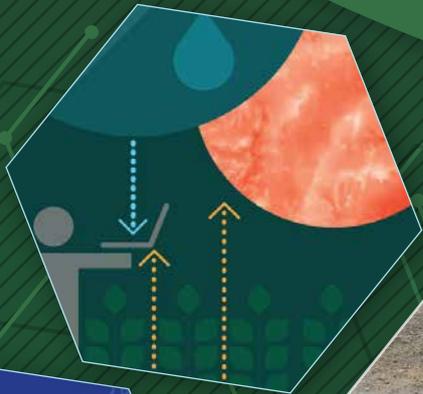


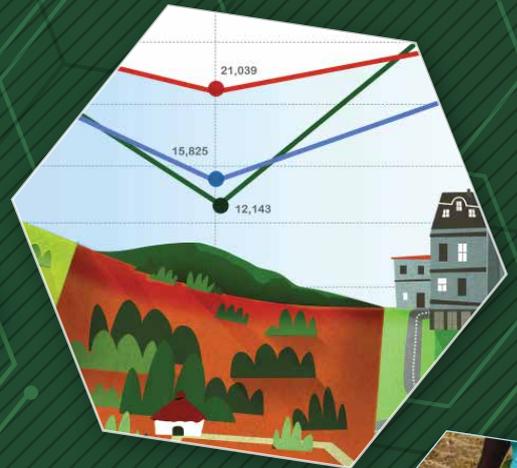
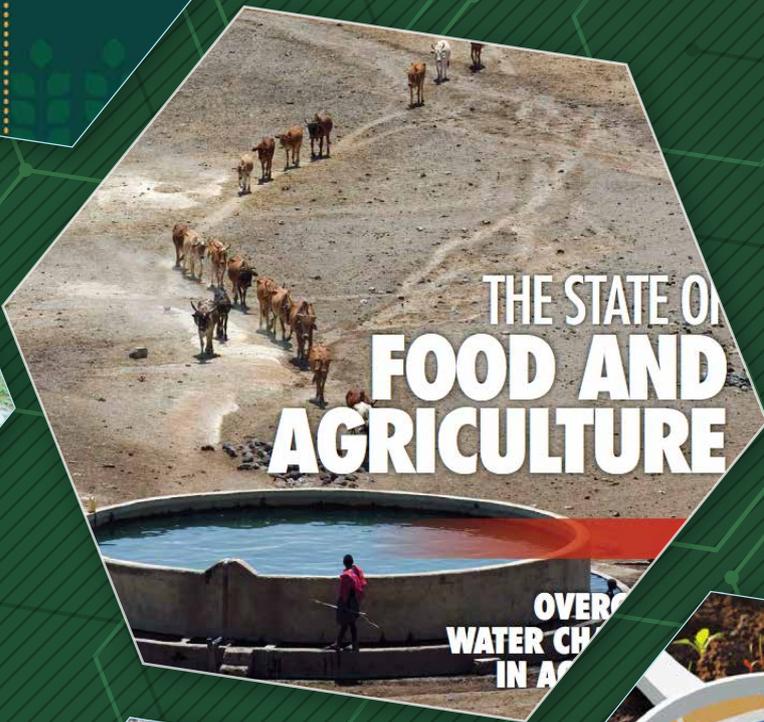


Food and Agriculture
Organization of the
United Nations

FAO Virtual booth for the 2nd Arab Land Conference



m practice
wastew
ri-urb



22-24 February 2021

Disclaimer

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

Table of contents

Introduction	1
Facts and figures for the NENA region.....	1
Land and water publications.....	2
Land tenure publications	2
Land Publications	11
Water Publications.....	13
Soils Publications.....	22
Multimedia.....	24
Related links.....	25
Platforms for knowledge exchange	25
Related SDG's.....	25
Contact us	25

Introduction

FAO works to promote coherent approaches to sustainable land and water management. FAO's work in land and water is relevant to several dimensions of sustainable development, such as the governance and management of food production systems; the provision of essential ecosystem services; food security; human health; biodiversity conservation; and the mitigation of, and adaptation to, climate change.

FAO engages in a wide range of partnerships and collaborative ventures, both within and outside the Organization. Through projects, studies and information-sharing, FAO helps increase scientific understanding of the biophysical and socioeconomic relationships between land and water resources at the landscape scale, and it provides member countries with policy guidance aimed at achieving greater management coherence among sectors. FAO's work on the land–water nexus is developing state-of-the-art, practical, innovative and policy-relevant options for on-the-ground decision-making on land and water management.

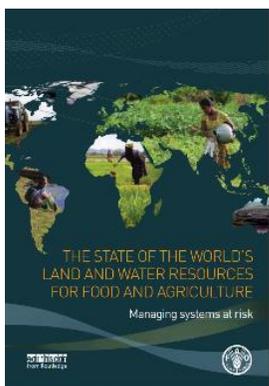
Sustainable management of the world's agricultural soils and sustainable production intensification have become an imperative for global food security. Current demographic trends and projected growth in global population (to exceed 9 billion by 2050) are estimated to result in a 60 percent increase in demand for food, feed and fiber by 2050. There is little scope for expansion in the agricultural area, except in some parts of Africa and South America. Much of the additional available land is not suitable for agriculture, and the ecological, social and economic costs of bringing it into production will be very high. In addition, 25 percent of land is highly degraded and a further 44 percent is slightly or moderately degraded due to the erosion, salinization, compaction and chemical pollution of soils.

These dual objectives cannot be attained satisfactorily unless soils are placed at the very top of the new development agenda. There are well recognized links between soils and poverty, which are often associated with socio-economic and governance issues. Land degradation and soil depletion represent a real and escalating global threat and involves a number of processes, including: erosion by wind, water and tillage, compaction, sealing, nutrient imbalance, loss of soil organic matter, acidification, salinization and pollution. These processes are caused by unsustainable land management practices that result from various social, economic and governance drivers. The resulting damage to soil affects livelihoods, ecosystem functions, food security and human well-being. The current rate of land and soil degradation will certainly compromise the capacity of future generations to meet their basic needs, unless we adopt a new approach for its sustainable management.

Facts and figures for the NENA region

- The Near East and North Africa fresh water resources are among the lowest in the world. They have decreased by two-thirds during the last 40 years and are expected to fall over 50 percent by 2050.
- 90 percent of the total land in the region lies within arid, semi/arid and dry sub/humid areas, while 45 percent of the total agricultural area is exposed to salinity, soil nutrient depletion and wind water erosion.
- At the same time, agriculture in the region uses approximately 85 percent of the total available freshwater.
- Over 60 percent of water resources in the region flows from outside national and regional boundaries.

Land and water publications

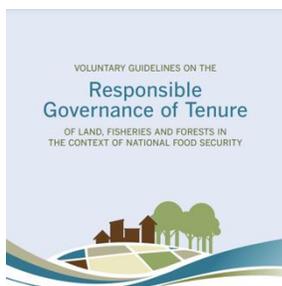


[The State of the World's Land and Water Resources for Food and Agriculture \(SOLAW\)](#)
Managing systems at risk

This edition of The State of the World's Land and Water Resources for Food and Agriculture presents objective and comprehensive information and analyses on the current state, trends and challenges facing two of the most important agricultural production factors: land and water.

Land tenure publications

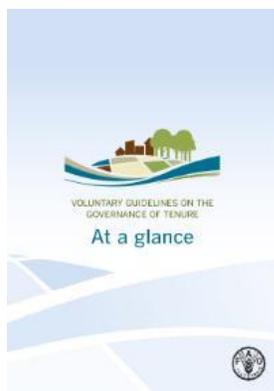
Publications on the Voluntary Guidelines



[Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security](#)

The Voluntary Guidelines on Tenure promote secure tenure rights and equitable access to land, fisheries and forests with respect to all forms of tenure: public, private, communal, indigenous, customary and informal.

Also available in [Arabic](#) and [French](#)



[VGGT at a Glance](#)

The guide explains what is meant by tenure and describes how improving the governance of tenure can serve to eradicate hunger and poverty and lead to the sustainable use of natural resources.

Also available in [Arabic](#) and [French](#)

Publications on the Voluntary Guidelines



[Enabling legal environment for the responsible governance of tenure](#)

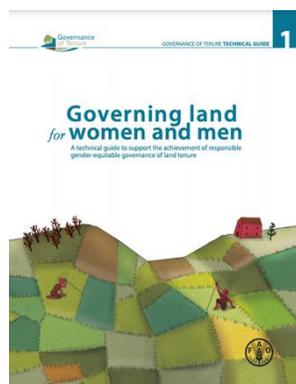
The responsible governance of tenure is of fundamental importance for ensuring food and nutrition security, contributing to more sustainable and equitable livelihoods, social stability, rural development, environmental protection and the long-term eradication of hunger and poverty.



[Création d'un environnement juridique propice à une gouvernance responsable des régimes fonciers](#)

La gouvernance responsable des régimes fonciers est d'une importance fondamentale dans la mesure où elle garantit la sécurité alimentaire et nutritionnelle, contribue à des moyens d'existence plus durables et équitables, à la stabilité sociale, au développement rural, à la protection de l'environnement

Technical Guides



[Governance of Tenure Technical Guide 01](#)

Governing Land for Women and Men

Also available in [Arabic](#) and [French](#)

A Technical Guide to Support the Achievement of Responsible Gender-Equitable Governance of Land Tenure. The guide focuses on equity and on how land tenure can be governed in ways that address the different needs and priorities of women and men. Gender-equitable governance of land tenure ensures that women and men can participate equally in their relationships to land, through both formal institutions and informal arrangements for land administration and management.



[Technical Guide 2 - Improving governance of forest tenure](#)

Also available in [French](#)

Forests help us breathe and they give us homes, food and energy. Moreover, human well-being and the health of our whole planet depend on whether and how we grow and look after forests. So 'forest governance' – or who is allowed to decide what about forests and how – is a matter of life and death for millions of people around the world and is profoundly relevant for us all.



[Technical Guide 3 – Respecting free, prior and informed consent](#)

Also available in [Arabic](#) and [French](#)

This technical guide on Respecting free, prior and informed consent (FPIC) sets out practical actions for government agencies to respect and protect FPIC and for civil society organizations, land users and private investors globally to comply with their responsibilities in relation to FPIC, as endorsed by the Guidelines.



[Technical Guide 4 – Safeguarding land tenure rights in the context of agricultural investment](#)

Also available in [Arabic](#) and [French](#)

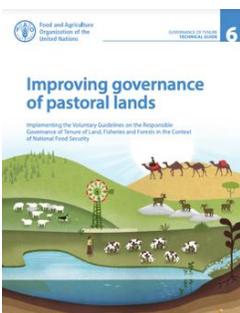
This guide has been developed in response to concerns regarding large-scale land acquisitions and the need to increase investment in agriculture. The guide supports application of the VGGT at the national level by providing technical guidance on how to safeguard tenure rights in the context of agricultural investments, including in land.



[Technical Guide 5 – Responsible governance of tenure and the law](#)

Also available in [Arabic](#) and [French](#)

This guide addresses the legal value of the Guidelines covering the governance of tenure of land, fisheries and forests by explaining the concept of legitimacy and reviewing the different stages of legislative processes, from legal assessment and law-making through implementation of legislation to settlement of disputes.



[Technical Guide 6 – Improving governance of pastoral lands](#)

Also available in [Arabic](#) and [French](#)

The Technical Guide on Pastoralism builds on a number of initiatives and studies from recent years that have shone a light on pastoral governance and land tenure: on the inherent challenges pastoralists face, the shortcomings of governments in securing pastoral tenure, and the emerging examples of success and progress from around the world.



[Technical Guide 7 – Responsible governance of tenure: a technical guide for investors](#)

Also available in [Arabic](#) and [French](#)

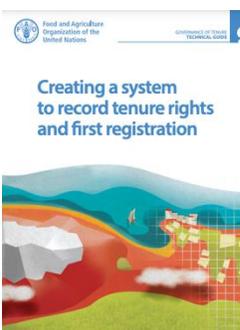
This Technical Guide explains how investors can invest responsibly in agricultural land in line with the Voluntary Guidelines, explaining what the Voluntary Guidelines mean and how they can help firms to understand and manage investment risk related to land tenure.



[Technical Guide 8 – Governing Tenure Rights to Commons](#)

Also available in [French](#)

This Technical Guide on *Governing Tenure Rights to Commons* aims to support states, community-based organizations and civil society organizations, the private sector and other relevant actors to take proactive measures to implement the standards and recommendations of the VGGT.



[Technical Guide 9 – Creating a system to record tenure rights and first registration](#)

Also available in [French](#)

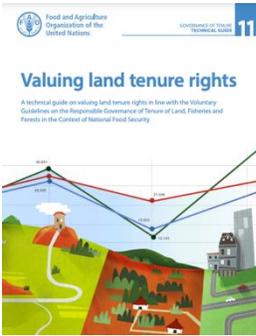
This guide is about extending the recording or registration of tenure rights to people who currently are not served by systems to record their rights.



[Technical Guide 10 – Improving ways to record tenure rights](#)

Also available in [French](#)

This guide is about making the recording or registration of tenure rights more relevant to people who hold those tenure rights, and particularly to people who are currently poorly served by systems to record or register tenure rights.



[Technical Guide 11 – Valuing Land Tenure Rights](#)

Also available in [French](#)

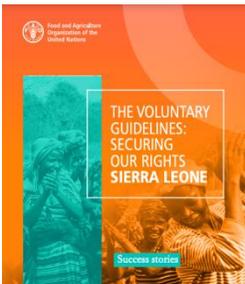
This Technical Guide covers the issues associated with the identification and valuation of tenure rights for different purposes, and provides guidance on how to ensure that valuations are undertaken in a fair, reliable and transparent manner that comply with international norms.



[Technical Guide 12 – Strengthening civic spaces in spatial planning processes](#)

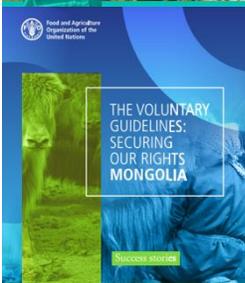
Spatial planning procedures can have a considerable impact on the legitimate tenure rights of the respective rights holders and, in the long term, can affect livelihoods. This technical guide acknowledges this link and provides guidance on the importance of recognizing legitimate tenure rights in spatial planning processes.

Voluntary Guidelines: Success Stories



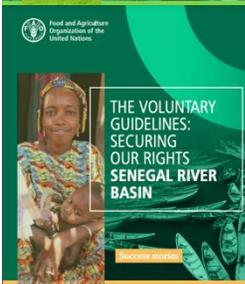
[The Voluntary Guidelines: Securing our rights - Sierra Leone](#)

This brochure highlights the key achievements and lessons learned in Sierra Leone, discussing the move towards better governance of tenure, focusing on changes before and after implementing the VGGT, explaining why the VGGT were a driver of change and creator of opportunity.



[The Voluntary Guidelines: Securing our rights - Mongolia](#)

This brochure highlights the key achievements and lessons learned in Mongolia, discussing the move towards better governance of tenure, focusing on changes before and after implementing the VGGT, explaining why the VGGT were a driver of change and creator of opportunity.



[The Voluntary Guidelines: Securing our rights – Senegal River Basin](#)

This brochure highlights the key achievements and lessons learned in the Senegal River Basin, discussing the move towards better governance of tenure, focusing on changes before and after implementing the VGGT, explaining why the VGGT were a driver of change and creator of opportunity.

Field Guides



[Guide d'accompagnement - Respecter le consentement préalable, donné librement et en connaissance de cause en Tunisie](#)

Ce guide d'accompagnement doit être utilisé pour des formations en consentement libre, préalable et en connaissance de cause.



[Respecter le consentement préalable, donné librement et en connaissance de cause en Mauritanie](#)

Ce guide d'accompagnement peut être utilisé pour des ateliers de formations ou de sensibilisation à propos le consentement préalable, donné librement et en connaissance de cause.



[Guide d'accompagnement. Respecter le consentement préalable, donné librement et en connaissance de cause au Sénégal](#)

Ce guide d'accompagnement doit être utilisé pour des formations en consentement libre, préalable et en connaissance de cause.



[Pour la formation sur le consentement préalable, donné librement et en connaissance de cause au Mali](#)

Ce guide d'accompagnement doit être utilisé pour des formations en consentement libre, préalable et en connaissance de cause.



[Guide pour l'amélioration de la gouvernance des régimes fonciers pastoraux au le Niger](#)

Le guide est unique car il est élaboré en collaboration avec un pour les éleveurs au Niger. Il sera un outil concret pour aider les acteurs à résoudre les conflits liés à l'accès aux ressources naturelles au niveau local.

EU Transversal



[EU Land Governance Programme Country Level Experiences - Second version](#)

[Programme de l'UE sur la gouvernance foncière - Expériences par pays](#)

The European Union Land Governance Programme funds 18 individual country-level projects in Africa, Asia and Latin America, all of which address tenure issues, and are implemented alongside various partners, among which are government agencies, civil society organizations, bilateral and multilateral organizations and private contractors.

Le programme de gouvernance foncière de l'Union européenne finance 18 projets individuels au niveau des pays en Afrique, en Asie et en Amérique latine, qui portent tous sur des questions foncières et sont mis en œuvre aux côtés de divers partenaires, parmi lesquels des agences gouvernementales, des organisations de la société civile, des organisations bilatérales et multilatérales et entrepreneurs privés.

Land Tenure brochures

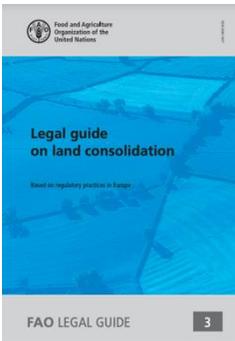


[Why land rights matter](#)

[Multi-stakeholder platforms](#)

Tenure is essential to the livelihoods of billions of people where access to land and natural resources can mean the difference between having food and going hungry. People with weak, insecure tenure rights risk losing their means to self-support without access to land, fisheries and forests.

This brochure presents fundamental principles, factors of success and practical experience of MSPs, all supported by FAO as part of the land tenure programme. This guide also demonstrates how MSPs help support the Sustainable Development Goals (SDGs).



[Legal guide on land consolidation](#)

This legal guide provides detailed guidance on legislative issues regarding land consolidation in ways that align with Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and international human rights law.

e-Learning modules



Introduction to the Responsible Governance of Tenure

OCTOBER 2013 4 h 30 m

[e-Learning: Introduction to the Responsible Governance of Tenure](#)

The course introduces the main concepts and principles of the Voluntary Guidelines on the Responsible Governance of Tenure. It aims to help people understand the Guidelines and to apply the principles to practical situations in their countries, as well as to raise the general awareness of responsible governance of tenure of land, fisheries and forests.



Introduction à la Gouvernance responsable des régimes fonciers

MARS 2014 4 h 30 m

[e-Learning: Introduction à la Gouvernance responsable des régimes fonciers](#)

Le cours introduit les concepts principaux et les principes des Directives volontaires pour une gouvernance responsable des régimes fonciers. Il permet de mieux comprendre les Directives et d'appliquer les principes à des situations nationales concrètes. Il vise ainsi à accroître la sensibilisation générale de la gouvernance responsable des régimes fonciers, des pêches et des forêts.



Addressing Disputes and Conflicts over the Tenure of Natural Resources

JULY 2014

[e-Learning: Addressing Disputes and Conflicts over the Tenure of Natural Resources](#)

This course provides guidance on managing competition over the use of land, fisheries and forests. It introduces a process for analyzing the underlying causes of disputes and conflicts. It also illustrates a range of dispute resolution mechanisms and options for policy and legal reforms to prevent disputes and reduce vulnerability to conflict.



Faire face aux différends et aux conflits relatifs aux régimes fonciers applicables aux ressources naturelles

JANVIER 2015

2 h

[e-Learning : Faire face aux différends et aux conflits relatifs aux régimes fonciers applicables aux ressources naturelles](#)

Ce cours en ligne fournit des orientations sur la gestion de la concurrence liée à l'utilisation des terres, des pêches et des forêts. Le cours présente une procédure d'analyse des causes profondes des différends et des conflits.



Investing responsibly in agricultural land

DECEMBER 2019

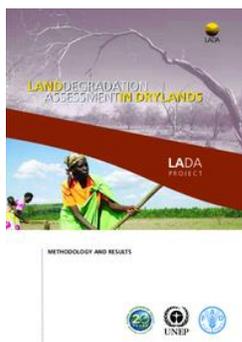
[e-Learning: Investing responsibly in agricultural land](#)

This learning path is intended to help investors act with due diligence to achieve socially responsible and financially sustainable land-based investments in developing countries, by applying the principles of the "Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security".

Land Publications

Land Degradation Assessment

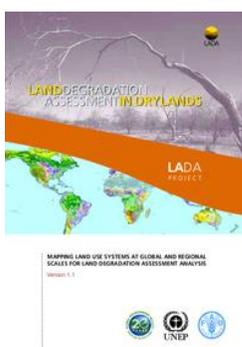
The following manuals – developed under the Land Degradation Assessment in Drylands (LADA) project – provide guidance to diagnose land degradation, identify sustainable land management responses, and their impacts at different scales (national, subnational, local).



[The overall introduction of LADA methodology and results](#)

Land degradation assessment in drylands

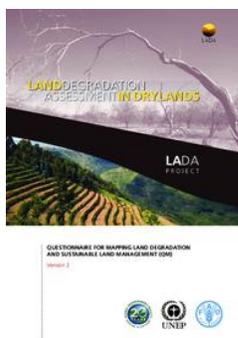
LADA (Land Degradation Assessment in Drylands project) is a scientifically-based approach to assessing and mapping land degradation at different spatial scales and at various levels. It was initiated in drylands, but the methods and tools have been developed so as to be widely applicable in other ecosystems and diverse contexts with minimal required adaptation. Adopting the LADA approach can assist the development of national action plans, strategies and policies for combating desertification, improving food security and alleviating rural poverty, especially in response to climate change.



[The establishment of a national Land Use System map \(LUS\)](#)

Mapping Land Use system at global and regional scales for Land Degradation Assessment Analysis

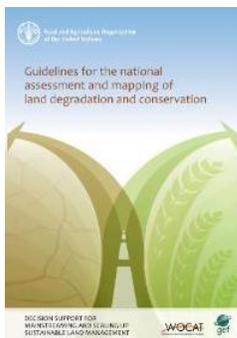
The objective of the Land Degradation Assessment in Drylands (LADA) project was to develop tools and methods to assess and quantify the nature, extent, severity and impacts of land degradation on dryland ecosystems, watersheds and river basins, carbon storage and biological diversity at a range of spatial and temporal scales. These assessments were supplemented by detailed local assessments that focused on the root causes of land degradation and on local (traditional and adapted) technologies for the mitigation of land degradation.



[The multi-disciplinary, participatory expert assessment of the LUS at \(sub\)national level, guided by the Questionnaire for Mapping \(LADA QM\)](#)

Questionnaire for Mapping Land Degradation and Sustainable Land Management (QM) Version 2

The WOCAT-LADA-DESIRE mapping tool is based on the original WOCAT mapping questionnaire (WOCAT, 2007). It has been expanded to pay more attention to issues such as biological and water degradation, it also places more emphasis on direct and socio-economic causes of these phenomena, including their impacts on ecosystem services. Linking the information obtained through the questionnaire to a geographical information system (GIS) allows the production of maps as well as area calculations on various aspects of land degradation and conservation.



[Guidelines for the national assessment and mapping of land degradation and conservation](#)

This document is designed to support and guide national experts and institutions in preparing and implementing participatory national and subnational assessments of land degradation (LD) and Sustainable Land Management (SLM) in a stepwise approach.

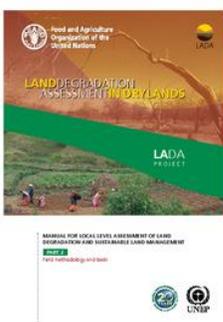
Two manuals are directed to conducting local-level land degradation and SLM assessments on the ground, including tools for participatory rural appraisal and the analysis of livelihoods, costs and benefits, and impacts



[Manual for Local Level Assessment of Land Degradation and Sustainable Land Management Part 1](#)

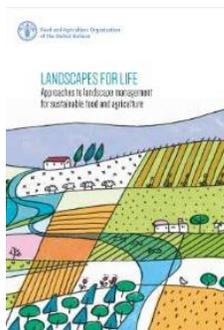
Planning and Methodological Approach, Analysis and Reporting

The main purpose of LADA-Local is to provide a standard methodological approach and tool-kit for the assessment of land degradation processes, their causes and impacts at local level in collaboration with local stakeholders and communities. The focus is on human-induced land degradation; however, natural degradation processes are also addressed. For a more balanced and complete understanding, the approach also assesses the extent to which land resources (soil, vegetation, water) and landscapes/ecosystems are being conserved and/or improved by sustainable land management (SLM) practices.



[Manual for Local Level Assessment of Land Degradation and Sustainable Land Management Part 2](#)

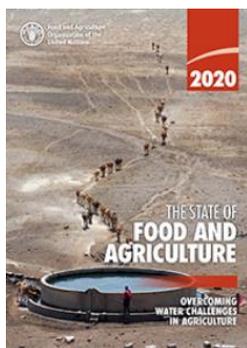
Field Methodology and Tools



[Landscapes for life - Approaches to landscape management for sustainable food and agriculture](#)

This publication presents FAO's key initiatives in support of the landscape approach, and represents an important step in consolidating these knowledge resources in support of country commitments to the Sustainable Development Goals

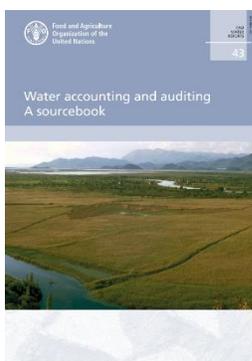
Water Publications



[The State of Food and Agriculture \(SOFA\) 2020](#)
Overcoming water challenges in agriculture

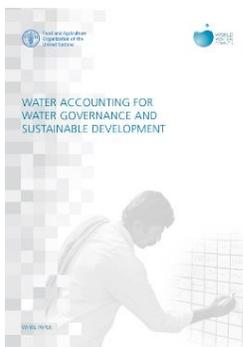
The State of Food and Agriculture 2020 presents new estimates on the pervasiveness of water scarcity in irrigated agriculture and of water shortages in rainfed agriculture, as well as on the number of people affected.

Water accounting and water tenure



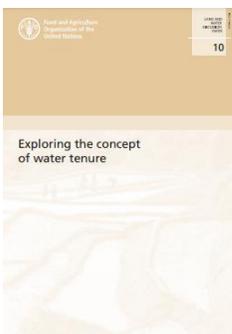
[Water accounting and auditing – A sourcebook](#)

This sourcebook is by no means the 'last word' in water accounting and auditing. Rather it should provide a good starting point for anyone or any organization that wants to: 1) Use water accounting and auditing for the first time; 2) Switch from using water accounting or auditing separately to using water accounting and auditing as mutually supportive processes; or 3) Review, and possibly refine, the approach to water accounting and/or water auditing that they are already using.



[Water accounting for water governance and sustainable development](#)

Principally aimed at high level policy-makers, to promote and encourage policy support and investment for water accounting, this white paper follows the accepted view that barriers to economic growth, food production, poverty reduction and environmental protection can be mitigated through good water governance. But good water governance needs underpinning by a clear understanding of hydrological processes, more and better quality data, and a means of interpreting it for a wide range of professionals across the water and water-using sectors, to provide common understanding and agreement on the means of improving water management.



[Exploring the concept of water tenure](#)

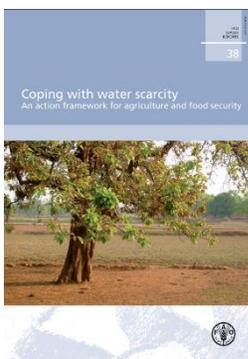
This paper examines the notion of tenure in connection with water resources and to explore whether the concept of water tenure has the potential to make a useful contribution towards resolving the world's water resources challenges. It seeks to provide answers to the following questions: (a) What is water tenure? (b) Does water tenure really exist or is water simply too different from other natural resources? (c) Could the concept of water tenure be useful in terms of the development of natural resources policies and practices? (d) Is there scope for further work on the possible development of guidelines on water tenure?



[Unpacking water tenure for improved food security and sustainable development](#)

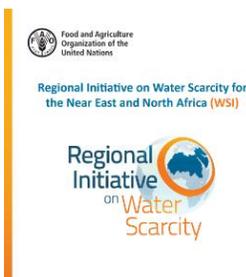
This report includes the Policy Brief and the Expert Roundtable Summary that explored the bundle of water-related rights approach to un-packing the concept and the practical ramifications of water tenure. This report is based on recent research and analysis that have helped to identify the core elements of water tenure based on data demonstrating how water tenure systems are legally recognized at the national level and how they function across diverse countries.

Water Scarcity Initiative for the Near East and North Africa



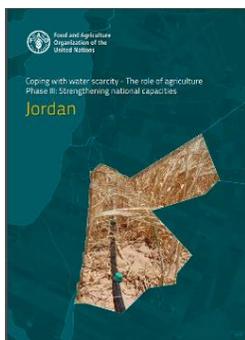
[Coping with water scarcity](#)
An action framework for agriculture and food security

The report aims to provide a conceptual framework to address food security under conditions of water scarcity in agriculture. The document offers views on the conceptual framework on which FAO's water scarcity programme should be based, proposes a set of definitions associated with the concept of water scarcity, and indicates the main principles on which FAO should base its action in support to its member countries. At the meeting, experts were requested to review the draft document and provide feedback and recommendations for its finalization.



[Regional Initiative on Water Scarcity for the Near East and North Africa](#)

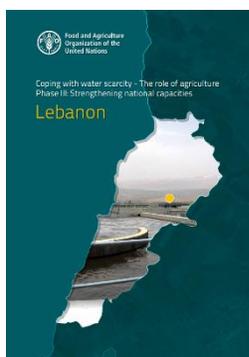
The Regional Initiative on Water Scarcity has been formulated to support the countries of the NENA Region to cope with one of their most striking challenges: the pursuit of food and water securities, for a sustainable social and economic development, under an unprecedented severe escalation of water scarcity. This publication discusses the Water Scarcity Initiative, the objective, impact, partners, and more.



[Coping with water scarcity –
the role of agriculture](#)
[JORDAN](#)

Phase III: Strengthening
national capacities

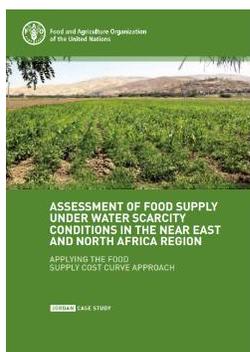
Water use has been growing globally at more than twice the rate of population increase in the last century, and an increasing number of regions are reaching the limit at which reliable water services can be delivered. Essentially, demographic growth, rapidly growing urban areas and economic development are putting unprecedented pressure on water, especially in dry regions. Growing scarcity and competition for water stand as a major threat to future advances in food security and poverty alleviation, especially in rural areas.



[Coping with water scarcity –
The role of agriculture](#)
[LEBANON](#)

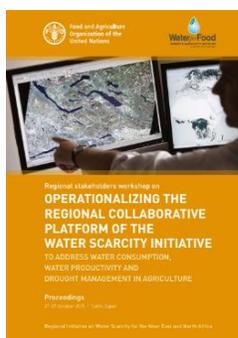
Phase III: Strengthening
national capacities

Water use has been growing globally at more than twice the rate of population increase in the last century, and an increasing number of regions are reaching the limit at which reliable water services can be delivered. Essentially, demographic growth, rapidly growing urban areas and economic development are putting unprecedented pressure on water, especially in dry regions. Growing scarcity and competition for water stand as a major threat to future advances in food security and poverty alleviation, especially in rural areas.



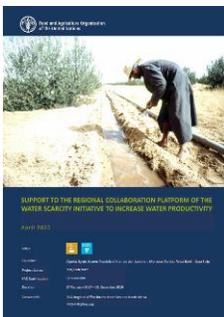
[Assessment of food supply
under water scarcity
conditions in the Near East
and North Africa Region](#)

FAO commissioned the production of concise country reports (case studies) to assess food supply under water scarcity conditions in the region, applying the food supply cost curve approach in the focus countries: Egypt, Morocco, Jordan, Tunisia and Oman. This report assesses the situation in Jordan, where demographic growth, the tendency to increase food self-sufficiency, urban expansion, increasing energy demand, overall socioeconomic development, climate change and the considerable degradation of water quality are key factors driving the increasing water scarcity. The report analyses three major aspects of agriculture: food gap, rapid water accounting and food supply cost curve.



[Operationalizing the
Regional Collaborative
Platform of the Water
Scarcity Initiative to address
water consumption, water
productivity and drought
management in Agriculture](#)

This report presents the proceedings of the Regional Collaborate Platform workshop of the Water Scarcity Initiative. It provides a summary of discussions by thematic area covering the three key topics of water consumption, crop water productivity, and drought management.



[Support to The Regional Collaboration Platform of the Water Scarcity Initiative to Increase Water Productivity](#)

This report summarizes the objectives, impacts and results of the regional project. The immediate objectives of the project included an updated architecture of RS-based monitoring systems in the project countries, and a standardized assessment of the water productivity of the major crop systems in each country, followed by an identification of good practices and affordable technologies for the increase of water productivity at farm level.



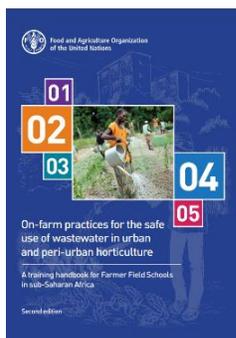
[Improving Rural Livelihoods and the Environment Through the Integral Utilization of Residues of Treated Waste Water and Organic Solid Waste for the Production of Renewable Energy and Compost in Mafraq Governorate of Jordan](#)

In Jordan, the level of municipal solid waste has grown rapidly over the past two decades, while the influx of refugees has exponentially increased its rate of production. Much of the solid waste produced finds its way to landfills, most of which are classified as unsanitary dump sites. On top of the strain being placed on the waste management system, the influx of refugees has also driven an increased demand for energy. This TCP project was therefore designed to make use of waste in the Zaatari municipality in the creation of sustainable job opportunities that promote compost production for agricultural purposes and the generation of energy.



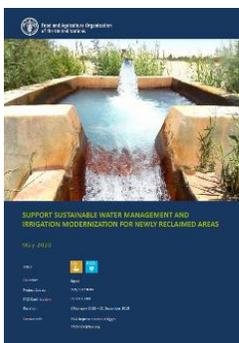
[Realizing the Potential and Managing the Risks of Solar Irrigation in the Near East and North Africa](#)

In recent years, solar irrigation has become increasingly interesting for countries as a reliable, clean-energy solution for agricultural water management, especially in areas with high-incident solar radiation. This report summarizes the objectives, impacts, futurability and results of the regional project.



[On-farm practices for the safe use of wastewater in urban and peri-urban horticulture](#)

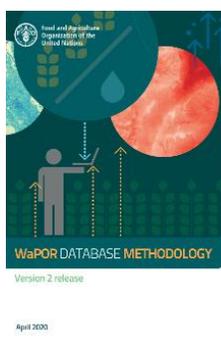
A training handbook for Farmer Field Schools in sub-Saharan Africa – second edition



[Support Sustainable Water Management and Irrigation Modernization for Newly Reclaimed Areas](#)

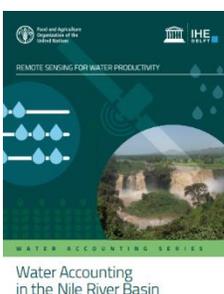
A key challenge for the agriculture sector in Egypt is to feed its growing population in the context of increasing demand on the finite water resources and a trade deficit. Major land reclamation activities have been initiated under the National Reclamation Project, with the objective of increasing agricultural land area by two percent, making agricultural land nine percent of the total area of Egypt. Within the Regional Initiative on Water Scarcity, FAO would pilot a data and information management system, based on monitoring and remote sensing (RS) data to assist MWRI and MALR to monitor water consumption and water productivity in the newly reclaimed areas.

WaPOR Portal: Water Productivity through Remote Sensing



[WaPOR database methodology](#)

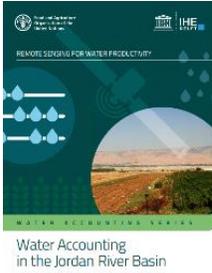
The FAO portal to monitor Water Productivity through Open Access of Remotely sensed derived data (WaPOR) provides, as of today, access to 11 years of continued observations over Africa and the Near East. The portal provides open access to various spatial data layers related to land and water use for agricultural production and allows for direct data queries, time series analyses, area statistics and data download of key variables to estimate water and land productivity gaps in irrigated and rainfed agriculture. WaPOR Version 2 was launched in June 2019 based on extensive internal and external validation and quality assessment. This document describes the methodology used to produce Version 2 of the data at the 250m (Level 1), 100m (Level 2) and 30m (Level 3) resolution distributed through the WaPOR portal.



[Water accounting in the Nile River Basin](#)

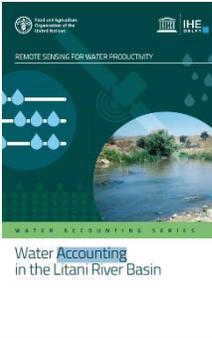
WaPOR Water Accounting series

This report describes the water accounting study for the Nile River Basin carried out by IHE-Delft using the Water Productivity (WaPOR) data portal of the Food and Agricultural Organization (FAO).



[Water accounting in the Jordan River Basin](#)

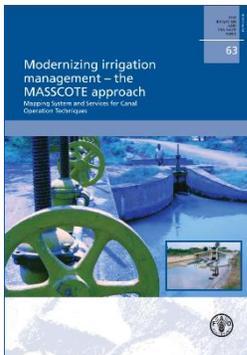
This report describes the water accounting study for the Jordan River Basin carried out by IHE-Delft using the Water Productivity (WaPOR) data portal of the Food and Agricultural Organization (FAO).



[Water Accounting in the Litani River Basin](#)

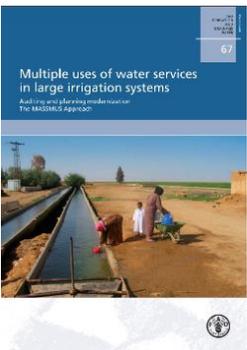
This report describes the water accounting study for the Litani River Basin carried out by IHE-Delft using the Water Productivity (WaPOR) data portal of the Food and Agricultural Organization (FAO).

Irrigation, food security and poverty reduction



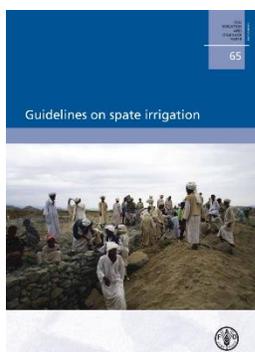
[Modernizing irrigation management – the MASSCOTE approach](#)

The MASSCOTE methodology has been developed to assist technical experts, irrigation managers and irrigation professionals engaged in the difficult task of modernizing or reengineering the irrigation management of medium-to-large irrigation canal systems.



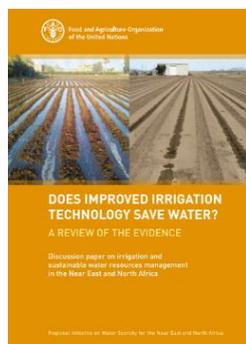
[Multiple uses of water services in large irrigation systems](#)

In the water world there is no better illustration of the concept that ‘water is life’ than the multiple uses of water that is practiced widely in all types of water infrastructures. One single use of water is not enough to sustain life; water use needs to be multi-faceted. It happens along natural water systems and constructed infrastructure, where people use water for many different purposes. In irrigated command areas (CA) people use water primarily for crops and for many other uses. It is the same for domestic water systems where gardening and small businesses develop where there is access to water.



[Guidelines on spate irrigation](#)

The main objective of this publication is to assist planners and practitioners in designing and managing spate irrigation projects. It covers hydrology, engineering, agronomy, local organizations and rules, Wadi basin management and the economics. It is designed to be both a practical guidance document and a source of information and examples based extensively on experience from around the world in areas where spate irrigation is practiced.



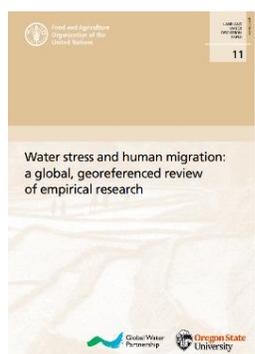
[Does improved irrigation technology save water?](#)

The Near East and North Africa (NENA) Region has the lowest per-capita fresh water resource availability among all Regions of the world, consuming more than 85 percent of renewable fresh water resources through irrigation. Demography, food security policies, overall socio-economic development and climate change will accelerate the fast-widening gap between availability and demand for fresh water resources in the coming decades. How can NENA countries simultaneously reduce this gap, promote sustainable water resources management and contribute effectively to food security?



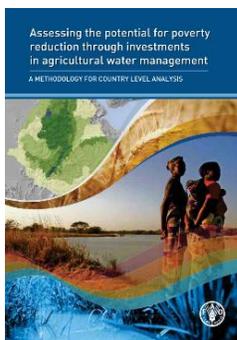
[Nature-Based Solutions for agricultural water management and food security](#)

In this discussion paper, twenty-one case studies of water management processes are analysed, using a non-representative literature survey, and checked to what extent they meet the requirements of the Nature-Based Solutions (NBS) implementation based on the criteria presented. It emerges that transdisciplinarity, stakeholder involvement, and well-designed funding schemes are important elements for successful implementation of NBS.



[Water stress and human migration: a global, georeferenced review or empirical research](#)

This publication helps guide future policy work in the areas of food security, agriculture, rural livelihoods and integrated water resources planning. The study geocoded the results of 116 peer-reviewed papers and plotted them against watershed sub-basin-level maps of indicators of water stress and compared them to the projected changes in surface temperature and annual cumulative precipitation. These maps were examined to identify geographic disparities between existing water stress migration research and likely future regions of water stress.



[Assessing the potential for poverty reduction through investments in agricultural water management](#)

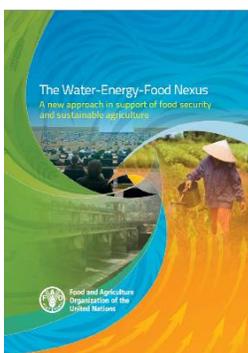
In many countries, investments in agricultural water management are seen as a key element of rural development and poverty reduction strategies, but they are often costly. Planning such investments requires a good overview of their benefits and costs and of their sustainability. Guidance is further needed in answering the following three questions: i) where to invest?, ii) who will benefit?, iii) what typology of investment is most appropriate? This report describes a methodology to conduct rapid country-level appraisals of the potential for agricultural management investments in support of rural livelihoods.

Climate change and water



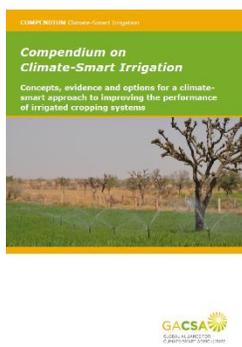
[Climate change, water and food security](#)

This report summarizes current knowledge of the anticipated impacts of climate change on water availability for agriculture. The implications for local and national food security are examined; and the methods and approaches to assess climate change impacts on water and agriculture are discussed. The report emphasizes the need for a closer alignment between water and agricultural policies and makes the case for immediate implementation of 'no-regrets' strategies which have both positive development outcomes and make agricultural systems resilient to future impacts.



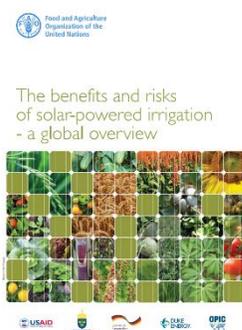
[The Water-Energy-Food Nexus](#)
[A new approach in support of food security and sustainable agriculture](#)

Water, energy and food are essential for human well-being, poverty reduction and sustainable development. Global projections indicate that demand for freshwater, energy and food will increase significantly over the next decades under the pressure of population growth and mobility, economic development, international trade, urbanization, diversifying diets, cultural and technological changes, and climate change.



[Compendium on Climate-Smart Irrigation](#)

The climate-smart irrigation (CSI) Compendium presents first the objectives of CSI, puts it in context with 'good irrigation practice, tendencies in the expansion of global irrigated area, and a summary of challenges faced by irrigated agriculture, both related and unrelated to climate change. The second section focuses in more detail on the specific implications of climate change for irrigation. The third section introduces the objectives, concepts and approach of CSI related to the respective climate smart actions pillars, followed by a discussion of the key instruments, methods, tools and practices.



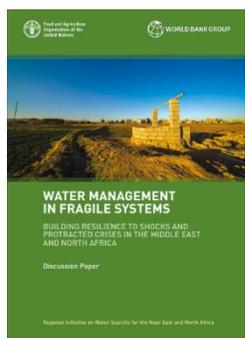
[The benefits and risks of solar-powered irrigation – a global overview](#)

This report takes stock of the experiences with solar-powered irrigation systems (SPIS) around the world. What are the real costs and benefits of SPIS compared with other technologies? What rules, regulations and policies are needed to manage the risks and realize the potential of such systems? How can smallholders benefit? How can SPIS help to empower women and promote gender equity? What types of capacity development programmes are needed to support farmers, extension workers, local private sectors and others? What are the opportunities for knowledge exchange and technology transfer? The report also stresses the importance of water resources assessments and planning to avoid increasing pressures on water resources.



[Land and water governance to achieve the SDGs in fragile systems](#)

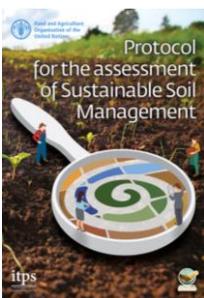
This publication was prepared as a background paper for the 2019 Land and Water Days event, held in Cairo, Egypt. In the framework of the event, the paper introduced the thematic area on "Land and Water Governance to achieve the SDGs in fragile systems". Taking into consideration the fragility of the Near East and North Africa (NENA) region, the paper intends to demonstrate how land and water governance can help to reduce such condition, improve resilience and even assist in conflict resolution in the NENA region.



[Water Management in Fragile Systems](#) Building Resilience to Shocks and Protracted Crises in the Middle East and North Africa

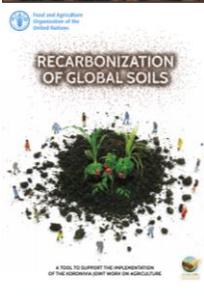
This paper brings together two issues – water and fragility – to discuss how they are related and how they should be addressed. It describes how institutional failures to address water-related challenges can act as risk multipliers, compounding existing situations of fragility, and how improving water management can contribute to building resilience in the face of protracted crises. This paper also emphasizes the importance of addressing water and fragility crises in the context of the Sustainable Development Goals.

Soils Publications



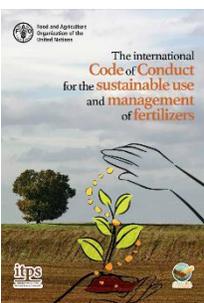
[Protocol for the assessment of Sustainable Soil Management](#)

The objective of this protocol is to provide a framework, based on a set of indicators, for government officials, NGOs, and other stakeholders involved in development projects, to determine if implemented soil management practices are sustainable and in line with the definition of Sustainable Soil Management (SSM) included in the Voluntary Guidelines for Sustainable Soil Management (VGSSM) (FAO, 2017).



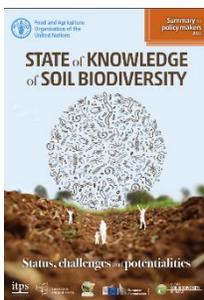
[Recarbonization of Global Soils](#)

A tool to support the implementation of the Koronivia joint work on agriculture.



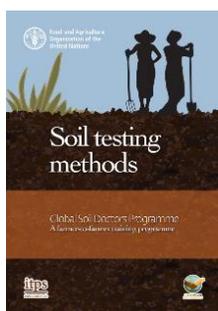
[The international Code of Conduct for the sustainable use and management of fertilizers](#)

The International Code of Conduct for the Sustainable Use and Management of Fertilizers is an important tool for implementing the Voluntary Guidelines, with special regard to nutrient imbalances and soil pollution. The Code promotes practices including nutrient recycling, and agronomic and land management to improve soil health; and recommends regulation related to the sale, distribution and labelling of fertilizer products wherever appropriate.

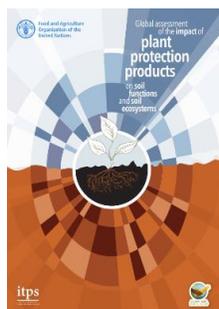


[State of Knowledge of Soil Biodiversity](#)

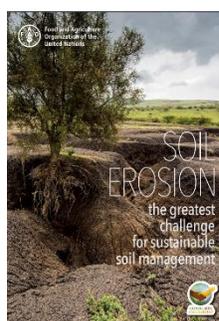
The report will make a valuable contribution to raising awareness of the importance of soil biodiversity and highlighting its role in finding solutions to today's global threats; it is a cross-cutting topic at the heart of the alignment of several international policy frameworks, including the Sustainable Development Goals (SDGs) and multilateral environment agreements. Furthermore, soil biodiversity and the ecosystem services it provides will be critical to the success of the recently declared UN Decade on Ecosystem Restoration (2021-2030) and the upcoming Post-2020 Global Biodiversity Framework.



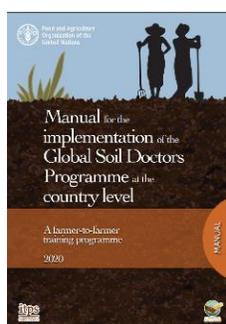
[Soil testing methods manual](#)
Doctors Global Programme
– A farmer-to-farmer
training programme



[Global assessment of the impact of plant protection products on soil functions and soil ecosystems](#)



[Soil Erosion – the greatest challenge for sustainable soil management](#)



[Manual for the implementation of the Global Soil Doctors Programme at the country level](#)

The Soil Doctors programme is developed under the umbrella of the Global Soil Partnership and promotes the establishment of a farmer-to-farmer training system. The Soil Doctors Global Programme aims to build the capacity of smallholder farmers on the practice of sustainable soil management and, by doing so, support governmental agencies and organizations working on agricultural extension at the field level (promoting broader impact and a reduction of costs). The manual is a collection of locally relevant, and easy to use, soil analyses procedures that would be selected by each area where the program is implemented.

The Global Soil Partnership (GSP) at its 2016 plenary session requested that the Intergovernmental Technical Panel on Soils (ITPS) complete “an assessment at global level of the impact of Plant Protection Products on soil functions and soil ecosystems”. We recognize that critical issues such as toxicity in non-soil dwelling organisms (e.g. pollinators, birds, larger mammals) and transport of contaminants to the human food chain are of equal or greater importance but are beyond the scope of this report.

Despite almost a century of research and extension efforts, soil erosion by water, wind and tillage continues to be the greatest threat to soil health and soil ecosystem services in many regions of the world. Our understanding of the physical processes of erosion and the controls on those processes has been firmly established. Nevertheless, some elements remain controversial. It is often these controversial questions that hamper efforts to implement sound erosion control measures in many areas of the world.

The Global Soil Doctors programme was developed under the umbrella of the Global Soils Partnership as part of the Implementation Plan for Pillar 2 on encouraging investment, technical cooperation, policy, education, awareness, and extension in support of soil resources. By promoting the establishment of a farmer-to-farmer training system, the Global Soil Doctors Programme aims to build the capacity of farmers on the practice of sustainable soil management and, by doing so, support governmental agencies and organizations working on agricultural extension at the field level (promoting broader impact and cost reduction).

Multimedia



[Water Scarcity](#)



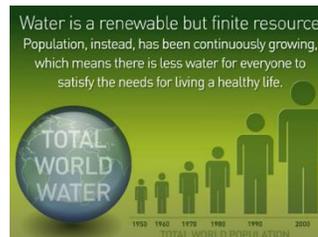
[More food means more water to grow it...We need creative solutions.](#)



[Responsible Governance of Tenure](#)



[Water: Source of Food Security](#)



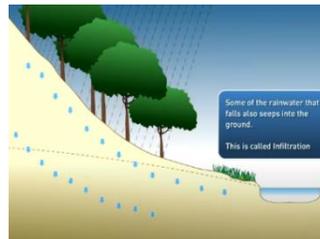
[Water for food](#)



[Virtual water \(FAO Water, 3 parts\)](#)



[Agricultural Water Management Solutions for Poverty Reduction – \(#1 Motor Pumps, #2 Rainwater harvesting\)](#)



[Water Cycle \(part1\): Surface Water and Groundwater](#)



[Wastewater can act as an alternative to fertilizers](#)



[SDG 6 – Indicators of water use efficiency and water stress](#)



[Keep soil alive, protect soil biodiversity](#)



[Soils: Our ally against climate change](#)

Related links

- [FAO Land and water](#)
- [AQUASTAT - FAO's global water information system](#)
- [Remote sensing for water productivity \(WaPOR\)](#)
- [AQUAmaps, spatial database on water and agriculture](#)
- [KnoWat – Knowing water better](#)
- [FAO Soils Portal \(FAO-SOILS\)](#)

Platforms for knowledge exchange

- [Land Resources Planning Toolbox](#)
- [Global Soil Partnership](#)
- [Sustainable Value Chains Knowledge Platform](#)
- [Farmer Field Schools](#)
- [Agro-ecology Knowledge Hub](#)
- [Water Accounting and Water for Food](#) –register!
- [Water Productivity and Agriculture](#) – register!
- [Water-Energy-Food Nexus](#) – register!

Related SDG's



Contact us

FAO Regional Office for the Near East and North Africa region, Cairo, Egypt

FAO Land tenure Unit – ESP Division, Rome, Italy

FAO Land and Water Division, Rome, Italy