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Resource-Efficient Land Use – Towards a Global Sustainable Land Use Standard (GLOBALANDS)

Summary

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Resource-Efficient Land Use – Towards a Global Sustainable Land Use Standard (GLOBALANDS)

Summary

by

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Acronyms

AAU	Alpen-Adria Universität
AFOLU	Agriculture, forestry, and other land use
BfN	German Federal Agency for Nature Conservation (Bundesamt für Naturschutz)
BMEL	German Federal Ministry for Food and Agriculture (Bundesministerium für Ernährung und Landwirtschaft)
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit)
BMZ	German Federal Ministry for Economic Development and Cooperation (Bundesministerium für wirtschaftliche Entwicklung und Zusammenarbeit)
CAP	Common Agricultural Policies (of the EU)
CBD	UN Convention for Biological Diversity
CDE	Centre for Development and Environment
CDM	Clean Development Mechanism
CENBIO	Centro Nacional de Referência em Biomassa (Brazil)
CFS	United Nations Committee on World Food Security
COP	Conference of the Parties (to a Convention)
CSM	International Food Security and Nutrition Civil Society Mechanism
DIE	German Development Institute (Deutsches Institut für Entwicklungspolitik)
DG ENV	Directorate-General for Environment (of the EC)
DLR	German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt e. V.)
EC	European Commission
EAP	Environmental Action Program
EEA	European Environment Agency
ELD	Economics of Land Degradation
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FUE	Forum Environment and Development (Forum Umwelt und Entwicklung)
GBEP	Global Bio-Energy Partnership (of the G8)
GCF	Green Climate Fund
GDPRD	Global Donor Platform for Rural Development
GDWGL	Global Donor Working Group on Land
GHG	greenhouse gas(es)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GLF	Global Landscapes Forum
GLII	Global Land Indicators Initiative
GLTN	Global Land Tool Network
GSP	Global Soil Partnership (of the FAO)
HBS	Heinrich-Böll Stiftung
IASS	Institute for Advanced Sustainability Studies
ICSU	International Council for Science

IFC	International Finance Corporation
IINAS	International Institute for Sustainability Analysis and Strategy GmbH
ILC	International Land Coalition
ILUC	Indirect land use changes
IMF	International Monetary Fund
INRA	Institut National de la Recherche Agronomique (France)
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services (of the CBD)
IPCC	Intergovernmental Panel on Climate Change
ISSC	International Social Science Council
ITPS	Intergovernmental Technical Panel on Soils (of the GSP)
IWG	Intersessional Working Group (of the UNCCD)
JI	Joint implementation (of the Kyoto Protocol)
JRC	Joint Research Centre of the European Commission
KLU	Commission Agriculture at the German Federal Environment Agency (Kommission Landwirtschaft am Umweltbundesamt)
LDN	Land degradation neutral(ity)
LULUCF	Land use, land use change and forestry
MDG	Millennium Development Goal
MEA	Millennium Ecosystem Assessment
Mha	Million hectares
NGO	Non-governmental Organization
PBL	Netherlands Environmental Assessment Agency
RAI	Responsible Agricultural Investment
RED	Renewable Energy Directive (of the EU)
REDD	Reduced Emissions from Deforestation and Forest Degradation
RNE	German Council for Sustainable Development (Rat für Nachhaltige Entwicklung)
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice (of the CBD)
SDG	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SFD	Soil Framework Directive
SLM	Sustainable land management
SPI	Science-Policy Interface (of the UNCCD)
SRU	German Advisory Council on the Environment (Sachverständigenrat für Umweltfragen)
TEEB	The Economics of Ecosystems and Biodiversity
TTIP	Transatlantic Trade and Investment Partnership
UA	Urban Agriculture
UBA	German Federal Environment Agency (Umweltbundesamt)
UN	United Nations
UNCCD	UN Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade And Development

UN-DESA	United Nations Department of Economic and Social Affairs
UNEP	United Nations Environment Program
UNFCCC	UN Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
UN-OWG	United Nations Open Working Group
UNSD	United Nations Statistics Division
UN-SG	United Nations Secretary-General
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
WB	World Bank
WBGU	German Advisory Council on Global Change (Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen)
WOCAT	World Overview of Conservation Approaches and Technologies
WTO	World Trade Organization
WWF	Word Wide Fund for Nature

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Abstract

Given the challenges of future land use policies addressing sustainable natural resources management and socioeconomic aspects, the inter- and *transdisciplinary* GLOBALANDS (Global Land Use and Sustainability) project identified relevant international policy options, their synergies and possible implementation, and initiated and supported respective processes. GLOBALANDS identified also *"windows of opportunity"* to strengthen sustainable land use through international policies based on an extensive screening of the most important international policies - both governmental and non-governmental approaches - with relevant impacts on land use.

Key processes which could strengthen global governance towards sustainable land use are:

- The proposed UN *Sustainable Development Goals* (SDGs) in which land is covered partially.
- *Mainstreaming* of sustainable land use in *existing* UN and international governance systems such as UN conventions to allow for more coherence
- Better *safeguarding* of sustainable land use in *project-level financing* of bi- and multilateral development agencies and bodies.
- The *private sector* can play an increasing role in the governance of sustainable land use, but this may require e.g., a certification system.
- GLOBALANDS developed a new (complementary) approach for land-related indicators which *integrates* environmental and social aspects through the formulation of sustainable land use practices for different actors, and regions. The application of such indicators is possible within the process of regionally or nationally implementing the SDGs.

A final outcome of the GLOBALANDS project are policy recommendation for Germany policy to foster sustainable land use in the international governance system. Also, key open (research) questions were identified.

Kurzbeschreibung

Das vom UBA und BMUB geförderte GLOBALANDS (Globale Landnutzung und Nachhaltigkeit) untersuchte, welche *internationalen Politiken* und Institutionen die nachhaltige Landnutzung auf globaler Ebene voranbringen können und welche Rolle darin ein (Zertifizierungs-)Standard spielen kann. Weiterhin wurde analysiert, welche gegenwärtigen und anstehenden *politische Prozesse* auf globaler Ebene Möglichkeiten zur Stärkung der nachhaltigen Landnutzung bieten bzw. durch GLOBALANDS initiiert oder unterstützt werden könnten. GLOBALANDS arbeitete inter- und *transdisziplinär*.

Basierend auf einer ausführlichen Analyse der heutigen und künftig möglichen globalen Landnutzung wurden die wesentlichen Sektoren und "Treiber" der Landnutzung bestimmt. Weiterhin erfolgte eine umfassende Analyse der gegenwärtigen internationalen Politiken zu Land mit 10 Länderfallstudien und einem Exkurs zum Privatsektor, um *Handlungsfenster* für global nachhaltige Landnutzungspolitiken und dahingehende Instrumente zu identifizieren.

Als *methodischen* Beitrag zur Diskussion, wie sich nachhaltige Landnutzung *messen* lässt, entwickelte GLOBALANDS den Ansatz *systemischer Indikatoren* als Möglichkeit zur sozial inklusiven und regional differenzierten Implementierung.

Auf Grundlage der Analysen und den Diskussionen mit Akteuren bei internationalen und nationalen Workshops wurden *vier Politikpfade* zur nachhaltigen globalen Landnutzung erarbeitet.

Zentrales Ergebnis von GLOBALANDS ist die Ableitung von *Empfehlungen zu nationalen Politiken* Deutschlands zur Stärkung der nachhaltigen Landnutzung in der internationalen Politik. Ergänzend wurden auch *offene Forschungsfragen* identifiziert.

Résumé

Étant donné les défis de l'avenir des politiques de l'aménagement du territoire abordant la gestion durable des ressources naturelles et les aspects socio-économiques, le projet interdisciplinaire et transdisciplinaire GLOBALANDS (Global Land Use and Sustainability - aménagement globale du territoire et durabilité) a identifié les options pertinentes de politique internationale, leurs synergies et la mise en œuvre, et les processus respectifs initiées et soutenues.

GLOBALANDS a identifié des «fenêtres d'opportunité» pour renforcer l'aménagement durable du territoire grâce à des politiques internationales fondées sur un examen approfondi des politiques internationales les plus importantes, á la fois des approches gouvernementales et non-gouvernementales - avec des répercussions pertinentes sur l'utilisation des terres.

Les processus clés qui pourraient renforcer la gouvernance mondiale vers un aménagement du territoire durable sont:

- La proposition des Nations Unies des objectifs de développement durable (ODD) couvrant partiellement l'aspect du territoire.
- L´intégration du territoire durable dans les systèmes de gouvernance existants telles que les conventions des Nations Unies et internationales pour permettre une plus grande cohérence
- Mieux sauvegarder l'aménagement durable du territoire avec financement au niveau des projets et des institutions ou organisations de développement bilatéraux et multilatéraux.
- Le secteur privé peut jouer un rôle croissant dans la gouvernance de l'aménagement durable du territoire, mais cela peut nécessiter, par exemple, un système de certification.
- GLOBALANDS a développé une nouvelle approche (complémentaire) pour les indicateurs liés au territoire, intègrant les aspects environnementaux et sociaux à travers la formulation des pratiques durables pour les différents acteurs et les régions. L'application de ces indicateurs est possible dans le processus de mise en œuvre régionale ou nationale des ODD.

Un des résultats final du projet GLOBALANDS est une série de recommandations politiques envers l'Allemagne visant à favoriser l'aménagement durable du territoire dans le système de gouvernance internationale. En outre, ont a été identifiés des questions (ouvertes) clés de recherche.

Resumen

Teniendo en cuenta los desafíos de las futuras políticas de uso de la tierra que aborden la gestión sostenible de recursos naturales y los aspectos socioeconómicos, el proyecto inter- y transdisciplinar GLOBALANDS (Uso Global de la Tierra y Sostenibilidad) identificó opciones relevantes de políticas internacionales, sus sinergias y posible implementación, e inició y apoyó respectivos procesos.

GLOBALANDS también identificó "ventanas de oportunidad" para fortalecer el uso de la tierra a través de políticas internacionales basadas de un amplio examen de las políticas internacionales más importantes – considerando tanto enfoques gubernamentales como no gubernamentales - con impactos relevantes en el uso de la tierra.

Los procesos clave que podrían fortalecer la gobernanza global hacia el uso sostenible de la tierra son:

- Los propuestos Objetivos de Desarrollo Sostenible (ODS) de la ONU en los que la tierra está cubierta parcialmente.
- Generalizar el uso sostenible de la tierra en los sistemas existentes de la ONU y los sistemas de gobernanza internacional como las convenciones de la ONU para permitir una mayor coherencia.
- Considerar mejores salvaguardas en la utilización sostenible de la tierra en la financiación a nivel de proyecto de las agencias y organismos de desarrollo bilaterales y multilaterales.

- El sector privado puede desempeñar un papel cada vez mayor en la gobernanza del uso sostenible de la tierra, pero esto puede requerir, por ejemplo, un sistema de certificación.
- GLOBALANDS desarrolló un nuevo enfoque (complementario) para los indicadores relacionados con la tierra que integra aspectos ambientales y sociales a través de la formulación de prácticas de uso sostenible de la tierra para diferentes actores y regiones. La aplicación de estos indicadores es posible dentro del proceso implementación de los ODS a nivel regional o nacional.

Un resultado final del proyecto GLOBALANDS son recomendaciones políticas para Alemania con el fin de fomentar el uso sostenible de la tierra en el sistema de gobernanza internacional y un resumen de preguntas clave (de investigación) pendientes.

1 Objectives, Approach and Overview of the GLOBALANDS Project

The world is under threat from degradation of land, natural resources, and livelihoods so that innovative and effective governance structures are needed to strengthen sustainable land use practices. Currently there are several international policy initiatives that aim to address this need.

Given this context, the GLOBALANDS[1] project was initiated by the German Federal Environmental Agency (UBA) and funded by the Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

The main research questions of GLOBALANDS were the following:

- How can an *international* governance be designed and effectively contribute to more sustainable land use at the global level? Which role can a (private) certification standard play in that?
- Which current and upcoming *political processes* are most promising and can be used for strengthening sustainable land use?
- Which role can the German government play in such processes, and what are key *recommendations for national policies* in that regard?

GLOBALANDS worked interdisciplinary and applied a *transdisciplinary* approach, i.e. its research included interaction and discussion not only with academia but also with key stakeholders especially from governments and civil society to *initiate* processes towards more sustainable global land use. For this, several international and national workshops and consultations took place.

Based on an extensive analysis of current and future global land use, the key sectors and "drivers" affecting land were determined (Section 2).

A comprehensive review of the current international land governance (Section 3.1) and 10 respective country case studies (Section 3.2) and the private sector (Section 3.3) identified possible *windows of opportunities* for global sustainable land use policies and instruments (Section 4),

As the European Union plays an important role in international and global governance, and influences global land use through its domestic policies, GLOBALANDS also addressed EU policies on land (Section 4.4).

As a *methodological* contribution to the discussion of how to *measure* sustainable land use, GLOBALANDS developed the *systemic indicators* approach for key land uses as an opportunity for socially inclusive and regionally differentiated implementation (Section 5).

Drawing from the results of the (policy) analysis carried out and from the discussions with stakeholders in the international and national workshops, GLOBALANDS developed *pathways* for a more sustainable global land use (Section 6).

A final outcome of the GLOBALANDS project are *policy recommendations* for Germany to foster sustainable land use in the international governance system (Section 7), and *open research questions* to be dealt with in follow-up work (Section 8).

This summary report of GLOBALANDS provides an overview of key findings. The *Synthesis Report* gives more detail, drawing from a wealth of discussion, issue and working papers prepared by GLOBALANDS which are available at www.globalands.org for download.

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[1] Full project title: Resource-Efficient Land Use – Towards A Global Sustainable Land Use Standard; Project No. FKZ 371193101; short title: Global Land Use and Sustainability (GLOBALANDS)

2 Global Land Use in Context

2.1 Current Global Land Use

Since historic times, humankind transformed land, for herding and hunting, clearing forests for agricultural, resource extraction, and for settlements and respective infrastructures (Ellis et al., 2013). Both *pace and extend* of anthropogenic land transformation significantly increased since the 18th century, driven by an unprecedented growth of population, and changing agricultural practices (Ellis, 2011). Since the mid-20th century, further population increase, diet shifts and use of biomass for non-food purposes drove the extension of croplands even more (Haberl, 2014). A general overview of global land uses in 2000 and 2010, and respective changes[2] is given in Table 1.

Table 1: Global land use in 2000 and 2010, and land use changes

Land use	2000	2010	Change
Cropland	1514	1541	27
Pasture	3420	3353	-67
Forest	4085	4033	-52
Planted forests	161	274	113
Urban & infrastructure	40	65	25

Source: own compilation based on FAOSTAT, 2015 and Woods et al., 2015; data given in Mha

Table 1 indicates that cropland expansion and urbanization are the most relevant drivers of net land use change over the last decade, with conversion of pasture land and primary forest accounting for the largest areas losses, and planted forests dominating the gains.

Agriculture uses 12% of the world's land surface for crop production, and 26% for pasture. Globally, only 35% of crop production is dedicated to food, versus 62% for animal feed (which produces food indirectly). 3% is used for bioenergy, seed and other industrial products.

Over the last 50 years, the world's agricultural production grew 2.5 times in volume, while cultivated land grew only by 12% (FAOSTAT, 2015). The current agricultural practices, especially large-scale systems, increasingly depend on few crop varieties and external inputs (chemical fertilizers, herbicides, and pesticides), *are unsustainable*, as they reduce both agrobiodiversity and biodiversity (Frison, Cherfas & Hodgkin, 2011; Galluzzi et al., 2011; MEA, 2005), and cause GHG emissions[3].

The expansion of cultivated land and pastures has largely been at the expense of forests (Gibbs et al., 2010). With more spatially explicit data becoming available from remote sensing, the causes of deforestation ("drivers") could be determined on a country-base, showing that the drivers differ between continents (Kissinger, Herold & De Sy, 2012).

Mining and settlements together with infrastructure caused about 25-30% of land use changes (in terms of deforestation) in Africa and Asia, with mining dominating in Africa and urbanization in Asia. Yet, the current land footprint of human settlements, infrastructure, mining and other activities such as waste management are quite low (Lutzenberber et al., 2014), but especially urban areas are expected to grow significantly in the future.

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[2] To identify drivers, patterns and trends, GLOBALANDS reviewed 33 international level land use studies and data collections, see Lutzenberger, Alexa et al. (2014): Global Land Use Analysis. GLOBALANDS working paper. Lüneburg.

[3] Agriculture is responsible for 30–35% of global GHG emissions due to fossil energy use, emissions from deforestation, methane release from animals and rice paddies, and nitrous oxide from fertilized soils (IPCC, 2014a).

2.2 Future Global Land Use

A fundamental driver of future land use is *population growth* – it is expected that by 2050, about 9 billion people will inhabit the earth (UNDESA, 2014)[4]. Related to that, *urbanization* will be the defining trend over the next decades, especially in Asia and sub-Saharan Africa- between 2010 and 2050, the urban population share will grow to more than 2/3 of the world's population, with different shares in major world regions (UNDESA, 2014).

The expansion of urban areas and land required for infrastructure is expected to at least keep pace with population growth. An additional 100 Mha of land is estimated to be required for residential, industrial and infrastructure until 2050, more than 90 % of it in developing countries (FAO, 2011). Future urbanization, especially in Megacities, may have severe impacts on global biodiversity hotspots (Schewenius, McPhearson & Elmqvist, 2014).

Clearly, the future is, by definition, unknown today – but scenarios and respective models are means *to explore* the unknown. Yet, the scenarios and models analyzed for GLOBALANDS give a *clear and robust message*[5]:

Up to 2050, the trend (business-as-usual) implies a significant shift in land use from (natural or semi-natural) forested areas and savannahs towards agricultural systems. Agricultural land will be transformed from pasture, grassland and – to a lesser degree - from forests to arable land, though with significant differences between world regions. The respective impacts on biodiversity, GHG emissions, and water are substantial and *will increase* over time.

Major uncertainties of these trends and baseline projections are in the future yield development which is subject to climate change feedbacks, and in the overall demand for agricultural and forest products. The role of bioenergy (and biofuels) in the scenarios is noteworthy, but a comparatively small share of the overall drivers (Goldemberg et al., 2014; Wood et al., 2015).

Given the important role of agriculture in future global land use, many studies have tried to identify *alternative development pathways and scenarios*[6].

The results indicate that there is significant potential to reduce future agricultural land use while increasing forest area, i.e. the scenarios show a wide range of *political scope* to influence future land use.

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[4] It should be noted that population dynamics are subject to a broad variety of influencing factors, and some of those are correlated with outcomes of agricultural assumption (e.g. education level, food security, health, income, rural employment) so that there is an internal feedback loop. Not surprisingly, one can find a significant range of global population projections for 2050 and beyond (Eppler, Fritsche & Laaks, 2015).

[5] Knickel, Karlheinz (2012): Land Use Trends, Drivers and Impacts. Key findings from a review of international level land use studies. GLOBALANDS Working Paper. Frankfurt.

[6] See Fritsche, Uwe & Eppler, Ulrike (2013): Global Land Use Scenarios: Key findings from a review of international level studies and models. GLOBALANDS Working Paper by IINAS. Darmstadt.

3 Current Global Governance for Sustainable Land Use

When looking at opportunities to improve global governance for sustainable land use, an analysis of the status quo is essential. Therefore, GLOBALANDS conducted a "Governance screening of global land use" in order to identify the most important international policies and assess their relevance for sustainable land use[7].

Box 1: What is sustainable land use?

Many concepts of "sustainable land use" provide guidance for specific sites and to some extent also at regional level, but what about the global scale?

GLOBALANDS derived the following crucial components for a definition:

- A *general cap for the conversion of land to agricultural area* seems necessary. Otherwise, the ongoing loss of forests and other ecosystems will not be stopped, even if the agricultural area would be managed sustainably. Such a cap can only be operational if applied at a national or even regional level. Moreover, it should be discussed whether other forms of land conversion (for example, for settlements or transport infrastructure) should also be capped as currently discussed in the European Union.
- Based on such a cap, *principles and criteria could be applied within a general framework for sustainable land use* (not only for agriculture and forestry but also for mining, infrastructure, settlements, etc.) taking the interplay between different land uses (at landscape level) into account. Principles and criteria should emphasize both social and environmental issues and should be based on the concept of multifunctionality.
- Commonly agreed criteria and principles could form a framework, which will have to be adjusted to regional and local conditions respectively through *consultation and decision-making processes*, ensuring a high level of participation from relevant stakeholders and the public.

GLOBALANDS defined sustainable land use in a pragmatic way as follows[8]:

Global sustainable land use *serves the needs* (for food, energy, housing, recreation, etc.) of all human beings living on earth today and in the future, respecting the *boundaries and the resilience of ecological systems*.

Clearly referencing ecological boundaries, this suggestion can be assigned to a *strong concept* of sustainability.

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7 See Wunder, Stephanie et al. (2013): Governance screening of global land use. GLOBALANDS Discussion Paper by Ecologic Institute and Oeko-Institut. Berlin.

8 See Kaphengst, Timo (2015): Towards a definition of global sustainable land use? A discussion on theory, concepts and implications for governance. GLOBALANDS Discussion Paper by Ecologic Institute. Berlin

3.1 Results of the International Governance Screening

The following presents the main results of this governance screening and draws conclusions with regard to the global governance of sustainable land use.

The governance screening also identified windows of opportunity for future action on the international policy level as well as barriers and "blind spots" where international policy is currently lacking or ineffective at influencing important drivers of unsustainable land use (Box 2).

Box 2: Blind spots - lack of (international) policies to address major land use drivers

The governance screening also showed important factors or drivers for land use that are not or ineffectively addressed through international policies.

Such "blinds spots" of relevance are:

High animal product consumption/western diets: Livestock production is by far the single largest anthropogenic use of land. Its major importance to sustainable land use stems from the fact that the increasing global population and shifting dietary habits in developing countries further add to the pressure on land as well as water and biodiversity (see Section 2.1.1). The expansion of livestock production is also a key factor in deforestation (Section 2.1.2). Depending on the type of meat, land requirements are roughly 10 times larger for meat protein than soybean production (Reijnders & Soret, 2003). As, on average, meat consumption in industrialized countries is above healthy levels, a transition towards less meat-intense diets would reduce demand for land.

Food waste: The reduction of food waste has a potential to reduce pressures on (agricultural) land use and resource inputs. According to data from Gustavsson et al. (2011), about 1/3 of all food production worldwide is lost or wasted in food production and consumption systems. This means that huge amounts of land and other resources used in food production could have been avoided.

Gender equality: Because of the differences between men and women with regard to access to land, land-use management and involvement in decision making processes, it is important to include a gender perspective within land-use governance. In developing regions, women typically have far less opportunities or rights to officially own, rent or manage land, though women may in fact be responsible for a large percentage of the farm labor. The unequal access to productive resources and services reduces women's productivity, also translating into lower yields. According to FAO (2011), enabling women to access productive resources to the same extent as men would increase yields on their farms by 20–30%. In addition to increases in production and income, closing the gender gap in agriculture and strengthening women's access to resources and income would generate broader social and economic benefits. Women also tend to have a good knowledge of local crop species, show a greater environmental awareness, and are more sensible towards environmental risks (Schultz et. al., 2001).

Population increase: The increase in global population may have an enormous impact on land use. Addressing population growth is also strongly connected to human rights, gender equality and education. The importance of education and the particular role of girls and women are underlined in many studies, illustrating the links between more education and lower fertility.

The scope of the governance screening is indicated in Table 2.

Table 2: Scope of analysis, classification and number of international policies analyzed in the governance screening

Land use policies per sector	Specific environmental media/goods	Integrated (different environmental media/goods)	Cross-cutting policies (non-sectoral)	Blind spots/cross-cutting issues with lack of (effective) policies
Agriculture (6 policies analyzed)	Biodiversity (7)	Sustainability (4)	Energy (10)	Food/global diets/food waste
Forestry (28)	Water (2)	Spatial planning (3)	Trade (6)	Population increase
Built up land (13)	Climate (7)		Investment (5)	Public goods, internalizing externalities
	Soil (3)		Development (7)	Gender
			Land tenure (1)	Liability
			Corruption (4)	

Source: Wunder et al., 2013

First and foremost, the GLOBALANDS governance screening revealed that a *large number of international policies* with relevance for the sustainable use of global land resources already exist to date.

However, there is *no overarching sustainable "land (use) policy"* at international level, even though the three most relevant UN conventions (CBD, UNCCD and UNFCCC) deal with land-related issues and various international processes continue to put more and more emphasis on land (e.g. the Voluntary Guidelines on the Responsible Governance of Tenure, see Section 4.2.1).

The various land-related policies identified in the GLOBALANDS screening directly address land use only in the context of agricultural, forestry, biodiversity, climate, resource or development policies. Other policies, such as trade and investment, do *not consider land use as an explicit issue* but have *substantial (often negative) side-effects* on the sustainability of land use (Box 2).

The analysis has further shown that no policy approach so far addresses competing land uses and demands in their complexity of interactions. Instead, *sector-specific policies still predominate* (e.g. biofuel polices that do not consider the sector's interaction with the food and feed sector, agricultural policies that do not consider interactions with biodiversity, etc.).

International policies that aim to promote sustainable land use (in addition to the Rio Conventions, also the Non-Legally Binding Instrument on All Types of Forests and other initiatives) *tend to be weak*: they often lack appropriate financial resources, suffer from a low level of implementation, or they are restricted to certain regions (e.g., UNCCD's focus on arid, semi-arid and sub-humid areas).

The analysis of the national case studies showed that implementation of global policy frameworks strongly *depends on national or even regional conditions* (e.g., which actors are involved, local governance, level of corruption, etc.). These conditions influence which effects can be expected from a (national or international) policy on sustainable land use.

With regard to the main trends in global land use, it can be concluded that despite the numerous international policies and initiatives addressing sustainable land use directly or indirectly, land is continuously under pressure from various sectors.

The *complex interconnection* of environmental media, sectors, local/cultural diversity between regions and time *requires a more integrated policy approach* in order to address the various underlying causes of unsustainable land use (see Section 7).

3.2 National Case Studies

In addition to the global governance screening GLOBALANDS carried out 10 national case studies to highlight some regionally specific land use challenges and discuss the impacts of national policies, mechanisms or strategies responding to these challenges (see Table 3). The case studies were also intended to unveil unconventional, innovative and integrative policy approaches which could serve as a good example or starting point for possible implementation at a wider (e.g. multi-lateral) level[9].

Table 3: Scope of the national case studies in the governance screening

Country	Title	Main Issue
Argentina	Policies for reducing deforestation –ambitious, though not always coherent	Mix of deforestation policies and their impacts
Bolivia	Mother Earth Law: A solution for deforestation in Bolivia?	Effects of a law assigning the soil a collective right on land use
Brazil	Beef production decline, soy expansion and their interrelationship	Interplay between policies regulating export and domestic production and dynamics of land use and consumption
Cuba	Necessity the Mother of Invention?	Main factors behind the rapid transformation of agriculture from industrialized sugar production towards decentralized organic farming
Kenya	Pastoralism and land governance	National land governance and its effects on land grabbing and land use dynamics in the Tana River area
Niger/Burkina Faso	Recultivating the desert	Sustainable land use practices in problematic areas and patterns of their expansion
India	Afforestation and reforestation	Mix of deforestation policies and their impacts
Australia	Mining Agreements	Legal status of mining agreements and potential for their global application to foster environmental standards in mining
Germany	The landscape planning system	Structures and transferability of the landscape planning system, focus on measure to reduce "land take"
Belgium	Ghent: The rise of the Veggie Day	How to launch a voluntary, non-governmental initiative to address meat consumption (as a large driver of land use change), how to increase its impact.

Source: Wunder et al., 2013

A paramount result from these cases is that new policies and instruments for land use need to consider market dynamics and interrelations with other sectors to avoid unintended effects, and typically require financial and political support in order to be implemented.

Sustainable land use requires not only explicit „sustainability policies", but much could already be achieved if perverse incentives would be abolished and coherence created among various policy fields.

[9] The results of the case studies are given in Wunder, Stephanie et al. (2013): Governance screening of global land use. GLOBALANDS Discussion Paper by Ecologic Institute and Oeko-Institut. Berlin.

For abolishing such countervailing policies, the national level is particularly relevant.

3.3 The Role of the Private Sector in Global Land Use

National and multinational corporations can both be 'creators' and 'mitigators' of land use problem:

- Companies have driven massive land use changes and degradation of biodiversity and soils (Brandon, 2013; McMichael, 2012; Meyfroidt, 2013), contributed to land conflicts, food insecurity, and have been involved in forced evictions (Abebe, 2012; Adeola, 2001; Bob, 2010).
- Yet, corporate actors can contribute to mitigating land degradation, restoring land, conserving and sustainably using natural resources and ecosystem services (Bishop et al., 2009; Daily & Ellison, 2012; TEEB, 2012). The main pathway through which (multinational) companies can contribute to a global sustainable land use is to render more socially or ecologically responsible their *business models*, their core *business operations* and their *value chains* wherever land use is involved (Beltramello et al., 2013; Dobers & Halme, 2009; Visser, 2008).

The private sector uses tools for more sustainable land use, especially certification schemes. Their attractiveness lies in the *assumption* that price premiums cover additional costs of a more sustainable production. The prerequisite is that a demand for more sustainably produced products exists, and certification is considered as credible by consumers.

Currently there is an oversupply of standard-compliant production. The observable proliferation of certification schemes results from a trend to (sub-) sector-specific, single-sector schemes (for biofuels, palm oil, soy etc.). In addition, in many of the (sub-) sectors more than one standard exists, so that schemes with varying stringency and specificity compete.

Subsequently, the 'label market' is becoming more intransparent, which may promote the commitment of less ambitious companies to less stringent labels. The focus on certification implies that a "greening" of resource extraction and production is above all of interest in export-oriented markets, in particular in national markets whose products are exported to Europe.

A GLOBALANDS paper analyzed exemplary land-use related policies of three multinational corporations (Unilever, Coca Cola Company, Allianz SE)[10] which introduced relatively ambitious sustainability targets and implemented tools (certification, guidelines, supplier codes etc.) to achieve them.

Nonetheless, a lack of consistency in the respective corporate polices can be observed. Put differently, sustainable land use is not mainstreamed as a cross-cutting topic within the respective company policies.

Such inconsistency can lead to competing and even contradicting objectives between corporate policies, suggesting that the policies' impacts on the ground may be diminished[11].

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[10] Klink, Dennis & Wolff, Franziska (2015): Sustainable land use and the private sector: recent trends. GLOBALANDS Issue Paper by Oeko-Institut. Berlin.

[11] The general problem of product or sectoral certification systems remain, though: typically, they do not address the total land use of a company or a sector, but only selected areas or products being cultivated on this land. This could imply that problems are just be shifted to areas not addressed by certification (indirect effects), and issue of competing land uses and the overall limitation of land remain unresolved issues.

4 Windows of Opportunity for Sustainable Land Use

The GLOBALANDS governance screening identified several policies as *particularly relevant* because they are undergoing changes or part of a process which provides opportunities foster sustainable land use, or they can act as catalysts. The following presents these key windows of opportunity.

4.1 Opportunities on the UN Level

4.1.1 UN Sustainable Development Goals (SDG)

The broadest international process that has the potential to promote global sustainable land use is the development of the United Nations *Sustainable Development Goals* (SDGs) which have the purpose to overcome shortcomings of the earlier Millennium Development Goals (UN-SG, 2015) which expire end of 2015. The SDGs are meant as an integrated, indivisible set of global priorities for sustainable development, focusing on measurable outcomes, be action oriented, global in nature and universally applicable, but as well take into account different national realities, capacities and levels of development and respect national policies and priorities.

The preliminary outcome of this process is the *SDG proposal* (UN-OWG, 2014), and the synthesis report (UN-SG, 2014). The proposed SDGs are shown in Table 4. In addition to the goals, the proposal included 169 targets, i.e. specific levels of ambition to achieve implementable elements of the goals. The SDG proposal received critique regarding the level of ambition, the non-integration of cross-cutting issues and the larger number of targets, but the political process will not allow major changes.

Table 4: The SDGs as proposed by the UN-OWG

	Goal		Goal
1	End poverty in all its forms everywhere	10	Reduce inequality within and among countries
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	11	Make cities and human settlements inclusive, safe, resilient and sustainable
3	Ensure healthy lives and promote well-being for all at all ages	12	Ensure sustainable consumption and production patterns
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	13	Take urgent action to combat climate change and its impacts
5	Achieve gender equality and empower all women and girls	14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
6	Ensure availability and sustainable management of water and sanitation for all	15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
7	Ensure access to affordable, reliable, sustainable, and modern energy for all	16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	17	Strengthen the means of implementation and revitalize the global partnership for sustainable development
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster		

innovation		

Source: UN-OWG, 2014

Land in the SDGs is covered directly in SDGs 1, 2, 11 and 15. Furthermore, the SDGs address land indirectly in Goals 6 (water), 7 (energy, esp. biomass), 8 (resource efficiency), and 13 (climate change) through linkages to food, materials consumption, etc.

It will be important that this broad coverage of land *will be maintained* in the final decision on the SDGs in September 2015 by the UN General Assembly, especially with regard to the target of a *land-degradation neutral* (LDN) world in Goal 15.

In parallel to the negotiations, a framework on *accountability* and *monitoring* is being developed which includes relevant indicators to ultimately "measure" the SDG implementation success (UNSD, 2014), and several contributions to this have been made already (GDPRD, 2015; Gennari, 2015; SDSN, 2015). The UN Statistical Commission (UNSC) recently published a draft report with recommendations on indicators for all SDG targets, taking into account assessments from national statistical offices, and reflecting on *over 300 indicators* (UNSC, 2015).

The UNSC endorsed a new Inter-Agency and Expert Group on SDG Indicators, proposed to establish a "High-level Group" under the UNSC, and presented a *road map* for the SDG indicator framework, aiming at a proposal from the Expert Group in December 2015, and endorsement of the indicator framework by UNSC in March 2016.

4.1.2 UN Convention to Combat Desertification (UNCCD)

The UNCCD is, together with the Convention on Biological Diversity (CBD) and the Framework Convention on Climate Change (UNFCCC), part of the "Rio Conventions" which came out of the 1992 UN Conference on Environment and Development"[12], but the only one explicitly addressing land.

Different to the CBD and the UNFCCC, though, the international status of the UNCCD is weaker - it does not cover all land and soils globally but instead *focuses on arid, semi-arid and dry sub-humid areas*, targeting approximately 41% of the global land and living space for 35% of the world population (MEA, 2005). That means that a large fraction of land is not within the Convention scope.

In 2012, a UNCCD policy paper introduced a goal of *zero net land degradation* (UNCCD, 2012) which lead to the aim "*to achieve a land degradation neutral world in the context of sustainable development*" included in the Rio+20 outcome document (UN, 2012).

A window of opportunity is that the concept of *Land Degradation Neutrality* (LDN) is part of the SDG proposal. SDG 15 with its target on LDN is expected to advance internationally accepted indicators on land degradation, which still do not exist (UNCCD, 2015).

Yet, there is still a need to elaborate on and further define the LDN concept, which is currently being developed by the UNCCD's Intersessional Working Group (IWG), to be finalized by COP 12 in Turkey, October 2015.

Having the concept of LDN in the SDG may also help the UNCCD to better position itself vis-à-vis the two other Rio Conventions, e.g., by advocating LDN as an essential part of (land-based) climate adaptation at the 2015 Paris climate conference (Smith, 2015).

[12] See UNCED (1992): The Earth Summit, Rio de Janeiro http://www.un.org/geninfo/bp/enviro.html

4.1.3 UN Convention on Biological Diversity (CBD)

There are several elements of the CBD that could serve as a basis for strengthening global sustainable land use, e.g. the targets and indicators, the Ecosystem Approach, the Addis Ababa Principles on Sustainable Use of Biodiversity, the Satoyama Initiative, and the Thematic Programs of Work.

Although land use is not mentioned at all in the Principles, many components could serve as a fundament for a governance framework of sustainable land use.

There are seven *thematic programs of work* that reflect the major biomes of the world and provide concrete guidance by describing principles, key issues, outputs and timetables. Within the program of work on agricultural biodiversity, the pillar on impacts of agricultural systems and practices on biodiversity in different ecosystems has a clear link to land use (practices).

The program adopted the "International Initiative for the Conservation and Sustainable Use of Soil Biodiversity". In broader terms, the idea of mainstreaming biodiversity into management practices could be a key aspect of an integrated approach towards sustainable land use. The program is administered in close cooperation with FAO.

While the CBD not explicitly uses the term "sustainable land use", components of it can be found at every conceptual level of the CBD. The ecosystem approach (including its adaptive management) as well as the Addis Ababa principles could serve as conceptual basis of how land could be sustainably used at various levels.

Furthermore, the CBD's experiences with indicators could be a good basis for monitoring of land-related aspects of biodiversity protection.

4.1.4 UN Framework Convention on Climate Change (UNFCCC)

The UNFCCC and its Kyoto Protocol (KP) aim at avoiding dangerous climate change, especially by stabilizing greenhouse gas (GHG) concentrations in the atmosphere. The KP commits its industrialized parties to reduce their GHG emissions. In a future agreement under the UNFCCC that is presently negotiated, both industrialized and developed country parties are expected to commit to reduction targets. Climate change mitigation involves two options which are relevant for sustainable land use:

a) reducing emissions by sources through the substitution of (non-renewable) fossil fuels with (renewable) biomass energy; and
b) increasing biological carbon sequestration, i.e. the removal of GHGs from the atmosphere by means of 'sinks' such as forests.

Both options can affect sustainable land use negatively. A third mechanism called 'Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries" (REDD+) is being negotiated as part of a post-2015 regime.

It depends on the management practices whether REDD+ such activities render land use more or less sustainable, e.g., monoculture plantations of fertilized exotic tree species may yield a climate benefit but no biodiversity benefit, or negatively impact on ecosystem services (Pistorius et al., 2011).

REDD+ policies can also lead to displacement of people, increased insecurity of tenure, or elimination of traditional management practices.

Thus, *safeguards* are required to prevent negative effects e.g., on indigenous communities and biodiversity[13]. Thus, the ongoing negotiations of the post-2015 climate treaty provide a window of opportunity to sustainable land use issues (see Section 7.3.3)[14].

[13] See for details: http://reddplussafeguards.com/

[14] At re recent SBSTTA meeting in June 2015 in Bonn, a preliminary agreement on REDD+ safeguards was achieved which is now subject to further negotiations and possible approval at COP21 in Paris in December 2015.

4.2 Further Opportunities on the International Level

4.2.1 Voluntary Guidelines on the Responsible Governance of Tenure (VGGT)

In May 2012, the *UN Committee on World Food Security* (CFS) adopted the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (CFS, 2012) – in short: VGGT – which was the result of a multi-year and multi-stakeholder negotiation process carried out in response to negative impacts of large-scale land investments mainly in developing countries ("land grabbing"). Although voluntary, the VGGT provide an internationally *agreed benchmark* for future legally binding measures on land tenure at national and international levels, and can be applied also by sub-national bodies (Wehrmann, 2015).

The VGGT also broadened participation of non-state actors – i.e., civil society organizations, and the private sector - in the negotiations and accepted non-scientific knowledge inputs such as *traditional knowledge* (Rahmanian, 2014).

Although there are promising signs of "uptake" of the VGGT[15], there is a need to demonstrate their impact "on the ground", i.e., implementing the VGGT requires evidence-based *monitoring*. The World Bank *Land Governance Assessment Framework* (WB, 2012) could be used as a starting point (Tonchovska & Egiashvili, 2014), but the overall concept needs more thought (FIAN, 2012).

The VGTT are meant not only for countries, but also for the private sector (3.3): Businesses are increasingly considering the VGTT as a possible response to complex land-related financial and reputational risks (Myers, 2015). In response, several donors prepared guidance documents for the private sector implementation of the VGGT.

During the World Bank Land and Poverty Conference 2015, a session addressed the problem that these documents are not harmonized, and concluded that more "alignment" is needed. Furthermore, private sector representative indicated that there are few company resources to deal with implementing the VGGT, even if a streamlined guidance document would be available, and called for a certification standard (see Sections 7.4 and 8.4).

Furthermore, implementing the VGTT is an opportunity to *enlarge the scope* to address more coherently not only social aspects of land but also key *environmental concerns*. Respective safeguards would relate especially to biodiversity and land-related carbon emissions, but also to other ecosystem services (Section 7.4).

4.2.2 Principles for Responsible Investment in Agriculture and Food Systems (RAI)

The *Principles for Responsible Investment in Agriculture and Food Systems* (in short: RAI Principles) were developed by the CFS and adopted in October 2014 (CFS, 2014). They are a set of voluntary, non-binding principles and responsibilities for rendering investment in agriculture and food systems more responsible. They relate to public and private investments of both foreign and domestic, of large, medium and small investors along the whole supply chain, from food production via processing to marketing and retail. They were developed to *complement* the VGGT. Civil society stakeholders criticized the RAI Principles as not far-reaching enough, not sufficiently addressing the fundamental role of smallholders and landless in agricultural investment and their affectedness by it, and that ultimately they 'offer little protection against land and resource grabbing' (CSM, 2014).

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[15] In 2013, several governments formed the *Global Donor Working Group on Land* (GDWGL) to foster VGGT implementation, and currently support respective projects in countries such Burkina Faso, Ethiopia, Niger, Senegal, South Sudan, Sierra Leone, and Tanzania (see http://www.donorplatform.org/land-governance/g8-land-partnerships). The GDWGL is facilitated by the secretariat of the Global Donor Platform for Rural Development (GDPRD). For details see http://www.donorplatform.org/land-governance/global-donor-working-group-on-land

However, the RAI Principles do provide a first consensual international definition of sustainable investment in agriculture and in food systems. The principles as well as the sketched out responsibilities for different actors provide an important benchmark for the development of national policies, both in target countries of investments and in source countries. They provide a blueprint for promoting and formalizing responsible investment practices in the private sector.

The development, implementation, monitoring and evaluation of such public and private policies and practices thus are a crucial window of opportunity for promoting at international level a better sustainability governance of land investments and, ultimately, land use (see Section 7.4).

4.3 Urban Policies and Global Land Use

Urbanization is a megatrend: in 2014, 54% of the global population lived in urban areas and in 2050, it is projected that two-thirds of the world's population will be urban, with 95% of the growth taking place in developing countries (UNDESA, 2014). Urban areas account for less than 2% of the Earth's surface, but are expected to increase to 4-5% by 2050 (HBS & IASS, 2015).

However, cities also account for 50% of all waste, generate 60-80% of all GHG and consume 75% of natural resources (UNEP, 2012). Furthermore, cities are linked to rural areas through flows of people (migration, commuting), knowledge, goods (food, energy, etc.) and ecosystem services[16].

The two most important processes addressing cities at UN level are the SDGs, and the HABITAT III conference in 2016. The SDG goal for sustainable cities might serve as a call for action, research and funding and implementation by city authorities.

In parallel, cities and regions (and their national and international networks) also have a growing influence as international players[17]. They are acknowledged as key actors that will need to shape and implement change on the ground. This increasingly raises the question if and how the influence of city authorities within national urban frameworks can be improved and how to achieve coherent integrated planning that does not focus on sectors and promote "siloed thinking".

As the urban-rural linkage receives more attention in preparing for the HABITAT III conference (UN-HABITAT, 2015a+b), it also remains crucial to better define the role of land use within sustainable urbanization in the "New Urban Agenda" that will be agreed at HABITAT III.

Some further results from GLOBALANDS analysis of on urban-rural interlinkages are discussed in Section 8.5.

A specific aspect of urban-rural linkages is food – and even there is no current "window of opportunity" on that issue on the global level, its potential impact on sustainable land use should be considered, and is briefly presented in Box 3.

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[16] For a closer analysis see Eppler, Ulrike; Fritsche, Uwe & Laaks, Sabine (2015): Urban-Rural Linkages and Global Sustainable Land Use. GLOBALANDS Issue Paper by IINAS. Berlin, Darmstadt.

[17] Wunder, Stephanie & Wolff, Franziska (2015): International governance screening of global urban policies and their impacts on sustainable land use. GLOBALANDS Discussion Paper by Ecologic Institute and Oeko-Institut. Berlin.

Box 3: Food and the Cities

The global food system (value chain of production and consumption of food as well as transport, processing etc.) *changed radically* over the last centuries, from subsistence agriculture within and close cities to rural production nowadays, with a growing role of international trade (UNCTAD, 2014).

With urban areas being "hotspots" of sustainability challenges, *urban food* systems (as subsets of the global food system) are of interest, even if urban food production cannot have a major *direct* impact on global land use.

Urban Agriculture (UA) ranges from subsistence production and processing at household level to commercial activities, and typically *complements* rural agriculture. UA is not a new issue: especially in developing countries, it is practiced by 800 million people, mainly for vegetables and dairy.
In industrialized countries, urban infrastructures are typically more evolved and due to limited (and costly) urban land, UA aims for building integration (indoor farms, rooftop gardens etc.).
Many projects focus on hydro- or aquaponic systems which can effectively control in- and outputs. These systems often are capital-intense, but integration in existing buildings may lower the cost.

UA accounts for 5–15% of total agricultural production in developing countries (Zezza & Tasciotti, 2010), which can be translated in a respective reduction of non-urban agricultural land use, though due to expected lower productivity, the net reduction may be smaller than the production share. There is not (yet) any quantification of "modern" UA in industrialized countries, but due to its recent development, the potential is expected to be lower than 5% of overall food production[18].

The results from various projects on UA demonstrated that there are many opportunities in developing countries for the urban poor, contributing to food security and nutrition, and providing additional employment, and income. Yet, there are environmental and health risks of UA, mostly related to developing countries. On the *social* side, the key challenge is insecure land tenure in cities.

Besides security of tenure, land *price* risks are crucial for UA, as this has a large influence on production cost. Also, there is few evidence on employment aspects of "modern" UA which must be seen as a constraint in mainstreaming UA activities, and may imply that its quantitative relevance in high-wage urban areas of industrialized countries will be restricted.

There is clear evidence, though, that urban food systems can have positive impacts on urban biodiversity, social cohesion and cultural integration (BMUB, 2015). The *educational* value of urban food production and its impact on urban diets may be an important opportunity to foster behavioral changes towards less meat consumption and reducing food waste, which would have significant gains in terms of land demand (Hallström, Carlsson-Kanyama & Börjesson, 2015).

Conclusions from the GLOBALANDS analysis of urban food systems are given in Sections 7.6 and 8.5.

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[18] Fritsche, Uwe; Laaks, Sabine & Eppler, Ulrike (2015): Urban Food Systems and Global Sustainable Land Use. GLOBALANDS Issue Paper by IINAS. Darmstadt, Berlin.

4.4 Focus on EU Policies and Sustainable Land Use

While the GLOBALANDS governance screening focused on international policies, there are also EU policies that not only affect EU Member States, but influence land use beyond EU borders. Several EU policies, including biodiversity, climate, energy and soil have, therefore, been included in the governance screening[19].

Although there are no immediate opportunities to influence these policies, they are of high relevance for international land use, and should be considered in the medium-term.

4.4.1 EU Agricultural Policy

The Common Agricultural Policy (CAP) is the EU policy framework under which farmers operate and receive EU funding. It is among the most influential EU policies on land use. Agriculture occupies more than 50% of EU land, and is a main source of land degradation, diffuse water pollution and biodiversity loss in the EU (EEA, 2010; KLU, 2011; Heißenhuber et al., 2015).

The CAP sets out requirements for farming and financial support, environmental and rural development activities as well as controlling EU agricultural markets, and – due to its significant impacts on the environment - many attempts to "green the CAP" were made.

The last reform in 2013 that set the CAP framework from 2014-2020 again tried to put a greater emphasis on the environmental dimension. The new greening measures (e.g., obligatory crop rotation, biodiversity and grassland conservation, GHG reduction,) go in the right direction[20], but seems insufficient to address resource efficiency (EEA, 2015).

More powerful policy interventions are, therefore, needed for the CAP after 2020. While this debate has not yet started, it is useful to begin thinking about the next reform (Buckwell & Baldock, 2014). Discussions about the future of the CAP will likely be based on arguments that were already relevant in past reforms, e.g. the continued lack of justification of payments (public money for public goods), lack of significant environmental improvements and inability of support schemes to restructure and innovate the agricultural sector with decreased dependency on public support.

Agricultural policy will also continue to face the dilemma, that extensification would benefit semi-natural habitats and reduce local pressures on soil and water but increase the area needed for agricultural production (EEA, 2012) – yet, this should see this in the context of the narrowing "yield gap" between conventional and organic agriculture, and needs to "cap" production levels to meet planetary boundaries (Rockström et al., 2009; Heißenhuber, Haber & Krämer, 2015).

A long term transition of the CAP that supports more environmentally friendly farming would also needed to be flanked by measures to promote consumption changes and efficiency gains in the food chain (e.g. dietary changes, lower meat consumption, more effective distribution chains, food waste prevention etc., see EEA, 2015). The fact that the CAP has become increasingly complex and excessive both for farmers and administrations might also lead to increased calls for simplicity that can potentially go along with substantial reforms.

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[19] Wunder, Stephanie et al. (2013): Governance screening of global land use. GLOBALANDS discussion paper by Ecologic Institute & Oeko-Institut. Berlin.

[20] Ex-ante studies indicate a mildly positive effect on the environment, and much will depend on the actual implementation of the measures (EEA, 2015).

4.4.2 EU Soil Policy

EU policies on agriculture and nature protection also contain requirements to protect soils. However, given that these policies have other aims and scopes of action, the EC did not consider those provisions sufficient to ensure an adequate level of protection for all soil in Europe.

In 2006, the EC therefore adopted a Soil Thematic Strategy (COM(2006) 231) with the explicit objective to protect soils across the EU. The Strategy consists of four pillars (awareness raising, research, integration, and legislation), including a legislative proposal for a Soil Framework Directive (COM(2006) 232).

Within this common framework, Member States would be in a position to decide how best to protect their soil and how to use it in a sustainable way within their own territory. The proposed SFD, however, was not adopted, and in April 2014, the EC took the decision to *withdraw the SFD proposal*.

However, the EC still remains committed to the protection of soils as stated e.g., in the 7th Environmental Action Programme (EAP), which was adopted in 2013 and identifies the EU's priority objectives regarding environmental protection for the period up to 2020, including the objective of improved (legal) protection of soils.

The EC acknowledged that after the proposed SFD had been pending for eight years, in its given format it would not be agreed by a qualified majority. By withdrawing it, the Commission aimed to open the way for an alternative initiative.

4.4.3 EU Resource Policy and Land

Within EU resource efficiency policy, land is recognized as a finite resource. The *Roadmap to a Resource Efficient Europe* (EC, 2011) adopted in 2011 sets the EU's longer-term vision, strategy and actions. It proposed a milestone that "*by 2020, EU policies take into account their direct and indirect impact on land use in the EU and globally*", and achieving "*no net land take*" by 2050.

In order to achieve this, the EC announced a "Communication on Land Use" (hereinafter called Land Communication) by 2014. According to Janez Potocnik, the former Environment Commissioner, the Land Communication will take into account targets and milestones contained in the Resource Efficiency Roadmap, the 7th EAP and the Rio+20 follow-up.

It will aim to develop the scientific knowledge base for biomaterials, land use effects and trends, including impacts at global level and effects on trading partners, as well as raise awareness and highlight best practices in Member States.

He also said that it will ensure that the development of EU policy in the domain of land use emphasizes a "*coherent and sustainable approach to land use*".

The Land Communication was supposed to be published in 2014 following a consultation, but then postponed to 2015. According to EC officials, however, the EC decided in February 2015 not to include the Land Communication in its work program for 2015. The remaining relevant items within the work program are:

- A joint technical report on land use together with the EEA to establish a robust set of indicators for land efficiency, land take and land degradation (to be published in the 2nd half of 2015).
- Following the inclusion of a SDG on a "land degradation neutral world", the EC will also look into the question of how to implement such a SDG in the EU.
- During 2015 – which is the International Year of Soil – the EC will discuss with Member States and stakeholders how best to implement the 7th EAP commitments on soil.

4.4.4 EU Bioenergy Policy

The heart of Europe's climate and energy policy is the EU Renewable Energy Directive of 2009 (RED; 2009/28/EC), which sets binding targets for the use of renewables, including bioenergy. The RED as well as the Fuel Quality Directive include sustainability criteria, requiring that all biofuels counting towards the target must reduce GHG emissions. Moreover, biomass feedstocks cannot be derived from land of high biodiversity value, such as natural forests, protected areas and high-biodiverse grassland, and may not be produced from land with high carbon stocks.

These sustainability provisions have been criticized by NGOs and scientific institutions for not addressing indirect land use change (ILUC) and argued that the rising production of food crops for use as biofuels contributes to global food insecurity through rising food and feed prices. In response, the EC proposed stricter rules for biofuels in October 2012 (EC, 2012a), aiming to "cap" the use of biofuels from food-based feedstocks at 5% by 2020 and to increase the use of advanced biofuels from non-edible feedstocks.

Alternative proposals from the European Parliament (EP) and the European Council were made, and after intense negotiations between the EC, the European Council and the EP, a final agreement was reached in April 2015 to introduce a 7% cap, and ILUC reporting obligations– a weak outcome compared to the earlier ambitions.

However, the debate around the sustainability of biofuels in the EU is *not over*: The agreement allows Member States to introduce sub-targets for low-ILUC biofuels. A parallel debate to *extend* the scope of the RED sustainability criteria to solid and gaseous biomass in electricity, heating and cooling resulted in the EC decision to "allow" Member States to do so on their own, i.e., without EU-wide harmonization, until 2020, and to re-consider this if there will be evidence that current sustainability requirements will not suffice, or threaten the internal market (EC, 2014a).

The EU discussion on sustainability of bioenergy and related land use impacts has been extended to the wider *bioeconomy*: In 2012, the EC adopted its strategy *Innovating for Sustainable Growth: A Bioeconomy for Europe* which was meant as a comprehensive approach addressing environmental, energy, food and natural resource challenges that the EU and the world are facing (EC, 2012b).

Bioeconomy encompasses *all* biomass supply and uses, i.e. agriculture, fisheries, forests, the waste sector and concerns food and feed, fiber, and fuels – it is a cross-sectoral concept (Scarlat et al., 2015), representing a policy framework without any direct legal implication. Accordingly, the EC follows-up on its bioeconomy strategy mainly in the form of research (EC, 2014b). Policy proposals[21] aiming at a level playing field between biofuels, bioenergy and biomaterials have not been taken up by the EC.

Meanwhile, an "umbrella" concept for the sustainability of the bioeconomy was proposed with land use issues as core of the criteria and indicators (PBL, 2012; Fritsche & Iriarte, 2014). It needs to be seen how Europe will deal with that in the coming years.

[21] See e.g., Carus et al., 2011; Carus, Dammer & Essel, 2014+2015; Lahl, 2014.

5 A New Kid on the Block: Systemic Indicators

Within the ongoing processes to establish goals, targets and instruments (e.g. SDGs, VGGT, etc.) for - at least some - aspects of sustainable land use, the question of how to *adequately express* sustainable land use in terms of *practical measurements* eligible for policy development becomes relevant:

"Sustainable Development Goals are accompanied by targets and will be further elaborated through indicators focused on measurable outcomes" (UN-OWG 2014).

A GLOBALANDS compilation of land-related sustainability indicators in sustainability policies and certification systems concluded that currently *no existing* set of indicators consistently describes sustainable land use in both the environmental and social domains[22]. With regard to the discussion on land within the SDGs, the large number of suggested indicator creates not only the problem of measuring *many* environmental land characteristics (e.g., biodiversity status, degradation and erosion levels, soil qualities etc.), each on the appropriate scale, but implies also available human capacities to do so, and available budgets to cover respective costs for equipment and staff. In many cases, sound indicators exist, but they are not collected on a systematic basis – particularly in low-income countries. Major gaps exist, particularly for social and environmental metrics (SDSN, 2014).

Yet, the socio-economic aspects of land use *in combination* with environmental ones are fundamental for any sustainable land use SDG target and respective indicators (Niamir-Fuller, 2015). Thus, the challenge is to develop default practice indicators for *integrative* SDGs which are:

- not too many (to avoid proliferation),
- reasonably implementable (to avoid excessive cost), and
- open for improvement (to avoid endless discussions about "completeness").

Discussions during international workshops in which GLOBALANDS participated led to an agreement on land use change, agricultural productivity and soil organic carbon as global-level indicators, and to include *complementary* national and sub-national indicators (EEA, GLTN, GLII & IASS 2015).

5.1 Introducing Systemic Indicators

To be applicable in the context of the SDGs or other international policies, and to be negotiable in the respective policies, it seems reasonable to consider a more *compact* and *inclusive* approach to indicators for sustainable land use than the long lists that current proposals involve. Following-up on this, GLOBALANDS developed so-called *systemic* indicators approach[23]. The leading thought for this is to distinguish between the one view on ***land*** use, and the other one on land ***use***, and to combine both in a sequence to derive the aggregated proxy.

GLOBALANDS carried out an exhaustive literature review and discussed the definition of qualifying parameters to *define sustainable practices* in several international expert workshops, which resulted in referring to sustainable land management (SLM) practices identified and characterized by the World Overview of Conservation Approaches and Technologies (WOCAT)[24].

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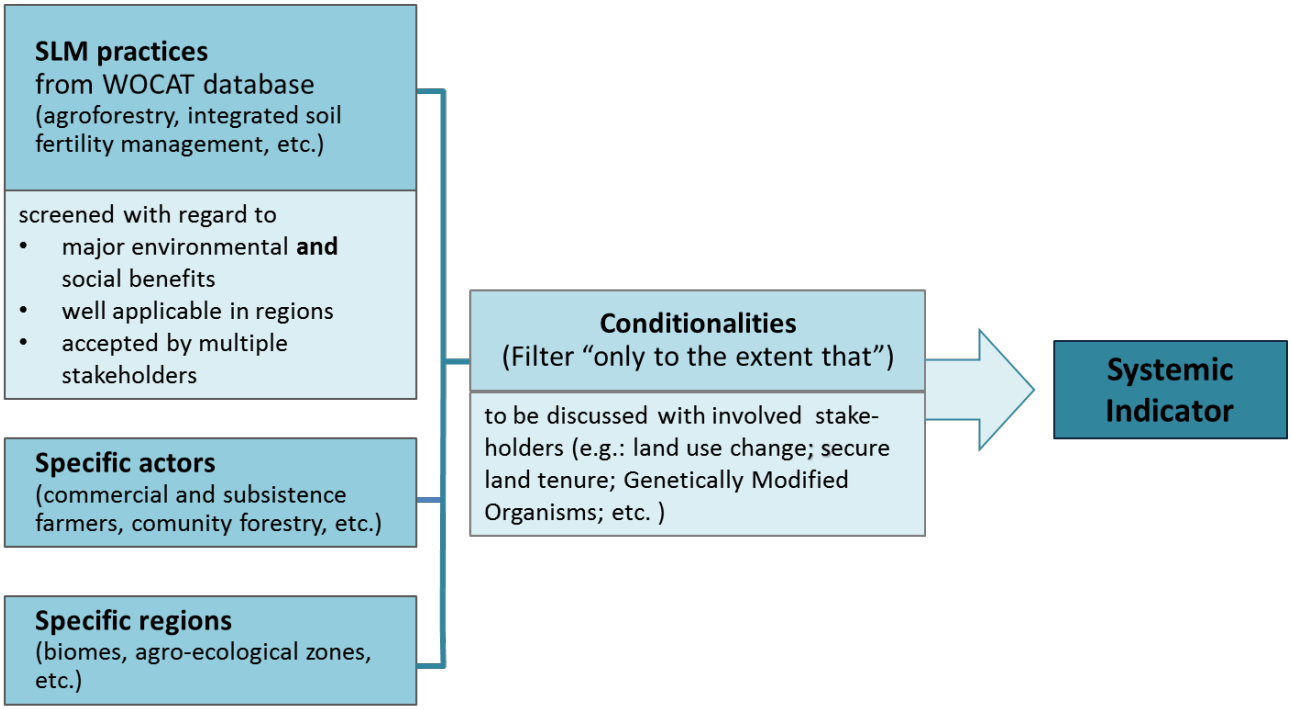
[22] Eppler, Ulrike & Iriarte, Leire (2013): Sustainable Land Use Indicators - A Compilation for WP3. GLOBALANDS Working Paper by IINAS. Berlin, Madrid.

[23] See for details: Fritsche, Uwe; Eppler, Ulrike & Iriarte, Leire (2015): Global Sustainable Land Use: Concept and Examples for Systemic Indicators. GLOBALANDS Working Paper by IINAS. Darmstadt, Berlin, Madrid.

[24] WOCAT was launched in 1992, more information: https://www.wocat.net/en/about-wocat.html

Figure 1: Details on the screening of land use practices in the systemic indicator approach



Source: Fritsche, Eppler & Iriarte, 2015

The screening requires a (regionalized) participatory process with all relevant stakeholders. GLOBALANDS developed examples for systemic indicators in agriculture and forestry which especially include *small-scale land users* and take into account *traditional knowledge* (Rahmanian, 2014).

5.2 Implementing Systemic Indicators

The new approach of *systemic* indicators for sustainable land use is *complementary* to existing, biophysical or socially explicit approaches. The discussions around indicators for the SDGs opens the window to implement systemic indicators as part of the SDG *indicator framework* (Section 4.1.1). In this context, the systemic indicator concept should be disseminated further to international platforms and discussed with interested countries and stakeholders participating in the SDG and post-2015 development agenda process.

The "real" application of the SI approach would then take place when SDGs are i*mplemented on regional and national scales*. For this, participatory processes will be required to allow for adequate screening and agreement on safeguards. Other opportunities can be seen in the ongoing discussions and procedures around national sustainability and resource efficiency plans in which land plays a major role. Furthermore, the *safeguarding* approach for sustainable land use in existing UN conventions – especially CBD and UNFCCC – could make use of systemic indicators, e.g. in REDD+ schemes (Sections 4.1.4 and 7.3.3).

A final possibility may arise with the implementation of the VGGTs which requires inclusive processes on the national level (see Sections 4.1.5 and 7.4).

All these possible activities are meant to increase credibility and endorsement of the systemic indicator approach, and should be open to further development and refinement.

6 Pathways towards Global Sustainable Land Use

The core question of GLOBALANDS was whether an international "standard" for global sustainable land use – potentially linked to a certification scheme – would provide an adequate answer to the sustainability challenges of global land use (see Section 1). In the course of the project, the view broadened towards a wider set of options: instead of a single approach, a range of different *pathways* was identified to strengthen the international governance of sustainable land use in the future. They can be categorized as follows:

1. Agenda-setting
2. Promoting institutional co-ordination and actor co-operation
3. Mainstreaming sustainable land use concerns into existing policies and institutions
4. Creating new policies and institutions.

Figure 2 presents the pathways in their possible interaction, and in the order of increasing "intensity" of political intervention (from top to bottom).

Figure 2: Pathways towards global sustainable land use

Source: own compilation

These pathways can overlap and most pathways implicitly involve agenda-setting (Pathway 1). For instance, integrating sustainable land use concerns into pre-existing regulations (Pathway 3) can result in creating a new, self-standing standard (Pathway 4). The four pathways can be pursued by governments as well as by non-governmental actors and by public-private networks, both voluntary or mandatory, legally non-binding or binding.

In the following, the pathways are presented in some detail, referring to existing cases and highlighting policy options where no empirical examples exist.

6.1 Agenda-setting

Among the four pathways, agenda-setting is the one with the lowest intensity of intervention. However, it is not necessarily a "soft" option, in particular when it comes to issues that are not yet (properly) recognised by policy makers. Agenda-setting is a process that takes place both among governments, private actors (industry, civil society) and in multi-stakeholder networks. In public policy (and in particular in international policy-making), the possibility to influence agendas is more formalized than in the development of private standards.

As there is no common understanding of what defines unsustainable land use, agenda setting is a *first and basic pathway* in promoting more sustainable land use at international level. Setting this agenda needs also to address the blind spots (see Box 3). Furthermore, agenda-setting will be key to forward the longer-term discussion on a legally binding instrument on global sustainable land use (Sections 7.1 and 8.4).

6.2 Promoting Institutional Co-ordination and Actor Cooperation

The second pathway to improve international governance with regard to sustainable land use is to promote governance and actor linkages, i.e. improving co-ordination of policies and institutions and co-operation between relevant actors. The aim is to create awareness of conflicts and synergies, to promote learning, reduce duplication of work and increase coherence between rules and activities.

Institutional co-ordination between two or more international institutions (e.g., treaties) and their bodies (e.g., treaty secretariats) is advisable when one institution affects the effectiveness of the other(s). In the case of land use there is no single "source institution" that comprehensively governs sustainable land use and whose coherence with other treaties would need addressing.

However, there are several (voluntary and non-voluntary) policies – e.g., CBD, UNCCD, VGGT – that govern *individual aspects* of sustainable land use and whose greater coherence is needed. An issue to be taken into account with institutional co-ordination is that the membership of conventions concerned may not be identical. At present, institutional co-ordination exist between multilateral environmental agreements, e.g., the Rio Conventions. However, co-ordination so far does not substantially address sustainable land-use[25], so that co-ordination could certainly be increased.[26].

Actor co-operation can involve both private and public actors (scientists, business associations, civil society groups, international organizations etc.), and may consist of information exchange, joint problem analysis and strategy development, co-ordination of activities, and sharing of resources. Platforms for actor-coordination include multi-stakeholder conferences and initiatives, roundtables, expert panels, committees etc. which can be more or less formal, inclusive and long-term, building the basis of transnational policy networks (Beisheim & Liese, 2014; Pattberg, 2005)[27].

There seems to be not yet any network comprehensive in terms of issue coverage and membership, implying that no network has the legitimacy to tackle sustainable land use in its entirety.

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[25] An important exception is the attempt of the Global Soil Week 2015 to bring together CBD's IPBES, the UNCCD's SPI and the GSP's ITPS - which all work on land indicators – in two joint sessions.

[26] The Rio Convention's Joint Liaison Group (founded in 2001), for instance, has not yet adopted a joint work program, though land plays a role in the work on indicators agreed by Group in 2014 (see footnote 25).

[27] Existing cases of actor co-operation with relevance to sustainable land use include, among others, the Global Soil Partnership (GSP), International Land Coalition (ILC), Global Donor Platform for Rural Development Working Group on Land (GDPWGL), Global Bioenergy Partnership (GBEP), Ethical Tea Partnership (ETP), Consortium of International Agricultural Research Centers (CGIAR), UNEP's International Resource Panel (UNEP-IRP), the private sector's International Agri-Food Network (IAFN), and the Committee on World Food Security (CFS) with its NGO Advisory Group.

6.3 Mainstreaming Sustainable Land Use Concerns into Existing Policies and Institutions

As stated above, there is no single treaty mandated with sustainable land use - rather, there is a fragmented landscape of policies and institutions that promote *individual* aspects of sustainable land use. In addition, there are numerous standards that have the potential to positively or negatively affect the sustainability of land use. Mainstreaming (i.e., better integrating) sustainable land use concerns into these latter-mentioned policies and institutions is a further pathway to improve the governance of sustainable land use, and can be differentiated in two strategies:

- The *pull* strategy of mainstreaming (here referred to as *safeguarding*) is the consideration of sustainable land use concerns within existing policies and institutions that have the potential to *negatively* affect the sustainability of land use. Examples are the RAI Principles (Section 4.1.6) which were developed to safeguard against harms resulting from large-scale land acquisitions ('land grabbing'). An example of potentially harmful policies is the REDD+ scheme under the UNFCCC (Section 4.1.4) which might set incentives for replacing natural forests by plantations. The UNFCCC's Cancun Agreements delineate a set of safeguards that national-level REDD+ initiatives should consider[28], but this needs strengthening (Section 7.3.3). With regard to lending policies, the "Environmental and Social Framework" (WB, 2014) are the sustainability safeguards within the World Bank's project lending policy; sustainable land use concerns need to be strengthened within this Framework (Section 7.5)[29]. To date, trade and investment policies have received only scant attention when it comes to safeguarding sustainable land use (see Box 3) so that these policies need more attention (Section 7.6).
- The *push* strategy of mainstreaming aims at integrating sustainable land use provisions into existing standards which have the potential to *positively* affect sustainable land use. These provide anchoring points to better incorporate (additional, more specific etc.) aspects of sustainable land use. One example is the process to establish SDGs, another is the CBD which, with regard to sustainable land use, focuses on the conservation and sustainable use of (terrestrial) biodiversity (Section 7.3.2). Similarly, the VGGT have a high relevance for sustainable land use, and are also relevant indirectly to other sustainable land use aspects such as environmental sustainability and the non-degrading use of natural resources. Mainstreaming sustainable land use into the VGGTs – or even into the guidelines for their implementation and monitoring – implies that such other aspects would be strengthened (Section 7.4).

6.4 Creating New Policies and Institutions

A fourth pathway of rendering the international governance of land use more sustainable is to create new standards explicitly aimed at promoting sustainable land use (beyond integrating sustainable land use concerns into pre-existing polities and institutions). The aim is to create a central authority either for policy development or policy preparation (at the science-policy interface), with sufficient political clout to assert itself.

The *status quo* is that there are some new elements in the fragmented institutional landscape on (sustainable) land use, e.g. the RAI Principles, the VGGT, and the SDGs (especially SDG-15). These elements are partly a result from mainstreaming efforts (Pathway 3).

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[28] Appendix I to Decision 1/CP.16, UNFCCC/CP/2010/7/Add.1. http://cancun.unfccc.int/

[29] See for details: Kaphengst, Timo (2015): The World Bank Safeguard Policies – Chance or risk for global sustainable land use? GLOBALANDS Discussion Paper by Ecologic Institute. Berlin.

7 Recommendations for German Policy

A key finding of GLOBALANDS is that environmental and social issues of land use should not be regarded as competing but rather as mutually reinforcing dimensions of sustainable land use, i.e. a focus of future policies should be given for *integration* of theses "pillars", and collaboration between the respective bodies and organizations.

The recommendations for German policy derived by GLOBALANDS consider the identified *windows of opportunity* (Section 4), and combined them with the policy pathway matrix for international sustainable land use presented in Section 6. The following recommendations for German policy addresses the full spectrum of the matrix (see Figure 2), and are meant to be *mutually supportive*.

For example, the VGGT implementation (see Section 7.4) will help operationalizing a possible land certification standard (Section 7.1), and a possible Land Protocol would provide the normative base for a private sector certification standard. Similarly, *mainstreaming* sustainable land into the existing Rio Conventions would improve reporting, which may facilitate creating a *Commission on Sustainable Land Use* which in turn could help improving institutional coordination and cooperation (see 7.3).

Thus, the GLOBALANDS recommendations for German policy should be seen as an *integrated proposal*, and not as a shopping list to draw from only selectively.

7.1 A Global Land Convention, a Protocol or a Standard?

Given the limitations of voluntary approaches (VGGT, RAI...) and the yet unclear implementation of the land-related SDGs by countries, Germany should continue to explore *additional* options for a medium- to longer-term *global and binding instrument* for sustainable land use.

The GLOBALANDS discussions with stakeholders indicated that e.g. a new UN *convention on land/soil* would take years to conceptualize und discuss, with an uncertain perspective for agreement.

A possibly less challenging Land (or Soil) Protocol *under the CBD*, as discussed in a GLOBALANDS paper[30], might be the base to start respective agenda-setting and research, and Germany should consider this as a relevant issue for further work, taking into account near-term options such a standard for the private sector to certify sustainable land use (Section 7.5).

A "global standard" for sustainable land use should thus be seen as an *evolving issue*, and German contributions to the evolution should be part of a broader international process in which research and agenda-setting would be the key near-term activity need German support (Section 8.4).

7.2 Maintain Land in the SDGs and Improve Indicators, and Monitoring

The process of the SDG development is an opportunity for both integrating and specifying sustainable land use in international policies, even though the current draft of SDGs does not envisage an own "land goal" (see Section 4.1.1). Yet, the proposed SDG target 15.3 to achieve a *land-degradation neutral* (LDN) world should be seen as an important step. Therefore, the LDN target should be maintained, and Germany should use its influence during the negotiations in that regard.

Concerning indictors for the SDGs, Germany should follow-up on opportunities to make use of the *systemic indicator* approach (Section 5.2), and also support its further development (Section 8.2).

In parallel to negotiating the SDGs there is a need to define a mechanism for *monitoring and accountability* of SDG implementation. Some proposals have been made (Beisheim, 2015; Beisheim, Chen &

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[30] Wolff, Franziska & Kaphengst, Timo (2015): Global sustainable land use: Exploring the possibility of strengthening sustainable land use within the Convention on Biological Diversity. GLOBALANDS Discussion Paper by Oeko-Institut and Ecologic Institute. Berlin.

Pintér, 2015) but need further discussion, especially with CSO participants. Germany should continue to support respective activities, both regarding dialogue, and research (see Section 8.3).

With regard to its *national policies* on sustainable land use, it is recommended that Germany

- implements the SDGs in a *participatory* and comprehensive way, especially regarding land use, as part of updating its national sustainability strategy, and explicitly addresses tradeoffs between the SDGs to prioritize policies[31];
- develops improved national and sub-national *indicators* on sustainable land use, and considers including systemic indicators in that;
- extends the current resource program (ProgRess) to also cover land, and soils;
- continues supporting the Land Matrix as tool for transparency in (international) land transactions.

7.3 UN Rio Conventions

7.3.1 UNCCD: Scope and Indicators

Due to the land- and soil-related international mandate, the UNCCD remains – disregarding its structural shortcomings (see Section 3.5.2) an important international convention. In the ongoing processes within the UNCCD Germany should strengthen those activities which contribute to the international discourse on soil protection, especially the operationalization of the *LDN target*, even if Germany is represented only indirectly through the EU in the IWG.

Furthermore, the development of indicators for land and soils for the SDGS should make use of the practical experiences from the UNCCD monitoring, and should *seek synergies* in the *joint communication* aiming at implementation of strong land and soil targets, and respective indicators. In that, Germany should especially support the newly founded SPI and help providing funds for *more collaborative activities with the other conventions* (CBS's IPBES, see below), and the GSP's ITPS. The very first steps of collaboration between these bodies are taken (see footnote 25), but given the institutional inertia, Germany should push for further steps.

In the medium- to longer-term, Germany can be a relevant actor in developing alternative international governance options for land and soil protection, both within the UNCCD (e.g., a new Annex or a Protocol) and in the broader arena (see Section above, and 8.4). It will be decisive to have (legal) requirements *beyond* national action plans, including e.g. binding obligations for soil rehabilitation, to avoid further degradation, and global specifications for all soils – not only for drylands as now.

7.3.2 CBD: Strengthening Implementation and Integration

Within the Rio Conventions, the CBD could play a more important role in the future – it provides an opportunity to address sustainable land use in an integrated way, but needs more support in achieving practical relevance. With the Ecosystem Approach it embraces integrated protection of biodiversity, and sustainable land management is increasingly addressed in CBD programs and initiatives.

Encouragingly, work of CBD's IPBES on soils will support the UNCCD's SPI considerations, and the global discussion on land- and soil-related indicators already benefitted from working-level collaboration between IPBES, SPI and ITPS (GLII & IASS, 2015). This should be *extended* through German-supported initiatives for future collaboration on the SDG indicator implementation, and practical exchanges concerning land and soil related information.

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[31] In that, recommendations given by RNE (Bachmann & Kraemer, 2015) should be considered which also underline the need for dialogue between the various levels of governance (federal, state, regional and cities/villages) and civil society in implementing the SDGs in Germany, and also ask for an active German role towards implementation by the EU.

Beyond indicator work, it is necessary to promote the integration of sustainable land use aspects within the CBD. This may include a range of activities (of varying levels of ambition) that the German government could support. In the medium- to longer-term, Germany should explore the option to develop a "Land Protocol" under the CBD as a *binding* international and integrative policy on sustainable land use[32] (see Chapter 8.4).

Finally, the proposal for a "Global Commission on Sustainable Land Use" (WBGU, 2011) should be considered as a potential *inter-conventional body* reporting on global land issues, similarly to IPBES on biodiversity, and the IPCC on climate change[33].

7.3.3 UNFCCC: Sustainable Land Use in Global Climate Policy

With the COP21 in December 2015 in Paris, the UNFCCC will be the global focus after the SDG adoption in September. Several issues relating climate policies to sustainable land use *await action*:

- Domestic activities on land use, land use change and forestry (LULUCF): The design of national GHG reporting with regard to LULUCF activities should consider sustainable land use effects, i.e. environmental (beyond carbon) and social effects. Here, Germany could become a *forerunner by creating exemplary country-level reports*, and support respective capacity building;
- REDD+: in the finalization of the scheme, drivers of deforestation will need to be taken into account as guidelines for developing of national REDD+ policies and projects, and *robust safeguards* need to be developed for these– Germany should engage in defining such safeguards together with other prospective REDD+ donors, and supporting their implementation;
- Green Climate Fund (GCF): depending on its financial fitting-out, the GCF will help disseminate climate-friendly technologies in developing countries; land use implications – especially for biomass-related projects – will have to be considered with regard to non-carbon environmental and social aspects, and Germany should become active in suggesting respective safeguards, taking into account the ones to be developed for REDD+, and project finance (Section 7.5);
- Agriculture: within the deliberations of the UNFCCC's technical body (SBSTA) on agriculture, the debate should turn to climate-mitigating effects of sustainable agriculture, and respective sustainable land use practices. Here, Germany should support exploring to what extent the *systemic indicator approach* can be useful.

7.4 VGGT and RAI: Implementation and Monitoring

As discussed, the VGGT and RAI constitute a *framework* for good governance of land-related investments, but they are not legally binding – they need implementation through interested parties. Yet, both give room to integrate social *and* environmental concerns during national and regional implementation.

Here, Germany should continue its support for the VGGT and RAI through the Global Donor Working Group on Land (which it currently chairs), and should consider funding *explicit integration* of social and environmental issues in country implementation cases.

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[32] Wolff, Franziska & Kaphengst, Timo (2015): Global sustainable land use: Exploring the possibility of strengthening sustainable land use within the Convention on Biological Diversity. GLOBALANDS Discussion Paper by Oeko-Institut and Ecologic Institute. Berlin.

[33] This would not be an alternative to the "Global Land Outlook" to be prepared by UNCCD as a flagship report aiming at analysis and assessment of policies, trends and development perspectives of land degradation and sustainable land management (http://nr.iisd.org/news/global-land-outlook-discussed-on-sidelines-of-unccd-3rd-scientific-conference/).

7.5 Standards for Project Finance

In the ongoing discussion about the new World Bank *Environmental and Social Framework* (WB, 2014) which will provide safeguards for project financing, Germany should consider the results of respective GLOBALANDS analysis[34] and follow-up on the re-drafting of the framework (Lindsay, 2015) to *further land-related safeguards*, and consistency with the VGGT. Germany's representation on the boards of multilateral finance institutions should be used to call for *stringent project-related safeguards* for sustainable land use, and their implementation. As an important step in this, Germany should *showcase that KfW* is implementing respective safeguards.

In addition, Germany should react to the call of private sector representatives during the 2015 World Bank Land and Poverty Conference as regards a "Sustainable Land Roundtable" (Myers, 2015).

This proposed initiative was received by the World Bank and the Global Donor Working Group on Land representatives with enthusiasm, and the German Executive Director in the World Bank Board, as well as BMZ (through GIZ and KfW) should consider follow-up activities (see Section 8.4).

7.6 Moving Beyond Blind Spots

As indicated before, there are important blind spots in the current global governance of land (Box 3) of which at least the most prominent ones should be taken up by German international policies.

One element in that is the role of *global trade*. The ongoing TTIP negotiations should be used by Germany to underline the need for environmental and social safeguards.

Second, the issue of *urban-rural linkages* (Section 4.3) should receive more attention. GLOBALANDS highly welcomes that Germany recently decided to establish an inter-ministerial high-level working group on "sustainable urban development in national and international perspectives" led by BMUB (Bundesregierung, 2015).

Based on this it is recommended to make not only cities an issue of implementing the SDG-11 (see Section 7.2) but to *fully address* the linkages between sustainable urban *and rural* development, both in Germany, and internationally. This could be a significant contribution to the upcoming HABITAT-III conference to be held in October, 2016.

As part of the urban-rural linkages, the issue of *food* should be taken up - beyond the current focus on food security. It should be brought to the international floor with regard to opportunities for sustainable land use through healthier and better diets (including promotion of diets with increased fruits and vegetables, animal products only within healthy levels), less food waste and opportunities for improved urban agriculture (Section 8.5).

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[34] See Kaphengst, Timo (2015): The World Bank Safeguard Policies – Chance or risk for global sustainable land use? GLOBALANDS Discussion Paper by Ecologic Institute. Berlin.

8 Open Questions and Further Research

In addition to the recommendation for German policies presented above, GLOBALANDS elaborated on key open questions which should be addressed in future research.

8.1 Mainstreaming Sustainable Land Use in Global Governance

The GLOBALANDS concept to mainstream and "safeguard" sustainable land use in *existing* global governance schemes – especially the CBD (Section 7.3), the UNFCCC (Section 7.4) and project-based financing (Section 7.6) – is worked out only to the extent that the *basic logic* and some *immediate* action items were highlighted.

Yet, the further developments in these processes – from the SDG adoption in September 2015, the climate COP21 in December 2015 to the HABITAT III conference in October 2016 and CBD COP13 in November 2016 – will bring further information on opportunities to mainstream sustainable land use in the emerging global governance system.

The broad "non-siloed" approach to identify linkages and relevant options for interactions and the *transdisciplinary inclusion* of international stakeholders applied by GLOBALANDS should, therefore, be continued in follow-up activities.

8.2 Indicators for Sustainable Land Use

The discussion of the possibilities to implement systemic indicators (Sections 5.6) identified several opportunities to further this approach which should be considered in future research, especially regarding indicator processes during the regional or national implementation of the SDGs (Section 7.2) which needs scientific support.

In that, the inclusion of systemic indicators in the "safeguarding" (see above) would be an important element, and should receive respective attention.

8.3 Monitoring of Global Land Use Governance

As briefly discussed in Section 7.5, the VGTT and RAI will need participatory approaches to monitor their implementation.

This is a research issue which should be seen in context to the ongoing conceptual work of the CFS, and which could clearly benefit from the active German role in the Global Donor Working Group on Land together with its initial activities carried out by IASS and DIM.

8.4 Moving towards a Global Land Use Standard

The recent private sector proposal to develop a *Certification Standard for Good Land Governance* by a prospective *Sustainable Land Roundtable* (Myers, 2015) should be considered as an *option* to strengthen sustainable land use in the private sector, and respective research and steps towards practical implementation should be included in near-term research activities. In this, a close collaboration with the World Bank can be envisioned.

In *parallel*, though, the medium- to longer-term prospects of a *binding* global standard for sustainable land use, e.g., in form of a protocol (to the CBD)[35], are worth to explore more. Here, collaboration with the UNCCD will be essential, as well as respective initiatives on the EU level.

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[35] Wolff, Franziska & Kaphengst, Timo (2015): Global sustainable land use: Exploring the possibility of strengthening sustainable land use within the Convention on Biological Diversity. GLOBALANDS Discussion Paper by Oeko-Institut and Ecologic Institute. Berlin.

Furthermore, the Global Soil Week format could be a platform for the broader inclusion of stakeholders for both the near- and the longer-term activities.

In these activities it would be worth researching to what extend sustainable land use could – especially in conjunction with soils – become a "*global commons*". Land use is often considered a non-transboundary issue, but there are good reasons to address sustainable land use globally[36].

8.5 A New Focus on Urban-Rural Linkages

The brief discussion of urbanization and rural development (Section 4.3) indicated that the functional *and* spatial decoupling of cities and their "hinterlands" is a challenge for governance. Some of the literature argues for a global approach, as local and regional governance is not able to deal with international competition and increasing *translocal* nature of urban-rural links. To further conceptualize, discuss and implement such an approach in an inclusive way is a key issue for future research. The *Global Landscapes Forum* could be a platform to further this (GLF, 2014a+b), and exchanges with the US and especially Africa and Asia should be considered. The upcoming HABITAT III conference could be an opportunity to share first thoughts.

As discussed in a GLOBALANDS paper[37], local and country case studies as well as recent literature give some evidence of the sustainable potential of *urban food systems* (see Box 3), but the complexity of influencing factors makes it difficult to give reliable figures on the overall urban agriculture potential (Jennings et al., 2015), and a systematic evaluation of its land use implications is *yet missing*. Thus, research is required on the capacity of urban agriculture and its economic and social co-benefits.

Other options should be considered as well, e.g. so-called Metropolitan Food Clusters which are high-tech concepts inclusively linking rural farms to rural cities and larger urban centers, aiming at diversity and efficiency. These options need not be seen as alternatives to UA, but may well be complementary and could help transform the – dominating - industrial agricultural system.

Urban food systems are becoming a key issue in the process towards the HABITAT III conference, as recent papers indicate (UN-HABITAT, 2015a+b).

Thus, it can be expected that more research results, evidence from UA practitioners, and related actors will become available in the near future. This should be followed-up closely.

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[36] A key international aspect of domestic land use, e.g. agriculture and forestry, is that is causes roughly 25% of all anthropogenic GHG emissions – mainly from deforestation and agricultural emissions from livestock and soil management, and these emissions increased by 12 % between 1970 and 2010 (IPCC, 2014a). Land use is thus linked to destabilizing the climate, a global common. Similarly, degrading biodiversity through unsustainable land use has been classified a "common concern of humankind" within the CBD, highlighting its international dimension. Many species threatened by human impacts and land degradations migrate across country borders (e.g. birds and mammals), which requires transnational efforts in protecting them. International rulemaking can strengthen domestic land use regimes and foster learning processes with positive effects on sustainable development both nationally, and internationally.

[37] See Fritsche, Uwe; Laaks, Sabine & Eppler, Ulrike (2015): Urban Food Systems and Global Sustainable Land Use. GLOBALANDS Issue Paper by IINAS. Darmstadt, Berlin.

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