GBEP
Global Bioenergy Partnership

WORKING TOGETHER FOR SUSTAINABLE DEVELOPMENT

ANALYTICAL TOOLS TO ASSESS AND UNLOCK SUSTAINABLE BIOENERGY POTENTIAL

The compilation and review of the analytical tools contained in this document have been made possible thanks to the joint efforts of FAO and UNEP, co-leading the development of a wider Bioenergy Decision Support Tool under the framework of UN Energy (forthcoming), and the GBEP Secretariat.

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Introduction

Bioenergy development and energy planning strategy is a field that is subject to many factors: uncertainty, long timeframes and high investments, along with the need to satisfy multiple decision-makers with many conflicting criteria.

Multiple criteria analytical tool or *decision support tool* is a generic term for all methods that help decision-makers according to their preferences, in cases where there is more than one conflicting criterion. The aim of these tools is to help decision-makers to organize and synthesize the collected information for use in supporting their decisions. These tools can also help decision-makers understand and identify the paramount criteria in the decision process.

The purpose of this report is to provide a collection of some important analytical tools for policymakers that have been proposed over the years or that are still under improvement or development.

The tools have been classified on the basis of their relevance to different assessment steps of the value chain of sustainable bioenergy production and use. The main advantages of the different tools, as well as the difficulties to which they may be subject, are evaluated. This work would set the stage for further analysis and comparison among different decision-support tools and their use to assess different phases of the development of a sustainable bioenergy sector.

Hundreds of analytical tools have been proposed in the last decade. The rationale and the scope differ in many areas—theoretical background, type of inputs needed and type of results given. Some of these tools have been created particularly for one specific problem, while others are more comprehensive; many of them have attained a good level of reliability and are widely deployed.

When choosing a decision support tool, there are many criteria to consider. Different tools can give different results, so the tool that reflects the user's preferences and objectives in the most possible accurate way should be chosen. In addition, the tool should provide the decision-makers with all the information needed, and should be compatible with the available/accessible data. The tool should also be easy to use and to understand. If the user doesn't understand the logic behind the methodology, it may be perceived as a black box, with consequent loss of trust in the outcomes or recommendations.

Overview and User Guide

This compilation of tools is targeted at decision-makers at regional, national or local levels in countries facing strategic decisions in developing a modern bioenergy sector.

There are many possible ways to classify the existing analytical tools for decision support. In this report, they are classified in three categories:

- ***Spatial planning for bioenergy production***: decision support tools for land-use analysis, such as GIS-based multi-criteria analysis and simulation for mapping biomass supply/demand, land suitability and energy crop production potential;
- ***Technology options and potential***: techno-economic analysis tools for evaluating the costs and energy demand of all stages of bioenergy chains;
- ***Implementation options and impacts***: decision support tools allowing an integrated assessment and comparison of different bioenergy policy options and associated impacts.

The report is split into two parts:

- Part I contains the collection of real analytical tools, often computer-based, to assist countries in bioenergy decision-making, including defining options and considering related key risks and opportunities. It offers guidance on land suitability assessment (WHERE), technology options (WHAT), and implementation modalities (HOW) – each detailing a short background and resources for more in-depth discussion and analysis.

- Part II contains further technical back-up information, intended to provide decision-makers with the necessary technical resource material to allow them to take well informed decisions on different issues, ranging from stakeholder engagement to mitigation options and good practices. Some of these are datasets that could be used to retrieve useful quantitative information to be used as input for the decision-making tools.

This Report was developed by the Secretariat of the Global Bioenergy Partnership (GBEP) as the result of an extensive information-gathering process. It is mostly based on the Bioenergy Decision Support Tool prepared by FAO and UNEP under the framework of UN Energy (forthcoming).

SPATIAL PLANNING FOR BIOENERGY PRODUCTION

Author	**Agriculture and Agri-food Canada**			**Year**	
Title	**Biomass Inventory Mapping and Analysis Tool (BIMAT)**				
Type	Tool	**Geographical coverage**	National		
Target audience/ users	Decision-makers				
The Biomass Inventory Mapping and Analysis Tool (BIMAT) was developed to allow users to learn more about the availability of Canadian herbaceous and woody opportunity biomass as well as the spatial variability of the resource across Canada. This application provides internet-based GIS functionality to allow users the ability to query and visualize biomass inventory data. Users of this application will have the ability to make well informed decisions based on spatially explicit information that presents a nationally comprehensive picture of biomass quantity and opportunity across Canada. Biomass supply and location information is made available through a collection of thematic maps and interactive queries of the herbaceous and woody databases.					
Publisher	Agriculture and Agri-food Canada				
Link	http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1226509218872&lang=eng				

Author	**Food and Agriculture Organization of the UN (FAO)**			**Year**	2003
Title	**Woodfuels integrated supply/demand overview mapping – WISDOM**				
Type	Tool	**Geographical coverage**	National or Regional		
Target audience/ users	GIS experts wood fuel analysts				
A methodological approach for assessing woodfuel sustainability and supporting wood energy planning. It is a spatially-explicit planning tool for highlighting and determining woodfuel priority areas or "woodfuel hotspots". Rather than absolute and quantitative data, WISDOM is meant to provide relative/qualitative values such as risk zoning or criticality ranking, highlighting, at the highest possible spatial detail, the areas deserving urgent attention and, if needed, additional data collection.					
Publisher	FAO, Rome				
Link	www.fao.org/docrep/005/Y4719E/Y4719E00.htm				

Author	**Competence Platform on Energy Crop and Agroforestry Systems for Arid and Semi-arid Ecosystems – Africa (COMPETE)**			**Year**	
Title	**Interactive COMPETE Maps**				
Type	AEZ maps	**Geographical coverage**	Africa		
Target audience/ users	Decision-makers; technical experts				
The Interactive COMPETE Maps synthesise information from a range of high quality sources that have categorised and evaluated land use patterns in Africa with a view to identifying land (a) suitable for biomass production for energy, (b) suitable for biomass production for other uses, and; (c) filtering out land that is not available or not suitable for inclusion in future bioenergy land use scenarios.					
Publisher	Competence Platform on Energy Crop and Agroforestry Systems for Arid and Semi-arid Ecosystems – Africa (COMPETE)				
Link	http://www.compete-bioafrica.net/current_land/current_land.html				

Author	**Cornell University/FAO**			**Year**	**1996**
Title	**Automated Land Evaluation System (ALES)**				
Type	Software tool	**Geographical coverage**	Global		
Target audience/ users	Decision-makers; technical experts, project planners				
The Automated Land Evaluation System, or ALES, is a land information system which allows countries to determine the crops which are physically and economically best suited to their respective land units. ALES allows land evaluators to build expert systems to evaluate land according to the method presented in the Food and Agriculture Organization "Framework for Land Evaluation" (FAO 1976). It is intended for use in project or regional scale land evaluation. The entities evaluated by ALES are map units, which may be defined either broadly (as e.g. in reconnaissance surveys and general feasibility studies) or narrowly (as e.g. in detailed resource surveys and farm-scale planning).					
Publisher	Cornell University				
Link	http://www.un.org/esa/sustdev/natlinfo/indicators/idsd/infosyst/ales.htm				

Author	Bioenergy and Food Security (BEFS) project - FAO		Year	2008
Title	Land Suitability Assessment (LSA)			
Type	GIS-based software tool	Geographical coverage	Global	
Target audience/ users	Decision-makers; technical experts, project planners			
The Land Suitability Assessment, or LSA, is a tool which allows countries to determine the suitable land and the potential production of specific crops, based on agro-climatic information, soil characteristics and land form. It evaluates the land according to the agro-ecological zoning approach (FAO 1978). The tool is an open system and the experts can define the most appropriate land utilization types that reflect the country specific situation. It is a GIS-based tool and it is intended for land evaluation at national and subnational level.				
Publisher				
Link	http://www.fao.org/bioenergy/foodsecurity/befs			

Author	European Commission		Year	ongoing
Title	INSPIRE (Integrated Spatial Potential Initiative for Renewables in Europe) project			
Type	Spatial data sets and spatial data services	Geographical coverage	EU member states	
Target audience/ users				
INSPIRE was a project aimed at linking renewable energy resource mapping with economic and life cycle analysis modelling, based on geographic information systems. It the model has been developed into an integrated methodology for the assessment of resource availability, financial viability and environmental factors for biomass-to-energy options at both regional and national levels. The INSPIRE geoportal provide the means to search for spatial data sets and spatial data services, and subject to access restrictions, view and download spatial data sets from the EU Member States. It aims at making available relevant, harmonised and quality geographic information to support formulation, implementation, monitoring and evaluation of policies and activities which have a direct or indirect impact on the environment.				
Publisher				
Link	http://www.inspire-geoportal.eu/index.cfm			

Author	McGarry, D.		Year	2004?
Title	A Methodology of a Visual Soil – Field Assessment Tool – to support, enhance and contribute to the LADA program			
Type	Methodology	Geographical coverage	Global	
Target audience/ users	Farmers			
The VS-Fast methodology describes and evaluates the morphological conditions of soils in the field. This is a more rapid and immediate method of soil assessment than the conventional sets of soil physical measurements commonly used. Emphasis with VS-Fast is the assessment, both tactile/qualified and quantified, of soil physical condition (soil structure units and porosity) as well as soil colour, root development, soil fauna, slaking and dispersion, organic matter status and water infiltration.				
Publisher	FAO			
Link	ftp://ftp.fao.org/agl/agll/lada/vsfast_methodology.pdf			

Author	Food and Agriculture Organization of the UN (FAO)/J.F. Goethe University		Year	no date
Title	AQUASTAT – Global Map of Irrigation Areas			
Type	GIS map + database	Geographical coverage	Global	
Target audience/ users	Decision-makers			
GIS map and database of irrigated areas within countries.				
Publisher	FAO			
Link	http://www.fao.org/nr/water/aquastat/irrigationmap/index.stm			

Author	**CIEMAT/ESEMA/Joanneum Institute/Agricultural University of Athens & Laboratory of Agribusiness Management and other partners**	**Year**	2001 (ongoing)
Title	**A Multiple Criteria Decision Tool for the Integration of Energy Crops into the Southern Europe Energy System (MULTISEES)**		
Type	Decision making tool (GIS-based)	**Geographical coverage**	Regional (Southern Europe)
Target audience/ users	Decision-makers		
MULTISEES is a multiple criteria decision making tool (GIS-based) for the analysis of integrated bio-energy systems in rural region in Southern Europe. The model consists of seven modules and considers woody crops as well as perennial herbaceous crops and covers the integration of four different energy species (Cynara cardunculus, Miscanthus, Robinia and Eucaliptus) and analyses four technologies of energy conversion (Fixed bed plus steam turbine, Fluidized bed plus steam turbine, Fluidized bed plus gas turbine and Combined heat and power). The model uses three different categories of default values (fuel parameters, technological parameters and economic parameters) that limit its flexibility. Specific objectives are to identify critical factors for a cost-effective supply of biomass derived from energy crops and for their integration into regional energy system and also to assess the cost of the most promising bioenergy schemes.			
Publisher	EU funded		
Link	http://www.joanneum.at/en/fb1/ief/projects/multisees.html		

TECHNOLOGY OPTIONS AND POTENTIAL

Author	**Rosillo-Calle, Frank; de Groot, Peter; Hemstock, Sarah L.; Woods, Jeremy**			**Year**	2007
Title	**The Biomass Assessment Handbook – Bioenergy for a Sustainable Environment**				
Type	Methodology/Tool	**Geographical coverage**			
Target audience/ users	Non-expert				
The handbook is intended to provide a practical, common methodology for measuring and recording the consumption and supply of biomass energy. It mainly emphasises traditional bioenergy use, but also modern uses are also considered. It provides guidance on how to measure biomass potential, volume of trees and biomass flows etc.					
Publisher	Earthscan, London				
Link	www.earthscan.co.uk				

Author	**Energy for Sustainable Development (ESD)**			**Year**	1995
Title	**Strategic Assessment Framework for the Implementation of Rational Energy (SAFIRE)**				
Type	Assessment framework	**Geographical coverage**	National level		
Target audience/ users	Decision-makers				
SAFIRE is an engineering-economic bottom-up model for the assessment of the impact of energy technology and associated policies on a number of economic indicators: market penetration; net employment creation; pollutant emissions; value added; import dependency; capital expenditure; external costs; and government expenditure. It provides policy- and decision-makers with a tool to evaluate the market and impact of new energy technologies and policies. The SAFIRE project is being supported by the Commission of the European Communities' Directorate-General for Research and Development (DG XII) under the Joule II Programme.					
Publisher	Energy for Sustainable Development (ESD)				
Link	http://safire.energyprojects.net/				

Author	**Natural Resources Canada**			**Year**	
Title	**RETScreen**				
Type	Toolkit (Software)	**Geographical coverage**	Country/Project-level		
Target audience/ users	Planners, decision-makers and industry to implement renewable energy				
The RETScreen Clean Energy Project Analysis Software is a decision support tool developed with the contribution of numerous experts from government, industry, and academia. The software, provided free-of-charge, can be used worldwide to evaluate the energy production and savings, costs, emission reductions, financial viability and risk for various types of Renewable-energy (and Energy-efficient Technologies). The software (available in multiple languages) also includes product, project, hydrology and climate databases, a detailed user manual, and a case study based college/university-level training course, including an engineering e-textbook.					
Publisher	RETScreen International				
Link	http://www.retscreen.net/				

Author	**Stockholm Environment Institute (SEI)**			**Year**	2008
Title	**Long-range Energy Alternatives Planning System (LEAP)**				
Type	Software tool	**Geographical coverage**	Global		
Target audience/ users	Decision-makers; technical experts (government agencies, academics, NGOs, energy utility companies, consulting companies)				
LEAP has been adopted as the tool of choice by numerous countries wishing to plan their energy systems to meet sustainable development goals. Its policy-relevant focus on basic-needs energy use, energy efficiency, and the environmental dimensions of energy planning make it a powerful tool in SEI's mission to promote rational, environmentally-sound approaches in the energy sector.					
Publisher	SEI				
Link	http://www.sei.se/programmes/climate-a-energy/projects/189-leap-long-range-energy-alternatives-planning-system.html				

Author	**International Atomic Energy Agency (IAEA), IEJE, IIASA**			**Year**	2006
Title	**Model for Analysis of Energy Demand (MAED-2)**				
Type	Software tool	**Geographical coverage**	Global		
Target audience/ users	Energy-planners				
MAED evaluates future energy demands based on medium- to long-term scenarios of socioeconomic, technological and demographic development. Energy demand is disaggregated into a large number of end-use categories corresponding to different goods and services. The influences of social, economic and technological driving factors from a given scenario are estimated. These are combined for an overall picture of future energy demand growth.					
Publisher	IAEA				
Link	http://www.iaea.org/OurWork/ST/NE/Pess/PESSenergymodels.shtml				

Author	**International Atomic Energy Agency (IAEA), IEJE, IIASA**			**Year**	ongoing
Title	**Model of Energy Supply Systems and their General Environmental Impacts (MESSAGE)**				
Type	Energy model	**Geographical coverage**	Global		
Target audience/ users	Energy-planners				
MESSAGE is used to formulate and evaluate alternative energy supply strategies for user defined constraints on, for example, new investment limits, market penetration rates for new technologies, fuel availability and trade, environmental emissions, etc. MESSAGE is extremely flexible and can also be used to analyze energy/electricity markets and climate change issues.					
Publisher	IAEA				
Link	http://www.iaea.org/OurWork/ST/NE/Pess/PESSenergymodels.shtml				

Author	**International Energy Agency (IEA)**			**Year**	ongoing
Title	**Bioenergy Assessment Model (BEAM)**				
Type	Excel based energy modelling tool	**Geographical coverage**	Global		
Target audience/ users	Energy-planners				
The International Energy Agency first initiated the BEAM (Bioenergy Assessment Model) project in 1992. The purpose of the project was to build a computer based model to compare various biomass production processes and conversion systems. With this said it concentrates more on the financial and technical feasibility of projects, rather than on the impact of any particular project on the surrounding environment and economy. BEAM3 is a collection of Excel modules, each of which models the costs and performance of a discrete part of an integrated bioenergy system. A range of bioenergy systems, in terms of different feedstocks, products, and conversion routes, can be modelled. Furthermore, an executive program is available for controlling the definition of the basic system to ensure that a feasible combination of feedstock, product, and conversion route is made. Once a basic bioenergy system is defined, BEAM3 can be used to calculate technical and economic parameters for the system at a specific capacity based on the cost and performance characteristics of the chosen technology.					
Publisher					
Link					

IMPLEMENTATION OPTIONS AND IMPACTS

Cross-cutting

Author	**UN Foundation (UNF) and the Energy Security Group**			**Year**	2007
Title	**BioEnergy Evaluation Tool (BEET)**				
Type	Toolkit	**Geographical coverage**	Country-level		
Target audience/ users					
The BEET project, a component of the U.S.–Brazil Biofuels Initiative, aims to develop a user-friendly, decision-support tool for evaluating the national/energy security, economic, and environmental and agricultural impacts stemming from bioenergy policies and strategies. As a decision-support tool, BEET would provide a quick-turnaround analytic capability to do trade-off and "what if" analysis of bioenergy policy options intended to support country-level priorities and goals. Capabilities continuously continue to be expanded, currently being expanded in support of developing and evaluating strategic ethanol plans for El Salvador and the Dominican Republic.					
Publisher	UN Foundation				
Link					

Author	**Austrian Institute of Economic Research**			**Year**	
Title	**Austrian Biomass Model (ABM)**				
Type	Computable general equilibrium model (CGE)	**Geographical coverage**	Country-level		
Target audience/ users					
The Austrian Biomass Model (ABM) was developed for a bioenergy study in Austria, carried out by the Austrian Institute of Economic Research and partners. ABM is an economic model that compares the various options to increase biomass energy supply, focusing on the respective macroeconomic and environmental implications of such an increase. The study focuses on biomass as the quantitatively most important renewable resource in Austria, and considers three energy markets: electricity, heat and liquid fuels. By using general equilibrium analysis it is possible to quantify the impacts of deploying biomass energy on: the labour market; the foreign trade structure; the public budget; sectoral and overall gross production, and CO2-emissions.					
Publisher					
Link					

Author	**Laboratory of Agribusiness Management, Agricultural University of Athens (EU Funded)**			**Year**	2004
Title	**Alternative Crops Integration in a Spatial Analysis (ACISA)**				
Type	Decision support tool	**Geographical coverage**	Global		
Target audience/ users	Producers, consultants, policy makers, regional planners, action agencies and environmentalists				
Acisa performs evaluation of biomass-to-energy systems with respect to biomass production, transportation and exploitation along with the associated economic, social and environmental impacts. Alternative bioenergy integration strategies can be tested that may in turn lead to sustainable development, a reduction in environmental pollution, or a maximum economic return or compromise solutions among the above. Acisa has been developed by a large team of experts in biomass production and exploitation from five European countries (Austria, France, Greece, Italy and Spain) and incorporates the experience in the field of bioenergy production into a user-friendly, spatial decision support tool.					
Publisher					
Link	http://www.aua.gr/gr/dep/oik/lab/man/main%20page%20files/Research%20Programmes%20Files/Acisa%20Leaflet.pdf				

Author	**GTZ – ProBEC**	**Year**	2010
Title	**SADC Bioenergy Policy Development Tool**		
Type	Paper version with CD-Rom	**Geographical coverage**	Southern African Development Community (SADC)
Target audience/ users	Policy makers involved in bioenergy in the SADC region		
Upon requests from SADC Member States, the SADC biofuel taskforce commissioned GTZ-ProBEC to develop this policy support tool. The tool is designed to fit SADC specific conditions and priorities but draws on existing international policy support material. The tool acknowledges the SADC Framework for Sustainability and other important SADC policy documents and has been developed jointly together with the SADC biofuel taskforce members and selected Member States.			
Publisher	GTZ		
Link	http://www.sadc.int/ http://www.probec.org/		

Environmental Aspects

Author	**Food and Agriculture Organization of the UN (FAO)**	**Year**	2006
Title	**RuralInvest for successful projects**		
Type	Toolkit	**Geographical coverage**	Global
Target audience/ users	Any agency, project, organization or private investor managing funds for small and medium scale agricultural and rural investments		
RuralInvest is a free multilingual toolkit that was developed by FAO and that comprises training courses, manuals and custom developed software which provides the necessary support to prepare successful rural development projects.			
Publisher	FAO Investment Centre		
Link	http://www.fao.org/tc/tci/ruralinvest_en.asp		

Author	**Oeko Institut/IFEU/Copernicus Institute**	**Year**	Forthcoming
Title	**Bioenergy Environmental Impact Analysis (BIAS): Analytical Framework**		
Type	Analytical framework	**Geographical coverage**	Global
Target audience/ users	Decision-makers		
The objective of BIAS analytical framework is to provide an integrated yet simple approach for the comprehensive analysis of environmental impacts associated with production and use of biomass for bioenergy. It focuses on key impacts – biodiversity, soil, water and greenhouse gas emissions – and briefly identifies linkages of these environmental impacts to food security issues.			
Publisher	FAO		
Link			

Author	**World Bank/World Wildlife Fund (WWF)**	**Year**	Forthcoming
Title	**Biofuels: Environmental Sustainability Scorecard**		
Type	Scorecard	**Geographical coverage**	Global
Target audience/ users	Decision-makers; technical experts		
The Scorecard allows the user to: compare different biofuels and different biofuel production systems across key criteria in terms of environmental sustainability; understand what kind of changes to production systems would result in more sustainable production; and track progress in improving sustainability over time.			
Publisher			
Link			

Author	BirdLife International/Conservation International/United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)		Year	
Title	Integrated Biodiversity Assessment Tool (IBAT)			
Type	Assessment tool	Geographical coverage	Global	
Target audience/ users	Investors; businesses			
IBAT for business is an innovative tool designed to facilitate access to accurate and up-to-date biodiversity information to support critical business decisions.				
Publisher	BirdLife International/Conservation International/UNEP-WCMC			
Link	http://www.ibatforbusiness.org/			

Author	Conservation International		Year	
Title	Rapid Assessment Program (RAP) - Toolkit			
Type	Toolkit	Geographical coverage	Global	
Target audience/ users	Decision-makers			
The objective of the RAP Tool Kit is to provide information needed to plan, design, implement and publish rapid biodiversity surveys in order to promote biodiversity surveys around the world.				
Publisher	Conservation International			
Link	http://biosurvey.conservation.org/portal/server.pt?open=512&objID=1712&mode=2&in_hi_userid=127583&cached=true			

Author	Kuncoro, S.A., M.v. Noordwijk, E. Martini, P. Saipothing, V. Areskoug, A.E. Putra, and T. O'Connor.		Year	2006
Title	Rapid Agrobiodiversity Appraisal (RABA) in the Context of Environmental Services Rewards			
Type	Assessment tool	Geographical coverage	Global	
Target audience/ users	Biologists; Agronomists; Rural Development Specialists; non-experts			
RABA is a tool in which approaches to collect data and appraise the conservation value of an area rapidly are combined, summarized and adapted. Different techniques such as Rapid Rural Appraisal and Stakeholder Analysis are among the methods or approaches that are suggested for use in different phases of RABA.				
Publisher	ICRAF, World Agroforestry Centre			
Link	www.worldagroforestrycentre.org/sea/Networks/RUPES/download/RABA/RABAfinal2509.pdf			

Author	Pheloung et al.		Year	1999
Title	Alien plant screening system			
Type	Checklist/scoresheet	Geographical coverage	Global	
Target audience/ users	Biologists; Plant Specialists			
Checklist/scoresheet aimed to assess the invasiveness of alien plants.				
Publisher				
Link	http://www.botany.hawaii.edu/faculty/daehler/WRA/HIscoresheet.pdf			

Author	Food and Agriculture Organization of the UN (FAO)		Year	ongoing
Title	AQUACROP			
Type	Software	Geographical coverage	Global	
Target audience/ users	Crop modellers			
AquaCrop is the FAO crop-model to simulate yield response to water of several herbaceous crops. It is designed to balance simplicity, accuracy and robustness, and is particularly suited to address conditions where water is a key limiting factor in crop production.				
Publisher	FAO			
Link	http://www.fao.org/nr/water/aquacrop.html			

Author	Food and Agriculture Organization of the UN (FAO)		Year	
Title	CropWat			
Type	Decision support system	Geographical coverage	Global	
Target audience/ users	Agro-meteorologists; agronomists; and irrigation engineers			
CROPWAT is practical tool to carry out standard calculations for evapotranspiration and crop water use studies, and more specifically for the design and management of irrigation schemes. It allows the development of recommendations for improved irrigation practices, the planning of irrigation schedules under varying water supply conditions, and the assessment of production under rainfed conditions or deficit irrigation.				
Publisher	FAO			
Link	http://www.fao.org/nr/water/infores_databases_cropwat.html			

Author	Stockholm Environment Institute (SEI) U.S. Center		Year	
Title	WEAP - Water Evaluation and Planning System			
Type	Model	Geographical coverage	Global	
Target audience/ users	Water experts			
WEAP is a user friendly modelling tool for water resources planning, taking into account agricultural, municipal industrial and ecological water use. It considers both ground and surface water.				
Publisher	Stockholm Environment Institute (SEI) U.S. Center			
Link	http://www.weap21.org/			

Author	U.S. Department of Agriculture – Agricultural Research Service (USDA-ARS)/Texas A&M University		Year	
Title	SWAT soil and water assessment tool			
Type	Model	Geographical coverage	Global	
Target audience/ users	Water experts			
SWAT is an advanced modelling tool for water resources planning, taking into account agricultural, municipal industrial and ecological water use. It considers both ground and surface water.				
Publisher	USDA-ARS/Texas A&M University			
Link	http://www.brc.tamus.edu/swat/			

Author	U.S. Department of Agriculture – Agricultural Research Service (USDA-ARS)		Year	2005
Title	Revised Universal Soil Loss Equation 2			
Type	Assessment tool	Geographical coverage	Global	
Target audience/ users	Soil specialists			
RUSLE2 can be applied to any land (including cropland) where mineral soil is exposed to the direct forces of waterdrop impact and surface runoff generated by rainfall intensity being greater than the infiltration rate of water into the soil. RUSLE2 estimates rates of rill and interrill soil erosion caused by rainfall and its associated overland flow. The four major factors of climate, soil, topography, and land use determine rates of rill and interrill erosion. A RUSLE2 user applies RUSLE2 to a specific site by describing field conditions at the site for these four factors. RUSLE2 uses this field description to compute erosion estimates.				
Publisher	USDA-ARS			
Link	http://www.ars.usda.gov/Research/docs.htm?docid=6010			

Author	Argonne National Laboratory		Year	2008
Title	The Greenhouse Gases, Regulated Emissions, and Energy Use in Transport Model (GREET)			
Type	Methodology	Geographical coverage	Global	
Target audience/ users	Researchers; analysts			
Freely available Life Cycle Analysis (LCA) methodology particularly applicable to the assessment of life cycles of biofuels for transport. It allows researchers and analysts to evaluate various vehicle and fuel combinations on a full fuel-cycle/vehicle-cycle basis.				
Publisher	Argonne National Laboratory			
Link	http://www.transportation.anl.gov/modeling_simulation/GREET/index.html			

Author	Natural Resources Canada		Year	
Title	GHGenius – A model for LCA of transportation fuels			
Type	Model	Geographical coverage	National/regional	
Target audience/ users	Researchers; analysts			
The GHGenius model has been developed for Natural Resources Canada over the past ten years. It is based on the 1998 version of Dr. Mark Delucchi's Lifecycle Emissions Model (LEM). GHGenius is capable of analyzing the emissions of many contaminants associated with the production and use of traditional and alternative transportation fuels. It also considers a few circumstances where the fuels could be used in stationary applications rather than for transportation. GHGenius can predict emissions for past, present and future years through to 2050 using historical data or correlations for changes in energy and process parameters with time that are stored in the model. GHGenius can perform the LCA for specific regions (east, central or west) of Canada, the United States and Mexico or for India as a whole. For Canada, it is also possible to model many of the processes for the largest provinces. It is also possible for model regions of North America. All of the steps in the life cycle are included in the model from raw material acquisition to end-use.				
Publisher	Argonne National Laboratory			
Link	http://www.transportation.anl.gov/modeling_simulation/GREET/index.html			

Author	European Commission and IEA Bioenergy Task 38		Year	
Title	BIOmass based climate change MITigation through Renewable Energy systems (BIOMITRE) project			
Type	GHG LCA software tool	Geographical coverage	Global (Bioenergy chain level)	
Target audience/ users	Policy and industry decision makers			
The aim of this project is to develop a standard, user-friendly software tool that can be used to analyse GHG balances and cost-effectiveness of different biomass energy technologies. The software tool enables a biomass energy technology to be compared with a reference system, such as a fossil fuel system. Modules will be developed for different elements of biomass systems and reference systems. The modules include elements such as the biomass source, supply system, conversion and end-use. Excel software is used to develop the software tool. The tool has been developed for several user groups and the results can be used in different applications as policy-making or evaluation of technologies.				
Publisher				
Link	http://www.joanneum.at/biomitre/			

Author	initiated by the Swiss State Secretary for Economic Affairs SECO and developed by Empa		Year	2009
Title	Sustainability Quick Check for Biofuels			
Type	Web-based tool	Geographical coverage	Global	
Target audience/ users	Policy and industry decision makers			
This tool is designed for a rapid assessment of environmental impacts of individual biofuels by combining key factors of the individual production chain with life cycle data from ecoinvent-reference data sets. It enables producers from south countries to check the compatibility of their biofuels production with sustainability certification criteria. It allows facilitating the access to the Swiss market for biofuels' producers in emerging countries, and therefore contribute to a more sustainable implementation of biofuels production.				
Publisher				
Link	http://www.sqcb.org/			

Author	Food and Agriculture Organization of the United Nations (FAO)		Year	2010
Title	EX-ACT (EX-Ante Carbon-balance) Tool and Technical Guidelines			
Type	Software (excel based)	Geographical coverage	Project level	
Target audience/ users	Project planners/managers			
EX-ACT (EX-Ante Carbon-balance) is a tool that provides ex-ante estimations of the impact of agricultural and forestry development projects on GHG emissions and sequestration, indicating its effects on the carbon balance. It is a land-based accounting system, measuring C stocks and stock changes per unit of land, expressed in tCO2e/ha and year. This ex-ante C-balance appraisal will guide the project design process and the decision making on funding aspects, complementing the usual ex-ante economic analysis of investments projects. EX-ACT will in fact help project designers to select project activities with higher benefits both in economic and climate change mitigation terms and its output could be used in financial and economic analysis of the projects.				
Publisher	FAO			
Link	http://www.fao.org/docs/up/easypol/768/ex-act_flyer-nov09.pdf			

Author	**Stockholm Environment Institute**	**Year**	2010
Title	**Resources and Energy Analysis Programme (REAP)**		
Type	Software	**Geographical coverage**	United Kingdom
Target audience/ users	Policy-makers		
REAP is an input-output-based software tool that calculates the environmental pressures associated with consumption activities. It contains baseline data on the greenhouse gases, air pollutants and ecological footprints for every local authority area, government region and nation in the UK. One of REAPs most important functions is the scenario editor. This can be used to explore the environmental pressures associated with changes in population, consumption patterns and production technology over time. The REAP tool was launched in 2006 as part of the Ecological Budget UK project funded by Biffaward. Since then the input-output based methodology behind REAP has been used by SEI to create a family of models all promoting sustainable development.			
Publisher	SEI		
Link	http://www.sei-international.org/mediamanager/documents/Publications/Rethinking-development/introducing%20reap%20100216%20web.pdf		

Socio-Economic Aspects

Author	**International Labour Office (ILO) and Food and Agriculture Organization of the UN (FAO)**	**Year**	2007
Title	**Toolkit for mainstreaming employment and decent work**		
Type	Toolkit	**Geographical coverage**	Global
Target audience/ users	Project developers, staff in governments, financing agencies, civil society and the corporate sector		
This free toolkit is designed to be a "lens" that agencies can look through to see how their policies, strategies, programmes and activities are interlinked with employment and decent work outcomes and how they can enhance these outcomes by taking full account of the implications of their policies, strategies, programmes and activities for employment and decent work during the design stage and while advising and assisting countries and constituents with regard to their adoption and implementation.			
Publisher	ILO and FAO		
Link	http://www.fao-ilo.org/fileadmin/user_upload/fao_ilo/pdf/MainstreamingDEtoolkit.pdf		

Author	**European Federation of Regional Energy & Environment Agencies (FEDARENE)**	**Year**	1996
Title	**Evaluation of Local Value Impacts for Renewable Energy (ELVIRE)**		
Type	Evaluation tool	**Geographical coverage**	Project-level
Target audience/ users	Decision-makers; local and regional operators		
The ELVIRE model evaluates the externalities associated with renewable energy projects, by weighing up the overall impacts of a project against its initial costs. In particular, it outlines a development's likely impact on 1) regional economic development; 2) employment; 3) the return on public finances; 4) sustainable development; and 5) the environment. It has been developed by FEDARNE's working group on renewable energies and some of its member agencies, with support from the ALTENER programme.			
Publisher			
Link			

Author	**BEFS Project of Food and Agriculture Organization of the UN (FAO)**	**Year**	2010
Title	**Bioenergy and Food Security Analysis methodology**		
Type	Methodology guide	**Geographical coverage**	Country-level
Target audience/ users	Policy-makers, food security and bioenergy stakeholders and private sector		
The overall goal of the document is to provide a methodology to assess the bioenergy development potential and the implications for food security at the country level. The methodology is called BEFS Analysis approach. The methodology components include estimation of the biomass potential, technical feasibility and economic competitiveness of biofuel production and the economic and food security implications at the country and household level. The overarching aim of the assessment is to inform the policy making process in the country. The BEFS approach is being implemented in three countries, namely Peru, Tanzania and Thailand. Each country's analysis is tailored to country specific circumstances. An array of options are analyzed and presented to the countries to illustrate the use of the tools so that the countries can identify how best to extend and adapt them to reflect prevailing country priorities.			
Publisher	FAO		
Link	http://www.fao.org/bioenergy/foodsecurity/befs/home/en/		

Author	**Gaouyer, J.P, CRES, J.C. Jacquemin, G. Caserta, P. Rijk, J. Bahr, K. Healion, and W. Grosskopf**	**Year**	1999
Title	**Biomass Socio-Economic Multiplier (BIOSEM)**		
Type	Quantitative model	**Geographical coverage**	Global
Target audience/ users	Decision-makers; project developers; regional economic development officers and agencies; policy makers		
BIOSEM is a quantitative model designed to capture the socio-economic effects of local bioenergy production. It can trace both the extent and distribution of income and employment gains, and can assess the merits of differing (energy and agricultural) policy packages, such as grants and subsidies on bioenergy production. A range of biomass fuels and conversion processes can be modelled (e.g., from residues to dedicated energy crops), as can the recipient markets for heat and electricity.			
Publisher			
Link	http://www.biomatnet.org/secure/Fair/S657.htm		

Author	**Federal University of Viçosa (UFV)**	**Year**	
Title	**BIOSOFT (Decision supporting system for implantation of biofuel production units)**		
Type	Software tool	**Geographical coverage**	Global
Target audience/ users			
Software for the analysis of biodiesel projects with the participation of familiy agriculture, used to determine the economic/financial viability of different (energy) crops. Results of production chain analysis and economic indicators calculated by the BioSoft system have allowed identifying the regular supply of oil at competitive prices as the key point to the efficiency of biodiesel production chains. BioSoft is used to examine the feasibility of the models which requires fixed investments (civil works, machinery and equipment) and working capital needed, workforce, raw material, inputs, transportation costs, and others, in order to get all the short-term expenses necessary to the production process, allowing the calculation of operational costs. Based on these data, the software calculates and shows values of the main indicator, as the internal rate of return, the time of return of capital and equilibrium. It also calculates the number of jobs created in each production unit, allowing an analysis of the social impact of each model.			
Publisher			
Link			

Author	**Oak Ridge National Laboratory (ORNL) – Biofuels Feedstock Development Program (BFDP)**			**Year**	
Title	**BIOCOST**				
Type	Decision support tool	**Geographical coverage**	Regional (US)		
Target audience/ users	Energy-planners				
BIOCOST can model the cultivation of dedicated energy crops and thus allows a cost comparison to be made with alternative crop production. It estimates bioenergy crop production costs for seven U.S. regions: the Lake States; the Corn Belt; Appalachia; the Southeast; the North Plains; the South Plains, and the Pacific Northwest, where these regions correspond to major U.S. agricultural crop production areas. It estimates the full economic cost of producing bioenergy crops in 1995 U.S. dollars. Variable cash expenses (e.g., seeds, chemicals, fertiliser, fuel, repairs, and hired labour), fixed cash costs (e.g., overhead, taxes, interest payments), and the costs of owned resources (e.g., producer's own labour, equipment depreciation, land rents, opportunity cost of capital investments) are included in the estimated production costs.					
Publisher					
Link					

Author	**East Tennessee State University (ETSU)**			**Year**	
Title	**Renewable Energy Crop Analysis Programme (RECAP)**				
Type	Computer-based bioenergy model	**Geographical coverage**	Global (specific to a certain production chain)		
Target audience/ users					
RECAP was developed by the East Tennessee State University (ETSU) on behalf of the U.K. Department of Trade and Industry (DTI). It is designed to assess the financial feasibility of any biomass project using either dedicated energy crops or other biomass sources. It's a versatile computer model of biomass-to-energy systems, which, in one integrated model, can study all the costs associated with bioenergy production. It models all the costs involved from production, harvesting, storage, and transport through to the conversion of energy crops to heat and power. Accordingly, it can make a financial assessment of both the feedstock chain and the conversion process. The model calculates cash flows and undertakes an investment appraisal by calculating NPV and IRR for both the farmer and the conversion plant operator. This model was a precursor to the financial analysis in BIOSEM.					
Publisher					
Link					

Author	**Agricultural University of Athens**			**Year**	1996
Title	**Biomass Economic Appraisal & eValuation ExpeRt (BEAVER)**				
Type	Investment appraisal tool	**Geographical coverage**	Global (for specific feedstocks)		
Target audience/ users					
BEAVER is an investment appraisal system for the economic evaluation of biomass cultivation. Its knowledge data bases currently hold detailed information about three biomass crops, namely sweet sorghum, poplar and willow. The model also uses genetic algorithms to identify optimal values for externally determined parameters.					
Publisher					
Link					

Author	**Agricultural University of Athens and partners (EU funded)**			**Year**	2000?
Title	**BEE (Biochains Economic Evaluation)**				
Type	Software	**Geographical coverage**	Global		
Target audience/ users	Decision makers in commerce and industry				
Bee is a packaged computerised model which performs full economic evaluation of bioenergy chains based on the cultivation and production of biomass from different bioenergy crops. It examines the whole chain from farm to useful energy or fuel delivered at the conversion plant gate and it may analyse more than one crops and more than one conversion technologies at the same time. Some parts of the model are based on completed previous modelling work and some others, such as the economic analysis have been especially prepared for Bio-Energy Chains. It is primarily intended to cover the needs for the economic analysis of bioenergy chains, but its agricultural module is general enough to be capable of evaluating plants or plantations other than bioenergy crops as well. Each module performs economic analysis based on supplied data or pieces of information maintained by the model itself. The analysis consists of all the steps necessary for decision making and capital budgeting, i.e. cost analysis, and investment appraisal. For this purpose it maintains monthly Balance Sheets, Cash Flows and Income Statements of each and all of the Project modules. It also estimates and analyses the full cost of biomass production and calculates the most important financial indices and criteria of investment appraisal.					
Publisher					
Link	http://www.adira.gr/Bee_web/index.asp http://www.aua.gr/tmhmata/oikonom/soldatos/Bee/BeeHelp/meth_bee.htm				

Author	**IFAD**			**Year**	2010
Title	**Multidimensional Poverty Assessment Tool (MPAT)**				
Type	Methodological framework / Software	**Geographical coverage**	Developing countries		
Target audience/ users	Project management officers working with donor-supported and/or government-supported poverty reduction projects in rural areas, or governments, donors, United Nations agencies, non-governmental organizations, practitioners or academics				
MPAT is a newly developed, multi-purpose tool that can be used to assess and support rural poverty alleviation efforts in developing countries. MPAT takes a step back from assessment methods that are focused on economic- and consumption-oriented indicators and strives to provide an overview of fundamental and relatively universal dimensions of rural livelihoods and rural life, and thus of rural poverty. MPAT is a survey-based (household and village level) thematic indicator primarily designed to support monitoring and evaluation, targeting, and prioritization efforts at the local level.					
Publisher	IFAD				
Link	http://www.ifad.org/mpat/				

Author	**GTZ – Natural Resource Management Programme, India**			**Year**	2009
Title	**Oil2Energy (O2E)**				
Type	Internet based Software Tool	**Geographical coverage**	Global		
Target audience/ users	Project developers for rural energy supply based on Straight Vegetable Oils (SVOs)				
This tool has been created to generate economic and financial business scenarios integrating sustainability criteria along the whole value chain for energy supply generated locally and directly from non-edible vegetable oils (SVO) like Jatropha in a rural community based environment.					
Publisher	GTZ				
Link	http://o2e.suzy.org.in				

SOURCEBOOKS, GUIDELINES, HANDBOOKS AND DATASETS

STAKEHOLDER ENGAGEMENT

Author	**UNEP**			**Year**	**2005**
Title	**REED Toolkit – A Handbook for Energy Entrepreneurs**				
Type	Toolkit (guide)	**Geographical coverage**	n/a		
Target audience/ users	Business entrepreneurs				
This Toolkit is a step-by-step guide to turning a clean energy business idea into a reality. The topics covered range from defining personal and business objectives to preparing financial analyses and determining a distribution strategy. In addition to explaining what information is needed in an effective Business Plan, the Toolkit will help the user to gather that information, and then to present it in an informative and convincing manner. By the end, the user will have a Business Plan he/she can use to attract financing and to guide the growth of his/her company.					
Publisher	UNEP				
Link	http://www.areed.org/training/toolkit/				

Author	**Kirk Herbertson, Maria Athena Ballesteros, Robert Goodland, Isabel Munilla**			**Year**	**2009**
Title	**Breaking Ground: Engaging Communities in Extractive and Infrastructure Projects**				
Type	Handbook	**Geographical coverage**	Global		
Target audience/ users					
WRI analyzed existing community engagement standards and guidance, as well as experiences in several high profile projects. Based on this analysis, WRI developed seven Principles for Effective Community Engagement for extractive and infrastructure projects.					
Publisher	WRI				
Link	http://www.wri.org/publication/breaking-ground-engaging-communities				

Author	**UNEP**			**Year**	**2005**
Title	**The Stakeholder Engagement Manual: The Practitioner's Handbook on Stakeholder Engagement (Vol. 2)**				
Type	Guidebook	**Geographical coverage**			
Target audience/ users					
Volume 2 provides a step-by-step guide for the organization on how to start and improve its engagement with stakeholders, based on a selection of core principles and focusing on continual improvement. This publication is also available in Spanish.					
Publisher	UNEP				
Link	http://www.unep.fr/scp/publications/details.asp?id=WEB/0115/PA				

Author	**Worldbank**			**Year**	**2003**
Title	**The Social Analysis Sourcebook**				
Type	Sourcebook	**Geographical coverage**	Global		
Target audience/ users	Banks, governments, other stakeholders				
The Social Analysis Sourcebook presents a conceptual framework for social analysis and describes how task teams can incorporate its principles into project design, implementation, and monitoring and evaluation. The Sourcebook provides guidance on good practice to improve the quality of social analysis and to improve its impact by harnessing it to examine the social opportunities, constraints and likely impacts of Worldbank-supported operations, based on the lessons learned during the past five years.					
Publisher	Worldbank				
Link	http://go.worldbank.org/RVPWNZ7H80				

Author	V. N. Asopa (Indian Institute of Management) and G. Beye (FAO)		Year	1997
Title	Management of agricultural research: A training manual. Introductory module			
Type	Online handbook	Geographical coverage	Global	
Target audience/ users	trainers			
This training programme on agricultural research management has been developed to support the training of trainers, with the expectation of a multiplier effect, and to facilitate a common perception of the structure and terminology of management, thus enhancing communication and understanding among agricultural research managers in discussing management problems, solutions and opportunities.				
Publisher	Food and Agriculture Organization of the UN (FAO)			
Link	http://www.fao.org/docrep/W7500E/w7500e00.htm			

Author	Food and Agriculture Organization of the UN (FAO)		Year	2003
Title	A Handbook for Trainers on Participatory Local Development			
Type	Handbook	Geographical coverage	Global	
Target audience/ users	Trainers in local development			
The FAO Handbook for participatory local development includes 13 training modules for participatory planning inclusive participatory planning of local natural resources management. The Handbook has been developed in close collaboration with the Indian Federal Government and is used as training material by NIRD Hyderabad for training for trainers of local government staff from 28 States. Global relevance - already applied in many regions.				
Publisher	Food and Agriculture Organization of the UN (FAO)			
Link	ftp://ftp.fao.org/docrep/fao/007/AE536e/AE536E00.pdf			

Author	Worldbank		Year	2005
Title	Social Analysis Guidelines in Natural Resource Management - Incorporating Social Dimensions into Bank-Supported Projects			
Type	Guidebook	Geographical coverage	Global	
Target audience/ users				
The purpose of this guidance note is to provide an overview of the salient social issues relating to natural resource management (NRM) sector activities and to discuss practical ways of applying social analysis in the design, implementation, and monitoring and evaluation of World Bank-financed NRM operations.				
Publisher	Worldbank			
Link	http://siteresources.worldbank.org/INTRANETSOCIALDEVELOPMENT/Resources/FINAL_NRM_Guidance_Note_web.pdf			

Author	UNIDO/UNEP Network of Cleaner Production Centres and selected renewable energy technology centres		Year	forthcoming
Title	Bioenergy Capacity Building Programme (BIOCAB)			
Type	Bioenergy training package	Geographical coverage	Targeted primarily at the individuals in developing countries	
Target audience/ users	Decision-makers in the bioenergy sector (SMEs, institutions, government officials, local finance and banking sector, CSOs)			
The 3-year project will lead to the setting up of an infrastructure needed to guarantee the self-sustainability of the bioenergy training activities on a long-term basis: a Steering Committee, a network of Local Focal Points and a network of certified BIOCAB trainers (set up through a train-the-trainers approach). The project will develop the training contents and materials, which will be assessed and updated through a series of specific training events. By the end of the project, the Local Focal Points will have the adequate tools to run BIOCAB training courses at national and regional level based on locally assessed needs.				
Publisher				
Link				

TECHNOLOGY OPTIONS AND POTENTIAL

Author	**Food and Agriculture Organization of the UN (FAO)**			**Year**	2009
Title	**Ecocrop**				
Type	Database	**Geographical coverage**	n/a		
Target audience/ users	Agronomist, Biologist, Non-expert				
A searchable database with crop characteristics					
Publisher	FAO				
Link	http://ecocrop.fao.org/ecocrop/srv/en/home				

Author	**UNIDO**			**Year**	2009
Title	**Guidebook on Modern Bioenergy Conversion Technologies in Africa**				
Type	Guidebook	**Geographical coverage**	Africa		
Target audience/ users					
A discussion of technological as well as economic and social aspects for bioenergy in Africa					
Publisher	UNIDO				
Link					

Author	**FAO-PISCES**			**Year**	2009
Title	**Small-Scale Bioenergy Initiatives: Brief description and preliminary lessons on livelihood impacts from case studies in Asia, Latin America and Africa**				
Type	Case studies	**Geographical coverage**	Asia, Latin America, Africa		
Target audience/ users	Non-expert				
The focus of the study was on the impacts that different types of local level Bioenergy initiatives can have on Rural Livelihoods in different contexts in the developing world. Livelihoods are understood as the enhancement of the full range of natural, financial, human, social and physical capitals on a sustainable ongoing basis.					
Publisher	PISCES, Nairobi and FAO, Rome				
Link	ftp://ftp.fao.org/docrep/fao/011/aj991e/aj991e.pdf				

Author	**Energy Sector Management Assistance Project (ESMAP)**			**Year**	**2005**
Title	**Advancing Bioenergy for Sustainable Development – Guideline for Policymakers and Investors, Vol I-III**				
Type	guidelines	**Geographical coverage**	global		
Target audience/ users	Decision makers or their advisors (Non-expert)				
The intent of the report is to provide non-bioenergy experts with background information and support to promote bioenergy for sustainable rural development, especially in developing countries. The report provides guidance on bioenergy project design and implementation for policymakers, entrepreneurs and other actors. Vol I provides an overview of biomass energy – potentials, opportunities and challenges. Vol II provides methodologies for resource assessments and a discussion of bioenergy technologies. Vol III provides nine concise profiles of bioenergy projects worldwide.					
Publisher	World Bank				
Link	http://www.esmap.org/filez/pubs/30005BiomassFinawithcovers.pdf				

Author	ESMAP			Year	2007
Title	**Technical and economic assessment of off-grid, mini-grid and grid electrification technologies**				
Type	Discussion	Geographical coverage	Rural areas		
Target audience/ users	Power system planners				
An economic comparison between different electrification options for rural areas. Assessments of grid connected technologies and off-grid technologies, conventional fossil fuel based as well as bioenergy based and other renewable options.					
Publisher	Technical paper 121/07, The World Bank, Washington D.C.				
Link					

Author	The World Bank			Year	2008
Title	**Designing Sustainable Off-Grid Rural Electrification Projects: Principles and Practices**				
Type	Guidelines	Geographical coverage	Rural areas		
Target audience/ users	World Bank staff				
Practical guidelines for implementation of off-grid electrification projects in developing countries. The document provides a discussion about what to consider and examples of lessons learnt in previous World Bank projects.					
Publisher	The World Bank, Washington, D.C.				
Link					

Author	UNIDO			Year	forthcoming
Title	**Biomass Conversion Technology On-line Information Platform (BIOTIP)**				
Type	Web-based on-line platform	Geographical coverage	Developing countries		
Target audience/ users	Policy makers at government level, bioenergy promotion agencies, agro-industries, forestry industry, local, smaller scale energy/electricity industry, public at large				
The overall objective of the BIOTIP project is to enable policy makers and bioenergy promotion agencies in developing countries to advise entrepreneurs take informed decisions on the selection of appropriate and commercially available biomass conversion technologies by providing ease of access to assessed information. BIOTIP is envisaged to become a one-stop-shop on commercially available bioenergy technologies for anyone interested in implementing a biomass conversion system in a developing country. The project addresses capacity building and information sharing as well as technology transfer issues in detail and will be implemented in close co-operation with UN partner agencies as well as bioenergy promotion agencies (including National Cleaner Production Centres, business associations, chambers of commerce, and research institutes) in developing countries.					
Publisher					
Link					

Author	Food and Agriculture Organization of the United Nations (FAO)			Year	2007
Title	**Labour saving Technologies and Practices (LSTP)**				
Type	On-line catalogue	Geographical coverage	Sustainable development		
Target audience/ users	People and organizations working in rural communities				
The Labour Saving Technologies and Practices (LSTP) ideas catalogue aims to enable rural communities to identify and assess labour saving technologies and practices which can reduce or spread the workloads and improve their livelihoods. It is of particular relevance to communities where a shortage of labour or other sources of power is undermining household food and nutrition security, and the sustainability of rural livelihoods.					
Publisher					
Link	http://www.fao.org/sd/teca/tools/lst/index_en.html				

IMPLEMENTATION OPTIONS AND IMPACTS

Employment generation and labour conditions

Author	**International Labour Office (ILO) and Food and Agriculture Organization of the UN (FAO)**		**Year**	**2007**
Title	**Guidelines for Self Assessment**			
Type	Guidelines	**Geographical coverage**	Global	
Target audience/ users	Primarily corporate sector managers, and also staff in governments, and civil society			
Free guidelines which are intended to help ensure that each organization will be able to determine how it could better deliver the outcomes under its own mandate by integrating employment and decent work outcomes and to use the results of its self assessment to develop its own action plan. They are a complement to the .Toolkit for mainstreaming employment and decent work presented above				
Publisher	ILO and FAO			
Link	http://www.fao-ilo.org/fileadmin/user_upload/fao_ilo/pdf/Guidelines-for-Self-Assessment-Toolkit1.pdf			

Land and natural resource competition

Author	**Food and Agriculture Organization of the UN (FAO)**		**Year**	**2009**
Title	**Compulsory acquisition of land and compensation. FAO Land Tenure Studies 10**			
Type	Guidelines	**Geographical coverage**	Global	
Target audience/ users	Project developers, staff in governments, financing agencies, civil society and the corporate sector			
These guidelines are intended to support land tenure and land administration officials, valuers and civil society partners who are involved where policies, legal frameworks and capacities are being developed, and where compulsory acquisitions are being implemented. They do not seek to be exhaustive but rather reflect what FAO and its many collaborators have discovered are “good practices”.				
Publisher	FAO			
Link	http://www.fao.org/docrep/011/i0506e/i0506e00.htm			

Author	**International Finance Corporation (IFC)**		**Year**	**2002**
Title	**Handbook for preparing a resettlement action plan**			
Type	Handbook	**Geographical coverage**	Global	
Target audience/ users	Project developers, staff in governments, financing agencies, civil society and the corporate sector			
The objective of the handbook is to document the essential steps for best practice in designing and implementing resettlement action. The handbook is organized into four sections with supporting annexes. • Part I outlines the scope of application and identifies situations that require specific and detailed consultation between project sponsors and social development specialists. • Part II describes fundamental principles, procedures, and requirements of resettlement action plans (RAP) preparation and provides examples of survey instruments and summary data tables. These examples illustrate both the logic and the approach of RAP preparation as well as output from data collection that is needed for RAP planning. • Part III is a checklist that identifies the sequence of actions that specialists follow in reviewing the preparation, implementation, and evaluation of a RAP. • Part IV provides a detailed outline of a RAP that can be adapted to meet the requirements of specific projects.				
Publisher	IFC, The World Bank Group			
Link	http://www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/p_resettle/$FILE/ResettlementHandbook.PDF			

ASSESSMENT TOOLS – RISKS AND OPPORTUNITIES

Environment and natural resources

Author	**Organization for Economic Cooperation and Development (OECD)**	**Year**	**2006**
Title	**Applying Strategic Environmental Assessment – Good Practice Guidance for Development Co-operation**		
Type	Guidelines	**Geographical coverage**	Global
Target audience/ users	Professionals in development agencies and government departments; policy analysts and planners		
Drawing on practical experience and established "good practice", the Guidance points to ways to support the application of SEA in the formulation and assessment of development policies, plans and programmes.			
Publisher	OECD, DAC Guidelines and Reference Series		
Link	www.oecd.org/dataoecd/4/21/37353858.pdf		

Author	**United Nations University (UNU)/Rmit University/United Nations Environment Programme (UNEP)**	**Year**	**no date**
Title	**Environmental Impact Assessment – Open Educational Resource**		
Type	Educational resource	**Geographical coverage**	Global
Target audience/ users	Decision-makers		
Publisher	**United Nations University (UNU)/Rmit University/United Nations Environment Programme (UNEP)**		
Link	http://eia.unu.edu/		

Ecosystems and biodiversity

Author	**CABI International**	**Year**	**2009**
Title	**Invasive Species Compendium (Alpha)**		
Type	Compendium	**Geographical coverage**	Global
Target audience/ users	Decision-makers; technical experts		
The Compendium is an encyclopaedic resource that brings together a wide range of different types of science-based information to support decision-making in invasive species management worldwide. It comprises detailed datasheets that have been sourced from experts, edited by an independent scientific organization, and enhanced with data from specialist organizations, images, maps, a bibliographic database and full text articles.			
Publisher	CABI International		
Link	http://www.cabi.org/isc/?site=144&page=459		

Author	**Earthwatch Europe/ International Union for Conservation of Nature (IUCN)/World Business Council for Sustainable Development (WBCSD)**	**Year**	**2002**
Title	**Business & Biodiversity – The Handbook for Corporate Action**		
Type	Handbook	**Geographical coverage**	Global
Target audience/ users	Business leaders; managers responsible for Health, Safety and Environment or Sustainable Development		
The Handbook outlines the business case for biodiversity, it identifies corporate biodiversity issues, and it provides guidance for developing biodiversity corporate action.			
Publisher	WBCSD		
Link	http://www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=Mzc2		

Author	Food and Agriculture Organization of the UN (FAO)		Year	2006
Title	Responsible management of planted forests: voluntary guidelines			
Type	Guidelines	Geographical coverage	Global	
Target audience/ users	Decision-makers; investors; and forest managers			
These guidelines apply to planted forests that fulfil productive functions for the provision of wood, fibre and non-wood forest products or protective functions for the provision of environmental and/or social services. They cover all aspects of planted forests, from policy development and planning through the technical considerations of planted forest management. The scope of the guidelines is global: they may be adopted and applied to planted forests in all ecogeographical zones and to countries, regions and landscapes in all stages of economic development. Acceptance and implementation of the voluntary guidelines is not legally binding.				
Publisher	FAO, Planted Forests and Trees Working Paper 37/E			
Link	http://www.fao.org/docrep/009/j9256e/j9256e00.htm			

Author	Gemmill, B.		Year	2001
Title	Guide to Best Practices for Sectoral Integration: Managing Agricultural Resources for Biodiversity Conservation			
Type	Best practices	Geographical coverage	Global	
Target audience/ users	Decision-makers			
The Guide consists of three parts: principles or best practices relevant to the conservation of agricultural genetic resources; principles relative to the conservation of ecological services; and examination of conservation of wild biodiversity in agricultural areas. For each part, a list of best practices, means of implementation and relevant tools is provided.				
Publisher	UNDP/GEF/UNEP			
Link	www.unep.org/bpsp/Agrobiodiversity/agrobiodiversity%20thematic/agbioguide.pdf			

Author	International Union for Conservation of Nature (IUCN)		Year	
Title	Global Invasive Species Database			
Type	Database	Geographical coverage	Global	
Target audience/ users	Decision-makers			
The Global Invasive Species Database focuses on invasive alien species that threaten native biodiversity and covers all taxonomic groups from micro-organisms to animals and plants in all ecosystems. It aims to increase awareness about invasive alien species and to facilitate effective prevention and management activities.				
Publisher	IUCN			
Link	http://www.issg.org/database/welcome/			

Author	International Union for Conservation of Nature (IUCN)		Year	2008
Title	The IUCN Red List of Threatened Species			
Type	Reference list	Geographical coverage	Global	
Target audience/ users	Decision-makers			
Comprehensive list of threatened species by taxonomy (animalia, fungi, plantae, and protista), location, systems, habitat, and threats.				
Publisher	IUCN			
Link	http://www.iucnredlist.org/			

Author	World Health Organization		Year	2005
Title	**The WHO Recommended Classification of Pesticides by Hazard – and Guidelines to Classification 2004**			
Type	Classification & guidelines	Geographical coverage	Global	
Target audience/ users	Technical experts			
This document sets out a classification system to distinguish between the more and the less hazardous forms of selected pesticides based on acute risk to human health (that is the risk of single or multiple exposures over a relatively short period of time). It takes into consideration the toxicity of the technical compound and its common formulations. The document lists common technical grade pesticides and recommended classifications together with a listing of active ingredients believed to be obsolete or discontinued for use as pesticides, pesticides subject to the prior informed consent procedure, limitations to trade because of the POPs convention, and gaseous or volatile fumigants not classified under these recommendations.				
Publisher	World Health Organization			
Link	http://www.who.int/ipcs/publications/pesticides_hazard/en/			

Water availability and quality

Author	Critchley, W., K. Siegert		Year	1991
Title	**A Manual for the Design and Construction of Water Harvesting Schemes for Plant Production.**			
Type	Manual	Geographical coverage	Sub-Saharan Africa; arid and semi-arid areas	
Target audience/ users	Technicians; extensions workers; rural development specialists and planners			
The focus of the manual is on simple, field scale systems for improved production of crops, trees and rangeland species in drought prone areas. Most of the systems outlined and experiences described are drawn from Sub-Saharan Africa. Nevertheless, the manual is also relevant to arid and semi-arid areas in other parts of the world where the basic problems - low and erratic rainfall, high rates of runoff, and unreliable food production are similar. The manual provides the field worker with selection criteria and detailed technical designs for the various systems, as well as information on field layout and construction. This is the main part of the document - but the full range of information given is much wider.				
Publisher	FAO			
Link	http://www.fao.org/docrep/u3160e/u3160e00.HTM			

Author	Food and Agriculture Organization of the UN (FAO)		Year	no date
Title	**AQUASTAT – Countries and regions - Country profiles**			
Type	Country profiles	Geographical coverage	Developing countries	
Target audience/ users	Decision-makers			
They are useful to obtain a first idea on a countries' water situation, and its priorities. Have a paragraph on Institutional environment and Trends in water resources management.				
Publisher	FAO			
Link	http://www.fao.org/nr/water/aquastat/countries/index.stm			

Author	Food and Agriculture Organization of the UN (FAO)		Year	no date
Title	**AQUASTAT - main country database**			
Type	Database	Geographical coverage	Global	
Target audience/ users	Any			
The AQUASTAT database provides information (by country) on water and agriculture. The following categories are covered: land use and population; climate and water resources; water use, by sector and by source; irrigation and drainage development; and environment and health.				
Publisher	FAO			
Link	http://www.fao.org/nr/water/aquastat/dbase/index.stm			

Author	Global Water Partnership		Year	no date
Title	Toolbox – Integrated Water Resources Management			
Type	Toolbox	Geographical coverage	Global	
Target audience/ users	Decision-makers			
The Toolbox is a free and open database with a library of case studies and references that can be used by anyone who is interested in implementing better approaches for the management of water or learning more about improving water management on a local, national, regional or global level.				
Publisher	Global Water Partnership			
Link	http://www.gwptoolbox.org/			

Author	United Nations Statistics Division		Year	2006
Title	Integrated Environmental and Economic Accounting for Water Resources			
Type	Handbook	Geographical coverage	Global	
Target audience/ users	Water experts			
The purpose of this handbook is to provide a conceptual framework for organizing the hydrological and economic information in a coherent and consistent framework. It includes a set of standard tables focusing on hydrological and economic information as well as supplementary tables covering information on social aspects, which permit the analysis of the interaction between water and the economy.				
Publisher	United Nations Statistics Division			
Link	unstats.un.org/unsd/envaccounting/ceea/PImeetings/Handbook_Voorburg.pdf			

Air quality

Author	World Bank/United Nations Environment Programme(UNEP)/United Nations Industrial Development Organization (UNIDO)		Year	1999
Title	Pollution Prevention and Abatement Handbook, 1998: Toward Cleaner Production			
Type	Handbook	Geographical coverage	Global	
Target audience/ users	Decision-makers; technical experts			
The Handbook consists of three parts. Part I contains a summary of key policy lessons in pollution management. Part II presents good-practice notes on implementation of policy objectives and, finally, Part III provides detailed guidelines to be applied in the preparation of World projects. The guidelines, which cover almost 40 industrial sectors, represent state-of-the-art thinking on how to reduce pollution emissions from the production process. In many cases, the guidelines provide numerical targets for reducing pollution, as well as maximum emissions levels that are normally achievable through a combination of cleaner production and end-of-pipe treatment.				
Publisher	World Bank Publications			
Link	http://www.scribd.com/doc/12239840/Pollution-Prevention-Abatement-Handbook-1998			

Potential impacts on forest resources and products

Author	Dykstra, D.P, R. Heinrich		Year	1996
Title	FAO model code of forest harvesting practice			
Type	Good practices	Geographical coverage	Global	
Target audience/ users	Decision-makers; forest managers			
The FAO model code of forest harvesting practice is intended primarily to serve as a reference for FAO member countries considering the adoption or revision of their own codes of forest practice. Its overall purpose is to promote harvesting practices that will improve standards of utilization, reduce environmental impacts, help ensure that forests are sustained for future generations and improve the economic and social contributions of forestry as a component of sustainable development.				
Publisher	FAO			
Link	http://www.fao.org/docrep/V6530e/V6530E00.htm			

Author	Food and Agriculture Organization of the UN (FAO)		Year	2004
Title	National Forest Inventory – Field Manual - Template			
Type	Field manual	Geographical coverage	Country level	
Target audience/ users	Technical staff of governments in developing countries			
This field manual contains definitions and procedures used to plan and perform a national forest inventory and assessment following the approach developed by the Forest Resources Assessment programme (FRA) of FAO. The first part of the manual describes the adopted sampling design and the distribution and configuration of the tracts where measurements are carried out. The second part deals with the forest type/land use classification adopted to carry out the inventory. Recommendations to undertake data collection in the field are presented in the third part. In part four the field forms are described in detail. The Appendices provide some tools and methods for measuring the variables such as diameter, height, horizontal distance, a guide for the use of Global Positioning System receivers (GPS) as well as techniques and recommendations to carry out interviews and group discussions.				
Publisher	FAO, Forest Resources Assessment Programme, Working Paper 94/E			
Link	http://www.fao.org/docrep/008/ae578e/ae578e00.htm			

Author	ProForest		Year	no date
Title	Global HCV Toolkits			
Type	Toolkit	Geographical coverage	Global	
Target audience/ users	Forestry Specialist; forest managers			
The Toolkit provides guidance on how to take the generic HCV definitions and develop specific, detailed and clear National Interpretations for a particular country or region. It also provides guidance to forest managers on how to work with the generic definition when no national definition is yet available.				
Publisher	High Conservation Value Resource Network			
Link	http://hcvnetwork.org/resources/global-hcv-toolkits			

Productive capacity of the land

Author	Centre for Development and Environment (CDE)/Food and Agriculture Organization of the UN (FAO)/ISRIC – World Soil Information		Year	2008
Title	A Questionnaire for Mapping Land Degradation and Sustainable Land Management			
Type	Manual	Geographical coverage	Any	
Target audience/ users	Land-use experts			
The WOCAT-LADA-DESIRE mapping tool evaluates what type of land degradation is actually happening where and why and what is done about it in terms of Sustainable Land Management (SLM) in the form of a questionnaire. Linking the information obtained through the questionnaire to a Geographical Information System (GIS) permits the production of maps as well as area calculations on various aspects of land degradation and conservation. The map database and mapped outputs provide a powerful tool to obtain an overview of land degradation and conservation in a country, a region, or world-wide.				
Publisher	CDE-WOCAT/FAO-LADA/ISRIC			
Link	http://www.fao.org/nr/lada/index.php?option=com_docman&task=cat_view&gid=18&I			

Author	Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA)/Food and Agriculture Organization of the UN (FAO)/United Nations Environment Programme (UNEP)		Year	2007
Title	WOCAT 2007: where the land is greener - case studies and analysis of soil and water conservation initiatives worldwide			
Type	Book/case studies	Geographical coverage	Field-level	
Target audience/ users	Soil and water specialists/conservationists			
Book on soil and water management providing a large sample of positive case studies of sustainable management of the land (in economic, social and ecological terms) from different contexts worldwide. Appropriate technologies and approaches are proposed to achieve the same results in other areas.				
Publisher	CTA/FAO/UNEP			
Link	http://www.fao.org/nr/lada/index2.php?option=com_docman&task=doc_view&gid=13&Itemid=157			

Author	**Food and Agriculture Organization of the UN (FAO)**	**Year**	**2007**
Title	**LADA – Land Degradation Assessment in Drylands – Technical Report 2 – Biophysical Indicator Toolbox (Pressure/State)**		
Type	Toolbox	**Geographical coverage**	
Target audience/ users			
Publisher	FAO		
Link			

Author	**Food and Agriculture Organization of the UN (FAO)**	**Year**	**2007**
Title	**Land evaluation – Towards a revised framework**		
Type	Framework/guidelines	**Geographical coverage**	Global
Target audience/ users	Professionals (land evaluation and land-use planning)		
This document is intended to provide materials for a discussion on the direction in which land evaluation should evolve. It summarizes a number of new concepts and additional tools and procedures that might be appropriate for inclusion in a revised framework for land evaluation, and discusses advantages and disadvantages of each.			
Publisher	FAO, Land and Water Discussion Paper 6		
Link	http://www.fao.org/NR/lman/abst/lman_070601_en.htm		

Author	**Food and Agriculture Organization of the UN (FAO)/United Nations Environment Programme (UNEP)**	**Year**	**1999**
Title	**The Future of our land: facing the challenge – Guidelines for integrated planning for sustainable management of land resources**		
Type	Guidelines	**Geographical coverage**	
Target audience/ users	Professional and practitioners of land-use planning and land resource management		
This document proposes an integrated planning approach for sustainable management of land resources based on an interactive partnership between governments and people. The approach is centred on the concept of stakeholders and their objectives, and the role of the government in creating the conditions within which rural people can use their land resources productively and sustainably. Integration of grass-roots participation with systematic procedures for evaluation of resources and planning is the key to this approach, and a necessary factor for its success.			
Publisher	FAO/UNEP		
Link	http://www.fao.org/DOCREP/004/X3810E/X3810E00.HTM		

Author	**McDonagh, J., S. Bunning, F. Nachtergaele, and R. Biancalani**	**Year**	**Forthcoming**
Title	**LADA-L: Conceptual basis, methodological approaches and planning strategies**		
Type	Manual	**Geographical coverage**	Global
Target audience/ users	Decision-makers		
LADA-L is a system to record and interpret pertinent information on the nature, extent and dynamics of land degradation towards implementation of informed strategies to achieve both the mitigation of land degradation, as well as the initiation of improved, integrated systems for more sustainable land management and improved socio economic conditions.			
Publisher	FAO		
Link			

Author	Roy, R.N., R.V. Misra, J.P. Lesschen, and E.M. Smaling		Year	2003
Title	Assessment of soil nutrient balance - Approaches and Methodologies			
Type	Handbook	Geographical coverage	From the global level down to the farm level	
Target audience/ users	Decision-makers; higher level extension workers; researchers; NGOs; other stakeholders			
This publication presents a state-of-the-art overview of nutrient-balance studies. It brings out the evolution of the various approaches and methodologies, provides for comparisons among them, and highlights the improvements made and the issues that are still to be addressed. It categorizes case studies into macro-level, meso-level and micro-level classes. The macro-level is used for national, continental and global farming-system levels. The meso-level coincides with the level of the province, district and agro-ecological zone. The micro-level is largely defined as the farm or village level. For each case, the study explains the methodological approaches, the elements of the nutrient balance, and the calculation of the nutrient flows. Furthermore, it also discusses knowledge gaps and caveats that warrant attention.				
Publisher	FAO, Fertilizer and Plant Nutrition Bulletin 14			
Link	http://www.fao.org/docrep/006/y5066e/y5066e00.htm			

Socio-Economic Aspects

Author	Food and Agriculture Organization of the United Nations (FAO)		Year	2008
Title	EASYPol			
Type	On-line repository	Geographical coverage	Global	
Target audience/ users	Policy-makers			
EASYPol is an FAO on-line, interactive multilingual repository of downloadable resource materials for capacity development in policy making for food, agriculture and rural development. Materials are structured into inter-related and cross-linked modules organised by topic, type and training paths that can be accessed through user-friendly search facilities.				
Publisher	FAO			
Link	http://www.fao.org/easypol/			

Author	Food and Agriculture Organization of the UN (FAO)		Year	Forthcoming
Title	Guide for Social and Livelihoods Analysis of Agricultural Investment Projects			
Type	Guide	Geographical coverage	Project-level	
Target audience/ users	Rural Sociology Specialists; Social Development Specialist; Development Specialists.			
The overall goal of the Guide is to contribute to capacity building in carrying out social analysis that can be used as a valuable input for agricultural investment project design and implementation.				
Publisher	FAO			
Link				

Author	George, H., M. Petri		Year	2006
Title	The rapid characterization and mapping of agricultural land-use: A methodological framework approach for the LADA project			
Type	Methodological framework	Geographical coverage	Global	
Target audience/ users	Decision-makers; land-use planners			
This paper presents a scale-independent, methodological framework for the consistent spatial integration of agricultural land use from diverse datasets containing different attributes of land-use information in a manner that is useful for planning, targeting and prioritising a wide range of land-related interventions connected with topical issues such as the incidence of food insecurity and poverty, and environmental sustainability.				
Publisher	FAO			
Link	http://www.fao.org/nr/lada/index2.php?option=com_docman&task=doc_view&gid=11&Itemid=157			

Author	University of Wisconsin		Year	no date
Title	Community Impact of Biodiesel and Bioethanol Plants			
Type	Assessment tool	Geographical coverage	Community-level	
Target audience/ users	Decision-makers			
This tool aims to calculate the sensitivity of sitting a bioenergy plant in a certain community				
Publisher	University of Wisconsin, Renk Agribusiness Institute			
Link	http://www.aae.wisc.edu/renk/impactcalculator.asp			

Author	World Bank, Food and Agriculture Organization of the UN (FAO), and International Fund for Agriculture and Development (IFAD)		Year	2009
Title	Gender in Agriculture - Sourcebook			
Type	Sourcebook	Geographical coverage	Global	
Target audience/ users	Practitioners; technical staff			
The purpose of the Sourcebook is to act as a guide for practitioners and technical staff in addressing gender issues and integrating gender-responsive actions in the design and implementation of agricultural projects and programs. In particular, it aims to deliver practical advice, guidelines, principles, and descriptions and illustrations of approaches that have worked so far to achieve the goal of effective gender mainstreaming in the agricultural operations of development agencies.				
Publisher	The International Bank for Reconstruction and Development / The World Bank			
Link	http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTARD/EXTGENAGRLIVSOUBOOK/0,,contentMDK:21348334~pagePK:64168427~piPK:64168435~theSitePK:3817359,00.html			

Author	European Commission and United States Department of Energy		Year	1991-present
Title	ExternE (Externalities of Energy) project			
Type	Source for methods and results for externalities estimation	Geographical coverage	Global	
Target audience/ users	Practitioners; technical staff			
ExternE (Externalities of Energy) is a project launched by the European Commission in 1991 in collaboration with the United States Department of Energy. It was the first comprehensive effort to evaluate the external costs associated with a range of different fuel cycles. ExternE is a source for method and results of externalities estimation. The framework can be applied to a wide range of receptors, including human health, natural ecosystem, and the environment. In addition, the methodology is also being extended to address the evaluation of externalities associated with the transport and domestic sectors, and a number of non-environmental externalities such as those associated with the security of supply.				
Publisher	"ExternE" (External costs of Energy) European Research Network			
Link	http://www.externe.info/			

Land Tenure and Displacement Risk

Author	Food and Agriculture Organization of the UN (FAO)		Year	2008
Title	Methodological guidelines for Participatory Land Delimitation: an innovative method for securing rights acquired through customary and other forms of occupation			
Type	Guidelines	Geographical coverage	Global	
Target audience/ users	Land Tenure Specialists; non-experts			
Methodological guidelines for securing, through participatory land delimitation, land rights acquired through customary and other forms of occupation.				
Publisher	FAO, Land Tenure and Management Unit (NRLA)			
Link				

Income Generation/Potential Exclusion

Author	**Africa Sustainable Fuels Centre (ASFC) and Renewable Energy & Energy Efficiency Partnership (REEEP)**		**Year**	**2007**
Title	**Toolkit: facilitating access to finance for small-scale biodiesel producers**			
Type	Toolkit	**Geographical coverage**	Tanzania and Gambia; high replicability	
Target audience/ users	Businesses/entrepreneurs			
This Toolkit has been developed in order to facilitate the development of new biodiesel supply and consumption in Tanzania and Zambia, though the general principles and outcomes can be adapted for any country. The specific focus of the Toolkit is on developing business plans for the use of biodiesel in Multi-Functional Platforms, or MFPs.				
Publisher	ASFC			
Link	http://asfc.org.za/dmdocuments/Toolkit%2010501013%20ASFC.pdf			

Author	**Food and Agriculture Organization of the UN (FAO)**		**Year**	**2001**
Title	**Socio-economic and Gender Analysis Programme**			
Type	Handbook	**Geographical coverage**	Field-level	
Target audience/ users	Decision-makers; development agents			
The purpose of this Handbook is to support participatory development planning at the community level. In particular, it provides toolkits specifically designed to support a participatory process that first, focuses on an analysis of the current situation, and second, focuses on planning for the future. The toolkits consist of a number of rapid rural and participatory rural appraisal tools, but include also a series of SEAGA Questions to facilitate and deepen analysis.				
Publisher	FAO			
Link	http://www.fao.org/sd/seaga/downloads/En/FieldEn.pdf			

Author	**World Bank**		**Year**	**2005**
Title	**Gender Issues in Monitoring and Evaluation in Rural Development: A Tool Kit.**			
Type	Toolkit	**Geographical coverage**	Global	
Target audience/ users	Project task teams; WB's borrowers and partners.			
The Tool Kit has been developed to assist project task teams, borrowers, and partners to recognize and address gender concerns in designing rural development sector projects and to monitor and evaluate results, outcomes, and impact on achieving overall rural well-being.				
Publisher	World Bank			
Link	http://siteresources.worldbank.org/INTGENDER/Resources/RuralM_EToolkit2005.pdf			

MITIGATION OPTIONS AND GOOD PRACTICES

Author	**Food and Agriculture Organization of the UN (FAO)**			**Year**	**Forth-coming**
Title	**Analytical Framework and Tools for Sustainable Production Identification**				
Type	Analytical framework	**Geographical coverage**	Global		
Target audience/ users					
Publisher	FAO				
Link	http://www.fao.org/agriculture/crops/core-themes/theme/spi/en/				

Author	**Food and Agriculture Organization of the UN (FAO)**			**Year**	**2008**
Title	**Low Greenhouse Gas Agriculture – Mitigation and Adaptation Potentials of Sustainable Farming Systems.**				
Type	Paper	**Geographical coverage**	Global		
Target audience/ users					
Paper examining current farming practices and using scientific data of mainly long-term field experiments as case studies for low greenhouse gas agriculture. Adaptive capacity of agro-ecological farming system approaches are also elucidated, using organic system case studies from the scientific literature.					
Publisher	FAO				
Link					

Author	**Baker et al.**			**Year**	**2006**
Title	**No-Tillage Seeding in Conservation Agriculture.**				
Type	Handbook	**Geographical coverage**	Global		
Target audience/ users	Professional and academic workers in agronomy, soil science and agricultural engineering.				
Book describing and analysing no-tillage technologies, particularly those related to no-tillage seed drilling, from a variety of accumulated experiences over the past 40 years.					
Publisher	FAO				
Link					

Author	**Goddard et al. (eds.)**			**Year**	**2007**
Title	**No-Till Farming Systems**				
Type	Handbook	**Geographical coverage**	Global		
Target audience/ users					
A review of status, advancements and innovation in no-till systems from around the world.					
Publisher	WASWC				
Link	WASWC publications on http://www.waswc.org/				

Author	**IIRR/ACT**			**Year**	**2005**
Title	**A Manual for Farmers and Extension Workers in Africa.**				
Type	Manual	**Geographical coverage**	Africa		
Target audience/ users					
Manual explaining what conservation agriculture is, and why it is important; describing how to use conservation agriculture principles in the field; highlighting the issues and challenges that farmers and extension personnel may encounter when they adopt and adapt conservation agriculture; suggesting ways to adapt and disseminate this approach; and giving examples of experiences with conservation agriculture in real life.					
Publisher	IIRR/ACT				
Link	http://waswc.soil.gd.cn/books/1%20Conservation%20Agriculture%20Manual%20for%20Africa,%20IIRR%202005.pdf				

Author	Food and Agriculture Organization of the UN (FAO)		Year	2004
Title	**Conservation agriculture. When agriculture is profitable and sustainable.**			
Type	CD-Rom, Resource compilation	Geographical coverage	Global	
Target audience/ users				
Land and Water digital media series, No 18. CD-ROM containing detailed information and literature about Conservation Agriculture to improve the knowledge base of those interested in this concept of sustainable agriculture. Provides technical staff as well as policy- and decision-makers with information and arguments that will help to support, promote and introduce Conservation Agriculture.				
Publisher	FAO			
Link	http://www.fao.org/ag/agl/lwdms.stm			

Author	Food and Agriculture Organization of the UN (FAO)		Year	2006
Title	**Conservation of natural resources for sustainable agriculture**			
Type	CD-Rom, training course	Geographical coverage	Global	
Target audience/ users				
Training modules: concepts and principles of Conservation Agriculture; cover crops; soil (organic matter and biological activity, soil quality assessment, preventing compaction, fertility, moisture); tools and equipment; weeds; pests and diseases; livestock; economic benefits and exercises for learning-by-doing. Land and Water digital media series, No 27.				
Publisher	FAO			
Link	http://www.fao.org/ag/agl/lwdms.stm			

Author	Scherr et al. (eds.)		Year	2007
Title	**Farming With Nature - The Science and Practice of Eco-agriculture**			
Type	Handbook	Geographical coverage	Global	
Target audience/ users				
Synthesis of state of the knowledge on agricultural landscapes managed not only to produce crops but also to support biodiversity and promote ecosystem health around the world.				
Publisher	Island Press			
Link				

Author	Food and Agriculture Organization of the UN (FAO)		Year	2003
Title	**Good Agricultural Practices for Selected Agricultural Components.**			
Type	Paper	Geographical coverage	Global	
Target audience/ users				
Document setting out the context and approach to GAP with respect to food security and the on-farm stages of the food chain; reviewing current applications of GAP by the public and private sectors, civil society and farmers; elaborating a proposed framework of principles and generic indicators and practices to guide further debate and action; proposing a way forward for developing GAP guidelines for on-farm production; and identifying issues for consideration by COAG and seeks guidance on FAO's role in further developing the concept of GAP.				
Publisher	FAO			
Link	http://www.fao.org/docrep/meeting/006/y8704e.htm			

Author	World Bank		Year	2008
Title	**Sustainable Land Management Sourcebook**			
Type	Sourcebook	Geographical coverage	Global	
Target audience/ users	Technical Practitioners			
A resource of good practice information on land and natural resource management issues that will be of operational relevance to practitioners in the tropics and sub-tropics.				
Publisher	World Bank			
Link				

Author	**WOCAT**		**Year**	**2008**
Title	**Wocat good practices**			
Type	Web-based information resource	**Geographical coverage**	Global	
Target audience/ users	Technical Practitioners			
WOCAT provides information on appropriate SWC technologies and approaches, and decision support in the field and at the planning level. Questionnaires, database and guidelines.				
Publisher	WOCAT			
Link	http://www.wocat.org			

Author	**TerrAfrica Partnership**		**Year**	**No date**
Title	**TerrAfrica Partnership**			
Type	Web-based information resource	**Geographical coverage**	Africa	
Target audience/ users	Technical Practitioners, decision-makers on SLM			
An Internet-based tool that facilitates the access, the exchange and methodical accumulation of key knowledge to implement Sustainable Land Management (SLM) in Africa.				
Publisher	TerrAfrica Partnership			
Link	http://www.terrafrica.org/			

Author	**Global Water Partnership**		**Year**	**No date**
Title	**Global Water Partnership Toolbox**			
Type	Toolbox	**Geographical coverage**	Global	
Target audience/ users				
Free and open database with a library of case studies and references for implementing better approaches for the management of water and learning more about improving water management on a local, national, regional or global level.				
Publisher	Global Water Partnership			
Link	http://www.gwptoolbox.org/			