Convention to Combat Desertification

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Linking scientific knowledge with decision-making
Scientific Knowledge Brokering Portal and promoting the analysis and
dissemination of best practices

Progress report on the Scientific Knowledge Brokering Portal

Note by the secretariat

Summary

This document outlines the main developments in the Scientific Knowledge Brokering Portal (SKBP) created by the United Nations Convention to Combat Desertification (UNCCD) secretariat. Under the 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018) (The Strategy), set out in decision 3/COP.8, Parties mandated the Committee on Science and Technology (CST) to establish knowledge management systems to improve the brokering of scientific and technical information on issues related to desertification, land degradation and drought (DLDD). This mandate, refined by decisions 21/COP.10 and 24/COP.11, and detailed in document ICCD/COP(11)/CST/6, moved from concept to pilot portal in 2014 and 2015, integrating the data and knowledge bases of five collaborating organizations, in addition to many of the materials made available on the UNCCD website. This pilot was the first major milestone in the development of the SKBP.

The SKBP is designed to maximize the work of the entire DLDD community by collaborating with existing data and knowledge bases in order to gather content from primary sources of information and make it available to a wide range of end users, including scientists, policymakers and practitioners.

This document reports on the activities carried out by the UNCCD secretariat and collaborating organizations as part of the development of the SKBP, and outlines the next steps. It also provides an overview of the outcomes of the SKBP pilot, which has also allowed the UNCCD secretariat to identify long-term and running cost estimates and technical constraints for consideration by Parties in the future development and maintenance of the SKBP.

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I.   Background

1.   The Scientific Knowledge Brokering Portal (SKBP) is a knowledge brokering system designed to improve access to scientific and technical information on desertification, land degradation and drought (DLDD). Its establishment was requested under the 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018) (The Strategy), adopted by decision 3/COP.8. Paragraph 14 (b) (iii)f of the annex to that decision mandates the Committee on Science and Technology (CST), in cooperation with relevant institutions, to create and steer knowledge-management systems aiming to improve the brokering of scientific and technical information from and to institutions, Parties and end users.

2.   Under The Strategy, the UNCCD secretariat was requested, in paragraph 20 (b) (ii) of the annex to decision 3/COP.8, to support the knowledge-management systems established by the CST and perform information and knowledge brokering functions.

3.   Since the adoption of decision 3/COP.8, several decisions by the Conference of the Parties (COP) have prioritized the conceptualization and implementation of a brokering system dealing with traditional and scientific knowledge, as outlined in article 16 (g) of the Convention, with best practices, and success stories for the promotion and implementation of Sustainable Land Management (SLM) practices.

4.   Decision 21/COP.10 requested the UNCCD secretariat to continue elaborating an information platform related to DLDD, building on existing similar information and categorizations where appropriate and useful. This request means that the SKBP should be designed to aggregate knowledge from existing repositories, centralize this knowledge and make it accessible from a single search portal, subject to the availability of resources and partner support. Document ICCD/COP(11)/CST/6 further outlines the concept of a SKBP.

5.   At its meeting on 13 March 2015, the Bureau of the CST recommended that the Roster of Independent Experts be integrated into the SKBP, thus allowing for an efficient and easy search, and facilitating access to the information on independent experts for country Parties and other stakeholders.

6.   In comments provided by Parties to the document on "Consideration of best practices in the implementation of the Convention: accessibility of information on best practices" some Parties advised that (a) information on Progress Indicators, as reported by Parties and other Reporting Entities in their national reports, be made accessible through the SKBP; and (b) Parties be provided with information regarding budget for the further development, and the running costs associated with the SKBP.

7.   The successful pilot was the first major milestone in the development of the SKBP. It has demonstrated that it can serve to: (a) increase awareness of national and regional land degradation findings; (b) simplify the information-finding process so that users can consult many land degradation resources from one search portal; and (c) enable the consolidated search results found in the SKBP to potentially link to mobile applications and other "on-the-ground" tools to make sustainable practices easier to implement on the ground. The pilot has also paved the way for defining the partnership models needed to expand the partner base of knowledge suppliers and users; it has demonstrated the usefulness of the SKBP as a cost-efficient, collaborative and efficient knowledge brokering tool to recycle and draw increased attention to partner knowledge bases through the SKBP.

II. The United Nations Convention to Combat Desertification Scientific Knowledge Brokering Portal: Knowledge Portal for information on Desertification, Land Degradation and Drought and sustainable land management best practices

8. The SKBP is designed to provide awareness, access and guidance. It aims to: (a) improve awareness of global, regional, and national knowledge bases on DLDD and SLM best practices through interactive web maps; (b) provide guidance to land practitioners and other information seekers on how to navigate and access DLDD and SLM knowledge resources; and (c) generate improved access to information resources on DLDD and SLM best practices through a centralized search portal. Furthermore, it encourages Parties, international governmental organizations, academic and scientific institutions and non-governmental organizations to further develop existing knowledge repositories on DLDD and SLM resources.

9. An SKBP pilot was produced in 2014, with a platform integrating the data and knowledge bases of five collaborating organizations, in addition to many of the materials made available on the United Nations Convention to Combat Desertification (UNCCD) website. The pilot is a small-scale implementation of the proposed SKBP. A functional prototype was developed to evaluate the long-term feasibility and resources needed to sustain the knowledge brokering tool.

10. The SKBP pilot centralizes knowledge bases containing relevant SLM best practices and scientific knowledge to allow users to search for the required data. The search portal has been developed with financial contributions from the Spanish and Swiss Governments in addition to the in-kind contributions of five SKBP pilot partners, including: the Spanish National Research Council (CSIC), World Soil Information (ISRIC), World Overview of Conservation Approaches and Technologies (WOCAT), the Technologies and Practices for Small Agricultural Producers (TECA) project of the Food and Agriculture Organization of the United Nations (FAO) and the FAO International System for Agricultural Science and Technology. The Agricultural Research Service of the United States Department of Agriculture has contributed expert knowledge and allowed the UNCCD to leverage many of the tools being developed as part of JournalMap and the global Land-Potential Knowledge System (LandPKS). It has been a leading in-kind contributor to the development of the SKBP pilot interactive web maps.

11. The SKBP is designed to be a "bridge to bridges", providing information on DLDD and SLM best practices through awareness, guidance and access. There is a vast amount of valuable knowledge on SLM strategies that can be used to prevent and reverse land degradation. This information is currently not easily accessible to land managers and policymakers. The SKBP, however, allows individuals to rapidly and easily locate the information they need, empowering them to access, adapt and apply global knowledge to local needs in order to address poverty alleviation, food security and land restoration and rehabilitation.

12. The successful pilot was the first major milestone in the development of the SKBP. It has demonstrated that it can serve to: (a) increase awareness of national and regional land degradation findings; (b) simplify the information-finding process so that users can consult many land degradation resources from one search portal; and (c) enable the consolidated search results found in the SKBP to potentially link to mobile applications and other "on-the-ground" tools to make sustainable practices easier to implement on the ground.

13.   The SKBP is designed to act as a "bridge to bridges" in order to connect users to global knowledge and information stored and distributed by a number of different organizations through currently disjointed repositories and platforms. It will provide access to the world's DLDD and SLM resources through a dedicated search tool and delivery system which brokers this wealth of DLDD and SLM knowledge so that, eventually, the repositories of all contributing organizations can be interlinked. The SKBP will simplify and consolidate the information-retrieval process for DLDD and SLM knowledge. It will provide direct access to diverse sources of information necessary to increase land productivity and sustainability. The SKBP will empower national stakeholders and local communities working to address land degradation and restoration challenges on the ground with access to the world's foremost SLM resources.

III.   Development of the Scientific Knowledge Brokering Portal pilot

14.   Further to decision 24/COP.11, the SKBP pilot began in January 2014 and concluded in August 2014. During this time, the UNCCD secretariat collaborated with five partners and two co-operators to partake in the technical development. The search portal has been developed with financial contributions from the Spanish and Swiss governments in addition to the in-kind contributions of five SKBP pilot partners, including:

        (a)   The Spanish National Research Council/ Consejo Superior de Investigaciones Científicas (CSIC), which has contributed access to Digital.CSIC, which gathers documents from the eight scientific areas of the CSIC and more than 130 institutes. The SKBP pilot search portal accesses the knowledge resources of the CSIC on agricultural sciences and natural resources;

        (b)   World Soil Information (ISRIC), which has contributed access to its GeoNetwork database. ISRIC's Geonetwork database contains more than 700 digitized soil maps with a worldwide coverage, and partial access to the Wageningen UR library;

        (c)   The Food and Agriculture Organization of the United Nations (FAO)'s Technologies and practices for small agricultural producers (TECA) project, which has contributed access to the "technologies and practices" component of its platform, which covers topics such as climate change and disaster risk reduction, crop production, forestry, and capacity development;

        (d)   The Food and Agriculture Organization of the United Nations (FAO)'s International System for Agricultural Science and Technology (Agris), which has contributed access to more than seven million bibliographic references on agricultural research and technology, along with links to related online data resources such as DBPedia, World Bank, Nature, FAO Fisheries, and FAO country profiles;

        (e)   World Overview of Conservation Approaches and Technologies (WOCAT) which has contributed access to its Knowledge Base: a database system on SLM Practices with direct application to soil and water conservation.

15.   Together, these partners: (a) allowed the SKBP pilot search portal to harvest their content databases; (b) participated in the development of SKBP Partner guidelines; and (c) provided significant feedback on the development of the SKBP pilot search engine. By allowing the SKBP pilot to access these six content databases, the pilot search engine has accessed over 3,800,000 records with valuable information on land degradation and desertification.

16.   The search portal component of the SKBP pilot allowed the UNCCD secretariat to identify a technical model for developing and maintaining the SKBP. The SKBP pilot has resulted in recommendations for a partnership framework and a better understanding of software, hardware and information technology (IT) requirements, as well as how cooperation between partners could lead to improved access to information on DLDD. As a result of the SKBP pilot, the UNCCD secretariat has identified the potential long-term running costs associated with the further development and maintenance of the SKBP.

17.   The SKBP pilot interactive web maps aim to increase awareness on where to access information on DLDD best practices, and the global interactive web maps are piloting a spatial approach to how the SKBP can provide users with guidance on where to find related scientific knowledge and best practices. The interactive web maps currently contain information on how and where to access over 290 knowledge bases with information on DLDD, as reported by country Parties, as part of the reporting process (under CONS-O-11 of Operational Objective 3). The interactive web maps were developed in cooperation with the Jornada Dryland Research Program of the United States Department of Agriculture – Agricultural Research Service (USDA-ARS), which continues to support access to these maps.

18.   As an outcome of the SKBP pilot, the UNCCD secretariat will highlight that the SKBP intends to re-use existing DLDD and SLM knowledge resources, where they exist, to help improve visibility and access to these resources. However, in making these knowledge brokering tools available, the UNCCD secretariat will not be responsible for validating individual records or content submitted to SKBP Partner knowledge bases. The responsibility for accrediting and validating SLM and DLDD knowledge resources will be left to the discretion of SKBP partners.

19.   The use of a modular concept allows the various elements of the SKBP to be developed separately using an iterative and flexible development method. All elements can function separately, as demonstrated by the two SKBP pilot project modules, but the true value of the SKBP will become apparent when the various components come together. This requires all modules to be based on open standards, and allowing flexible adaptation.

IV. Required resources for the implementation and further development of the Scientific Knowledge Brokering Portal

20.   Subject to the continued support of the SKBP by country Parties, the UNCCD secretariat has identified the following resources, required for the further development of the SKBP (outlined in the table below) and its implementation in the next biennium. The running costs consist of: software licensing (search engine and other software solutions), technical management and support, and hosting and hardware (shared server). The development costs consist of technical design and engineering.

21.   Software licensing, technical management and support, and hosting and hardware are estimated to amount to €50,000 per year. All components of the SKBP – both external and internal interfaces and connections – must be based on open standards, thus allowing the UNCCD secretariat to choose the most cost-effective licensing model for each individual component of the SKBP platform.

22.   The engineering costs for the continuous further development and improvement of the SKBP, including continuous improvements to the user interface and continuously adding new content partners, is estimated to amount to €75,000 per year. Technical engineering will be carried out in the course of various small projects with clear deliverables and outcomes.

Estimated costs for the 2016–2017 biennium	(euros)
Running costs	100 000
Further development	150 000
Total	**250 000**

V. Next steps for the Scientific Knowledge Brokering Portal

23.   The SKBP pilot has allowed the UNCCD secretariat to identify the required next steps and estimated annual running costs associated with software, hardware and the maintenance of the SKBP as a flexible and adaptive knowledge sharing platform, enabling the UNCCD secretariat to easily adapt to future developments and new partnerships. The proposed development will allow the SKBP to become the main knowledge platform for the UNCCD, combining knowledge sources from the UNCCD secretariat, the GM (Global Mechanism), and partner organizations, including best practices, the Roster of Independent Experts, and data reported by country Parties, inter alia, on knowledge systems and progress indicators;

24.   The further development of the SKBP in the next biennium will consist of:

        (a)   **An increased number of content partners and automated access to their databases:** increase the number of SKBP partners to allow the SKBP search portal to expand to cover more relevant best practices and scientific knowledge databases, particularly those that can be accessed through set technical formats to avoid unnecessary long-term maintenance costs for the SKBP;

        (b)   **Improve the quality of the search through academic search technology partnerships:** the SKBP pilot has already collaborated with the USDA-ARS to evaluate relevant search technologies. The SKBP Beta phase seeks to identify additional potential partners with information or computer science expertise, which may be willing to develop or customize open-source search technologies for the SKBP search portal in an effort to lower long-term SKBP maintenance costs;

        (c)   **Additional SKBP features and interface improvements:** based on collected user feedback after the launch, the monitoring of use and the evaluation of effectiveness for users, some potential, recommended features include: the ability to export search results, the ability to display and integrate with other datasets, the ability to share results with other users, and the ability to be fully multilingual;

        (d)   **Increased access to knowledge from other knowledge sources within the UNCCD secretariat, the GM and partner organizations:** the SKBP will provide easy access to information related to DLDD, that is available to the UNCCD secretariat relative to DLDD, by making them searchable and, using an effective search mechanism as well as a presentation on the interactive maps.