participation. Draft sent to IIMI. 15 p.
Farmer participation / Institutions / Social aspects / Canals / Farmers' attitudes / Water users' associations / Mexico
(*Location:* HQ Call No: 631.7.3 G404 HUN Record No: H 2289)
Abstract: In some bureaucratically-managed canal irrigation systems there are zones where neither the farmers nor the system staff are willing to take responsibility for O and M. On these "no-man's canals" the maintenance is poorly done, the water distribution is less productive than it could be, and the consequences are less efficient use of water, land and capital than necessary. "Farmer's attitude" is a frequently encountered explanation for the lack of farmer participation in O and M in this zone. "Farmer's attitude" is shown to be residual rather than a positively identified constraint. "Organizational Control over Water" is proposed as a plausible candidate for a social constraint on participation, based on both theoretical findings, and empirical cases from modern Mexico. One strategy for further research is presented. Versions of this analysis have been presented at Boston University (Development Anthropology Seminar), ODI (Luncheon talk, June 1986), Brandies University Anthropology Colloquium, and to the International Agricultural Seminar, Cornell University
2571. **IDRC, Ottawa.** 1986. Problemas de la mujer en lo que respecta al suministro de agua y saneamiento: Intentos para resolver un viejo problema. [Women's issues on water and sanitation: Intentions to solve an old problem] Ottawa, Canada: IDRC. 104 p. (IDRC-236s)
Women / Domestic water / Pumps / Irrigation / Human diseases
(*Location:* ODI Call No: ACM Record No: L 87 328)
Abstract: Contains short summaries of papers given at a workshop of women's problems regarding water and sanitation, held in Manila, Philippines 22-26 September 1984.
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Rehabilitation / Irrigation programs / Farmer managed irrigation systems / Farmers' associations / Institutions / Community development / Philippines
(*Location:* HQ Call No: 631.7.3 G732 ISL Record No: H 2298)
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(*Location:* HQ Call No: 631.7.3 G732 DEJ Record No: H 2301)
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Irrigation programs / Settlement / Irrigation management / Agricultural credit / Sri Lanka / Mahaweli Project
(*Location:* HQ Call No: 631.7.8 G744 WIM Record No: H 2626)
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Community development / Non-governmental organizations / Small scale systems / Drought / Poverty / Groundwater irrigation / Water harvesting / Equity / Wells / Cost recovery / Tank irrigation / Food for work / Institution building / India / Maharashtra
(*Location:* ODI Call No: 827 Record No: L 8290)
Abstract: A Part of Common Property Resources of Land and Water Project.
2576. **Kongkajusa, V.** 1979. A study of water use of rural people in some villages in Khon Kaen. Unpublished report of Khon Kaen University. 64 p. (Socio-economic evaluation of small reservoir projects working paper no. 1)
Rural sociology / Rain-fed farming / Water resources / Thailand
(*Location:* HQ Call No: 631.7.3 G750 KON Record No: H 2473)
2577. **Laitos, W. R.; Paranakian, K.; Early, A.** 1987. A short history and overview of the irrigation organisation initiative at Lam Chamuk. *Trinfnet*, 2(2):11-13.
Training / Community development / Farmer participation / Thailand
(*Location:* ODI Record No: L 873225)
2578. **Layton, J. J.; Lowdermilk, M. K.** 1979. The Loomis social system framework: Application to irrigation system research. Paper presented at Rural Sociological Society, Annual Meeting, Berlington, VA, USA, 24-25 August 1979. 27 p.
Irrigation systems / Research / Networks / Sociological analysis / Pakistan
(*Location:* HQ Call No: 631.7.3 G730 LAY Record No: H 1981)

2579. **Levine, G.** 1982. Some experiences from the Southeast Asian systems. In Levine, G.; Bagadion, B. U.; Bouldin, D. and others, Sri Lanka: Irrigation development options and investment strategies for the 1980's. Ithaca, NY, USA: Cornell University. pp. D1-D4. (Water management synthesis report no. 11)
Farmer participation / Irrigation management / Irrigation efficiency / South East Asia
 (Location: HQ Call No: 631.7.8 G744 LEV Record No: H 2521)
2580. **de los Reyes, R. P.** 1985. Managing village irrigation systems in the Philippines: Farmers' practices and implications for government assistance. In T. Wickham (Ed.), Irrigation management: Research from Southeast Asia. New York, NY, USA: Agricultural Development Council. pp. 204-214.
Farmer managed irrigation systems / Farmers' associations / Water rights / Philippines
 (Location: IND, ODI, HQ Call No: ACG (Wic) Record No: IN 119)
Abstract: A study of 51 village (communal) irrigation systems throughout the Philippines finds farmers' irrigation practices varied, relevant, and well suited to the local environment. Farmers tend to manage most systems larger than 50 hectares in a more structured manner than they do smaller systems. The Philippine government's communal assistance program should be based on a full understanding of current irrigation organization and practices. The water rights status of village systems should be studied and clarified.
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Rural sociology / Irrigation systems / Farmer-agency interactions / Farmer managed irrigation systems / Pakistan
 (Location: HQ Call No: 631.7.3 G730 LOW Record No: H 1973)
2582. **Martin, E. D.; Yoder, R.** 1987. Institutions for irrigation management in farmer-managed systems: Examples from the hills of Nepal. Digana Village, Sri Lanka: IIMI. 19 p.
Irrigation management / Institutions / Farmer-managed irrigation systems / Nepal
 (Location: HQ, IND, ODI Call No: IIMI RP No. 5 Record No: H 3019)
Abstract: The paper examines farmer organizations and property rights which have evolved as institutions in Nepal that enable collective management of water for agricultural production.
2583. **Merrey, D. J.** 1987. The local impact of centralized irrigation control in Pakistan: A sociocentric perspective. In Little, P. D., Horowitz, M. M., Nye-ges, A. E. (Eds.), Lands at risk in the third world: Local level perspectives (pp.352-372). Boulder, CO, USA: Westview Press.
Investment / Agricultural production / Economic development / Irrigation systems / Social aspects / Pakistan
 (Location: HQ Call No: 333.73 G000 LIT Record No: H 2717)
2584. **Moore, M.** 1986. Social and institutional aspects of irrigation management. In Proceedings of the workshop on selected irrigation management issues, Digana Village, Sri Lanka, 15-19 July 1985. Digana Village, Sri Lanka: IIMI. pp. 26-29. (IIMI research paper no. 2)
Irrigation management / Social aspects / Irrigation efficiency
 (Location: HQ Call No: IIMI RP No. 2 Record No: H 2767)
2585. **Palmer-Jones, R. W.; Mandal, M. A. S.** 1987. Irrigation groups in Bangladesh. Digana Village, Sri Lanka: ODI/IIMI. 32 p. (ODI/IIMI Irrigation Management Network 87/2c)
Institutional constraints / Research / Water users' associations / Tube wells / Economic aspects / Farmers' associations / Case studies / Bangladesh
 (Location: HQ Call No: ODI Record No: H 2586)
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Groundwater / Water resource management / Legal aspects / India
 (Location: HQ, ODI Call No: PER Record No: H 2648)
2587. **Pradhan, B.B.; Martin, E. D.; Yoder, R.; Pradhan, P.** 1983. Irrigation and water management issues paper. Unpublished draft. 94 p.
Performance evaluation / Farmer managed irrigation systems / Irrigation programs / Water costs / Economic development / Case studies / Nepal
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2588. **Pradhan, U.** 1982. Irrigation development: Whose panacea? 30 p.
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2589. **Ray, A.** 1979. Organizational problems of small farmer development administration. Economic and Political Weekly, 14(51 & 52):A160-A164.
Small scale systems / Economic aspects / Social aspects / India / Bangalore
(Location: HQ Call No: 631.7.6.1 G909 WAD Record No: H 1971)
2590. **Roberts, M.** 1967. The paddy lands irrigation ordinances and the revival of traditional irrigation customs 1856-1871. Ceylon Journal of Historical and Social Studies, 10:114-130.
Legislation / Rice / Land / Social aspects / History / Sri Lanka
(Location: HQ Call No: 631.7.3 G744 ROB Record No: H 2551)
2591. **Satish, S.** 1987. Formation of water users' societies in irrigation: Suspicious genesis. Wamana, October:10-13.
Water users' associations / Farmers' associations / Governmental interrelations / India
(Location: HQ Call No: PER Record No: H 2656)
2592. **Sen, I.** 1987. Status paper on farmers participation in Ramganga C.A.D. Project, Kanpur (U.P.) Paper presented at Policy Workshop on Farmers Participation in Irrigation Management, Hyderabad, India, 28 June - 21 July 1987. 8 p.
Farmer participation / Irrigation programs / Irrigation management / India
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2593. **de Silva, D.** 1982. Women and social adaptation in a pioneer Mahaweli settlement. In Wimaladharmasiri, K. P. (Ed), Land settlement experiences in Sri Lanka. Colombo, Sri Lanka: Karunaratne & Sons. pp. 139-152.
Social development / Settlement / Women / Sri Lanka / Mahaweli Project
(Location: HQ Call No: 631.7.8 G744 WIM Record No: H 2624)
2594. **Singh, K. K.** Irrigation projects: Reflections on the Chak (outlet) interface. Paper prepared for the All-India Workshop on Water Distribution Practices, Roorkee, India, 2-3 July 1982. 12 p.
Water distribution / Water use / Farmer-agency interactions / Benefits / Farmer participation / India
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2595. **Singhal, M. K.** 1987. Modernizing irrigation acts and management. Wamana, July:8-16.
Agriculture / Irrigated farming / Legislation / Maintenance / India
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2596. **Staub, W. J.; Green, D. G.** A performance management unit for agricultural agencies. Unpublished paper. 6 p.
Farmer-agency interactions / Agricultural development
(Location: HQ Call No: 631.7.3 G000 STA Record No: H 1976)
2597. **Sundar, A.** 1987. Why and when do people organize for irrigation management and how can it be sustained. Wamana, October:1-4.
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2598. **Svendsen, M.** Organization of water users groups in large scale irrigation systems. 21 p.
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(Location: HQ Call No: 631.7.3 G750 TER Record No: H 2340)
2600. **Tiffen, M.** 1985. Collaborative research proposal on water management in the Gezira: Irrigation scheme in the Sudan: Proposals for socio-economic studies. Wallingford, UK: Hydraulics Research. 21 p. (Hydraulics Research report no. OD/RP61)
Research / Water management / Farmers' attitudes / Methodology / Sudan / Gezira
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2601. **Tilakasiri, S. L.** 1985. Below the outlet: A study of settler adaptation to irrigation water use in the Mahaweli development scheme, Sri Lanka. Unpublished dissertation submitted to Department of Water and Environment and Society, University of Linköping. vii, 76 p.
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(Location: HQ Call No: 631.7.3 G744 TIL Record No: H 2603)
2602. **Uphoff, N.** 1986. Activating community capacity for water management: Experience from Gal Oya, Sri Lanka. In Korten, D. C. (Ed.), Community management: Asian experience and perspectives. Connecticut, CA, USA: Kumarian Press.

Water management / Community development / Water users' associations / Methodology / Rehabilitation / Farmer participation / Sri Lanka / Gal Oya Project

(Location: HQ Call No: 631.7.3 G744 UPH Record No: H 2518)

2603. **Usman, S.; Sriwijaya University Research Center.** 1984. Pattern and impact of government aid towards the organization of traditional irrigation: The experience of Tanjung Agurey village, South Sumatra. Paper presented at Workshop on Government Aid to Traditional Irrigation Systems, Bukittingyi, Indonesia, 4-7 March 1984. v. p.

Agricultural development / Irrigation systems / Aid / Water users' associations / Investment policy / Indonesia

(Location: HQ Call No: 631.7.3 G662 USM Record No: H 2595)

2604. **van der Meer, C.** 1971. Water thievery in a rice irrigation system in Taiwan. *Annals of the Association of American Geographers*, 61(1):156-179.

Irrigation canals / Irrigated farming / Water control / Rice / Conflict / China

(Location: HQ Call No: 631.7.3 G592 VAN Record No: H 2337)

2605. **Wade, R.** 1981. Collective responsibility in Phillipino irrigation: A new approach. *Economic & Political Weekly*, 16:99-102.

Water users / Farmer managed irrigation systems / Farmer participation / Philippines

(Location: HQ Call No: 631.7.3 G732 WAD Record No: H 1969)

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Irrigated farming / Statistics / Performance evaluation / Economic analysis / Irrigation canals

(Location: HQ Call No: 631.7.3 G635 WAD Record No: H 1980)

Abstract: The methods used to collect irrigation statistics in India give rise to very large margins of error. The unreliability of the data throws into question the utility of careful economic analyses of irrigation projects. More importantly, it means that in the case of large surface-flow schemes canal officials cannot manage the system in the absence of reliable information about the system's output; they can only administer the inputs. This is an important constraint on better performance. To improve the information system attention has to be given not only to the hardware but also to the incentives which bear on those who collect statistics.

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ment issues, Digana Village, Sri Lanka, 15-19 July 1985. Digana Village, Sri Lanka: IIMI. pp. 22-23. (IIMI research paper no. 2)

History / Irrigation management / Institutional constraints

(Location: HQ Call No: IIMI RP No. 2 Record No: H 2765)

2608. **Water Management Synthesis Project.** 1986. Analysis of opportunities for improvement of small-scale and smallholder irrigation schemes in Zimbabwe. Paper prepared for the joint Kenya/Zimbabwe workshop on Irrigation policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 4 p.

Institution building / Small scale systems / Training / Maintenance / Zimbabwe

(Location: ODI Call No: 8321 Record No: L 8321b)

2609. **Wickremasekera, P.** 1982. Aspects of labour use in paddy cultivation in land settlement schemes. In *Wimaladharmha, K. P. (Ed.), Land settlement experiences in Sri Lanka. Colombo, Sri Lanka: Karunaratne & Sons. pp. 41-57.*

Labor allocation / Cultivation / Land development / Agricultural policy / Settlement / Sri Lanka

(Location: HQ Call No: 631.7.8 G744 WIM Record No: H 2617)

2610. **Wimaladharmha, K.** 1982. None farming employment in the major settlements in Sri Lanka. In *Wimaladharmha, K. P. (Ed.), Land settlement experiences in Sri Lanka. Colombo, Sri Lanka: Karunaratne & Sons. pp.21-40.*

Employment / Labor / Policy / Settlement / Sri Lanka

(Location: HQ Call No: 631.7.8 G744 WIM Record No: H 2616)

2611. **Yoder, R.; Martin, E. M.** 1983. A farmer centered approach to irrigation development. Paper presented at Water Management Issues Seminar, Kathmandu, Nepal, 31 July - 2 August 1983.

Farmer managed' irrigation systems / Development plans / Farmer participation / Farmers' associations / Water allocation

(Location: HQ Call No: 631.7.3 G000 YOD Record No: H 2344)

Economic aspects

2612. **Abeygunawardena, P.** 1985. An economic model of adaptive irrigation system management: Subsistence farming in Sri Lanka. Unpublished thesis submitted to Texas A & M University, USA. xvi, 204 p.

Irrigation management / Forecasting / Development policy / Institutional constraints / Reservoirs / Farming / Water resources / Analysis / Sri Lanka / Uda Walawe

- (**Location:** HQ Call No: 631.7.4 G744 ABE Record No: H 2514)
2613. **Asopa, V. N.** 1977. Pricing irrigation water. Artha-Vikas, 13:51-84.
Irrigation water / Water costs / Investment / India
(**Location:** HQ Call No: 631.7.4 G635 ASO Record No: H 2348)
2614. **Batra, B. B.; Easter, K. W.** 1979. High returns from field channels in irrigated Indian villages. Staff paper of the Department of Agricultural & Applied Economics of the University of Minnesota. 34 p.
Irrigation efficiency / Irrigated farming / Canals / India
(**Location:** HQ Call No: 631.7.4 G635 BAT Record No: H 1984)
2615. **Bowen, R. L.; Young, R. A.** 1986. Appraising alternatives for allocating and cost recovery for irrigation water in Egypt. *Agricultural Economics*, 1(1):35-52.
Cost recovery / User charges / Water allocation / Equity / Income distribution / Models / Linear programming / Water scarcity / Egypt
(**Location:** ODI Record No: L 872982)
Abstract: Alternating and recovering costs for water on Egyptian farms are proposed and evaluated in accordance with societal objectives of allocative efficiency, equity of income distribution and cost recovery.
2616. **Chisholm, N. G.** 1985. Irrigation techniques, employment and income distribution: A linear programming analysis for northwest Bangladesh. Unpublished thesis submitted to the University of Western Australia for the degree of MSc in Agriculture. 294 p.
Linear programming / Equity / Models / Employment / Technology / Economic aspects / Government policy / Social aspects / Rural development / Tube wells / Institutions / Farmer managed irrigation systems / Government managed irrigation systems / Poverty / Appropriate technology / Income distribution / Land tenure / Labor / Bangladesh
(**Location:** ODI Call No: 8307 Record No: L 8307)
2617. **Coward, E. W. Jr.** 1983. Property in action: Alternatives for irrigation investment. Paper prepared for Workshop on Water Management and Policy, Khon Kaen, Thailand, September 1983. 28 p.
Investment / Development policy / Water users' associations
(**Location:** HQ Call No: 631.7.4 G000 COW Record No: H 2299)
2618. **Dhawan, B. D.** 1986. Economics of groundwater irrigation in hard rock regions with special reference to Maharashtra State. New Delhi, India: Agricole Publishing Academy. 101 p. (Studies in economic development and planning no. 42)
Groundwater irrigation / Tube wells / Seasonal variation / Crop yield / Investment / Costs / Pumps / Electric power demand / Surface irrigation / Conjunctive use / Farmer managed irrigation systems / India / Maharashtra
(**Location:** ODI Call No: BBInd/ACG Record No: L 87 668)
2619. **Easter, K. W.** 1974. Returns from investments in improving village irrigation systems: An example from India. Staff paper published by Department of Agricultural and Applied Economics, University of Minnesota. 24 p.
Investment / Irrigated farming / Tertiary level irrigation / Rice / India
(**Location:** HQ Call No: 631.7.4 G635 EAS Record No: H 2300)
2620. **Engelhardt, T.** 1984. Economics of traditional smallholder irrigation systems in the semi-arid tropics of South India. xii, 193 p.
Small scale systems / Arid zones / Pastoral society / Tank irrigation / Wells / Reservoirs / Water management / Agricultural production / India
(**Location:** HQ Call No: 631.7.4 G635 ENG Record No: H 2642)
2621. **Fakki, H.** 1982. Economics and management of irrigation in the Sudan Gezira Scheme. xii, 193 p.
Water rates / Irrigation management / Water management / Price policy / Income distribution / Irrigation programs / Economic aspects / Resource management / Sudan
(**Location:** HQ Call No: 631.7.4 G146 FAK Record No: H 2643)
2622. **FAO.** 1987. Economics of irrigation development. In Consultation on irrigation in Africa: Proceedings of the Consultation on Irrigation in Africa, held in Lomé, Togo, 21-25 April 1986, sponsored by the Government of Togo and the FAO. Rome, Italy: FAO. pp. 148-169. (FAO Irrigation and drainage paper no. 42)
Economic benefits / Investment / Cost benefit analysis / Maintenance costs / National planning / Cost recovery / Africa South of Sahara
(**Location:** ODI Call No: BA/ACG Record No: L 8215k)
2623. **Fishelson, G.; Ryman, D.** 1986. Adoption of agricultural innovation: The case of drip irrigation cotton in Israel. Ramat Aviv, Israel: The Foerder Institute for Economic Research, Tel Aviv University. 27 p. (Foerder Institute for Economic Research, paper no. 35-86)
Technical progress / Drip irrigation / Economic analysis / Cotton / Israel
(**Location:** ODI Call No: 8326 Record No: L 8326)
2624. **Hafid, A.; Hayami, Y.** Mobilizing local resources for irrigation development: The Subsidi Desa case of Indonesia. Unpublished manuscript. 22 p.

Resource management / Community development / Rehabilitation / Labor / Case studies / Indonesia
 (Location: HQ Call No: 631.7.4 G662 HAF
 Record No: H 2291)

2625. **Islam, T. R.** Socio economic and institutional factors determining efficiency of low-lift pump irrigation in Bangladesh. Bangladesh: Bangladesh Planning Commission. 15 p.

Irrigation efficiency / Economic aspects / Low lift irrigation / Pumps / Social aspects / Policy / Agricultural production / Bangladesh
 (Location: HQ Call No: 631.7.4 G584 ISL
 Record No: H 2556)

2626. **Mergos, G. J.** 1987. Evaluation of irrigation projects under uncertainty: A symmetric quadratic programming approach. Water Resources Management, 1:45-56.

Risk analysis / Cost benefit analysis / Evaluation / Quadratic programming / Returns / Crete
 (Location: ODI Record No: L 873237)

2627. **Moya, T. B.; Murray-Rust, H.** 1985. Another white elephant (?): An understanding of the problems and prospects. Paper presented at the Guimba Cropping Systems Research Workshop, Cabanatuan City, 22-23 May 1985. 19 p.

Economic aspects / Deep tube wells / Water use efficiency / Philippines
 (Location: HQ Call No: 631.7.4 G732 MOY
 Record No: H 1978)

2628. **Nyoni, M. J. M.** 1986. The determinants of plot size in small scale irrigation schemes. Paper prepared for the joint Kenya/Zimbabwe workshop on Irrigation policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 2 p.

Small scale systems / Farm size / Zimbabwe
 (Location: ODI Call No: 8321 Record No: L 8321c)

2629. **Nzima, M. D. S.** 1986. A cropping systems research approach to cropping programmes in small scale irrigation schemes in Zimbabwe. Paper prepared for the joint Kenya/Zimbabwe workshop on Irrigation policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 5 p.

Cropping systems / Policy / Small scale systems / Economic aspects / Zimbabwe
 (Location: ODI Call No: 8321 Record No: L 8321g)

2630. **Patil, R. K.** 1987. Economics of farmer participation in irrigation management. Digana Village, Sri Lanka: ODI/IIMI. 17 p. (ODI/IIMI Irrigation Management Network 87/2d)

Economic situation / expenditure / Water users' associations / Farmer participation / Irrigated farming / Farmers' associations

(Location: HQ Call No: ODI Record No: H 2565)

2631. **Quiroga, E.** 1986. Irrigation design and food crisis in the Sahel: Lessons from Senegal. Paper submitted to ODI/IIMI Irrigation Management Network for possible publication. 28 p.

Small scale systems / Vegetables / Food policy / Institutional constraints / Land tenure / Sahel / Senegal
 (Location: ODI Call No: 8328 Record No: L 8328)

2632. **Ryman, D.; Fishelson, G.** 1986. Economic analysis of cotton irrigation technologies. Ramat Aviv, Israel: The Foerder Institute for Economic Research, Tel Aviv University. 15 p. (Foerder Institute for Economic Research working paper no. 39-86)

Economic analysis / Cotton / Technical progress / Sprinkler irrigation / Drip irrigation / Israel
 (Location: ODI Call No: 8327 Record No: L 8327)

2633. **Sagardoy, J. A.; Hidalgo, A.** 1973. Water pricing methods for agricultural development. Unpublished manuscript. 6 p.

Pricing / Agricultural development / Economic aspects / Agricultural policy
 (Location: HQ Call No: 631.7.4 G000 SAG
 Record No: H 2584)

2634. **Sharma, S.** 1987. Are large schemes worth the cost. Water Resources Journal, June:74-75.

Cost benefit analysis / Primary level irrigation
 (Location: HQ Call No: PER Record No: H 2472)

2635. **Small, L.** 1987. Irrigation service fees in Asia. London, UK : Overseas Development Institute; International Irrigation Management Institute. 14 p. (ODI/IIMI Irrigation Management Network paper 87/1c)

Institutional constraints / Costs / Pricing / Institutional constraints / Asia
 (Location: HQ, ODI Call No: ODI Record No: H 2004)

2636. **Small, L. E.; Langan, G. E.** 1983. Economics of rice farming in three irrigation systems in central Luzon. Unpublished technical report. 60 p. (The determinants of developing country irrigation project problems, technical report no. 10)

Irrigation programs / Economic aspects / Rice / Farming / Cost benefit analysis / Farmer managed irrigation systems / Philippines / Central Luzon
 (Location: HQ Call No: 631.7.4 G732 SMA
 Record No: H 2295)

2637. **Small, L. E.; Adriano, M. S.; Martin, E.** 1986. Executive summary - Regional study on irrigation service fees: Final report. Report submitted to the Asian Development Bank under ADB technical assistance for a Regional Study on Irrigation Service Fees. 58 p.

Financing / Project appraisal / Policy

(Location: HQ Call No: IIMI-631.7.4 G000 IIM Record No: H 2790)

2638. **Small, L. E.** 1985. Investment decisions for the development and utilization of irrigation resources in Southeast Asia. In T. Wickham (Ed.), *Irrigation management: Research from Southeast Asia*. New York, NY, USA: Agricultural Development Council. pp. 3-11.

Investment planning / Irrigation systems / South East Asia

(Location: ODI, HQ, IND Call No: ACG (Wic) Record No: IN 108)

Abstract: Presents an overview of the research findings presented at the Workshop on Investment Decisions to Further Develop and Make Use of Southeast Asia's Irrigation Resources held in Kam-pangsaen, Thailand, August, 1981. The first section discusses generalizations from the workshop regarding design, construction, operation, and maintenance of irrigation systems with emphasis on the role of farmers, the role of incentives, and the social role of irrigation. The second section presents generalizations regarding research on irrigation systems including the conceptual framework for irrigation research and the behavior of researchers.

2639. **Small, L. E.** Outline of presentation cost recovery: An economic perspective. Draft. 9 p.

Political attitudes / Cost recovery / Cost benefit analysis

(Location: HQ Call No: 631.7.4 G000 SMA Record No: H 2601)

2640. **Tan, T. B.** 1987. Economic analysis of water use in selected rice irrigation schemes in Asia. In FAO. Regional Office for Asia and the Pacific. *Efficient use of water in paddy irrigation project*. Vol. III (pp.83-102). Bangkok, Thailand: RAPA.

Rice / Irrigation programs / Irrigation efficiency / Economic analysis / Water use efficiency / Investment / Development aid / Water requirements / Water costs / Asia

(Location: HQ Call No: 631.7.1 G570 FAO Record No: H 2311)

2641. **Taylor, D. C.; Tantigate, K.** 1985. Costs and performance of irrigation systems of different sizes, types, and locations in Malaysia. In T. Wickham (Ed.), *Irrigation management: Research from Southeast Asia*. New York, NY, USA: Agricultural Development Council pp. 49-66.

Irrigation systems / Economic aspects / Costs / Malaysia

(Location: HQ, IND, ODI Call No: ACG (Wic) Record No: IN 111)

Abstract: Larger irrigation systems in Malaysia tend to produce somewhat higher yields and greater annual cropping intensities than smaller systems. Smaller gravity systems may be less costly to build and operate than larger ones, however. Among the irrigation types, pump systems are more costly, followed by gravity diversion systems and controlled drainage systems. Irrigation costs are highest in East Malaysia and lowest on the east coast of Peninsular Malaysia, where yield levels and annual cropping intensities are also among the lowest. Suitability of a particular type or size of system in a given location is strongly conditioned by physical factors.

2642. **Tiffen, M.** The dominance of the internal rate of return as a planning criterion and the treatment of o & m costs in feasibility studies. London, UK: Overseas Development Institute; International Irrigation Management Institute. 19 p. (ODI/IIMI Irrigation Management Network paper 87/1b)

Operating costs / Maintenance costs / Cost recovery / Cost benefit analysis / Farm income

(Location: ODI Call No: ODI Record No: L 8341b)

2643. **Walker, H. H.; Kampe, P.** 1981. Improving irrigated agriculture in India: The introduction of rotational water supply system (warabandi) into irrigation command areas. *Zeitschrift fur Bewässerungswirtschaft (Journal for Irrigated Agriculture)*, 16(1):23-54.

Rotational flow / Equity / Water distribution / Agricultural extension / India

(Location: ODI Call No: 8319 Record No: L 8319)

Environmental aspects

2644. 1985. Correspondence on the Narmada Scheme: The World Bank defends its position. *The Ecologist*, 15(5/6):291-292.

Environmental effects / Dams / India

(Location: ODI Call No: 8229 Record No: L 8229c)

2645. 1987. Environment implications of water resources projects. *Water Resources Journal*, March 1987:13-20.

Environmental effects / Water resources development / Sedimentation / Dams / Climatic influence / Waterlogging / Human diseases / Flood control / Water transfer

(Location: ODI Record No: L 873325)

2646. 1987. Guidelines for environmental impact assessment in developing countries. In A. K. Biswas and Q. Geping (Eds.), *Environmental impact assessment for developing countries*. London, UK: Tycooly International. pp. 191-228.

Cost benefit analysis / Project planning / Methodology / Models / Costs

(Location: ODI Call No: ABJ (Biswas) Record No: L AE 65)

2647. 1986. Seventh International Symposium on Aquatic Weeds, Loughborough University of Technology 15-19 September 1986. Loughborough, UK: European Weed Research Society; Association of Applied Biologists. 427 p.

Aquatic weeds / Control methods / Conferences

(Location: ODI Call No: ABC Record No: L 87 696)

Abstract: Contains 63 papers on aquatic weeds, methods of control and consequences of weed growth for irrigation and other water uses.

2648. **Baker, G.** 1987 Two front attack on dam sediment. *World Water*, August 1987:42-45.

Small scale systems / Dams / Sedimentation / Reservoirs / Catchment planning / Dredging

(Location: ODI Record No: L 873243)

2649. **Bisset, R.** 1987. Methods for environmental impact assessment: A selective survey with case studies. In A. K. Biswas and Q. Geping (Eds.), *Environmental impact assessment for developing countries*. London, UK: Tycooly International. pp. 3-64.

Environmental effects / Project appraisal / Evaluation / Monitoring / Methodology / Models

(Location: ODI Call No: ABJ (Biswas) Record No: L AE 66)

2650. **Bolton, P.** 1987. Schistosomiasis: Engineering controls. *ODU Bulletin*, 7:4-7.

Human diseases / Schistosomiasis / Control systems / Health / Project planning / Zimbabwe

(Location: ODI Record No: L 873235)

2651. **Brabben, T. E.** 1986. Monitoring the effect of aquatic weeds in Egyptian irrigation systems. In *Proceedings of the 7th International Symposium on Aquatic Weeds*, held at Loughborough University of Technology, Loughborough, UK, 15-19 September 1986. Loughborough, UK: European Weed Research Society and Association of Applied Biologists. pp.51.

Aquatic weeds / Monitoring / Egypt

(Location: ODI Call No: ABC Record No: L AE 129)

2652. **Chabwela, H. N.; Siwela, A. A.** 1986. The vegetative structure of the Kafue Flats north bank, after the construction of the dams. In *Proceedings of the 7th International Symposium on Aquatic Weeds*, held at Loughborough University of Technology, Loughborough, UK, 15-19 September 1986. Loughborough, UK: European Weed Research Society and Association of Applied Biologists. pp.61-72.

Flood plains / Dams / Wildlife / Vegetation / Zambia

(Location: ODI Call No: ABC Record No: L AE 131)

Abstract: Kafue Flats have been grazing grounds for cattle and are important for wildlife reserves and fisheries, but the alteration of flood patterns caused by the two dams recently completed is believed to have an effect on plant composition and distribution.

2653. **Dixon, J. A.; Carpenter, R. A.; Fallon, L. A.; Sherman, P. B.; Manopimoke, S.** 1986. Economic analysis of the environmental impacts of development projects. Manila, Philippines: Asian Development Bank. 100 p. (ADB Economic staff working paper no. 31)

Project planning / Environmental effects / Economic analysis / Resource management / Methodology / Nepal / Philippines / Thailand / Indonesia

(Location: ODI Call No: R-AsDB WP 31 Record No: L 87 667)

2654. **Drijver, C. A.; Marchand, M.** 1985. Annex A: The middle valley of the River Senegal (Senegal) In C. A. Drijver & M. Marchand, *Taming the floods: Environmental aspects of floodplain development in Africa*. Leiden, The Netherlands: Centre for Environmental Studies and the Commission of the European Communities. pp. A1-19.

Environmental effects / Flood plains / Livestock / Fisheries / Small scale systems / Water resources development / Projects / Forest resources / Groundwater / Swamps / Human diseases / Senegal

(Location: ODI Call No: 8284 Record No: L 8284b)

2655. **Drijver, C. A.; Marchand, M.** 1985. Annex B: The internal delta of the River Niger (Mali) In C. A. Drijver & M. Marchand, *Taming the floods: Environmental aspects of floodplain development in Africa*. Leiden, The Netherlands: Centre for Environmental Studies and the Commission of the European Communities. pp. B1-13.

Environmental effects / Flood plains / Cattle / Pastoral society / Fisheries / Wildlife / Dams / Projects / Downstream / Mali

(Location: ODI Call No: 8284 Record No: L 8284c)

2656. **Drijver, C. A.; Marchand, M.** 1985. Annex E: The Sudd (Jonglei canal case, Sudan) In C. A. Drijver & M. Marchand, *Taming the floods: Environmental aspects of floodplain development in Africa*. Leiden, The Netherlands: Centre for Environmental Studies and the Commission of the European Communities. pp. E1-19.

Environmental effects / Flood plains / Swamps / Canals / Wildlife / Pastoral society / Fisheries / Planning / Sudan

(Location: ODI Call No: 8284 Record No: L 8284f)

2657. **Drijver, C. A.; Marchand, M.** 1985. Annex E: The Tana delta (Kenya) In C. A. Drijver & M. Marchand, Taming the floods: Environmental aspects of floodplain development in Africa. Leiden, The Netherlands: Centre for Environmental Studies and the Commission of the European Communities. pp. E1-13.

Environmental effects / Flood plains / Dams / Wildlife / Cattle / Pastoral society / Flood control / Farming systems / Fisheries / Chemical pollution / Human diseases / Fuels / Forest resources / Kenya
(Location: ODI Call No: 8284 Record No: L 8284g)

2658. **Drijver, C. A.; Marchand, M.** 1985. Annex G: The Kafue flats (Zambia) In C. A. Drijver & M. Marchand, Taming the floods: Environmental aspects of floodplain development in Africa. Leiden, The Netherlands: Centre for Environmental Studies and the Commission of the European Communities.

Environmental effects / Flood plains / Dams / Wildlife / Cattle / Zambia
(Location: ODI Call No: 8284 Record No: L 8284h)

2659. **Gopal, B.** 1986. Problems of aquatic weeds and their management in South Asia. In Proceedings of the 7th International Symposium on Aquatic Weeds, held at Loughborough University of Technology, Loughborough, UK, 15-19 September 1986. Loughborough, UK: European Weed Research Society and Association of Applied Biologists. pp. 125-131.

Aquatic weeds / Control methods / Irrigation / Development / Water resources development / Asia
(Location: ODI Call No: ABC Record No: L AE 141)

Abstract: Throughout South and Southeast Asia, many aquatic weeds cause heavy economic losses, by choking reservoirs and canals, promoting erosion and creating other problems related to water use and health. Manual, mechanical and chemical control is carried out periodically, but biological controls are still in an experimental phase. Aquatic weeds have been used by poor people for centuries. Large scale utilisation is still very limited despite the growing problem that weeds present.

2660. **Hunt, R. C.** 1986. Agricultural ecology: The impact of the Aswan high dam reconsidered. Paper presented at the Annual Meeting of the American Anthropological Association, Philadelphia, PA, USA, 6 December 1986. 13 p.

Environmental effects / Dam construction / Waterlogging / Salinity / Schistosomiasis / Egypt

(Location: HQ Call No: 631.7.5 G232 HUN Record No: H 2288)

2661. **Institution of Civil Engineers, UK.** 1982. Planning irrigation projects for developing countries: Health considerations. Paper presented at joint meeting by ICID, Royal Society of Tropical Medicine and Hygiene and Water Engineering Group, 26 April 1982. 5 p.

Health / Developing countries / Irrigation programs / Planning / Water distribution
(Location: HQ Call No: 631.7.5 G050 INS Record No: H 2339)

2662. **Jonez, A. R.** 1987. The salinity problem in the Colorado River Basin. ICID Bulletin, 36(1):33-37.

Salinity control / Waste water / Water quality / Legal aspects / Monitoring / USA / Colorado
(Location: ODI Record No: L 873314)

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Groundwater management / Rural development / Small scale systems / Farmer managed irrigation systems / Food security / Desertification / Wells / Benefits / Animal production / Africa South of Sahara

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Rehabilitation / Policy / Maintenance / Financial planning / Institutional constraints / Design criteria / Crop yield / Farm income

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Rehabilitation / Tank irrigation / Crops / Diversification / Maintenance / Equity / Canal linings / Institution building / Project planning / Water distribution / Farmer participation / Sri Lanka

(Location: ODI Call No: 8306 Record No: L 8306b)

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Project appraisal / Planning / Rehabilitation

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2726. **Sakthivadivel, R.** 1987. Case study 3: Periyar-Vaigai rehabilitation and betterment project. In Irrigation System Rehabilitation and Betterment, an International Conference, sponsored by USAID, held in Virginia, October 27-31, 1986, Volume II: Papers. Fort Collins, CO, USA: Water Management Synthesis II Project. pp.167-216.

Rehabilitation / Water use efficiency / Canal linings / Training / Monitoring / Evaluation / Equity / Governmental interrelations / India / Tamil Nadu

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Rehabilitation / Irrigation operation / Water management / Planning / Design / Tank irrigation / Sri Lanka / Uda Walawe

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2728. **Sun, P.; Mian, M.** 1987. Case study 3: Rehabilitation and betterment of the West Tarum Canal irrigation system in Indonesia. In Irrigation System Rehabilitation and Betterment, an International Conference, sponsored by USAID, held in Virginia, October 27-31, 1986, Volume II: Papers. Fort Collins, CO, USA: Water Management Synthesis II Project. pp. 217-243.

Rehabilitation / Irrigation canals / Design criteria / Institution building / Training / Farmers' associations / Crop yield / Benefits / Maintenance / Indonesia / Java

(Location: ODI Call No: 8306 Record No: L 8306c)

2729. **Tiffen, M.** 1987. The main economic and institutional differences between Asia and sub-Saharan Africa in regard to rehabilitation programs. In Irrigation System Rehabilitation and Betterment, an International Conference, sponsored by USAID, held in Virginia, October 27-31, 1986, Volume II: Papers. Fort Collins, CO, USA: Water Management Synthesis II Project. pp.295-308.

Rehabilitation / Government managed irrigation systems / Institutional constraints / Social aspects / Land tenure / Price policy / Asia / Africa South of Sahara

(Location: ODI Call No: 8306 Record No: L 8306g)

2730. **Widanapathirana, A. S.** 1986. Pre-rehabilitation situation of the Gal Oya left bank scheme: Analysis of socio-economic characteristics. Colombo, Sri Lanka: ARTI. xiii, 129 p. (ARTI research study no. 69)

Irrigation programs / Rehabilitation / Land tenure / Crop production / Income distribution / Agricultural credit / Population / Communication / Land use / Income / Marketing / Sri Lanka / Gal Oya Project

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2731. **Wijayaratna, C. M.** 1987. Case study 5: An analysis of irrigation system rehabilitation in Gal Oya water management project, Sri Lanka. In Irrigation System Rehabilitation and Betterment, an International Conference, sponsored by USAID, held in Virginia, October 27-31, 1986, Volume II: Papers. Fort Collins, CO, USA: Water Management Synthesis II Project. pp. 245-293.

Rehabilitation / Institution building / Maintenance / Project planning / Equity / Water distribution / Costs / Farmer participation / Performance evaluation / Cost recovery / Cost benefit analysis / Sri Lanka / Gal Oya Project

(Location: ODI Call No: 8306 Record No: L 8306f)

Policy and planning

2732. 1980. Report of a planning workshop on irrigation water management. Los Baños, Laguna, Philippines: IRRI. vi, 170 p.

Water management / Irrigation efficiency / Economic analysis / Canals

(Location: HQ Call No: 631.7.8 G000 REP Record No: H 2526)

2733. **Akroyd, H.D.** 1987. Experiences and observations concerning the implementation of an irrigation project. *Agricultural Administration and Extension*, 24(2):99-105.
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2734. **El-Ashry, M. T.; Gibbons, D. C.** 1986. Troubled waters: New policies for managing water in the American West. Washington, DC, USA: World Resources Institute. 89 p. (World Resources Institute study no. 6)
Water management / Conflict / Urbanization / Water quality / Environmental effects / Economic analysis / Institutional constraints / Water use efficiency / Irrigated farming / River basin development / Domestic water / Arid zones / USA / California / Texas / Colorado / Arizona
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2735. **Awan, N. M.; Latif, M.** 1982. Technical, social and economic aspects of Water Management in Salinity Control and Reclamation Project No. 1, in Pakistan. Lahore, Pakistan: University of Engineering and Technology. v. p. (CEWRE publication 022)
Water management / Salinity control / Social aspects / Economic analysis / Water requirements / Tube wells / Farm management / Intensive cropping / Land management / Evaluation / Research / Project appraisal / Pakistan
(Location: HQ Call No: 631.7.8 G730 AWA Record No: H 2474)
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2749. **IIMI**. 1987. Study of irrigation management - Indonesia (TA 673 INO) 236 p.

Irrigation management / Irrigation systems / Irrigation efficiency / Development aid / Crops / Diversification / Information / Water distribution / Maintenance / Indonesia

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Irrigated farming / Crop production / Water management / Agronomy / Philippines

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2751. **IIMI**. 1987. Training for irrigation management in Sri Lanka: An appraisal of current activities and suggestions for their enhancement - Main report. Digana Village, Sri Lanka: IIMI. 32 p. (IIMI pub. 87-06)

Irrigation management / Institutions / Training / Project appraisal / Sri Lanka

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Abstract: This main report presents the findings of a review of present resources and activities in training for irrigation management in Sri Lanka. A strategy is offered to enhance what is being done already, and to prepare irrigation staff to adapt to new technical situations that can be expected in the imminent future. Annexes are published in a separate volume

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Irrigation management / Settlement / Policy / Water users' associations / Water resource management / Sri Lanka

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Irrigation management / Research / Farmers / India

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Irrigation management / Investment / Evaluation / Agricultural policy / Scheduling / History / Rehabilitation / Sri Lanka

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Irrigation efficiency / Agricultural production

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Water management / Extension / Development plans / Canals / Watercourses / Training / Pakistan

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Water resources / Irrigation systems / Technology transfer / Agricultural production / Land resources / Research / India

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Abstract: An earlier version of this paper was presented by W. Clyma and G. Corey in 1979. The original paper and concepts presented are similar except this paper provides a focus on the main system for a total system approach.

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2764. **Moyo, I.** 1986. Policy issues on organisation and management of irrigation projects in Zimbabwe: Issue paper. Paper prepared for the joint Kenya/Zimbabwe workshop on irrigation policy, sponsored by the Ford Foundation, held in Nairobi, April 1986. 4 p.

Institutional constraints / Project implementation / Government managed irrigation systems / Farmer participation / Project control / Zimbabwe

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River basin development / Planning / Irrigated farming / Sudan / Egypt

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National policy / Food security / Small scale systems / Diversification / Horticulture / Zimbabwe

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Methodology / Rapid methods / Bibliographies

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Abstract: The appendix to this paper contains 48 annotated entries on rapid rural appraisal

2770. **Redfern, D.** 1980. Mexican irrigation policy: Its role in Mexican agricultural development. Paper presented at the 1980 Annual Conference of the Development Studies Association, University College of Swansea, UK, 15-17 September 1980. v. p.

Agricultural development / Green revolution / Policy / Mexico

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Irrigated farming / Agricultural production / Niger / Mirria

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Irrigation systems / Development policy / Investment / Hydraulics / Mali

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Rehabilitation / Irrigation programs / Irrigated farming / Water use efficiency / Planning / Rice

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Agricultural development / Water management / Irrigated farming / Developing countries / Pakistan / South Asia / Near East

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Irrigation efficiency / Energy / Developing countries / Policy / Surface irrigation / On farm research / Water management / Food production

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Water management / Agricultural development / Settlement / Water use efficiency / Sri Lanka

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Irrigation systems / Developing countries / Employment / Water allocation / Research policy / Land tenure / Water use
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Development policy / Economic aspects / Social aspects / Engineering / Water management / Cropping systems / Food production / Mauritania
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Rural development / Resource management / Investment / Canals / Economic impact / Evaluation / Water users' associations / Tertiary level irrigation / South East Asia
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Settlement / Land development / Farms / Labor / Cultivation / Irrigation management / Agricultural development / Sri Lanka

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Costs / Statistics / Rice / Crop production / Sri Lanka

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Rice / Crop production / Statistics / Maps / South Asia / East Asia

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Training / Developing countries / Management / Policy

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