

Fao Irrigation Manual

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The case of Burkina Faso, Morocco and Uganda Food & Agriculture Org.

Basic term and calculation; Soil and water; Elements of topography; Rainfall and evapotranspiration; Irrigation system; Drainage; Salty soils.

Agriculture, Landscapes, and Turf Grass CRC Press

The role of irrigation in gearing agriculture development towards a broader economic growth is undeniable. Accordingly, irrigation is growing into key operational strategy for governments and their agencies to increase agricultural productivity, thus combatting food insecurity and boosting overall growth. While agriculture absorbs rural workforce, generates income and increases food security, it has become the most important driver in freshwater exploitation. The rapid expansion of water demand leads to the generalized phenomena of imbalance between water supply and water demand. This increasing pressure on water resources urges enhancing Water Use Efficiency. Enhancing Water Use Efficiency requires actions at all levels, from agricultural practitioners to scheme managers, and up to the policy-makers. The objective of this Field Guide is to show practical measures to improve Water Use Efficiency in small-scale agriculture based on case studies from Burkina Faso, Morocco and Uganda. The Book not only presents applicable Water Use Efficiency measures, but also guide the readers through their real-term implementation. While the Guide provides complete set of instructions to improve Water Use Efficiency in order to reach optimal irrigation practices, the successful outcome still depends on the farmers ' willingness to embrace and adopt the recommended measures. The Guide holds in evidence that farmers are often constrained by available resources to improve their practices in terms of budget, inputs or labour. In order to take these issues into account, the recommendations are limited on practical measures, which can be followed by farmers without requiring additional resources.

Irrigation Water Needs. I. Principles of Irrigation Water Needs. II. Determination of Irrigation Water Needs Food & Agriculture Org.

Irrigation has been and will continue to be an agricultural and rural investment priority.

Development of the irrigation sector faces multiple challenges, including water scarcity and degradation, competition over shared resources, and the impact of climate change. Innovations are needed to address these challenges, as well as emerging needs, and to promote productive, equitable and sustainable water management. These guidelines, produced by an inter-agency team, highlight experiences and lessons learned from global irrigation investment operations. They introduce innovative approaches, tools and references, and provide practical guidance on how to incorporate or apply them at each stage of the investment project cycle. The guidelines will be a useful resource for national and international professionals involved in irrigation investment operations.

Modernizing Irrigation Management Springer Science & Business Media

First Published in 2011. Routledge is an imprint of Taylor & Francis, an informa company.

The State of Food Security and Nutrition in the World 2021 IWMI

This compilation provides guidelines that facilitate the successful planning and operation of water reuse projects. Offering the information, analysis and proven experience for agricultural and landscape irrigation, it bridges the gap between fundamental science and relatively uncharted areas of economic, institutional and liability issues. It delivers a synthesis of information recently emerging in both science and in the practice of irrigation with reclaimed water. The book compiles guidelines, recommendations and codes of best practices from around the world for all types of recycled water uses, and it examines recent concerns about adverse effects on plants, groundwater and public health.

Guideline for Salinity Assessment, Mitigation and Adaptation Using Nuclear and Related Techniques Springer

The manual has been written keeping in view the problems being faced by the technicians and extension workers with practical guidelines on the implementation of water harvesting schemes. The manual is also useful for wider audience, such as rural development specialists and planners. The main focus of the manual is on simple, field scale systems for improved production of crops, trees and rangeland species in drought prone areas. The manual is also relevant to arid and semi-arid areas in all parts

of the world where the basic problem low and erratic rainfall, high rates of runoff, and unreliable food production are similar. It provides the field worker with selection criteria and detailed technical designs for the various systems, as well as information on field layout and construction. The author has made all efforts to keep the manual a practical working document, using all related material other than text. It is hoped that the manual will serve as a useful field and guide for the implementation of water harvesting schemes. It can be used as a general reference manual by all researchers.

Irrigation, Drainage and Salinity IWMI

In recent years, several major drivers have put the world off track to ending world hunger and malnutrition in all its forms by 2030. The challenges have grown with the COVID-19 pandemic and related containment measures. This report presents the first global assessment of food insecurity and malnutrition for 2020 and offers some indication of what hunger might look like by 2030 in a scenario further complicated by the enduring effects of the COVID-19 pandemic. It also includes new estimates of the cost and affordability of healthy diets, which provide an important link between the food security and nutrition indicators and the analysis of their trends. Altogether, the report highlights the need for a deeper reflection on how to better address the global food security and nutrition situation. To understand how hunger and malnutrition have reached these critical levels, this report draws on the analyses of the past four editions, which have produced a vast, evidence-based body of knowledge of the major drivers behind the recent changes in food security and nutrition. These drivers, which are increasing in frequency and intensity, include conflicts, climate variability and extremes, and economic slowdowns and downturns - all exacerbated by the underlying causes of poverty and very high and persistent levels of inequality. In addition, millions of people around the world suffer from food insecurity and different forms of malnutrition because they cannot afford the cost of healthy diets. From a synthesized understanding of this knowledge, updates and additional analyses are generated to create a holistic view of the combined effects of these drivers, both on each other and on food systems, and how they negatively affect food security and nutrition around the world. In turn, the evidence informs an in-depth look at how to move from silo solutions to integrated food systems solutions. In this regard, the report proposes

transformative pathways that specifically address the challenges posed by the major drivers, also highlighting the types of policy and investment portfolios required to transform food systems for food security, improved nutrition, and affordable healthy diets for all. The report observes that, while the pandemic has caused major setbacks, there is much to be learned from the vulnerabilities and inequalities it has laid bare. If taken to heart, these new insights and wisdom can help get the world back on track towards the goal of ending hunger, food insecurity, and malnutrition in all its forms.

Forecasting and Applications Springer

The comprehensive and compact presentation in this book is the perfect format for a resource/textbook for undergraduate students in the areas of Agricultural Engineering, Biological Systems Engineering, Bio-Science Engineering, Water Resource Engineering, and Civil & Environmental Engineering. This book will also serve as a reference manual for researchers and extension workers in such diverse fields as agricultural engineering, agronomy, ecology, hydrology, and meteorology.

Book II: Running AquaCrop Food & Agriculture Org.

Irrigation Manual Manuel D'irrigation : Planification Développement, Suivi Et Évaluation de L'agriculture Irriguée Avec la Participation Des Paysans Food & Agriculture Org

Agricultural Research Management American Society of Civil Engineers

This publication fills a void of practical guidelines for the construction of small earth dams. It presents readers with sound, reliable and practical source material to improve dam siting and design capacity in rural areas, to introduce a beneficiary and gender sensitive approach and to enhance safety and competence in construction. A section also provides convenient guidance on costing, drafting tenders and awarding contracts. The manual is primarily aimed at technicians and others with knowledge of engineering and basic irrigation systems and processes to apply the concepts, techniques and methods proposed, using simple and straightforward design and construction procedures.

Management of Water Use in Agriculture Springer Science & Business Media

This publication fills a void of practical guidelines for the construction of small earth dams. It presents readers with sound, reliable and practical source material to improve dam siting and design capacity in rural areas, to introduce a beneficiary and gender sensitive approach and to enhance safety and competence in construction. A section also provides convenient guidance on costing, drafting tenders and awarding contracts. The manual is primarily aimed at technicians and others with knowledge of engineering and basic irrigation systems and processes to apply the concepts, techniques and methods proposed, using simple and straightforward design and construction procedures.

Field guide to improve water use efficiency in small-scale agriculture Food

& Agriculture Org.

Increasing the efficiency of water use and enhancing agricultural water productivity at all levels of the production chains are becoming priorities in a growing number of countries. In particular, shifting to modern on-farm irrigation practices can contribute to a substantial increase in both water use efficiency and water productivity. The objective of this handbook is to provide a practical guide on the use of pressurised irrigation techniques to farmers, irrigation technicians, and extension workers in the field. In this second edition, the handbook has been considerably revised, including new chapters on low-cost drip irrigation and pipe distribution systems for smallholders. (Also available in French)

Booker Tropical Soil Manual Food & Agriculture Org.

In many countries wastewater treatment systems are hardly functioning or have a very low coverage, resulting in very poor quality water being used for irrigation and the cultivation of consumable produce. This can create significant risks to public health, particularly in expanding urban areas. Wastewater Irrigation and Health approaches this serious problem from a practical and realistic perspective, addressing the issues of health risk assessment and reduction in developing country settings. The book therefore complements other books on the topic of wastewater which tend to target high-end treatment options or merely report that wastewater irrigation is a common phenomenon. The editors of Wastewater Irrigation and Health move the focus onto quantifying risk in order to reduce it. It presents the state-of-the-art on low-cost options for health risk reduction in line with the multiple barrier approach of the 2006 guidelines published by the World Health Organization. The authorship includes a mix of agronomists and engineers who have been working closely with social scientists and health experts, from Africa, Asia, Europe, North America and Australia. The chapters highlight experiences across the developing world with case studies from different parts of sub-Saharan Africa (Ghana, Dakar, Mauritania, South Africa), Asia (India, Pakistan, Vietnam, Bangladesh), Mexico and MENA (Jordan, Tunisia). The book thus clearly establishes a connection between agriculture and sanitation, which is often the missing link in the current discussion on resource recovery.

Water Harvesting: A Manual for the Design and Construction of Water Harvesting Schemes for Plant Production Springer Science & Business Media

Trends such as shifting dietary patterns and an increasingly sedentary lifestyle combined with smoking and alcohol consumption are major risk factors for noncommunicable chronic diseases such as obesity, diabetes, cardiovascular diseases such as hypertension and stroke, cancer, dental diseases and osteoporosis. This report reviews the scientific evidence on the effects of diet, nutrition and physical activity on chronic diseases and makes recommendations for public health policies and programmes. Issues considered include the macro-economic implications of public health on agriculture and the global supply and demand for fresh and processed foods.

Drainage of Irrigated Lands Irrigation Manual Manuel D'irrigation : Planification Développement, Suivi Et Évaluation de L'agriculture Irriguée Avec la Participation Des Paysans

The production of this manual is a joint activity between the Climate, Energy and Tenure Division (NRC) and the Technologies and practices for smallholder farmers (TECA) Team from the Research and Extension Division (DDNR) of FAO Headquarters in Rome, Italy. The realization of this manual has been possible thanks to the hard review, compilation and edition work of Nadia Scialabba, Natural Resources officer (NRC) and Ilka Gomez and Lisa Thivant, members of the TECA Team. Special thanks are due to the International Federation of Organic Agriculture Movements (IFOAM), the Research Institute of Organic Agriculture (FiBL) and the International Institute for Rural Reconstruction (IIRR) for their valuable documents and publications on organic farming for smallholder farmers.

Manual on Small Earth Dams World Health Organization

This publication describes the MASSCOTE methodology, illustrated by several applications in Asia. MASSCOTE is a comprehensive methodology for analysing the modernization of canal operation. The aim is to enable experts to work together with users in determining improved processes for cost-effective service-oriented management. It is based on previous tools and approaches widely used in Asia by FAO in its modernization training programme (rapid appraisal procedures and benchmarking). From diagnosis through the formulation of operational units and the planning of a service (based on the vision agreed upon with the users), MASSCOTE entails a systematic, ten-step, mapping exercise. The accompanying CD-ROMs contain the full document in English, excerpts in French, a draft version in Arabic and Chinese, training presentations and material, and a number of documents and references on irrigation system operation and management [System requirements: PC with Intel Pentium(r) processor and Microsoft(r)Windows 95/98/2000/Me/NT/XP; 256 MB of RAM; 50 MB of available hard-disk space; SuperVGA monitor; 256 colours at 1024x768; Adobe Acrobat(r) Reader (not included on CD-ROM)]

Handbook on Pressurized Irrigation Techniques Routledge

Quite simply, this is required reading for anyone involved in managing agricultural research. With a wealth of practical solutions and advice, it offers a how-to guide for managers as well as highlighting the differences in the way that different nations approach this key area of research - one of the most widespread forms of inquiry in the world. The lessons that can be learned from this brilliant study apply in equal measure to developed and developing nations.

Report of a Joint WHO/FAO Expert Consultation Food & Agriculture Org.

Principles of irrigation water needs; Determination of irrigation water needs.

An International Source Book Springer Science & Business Media

This textbook focuses specifically on the combined topics of

irrigation and drainage engineering. It emphasizes both basic concepts and practical applications of the latest technologies available. The design of irrigation, pumping, and drainage systems using Excel and Visual Basic for Applications programs are explained for both graduate and undergraduate students and practicing engineers. The book emphasizes environmental protection, economics, and engineering design processes. It includes detailed chapters on irrigation economics, soils, reference evapotranspiration, crop evapotranspiration, pipe flow, pumps, open-channel flow, groundwater, center pivots, turf and landscape, drip, orchards, wheel lines, hand lines, surfaces, greenhouse hydroponics, soil water movement, drainage systems design, drainage and wetlands contaminant fate and transport. It contains summaries, homework problems, and color photos. The book draws from the fields of fluid mechanics, soil physics, hydrology, soil chemistry, economics, and plant sciences to present a broad interdisciplinary view of the fundamental concepts in irrigation and drainage systems design.

The Water Footprint Assessment Manual Routledge

As the world population increases, there is increasing competition for water quantity as well as quality. Provided here is an up-to-date perspective on Available Water Resources (Part I), Water Conservation and Technology in Agricultural Systems (Part II), Problem Water Uses and Treatment (Part III), and Management and Policy Evaluation (Part IV). The book is an invaluable source of information for water resource planners, managers and policy makers, researchers and students, and irrigationists.