



联合国粮食及
农业组织

土地资源规划 工具箱用户指南

2019



土地资源规划工具箱用户指南

土地资源规划工具箱是一种可免费使用在线资源，不同的利益相关者（规划者、政策制定者、政府、事业单位、社区、技术专家等）可以使用它直接或间接地参与到土地利用规划中。工具箱包含了粮农组织和其他机构开发的、用于实现土地资源规划的多种工具和方法的概述和链接。工具箱的总体目标是让潜在用户注意到这些工具的存在，方便用户访问这些工具的信息，并协助选择满足不同利益相关者、在不同水平、地区和部门所需求的工具。

为了完成和改进这一成果，土地和水资源规划部在全球开展了一项关于“审查和评价参与式土地利用/资源规划工具”的调查，其中约有 750 个不同的利益相关者提交了他们的使用体验。通过这一过程，确定了使用工具的机会和差距，从而为进一步发展土地资源规划指明了方向。由受调查者提出的一系列新工具丰富了现有的工具列表。土地和水资源部第 14 号工作文件“实现土地可持续管理的土地资源规划”(<http://www.fao.org/4/3/i5937e.pdf>)，报告了该调查的结果及土地资源规划工具箱。

本指南将介绍工具箱的工作方式，并介绍关键特征，以协助您选择最适合的工具。

有任何问题，请邮件联系 LRP-Secretariat@fao.org; feras.ziadat@fao.org; theodora.fetsi@fao.org。

开发“土地资源规划工具箱”的动因

人们越来越认识到，必须适当考虑人类和自然环境组成部分之间的复杂相互作用，以便帮助国家、省和地方各级决策者采取长期可持续的土地资源规划和管理。传统的土地评估和土地利用规划方法，已不能满足利益相关者对开展及时的、和可持续土地利用规划不断增长的需求。为了应对这一需求，在过去几十年里开发出了新的工具和方法，土地资源规划工具箱旨在为不同的利益相关者提供并协助他们找到最合适的工具。

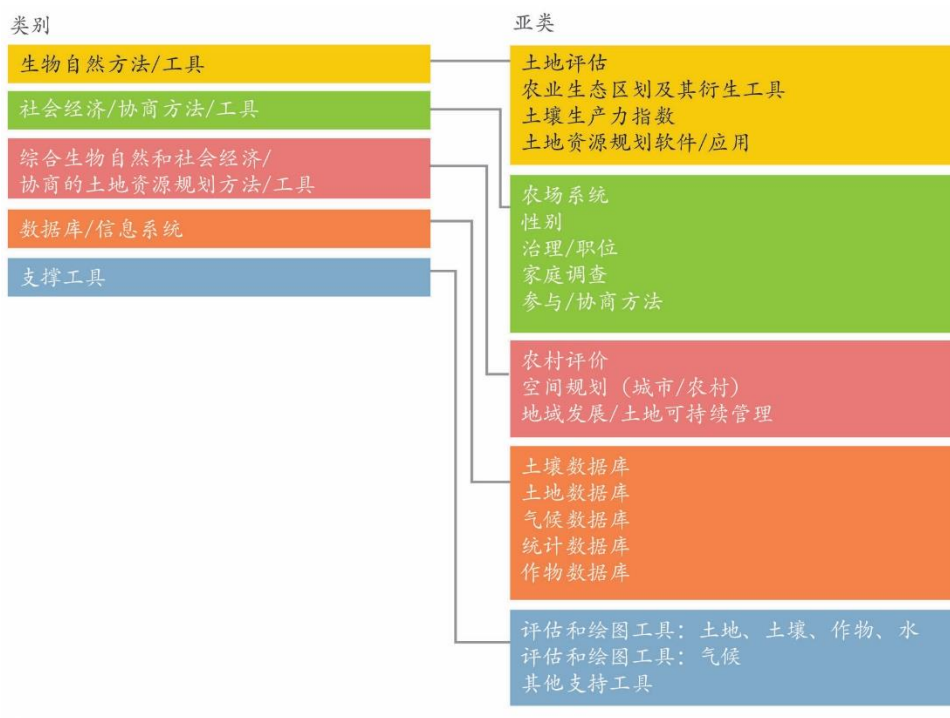
土地资源规划工具箱的关键特性和内容

土地资源规划工具箱致力于回答以下问题：存在哪些可用的工具？它们的功能和限制是什么？它们适合哪些利益相关者、地区和规划尺度？

工具箱中包含了对每个土地资源规划工具的描述。工具箱中的工具被归类为五个主要类别，它们包含了土地使用规划过程中不同的专题领域。土地资源规划工具箱的总体结构和内容如图（1）所示。

图 1

土地资源规划工具箱的结构和内容



专题领域

农业-统计数据
 农业-生产力
 土地清册
 气候
 作物, 分布
 作物, 生产力
 作物, 适宜性
 经济, 统计
 环境, 统计
 农业系统
 粮食, 统计
 林业, 统计
 整体
 土地退化
 土地评估
 土地管理/规划
 土地/水权利
 土地利用/覆盖
 人口-分布
 人口-统计
 遥感
 社会-参与式方法
 社会-统计
 土壤-分布和性质
 土壤-管理和保护
 地形
 水-生产力
 水-统计

类型

众筹
 数据
 文档/手册
 教育材料
 框架/指南
 地图/地理信息系统
 模型
 调查问卷/调查
 软件

尺度

全球
 区域
 国家
 地方/省/区
 当地/农场/地点
 流域/盆地/景观

用户类别

技术专家
 科学顾问
 模型建立者
 政策制定者
 协助人员
 利益相关者

主要类别：工具箱的主要类别（图 2）

- 生物自然方法/工具
- 社会经济与协商方法/工具
- 综合生物自然、社会经济和协商的方法/工具
- 数据库/信息系统
- 支撑工具

图 2

FAO 土地资源规划工具箱的主页和主要类别

联合国粮农组织

Google Custom Search

关于粮农组织 | 在行动 | 国家 | 主题 | 媒体 | 出版物 | 统计资料 | 伙伴关系

العربية 中文 English Français Русский

土地与水资源

土地

土地资源规划工具箱

土地资源规划工具箱是一种免费使用的在线资源，不同的利益相关者可以使用它直接或间接地参与到土地利用规划中。工具箱包含用于进行土地资源规划的多种工具和方法。工具箱的总体目标是让潜在用户注意到这些工具的存在，方便用户访问有关工具的信息，并协助选择能够满足不同利益相关者、在不同水平、地区和部门所需求的工具。更多信息见用户指南。获取更多信息或有任何意见，请邮件联系 LRP-Secretariat@fao.org。

自由文本搜索

更多搜索选项

生物自然方法/工具

该类工具在土地评估过程中突出了生物自然属性（气候、土壤、地形、水等）及其相互作用。大多数情况下，主要基于生物自然属性的输出结果会引导用户选择合适的土地利用方案。土地适宜性和相似性分析是典型的例子。包括描述土地评价的原理、方法和准则的文件，以及基于特定用途、能力或潜力、肥力限制和管理、产量、生产力、物理和化学性质的不同的土壤分类工具。复杂或简化的作物生长和产量预测模型也属于这一类。

综合生物自然、社会经济和协商的土地资源规划方法/工具

该类工具利用生物自然特征和社会经济条件作为输入信息，并通常包括参与式土地利用规划的原理、方式和方法，其总体目标是实现所有利益相关者互利共赢。

社会经济/协商方法/工具

该类工具突出了土地利用规划所需要的社会和经济环境特征，包括参与决策的方式和方法。这些工具也可以考虑生物自然条件，但不作深度考虑。

数据库/信息系统

该类包括可促进土地评价和土地利用规划的数据库，通过这些过程提供输入信息而实现。这些数据库提供了多种地图和数据，包括土壤和地形特征、土地退化、土地覆盖、土地利用、气候数据（包括未来的预测）、作物和产量、粮食、农业、水资源、植物物种对特定环境的适应性/适宜性、关于贫穷、人口、职位和性别的社会经济数据和统计数据

支撑工具

该类工具并不产生直接用于土地评估和土地利用规划的结果，但它提供了各种类型的数据，可用于土地评价研究和作为土地利用规划的输入数据集。

生物自然方法/工具在土地评估过程中突出了生物自然属性（气候、土壤、地形、水等）及其相互作用（图 3）。在大多数情况下，主要基于生物自然属性的输出结果会引导用户选择合适的土地利用方案。土地适宜性和相似性分析是典型的例子。包括描述土地评价的原理、方法和准则的文件，以及基于特定用途、能力或潜力、肥力限制和管理、产量、生产力、物理和化学性质等不同的土壤分类工具。复杂或简化的作物生长和产量预测模型也属于这一类。


图 3
生物自然方法/工具

土地资源规划工具箱

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[→ 更多搜索选项](#)

生物自然方法/工具



该类工具在土地评估过程中突出了生物自然属性（气候、土壤、地形、水等）及其相互作用。大多数情况下，主要基于生物自然属性的输出结果会引导用户选择合适的土地利用方案。土地适宜性和相似性分析是典型的例子。包括描述土地评价的原理、方法和准则的文件，以及基于特定用途、能力或潜力、肥力限制和管理、产量、生产力、物理和化学性质的不同的土壤分类工具。复杂或简化的作物生长和产量预测模型也属于这一类。

Number of records: 25



Visual Soil Assessment Field Guides (VSA)


The Visual Soil Assessment (VSA) approach is based on the visual appraisal of key soil 'state' and plant performance indicators of soil quality, presented on a scorecard. The rationale for this approach is that many physical, biological and, to a lesser degree, chemical...

Type: Documentation/Manuals

Scale: Locality/Farm/Site

Thematic areas: Land degradation, Land evaluation, Soils - distribution and properties

User Category: 技术专家, 科学顾问, 利益相关者



Visual Soil -Field Assessment Tool (VS-FAST)


The VS-FAST methodology is based on the Visual Soil Assessment (VSA) approach. Like the VSA approach, the VS-FAST methodology describes and evaluates the morphological condition of soils in the field. While VSA has been used mainly to identify soil constraints for general or specific land uses and adapted management...

Type: Documentation/Manuals

Scale: Locality/Farm/Site

Thematic areas: Land degradation, Land evaluation, Soils - distribution and properties

User Category: 技术专家, 科学顾问




Land Evaluation for Rainfed Agriculture

Type: Framework/Guidelines

Scale: National, Sub-national/Province/District, Watershed/Basin/Landscape

Thematic areas: Land evaluation

User Category: 技术专家, 科学顾问



Land Evaluation for Irrigated Agriculture

The main goal of these guidelines is to provide a methodology for implementing in irrigated agricultural systems the key principles of the Framework for Land Evaluation (FLE): (1) matching the requirements of the land use against the qualities of the land, (2) comparing alternative...

Type: Framework/Guidelines

Scale: National, Sub-national/Province/District, Watershed/Basin/Landscape

Thematic areas: Land evaluation

User Category: 技术专家, 科学顾问

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社会经济和协商方法/工具（图 4）包括了人类环境（农业系统、职位、参与式规划的有关方面等）。该类工具突出了土地利用规划所需要的社会和经济环境特征，包括参与决策的方式和方法。这些工具也可以考虑生物自然条件，但考虑得不会很深入。


图 4
社会经济/协商工具和方法

土地资源规划工具箱

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社会经济/协商方法/工具



该类工具突出了土地利用规划所需要的社会和经济环境特征，包括参与决策的方式和方法。这些工具也可以考虑生物自然条件，但不作深度考虑。

Number of records: 12



Living Standards Measurement Study (LSMS)


The Living Standards Measurement Study (LSMS) is a household survey program housed within the Survey Unit of the World Bank's Development Data Group that provides technical assistance to national statistical offices (NSOs) in the design and implementation of multi-topic household surveys. Since its inception in the early 1980s, the...

Type: Questionnaire/Survey

Scale: National, Sub-national/Province/District

Thematic areas: Agriculture - statistics, Social - statistics

User Category: 技术专家, 科学顾问



Toolkit for the application of Green Negotiated Territorial Development (GreenNTD)


The GreenNTD (Green Negotiated Territorial Development) is an approach to land use planning based on a socio-ecological territorial development methodology that supports wide stakeholders engagement in seeking progressive territorial consensus through a holistic, bottom-up and negotiated vision. Its objective is to get an agreed, socially legitimate and sustainable use...

Type: Documentation/Manuals

Scale: Locality/Farm/Site, Watershed/Basin/Landscape

Thematic areas: Social - participatory approaches

User Category: 科学顾问, 政策制定者, 协助人员



Farming systems and poverty (FSP)


This study summarizes a joint FAO-World Bank study on the characteristics of major farming systems of the developing world and their interrelationship to poverty. On the basis of broad similarities in the patterns of production systems, farming practices and external conditions, it recognizes globally 72 farming systems...

Type: Documentation/Manuals, Maps/GIS

Scale: Global

Thematic areas: Farming systems

User Category: 技术专家, 科学顾问, 政策制定者



Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP)

The Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP) is a tool developed by FAO, available as a tablet or smartphone app, that enables smallholder farmers and pastoralists to assess their own climate resilience. The SHARP tool is implemented in three phases:

Type: Questionnaire/Survey

Scale: Locality/Farm/Site

Thematic areas: Climate, Farming systems

User Category: 协助人员, 利益相关者

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综合生物自然、社会经济和协商的土地资源规划方法/工具，综合利用生物自然特征和社会经济方面的数据和方法，并遵循参与和协商的方式（图 5）。该类工具利用生物自然特征和社会经济条件作为输入信息，通常包括参与式土地利用规划原理、方式和方法，其总体目标是实现所有利益相关者互利共赢的成果。

图 5


综合生物自然、社会经济和协商的土地资源规划方法/工具

土地资源规划工具箱

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综合生物自然、社会经济和协商的土地资源规划方法/工具



该类工具利用生物自然特征和社会经济条件作为输入信息，并通常包括参与式土地利用规划的原理、方式和方法，其总体目标是实现所有利益相关者互利共赢。

Number of records: 20



LADA_LOC


The main purpose of LADA_LOC is to provide a standard methodological approach and toolkit for the assessment of land degradation processes, their causes and impacts at local level, and in collaboration with local stakeholders and communities. The focus is on human-induced land degradation,...

Type: Documentation/Manuals

Scale: Locality/Farm/Site

Thematic areas: Land degradation, Soils - management and conservation

User Category: 技术专家, 科学顾问, 利益相关者



LADA_QM


LADA_QM is an evaluation tool for land degradation and the conservation activities undertaken in a country or provinces / regions within a country. It is to a large extent based on the original WOCAT

Type: Documentation/Manuals

Scale: National, Sub-national/Province/District

Thematic areas: Land degradation, Soils - management and conservation

User Category: 技术专家, 科学顾问, 利益相关者



Land use planning for Low Emission Development Strategy (LUWES)


The Land Use Planning for Low Emission Development Strategy (LUWES) is a platform for developing a multiple stakeholder decision-making process to establish land use plans for sustainable development, which can reduce greenhouse gas emissions from land-based activity while simultaneously maintaining economic growth. It can simulate emissions reduction scenarios within...

Type: Framework/Guidelines

Scale: National, Sub-national/Province/District, Watershed/Basin/Landscape

Thematic areas: Climate, Land management/planning, Land use/cover

User Category: 技术专家, 科学顾问, 政策制定者



Participatory territorial planning. The farming systems development approach in community planning in the Philippines (PTP_PHI)

This resource documents the farming systems development (FSD) approach in community planning implemented in the Philippines between 1995 and 2002 through FAO project "Sustainable Agrarian Reform Communities-Technical Support to Agrarian Reform and Rural Development" (SARC-TSARRD). FSD is a total development approach that aims to improve the productivity, income and...

Type: Documentation/Manuals

Scale: Locality/Farm/Site, Watershed/Basin/Landscape

Thematic areas: Land management/planning, Social - participatory approaches

User Category: 协助人员, 利益相关者

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数据库/信息系统，包括可以促进土地评价和土地利用规划的数据库，通过为这些过程提供输入信息而实现（图 6）。这些数据库提供了多种地图和数据，包括土壤和地形特征、土地退化、土地覆盖、土地利用、气候数据（包括未来的预测）、作物和产量、粮食、农业、水资源、植物物种对特定环境的适应性/适宜性、关于贫穷、人口、职位和性别的社会经济数据和统计数据


图 6
数据库/信息系统

土地资源规划工具箱

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[更多搜索选项](#)

数据库/信息系统



该类包括可促进土地评价和土地利用规划的数据库，通过为这些过程提供输入信息而实现。这些数据库提供了多种地图和数据，包括土壤和地形特征、土地退化、土地覆盖、土地利用、气候数据（包括未来的预测）、作物和产量、粮食、农业、水资源、植物物种对特定环境的适应性/适宜性、关于贫穷、人口、职位和性别的社会经济数据和统计数据

Number of records: 38



ISRIC_SOILS


The ISRIC Soil Data Hub is a central location for searching and downloading ISRIC' s soil data layers from around the world. It contains geo-referenced soil data, including soil profiles and individual soil attributes. The Soil Hub provides access to the WoSIS Soil Profile Database, which currently contains some 100,000 geo-referenced,....

Type: Data,Maps/GIS

Scale: Global

Thematic areas: Soils - distribution and properties

User Category: 技术专家



SISLAC (Sistema de Informacion de Suelos de Latinoamerica)


SISLAC ("Sistema de Informacion de Suelos de Latinoamerica") is a regional initiative promoted and sponsored by the Global Soil Partnership, which involves CIAT, EMBRAPA and 20 national institutes in Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay,....

Type: Data

Scale: Regional, National

Thematic areas: Soils - distribution and properties

User Category: 技术专家



Global Emissions and Removals Databases


It is well established that deforestation and forest degradation, as well as forest landscape restoration (FLR) activities, play a critical role in the global carbon cycle. Efforts to combat climate change have been designed specifically to influence the rate at which these activities occur, such as Reduced Emissions from Deforestation...

Type: Data

Scale: Global, Regional, National, Sub-national/Province/District

Thematic areas: Climate, Forestry - statistics, Land degradation, Land use/cover

User Category: 技术专家, 科学顾问, 模型建立者, 政策制定者



InfoFLR

At the heart of InfoFLR are packages of country information that IUCN has generated and gathered through our work with partners around the world, including a review of each country' s domestic targets, policies and programmes related to restoration and status updates on national restoration opportunities assessments. These profiles feature detailed information on each...

Type: Documentation/Manuals,Educational materials,Maps/GIS

Scale: Global, Regional, National

Thematic areas: Climate, Land degradation, Land management/planning

User Category: 技术专家, 政策制定者, 协助人员, 利益相关者

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支撑工具并不产生直接用于土地评估和土地利用规划的结果。但它提供各种类型的数据，可用于土地评价研究和作为土地利用规划的输入数据集（图 7）。


图 7
支撑工具

土地资源规划工具箱

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[更多搜索选项](#)

支撑工具



该类工具并不产生直接用于土地评估和土地利用规划的结果。但它提供了各种类型的数据，可用于土地评价研究和作为土地利用规划的输入数据集。

Number of records: 26



Sustainable Land Management Mainstreaming Tool


The objective of the Sustainable Land Management Mainstreaming Tool (DS-SLM) is to provide elements for the design of operational strategies and action plans for mainstreaming and scaling up SLM to guide national teams and other SLM-related projects in establishing processes for mainstreaming information on desertification, land degradation and drought (DLDD)...

Type: Framework/Guidelines

Scale: National, Sub-national/Province/District, Locality/Farm/Site, Watershed/Basin/Landscape

Thematic areas: Land management/planning

User Category: 技术专家, 科学顾问, 政策制定者



World Reference Base for Soil Resources


Soil classification is a tool for grouping soils with a similar range of properties (chemical, physical and biological), and potentially similar behaviour, into a limited number of units that can be geo-referenced and mapped. The need for soil classification arose out of the complexity and often transitional nature of...

Type: Documentation/Manuals

Scale: Global, Regional, National, Sub-national/Province/District, Locality/Farm/Site, Watershed/Basin/Landscape

Thematic areas: Soils - distribution and properties

User Category: 技术专家



FAO Soils Portal (FAO-SOILS)


The FAO Soils Portal (FAO-SOILS) provides a gateway to various aspects of soils information. It explains, with links to a variety of publications, the concepts, diversity, degradation, and importance for agriculture, biodiversity, construction, as well as its role in mitigation of/adaptation to climate change. The comprehensive overview of survey...

Type: Documentation/Manuals, Educational materials, Framework/Guidelines, Maps/GIS

Scale: Global, Regional, National

Thematic areas: Soils - distribution and properties

User Category: 技术专家, 科学顾问, 利益相关者



Bonn Challenge Barometer

The demand by Bonn Challenge jurisdictions for a flexible yet standardised reporting process to adequately capture progress on FLR implementation in support of Bonn Challenge commitments is driven by multiple objectives. These include demonstrating to political constituencies (or shareholders or alliance members or donors) that promises made are being fulfilled....

Type: Framework/Guidelines

Scale: Global, Regional, National

Thematic areas: General, Land degradation, Land evaluation, Land use/cover, Social-participatory approaches

User Category: 政策制定者, 协助人员

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2
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引导搜索功能（图 9），允许用户访问通过以下条件选择的工具，这些工具可以是单独选择，也可以按以下五个的组合：主类别、子类别、工具类型、尺度和专题领域。“主类别”和“子类别”只允许选择一个选项，“尺度”、“类型”、“专题领域”和“用户类别”允许同时选择多个选项。使用工具箱的一般建议是，用户可以从搜索选项的大范围选择开始，探索可用的工具，并逐步缩小选择范围，从而找到最相关的工具。图 1 列出了主类别、子类别、专题领域、适用性尺度和工具类型的详细内容。

图 9
引导搜索功能



工具描述：在检索到所需工具之后，当用户点击该工具的标题（图 10），这一特定工具的完整描述就会呈现出来。为直接访问某一特定工具或其文档提供了至少一个链接。主文档附带的链接可以提供进一步的指南，以便访问关于特定专题更详细的信息。为每个工具提供的信息，可帮助用户探索该工具的主要特性，该工具所适用的案例，下载或访问该工具的进一步信息，以及提供进一步信息、应用程序或案例研究的链接。用户可以使用工具和所提供的信息，或者返回搜索其他工具。

图 10

工具描述的例子

土地与水资源

🏠
概述
水
土地
数据库和软件
新闻
事件
外联

Sustainable Land Management

Land assessment & impacts

Land governance and planning

Land Policy

Land resources planning

土地资源规划工具箱

LDN - Restoring degraded lands

Soils

Land Cover Classification System (LCCS)



The Land Cover Classification System (LCCS) was developed by FAO to provide a consistent framework for the classification and mapping of land cover. Its main objectives were to overcome the rigidity of a-priori land cover classifications, which in many practical situations do not allow easy assignment into one of the pre-defined classes and are therefore not very suitable for mapping. LCCS instead opted for an approach based on two main phases. The first phase is an initial 'Dichotomous Phase', in which eight major land cover types are defined: (1) Cultivated and Managed Terrestrial Areas, (2) Natural and Semi-Natural Terrestrial Vegetation, (3) Cultivated Aquatic or Regularly Flooded Areas, (4) Natural and Semi-Natural Aquatic or Regularly Flooded Vegetation, (5) Artificial Surfaces and Associated Areas, (6) Bare Areas, (7) Artificial Waterbodies, Snow and Ice, and (8) Natural Waterbodies, Snow and Ice. The Dichotomous Phase is followed by a subsequent 'Modular-Hierarchical Phase', in which land cover classes are created by the combination of sets of pre-defined classifiers, which are different for each of the eight major land cover types. For example, common classifiers used for (semi-) natural terrestrial vegetation types are Life Form, Cover, Height, Macropattern. For aquatic or regularly flooded natural and semi-natural vegetation, water seasonality is an indispensable classifier. LCCS offers several advantages from a conceptual point of view. LCCS is a real a priori classification system in the sense that, for the classifiers considered, it covers all their possible combinations. The classification is also hierarchical and the more classifiers used, the greater the detail of the defined land cover class. The classes derived from the proposed classification system are all unique and unambiguous, due to the internal consistency and systematic description of the classes. LCCS is designed to map at a variety of scales, from small to large. From a practical viewpoint LCCS offers several advantages: (1) easy incorporation into GIS and databases, (2) allows flexible response to information available in a given area, (3) project budget and time constraints, (4) unlinks the field data collection from the interpretation process.

Source (link)
[Click here](#)

Scale
Sub-national/Province/District, Watershed/Basin/Landscape

Type
Data, Documentation/Manuals

Applicability
Sub-national/ Province/ District, Watershed/Basin/Landscape

Category
Support tools

Sub-Category
Assessment and mapping tools: Land, Soil, Crop, Water

Thematic areas
Land use/cover

User Category
技术专家, 科学顾问, 模型建立者, 协助人员, 利益相关者

致谢：该用户指南和土地利用规划工具箱由 Theodora Fetsi, Eddy De Pauw, James Morgan, Roberta Nettuno 和 Feras Ziadat 联合开发。