GOVERNING MULTIFUNCTIONAL LANDSCAPES

Framework Landscape Approach in Displacement Settings

Review and concept

Authors:
J. Schure, J. Gambo, P. Sola, A. Awono, J. Buyinza, A. Ndzodo

v. 14 September 2022

Framework Landscape Approach in Displacement Settings: Review and Concept Schure J, Gambo J, Sola P, Awono A, Buyinza J., Ndzodo, A. 2022. Framework landscape approach in displacement settings review and concept. CIFOR-ICRAF: Bogor, Indonesia; Nairobi.

CIFOR
Jl. CIFOR,
Situ Gede Bogor Barat 16115
Indonesia
T +62 (251) 8622-622
F +62 (251) 8622-100
E cifor@cgiar.org

ICRAF
United Nations Avenue,
Gigiri PO Box 30677,
Nairobi, 00100
Kenya
T +254 20 7224000
F +254-20- 7224001
E worldagroforestry@cgiar.org

cifor-icraf.org

Introduction

Targeting sustainable development and resilience at the landscape level is increasingly recognized as a viable way to overcome sectoral gaps and find solutions through dialogue with actors at multiple levels. The potential of landscape approaches to address competing claims from a myriad of actors, seems particularly relevant in refugee-hosting landscapes. This working document presents results of a review of landscape approaches in displacement settings. A concept framework will guide subsequent steps of developing *Guidelines for a Landscape Approach in Displacement Settings* (GLADS) through field work and consultation.

Background

Refugee influxes and their dependence on natural resources for construction materials, fuelwood and livelihood activities frequently exceed the carrying capacity of the natural ecosystem. This can lead to forest, land and soil degradation, and biodiversity losses, which can cause tensions with host communities. With refugees often staying for long periods, long-term support to livelihoods for both refugees and host communities has increasingly been considered critical during humanitarian interventions.

GLADS is a European Union-funded initiative, led by CIFOR-ICRAF in partnership with key stakeholders, to develop guidelines on implementing an integrated landscape approach in displacement settings. These guidelines will assist humanitarian actors and local stakeholders in targeting landscape-level planning, implementation and rehabilitation that contribute to livelihood resilience of refugees and host communities. These guidelines will be based on the review of available tools, case studies of three selected refugee-hosting landscapes and co-design with key stakeholders at global, national and landscape levels.

Methodology review

The review by the GLADS team between September 2021 and January 2022 covered general literature on the topic, both globally and in sub-Saharan African countries, as well as tools published in the past two decades (2000–2021). We applied a structured search approach to the review work with clearly predetermined search strings (see Table 1.1), including the following:

1. Literature review on application of landscape approach to date and applicability to displacement settings**.** This review targeted historical and current accounts on how the biophysical, socioeconomic and governance contexts have been considered in landscape-level management and displacement settings. We collected relevant literature from 2000 onwards (and even further back when deemed relevant) via scientific databases of ISI Web of Sciences (papers), Google Scholar (books, reports) and unpublished reports.

2. Review of available tools and policies addressing aspects of landscape (biophysical/environmental, socioeconomic, governance/institutional) in displacement settings**.** We collected relevant tools, guidelines and policies from 2000 onwards (and even further back when relevant) online and through consultation with key partners.

3. Review of documentation on the selected refugee hosting areas in Cameroon (East region near Garoua Boulaï), Kenya (Kakuma camp and Kalobeyei Integrated Settlement in Turkana County) and Uganda (Rhino Refugee Camp Settlement in Madi-Okollo district, formerly part of Arua district). This review identified available information on consideration of landscapes in these displacement settings (as well as what was lacking). Using online searches and local partners, we collected as much relevant material available as possible on potentially affected landscapes.

Team members stored 195 references (135 English and 60 French) after a quick scan on relevance to the research topic. Both references and files were stored in Mendeley for content analysis following the research themes.

The review focused on sub-Saharan Africa because of the exponential increase in the number of refugees and internally displaced persons in the continent over the past few decades. A few other case study countries were included when they offered relevant experiences. We gave special attention to the selected case study countries: Cameroon, Kenya and Uganda, which explains the relatively high number of publications related to these countries. Other African countries that appeared more frequently in review because of their experiences with hosting refugees are Rwanda, Tanzania, South-Sudan and Ethiopia. The division of literature reviewed per country is depicted in Figure 1.1.

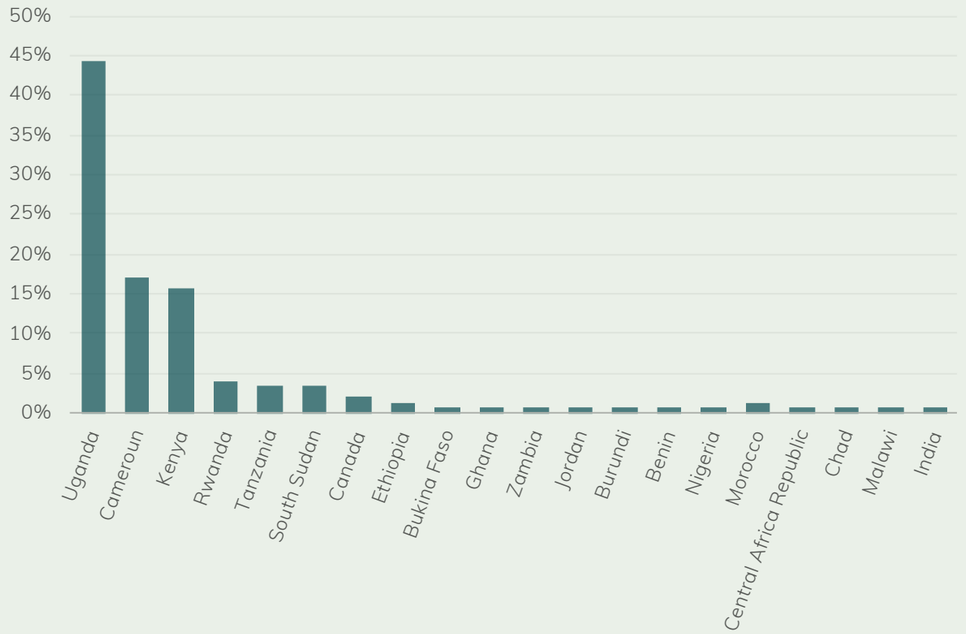

Figure 1.1. Geographical focus of landscape approach in displacement settings (percentage of publications from review per country)

Table 1.1. Search strings applied by GLADS review team

Key topics	Search string
Landscape approach [Biophysical/environmental context, social, economic, institutional/governance] in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya, Uganda)	[Landscape*] AND [Approach*] AND [refugee* OR displace* OR IDP OR "Internally displaced"] [Landscape*] AND [approach*] OR socio OR social OR econ* OR institute* OR gov*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Environmental management [Biophysical/environmental context, social, economic, institutional/governance] in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda)	[Environment*] AND [manage*] AND [refugees* OR displace* OR IDP OR "Internally displaced"]-Not much of literature [Environment*] AND [manage*] OR socio OR social OR econ* OR institute* OR gov*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Environmental and social impact in displacement settings [refugees, Internally Displaced Persons] and host communities (in Africa/SSA/Kenya/Uganda/Cameroon)	[Environment*] AND [socio*] AND [impact*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Landscape/environmental guidelines/safeguards in displacement settings [IDPs, refugees] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Landscape* OR Environment*] AND [guidelines* OR Safeguard*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Landscape/environmental governance/policy in displacement settlements/IDPS/Refugees (in Africa/SSA/Kenya/Cameroon)	[Landscape* OR environment*] AND [govern* OR policy*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Forest and woodlands management/governance in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Forest* OR Woodlands*] AND [Manage* OR govern*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Methodologies/methods/tools/practices/procedures of/for managing landscapes/environment/forests in displacement settings/refugees/IDPs (in Africa/SSA/Kenya/Uganda/Cameroon)	[Methodology* OR Method* OR Tools OR practices OR procedures] AND [Manage* Landscapes*OR forest* OR Environment] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Housing/shelter/construction in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Housing* OR shelter* OR construction*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Agriculture and livelihoods in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Agriculture* OR livelihoods*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Water/Sanitation/waste management in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	Water* OR Sanitation* OR wastes*] AND [Manage*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Landscape/environmental protection in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Landscape OR Environment*] AND [protect*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Environment/NRM awareness/training/education/capacity building in displacement setting**s** [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Environment* OR NRM*] AND [aware* OR Train* OR Capacity*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Energy/bioenergy/woodfuel in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Energy* OR Bioenergy* OR Renewable* OR woodfuel*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]
Landscape/land use/landcover planning in displacement settings [refugees, IDPs] (in Africa/SSA/Kenya/Uganda/Cameroon)	[Landscape* OR Landuse* OR Landcover*] AND [plan*] AND [refugee* OR displace* OR IDP OR "Internally displaced"]

Landscape approaches defined

Landscapes are spatial human-ecological systems that deliver a wide range of functions valued by humans for economic, sociocultural and environmental reasons. The landscape approach engages multiple stakeholders to reconcile societal and environmental objectives, and to identify and manage trade-offs and potential synergies for more sustainable and equitable land and natural resources management at a landscape scale (Ros-Tonen et al. 2018). Sayer and colleagues (2013) state that "Landscape approaches seek to provide tools and concepts for allocating and managing land to achieve social, economic and environmental objectives in areas where agriculture, mining and other productive uses compete with environmental and biodiversity goals". Their 'ten principles' to support implementation emphasize inclusion of adaptive management, stakeholder involvement and multiple objectives. Institutional and governance concerns are the major constraints identified in dealing with complex nature of landscape processes (Sayer et al. 2013). Freeman and colleagues (2015) distinguish three different landscape approaches: 1) landscape scale, 2) sectoral landscape and 3) integrated landscape. Whereas the first takes the landscape as the lens of operation, the second focuses on one (or a few) primary goals. The third – the integrated landscape approach – focuses on five main concepts:

- multifunctionality and recognizing and addressing both synergies and trade-offs
- interdisciplinarity and transdisciplinary approaches in research of planning/ management, involving engagement with stakeholders inside and outside the landscape
- participation, including consultation and engagement at various stages in planning and management
- complexity of the social-ecological systems and range of different processes at various scales that landscapes entail
- sustainability, including social, environmental and economic dimensions, to be agreed upon in the specific context.

The three types of landscape approaches and five main aspects of the integrated landscape approach guided our assessment of application of landscape approaches in displacement settings.

Integrated landscape approach in displacement settings

Our review showed that documents do not refer explicitly to the integrated landscape approach in displacement settings: the other two approaches – landscape scale and sectoral landscape – were the main ones used. Some studies focus on refugees or specific issues, or on national policy. Others focus on a landscape scale that includes refugee settlements and hosting communities, refugee settlements and affected areas, or regions of displacement.

The landscape scale is often linked to either social, environmental, economic or institutional elements. Examples of chosen landscape scales include "Conservation landscapes" (Omonding et al. 2020), "Refugee settlement and marketplace" (Viswanathan et al. 2020), "Former refugee camp and surrounding savannah" (Bloesch 2001) and "Refugee camp and host communities in context of energy supply" (Stjernquist Desatnik 2019).

Sectoral landscape approaches were mostly targeting the themes of environment and protection, followed by livelihoods, energy and governance, often addressing multiple sectors and interlinkages between them (Figure 2.1). Intervention areas described in the literature were mostly linked to conflict resolution, livelihood improvements, natural resources management, energy supply, conflict resolution and food security (Figure 2.2).

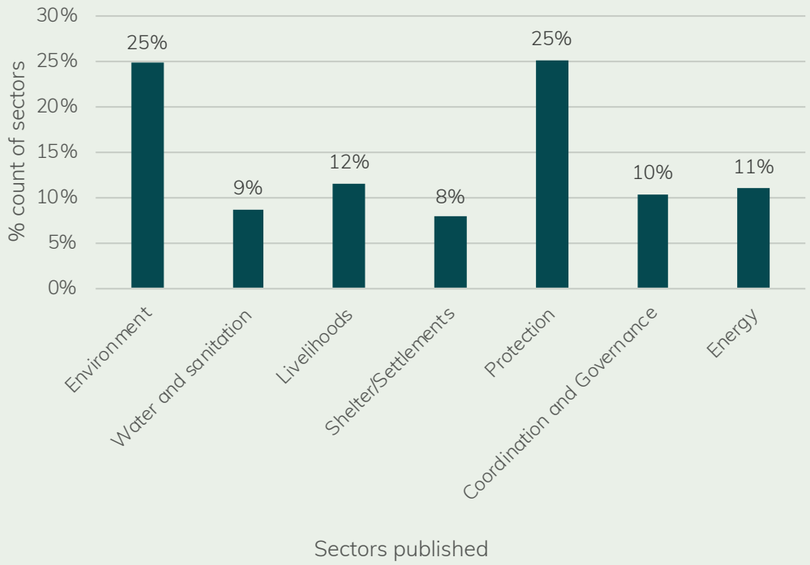

Figure 2.1 Sectoral focus of interventions regarding displacement settings

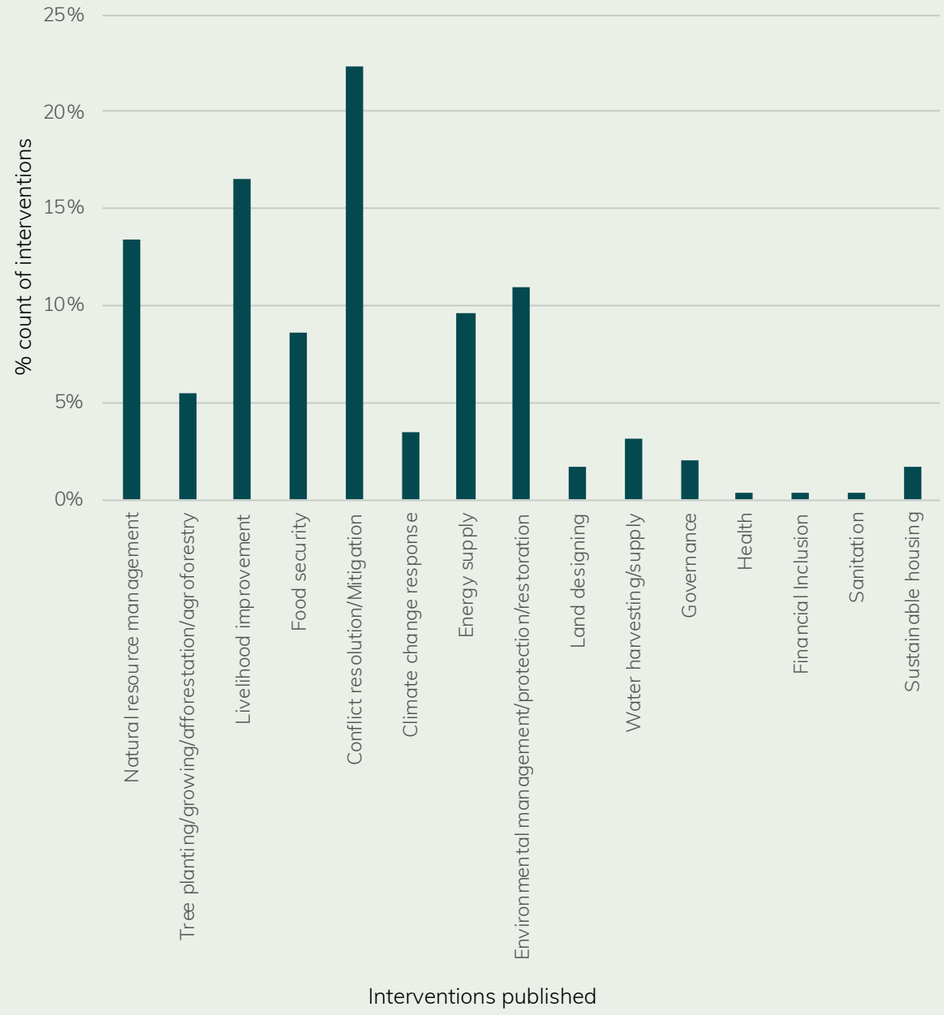

Figure 2.2 Focus of interventions regarding displacement settings

Although we did not find applications of the integrated landscape approach in the review, numerous studies confirmed and illustrated the relevance of its five pillars in displacement settings. Below, we describe how these pillars have been reported on in displacement settings.

Pillar 1: Complexity of social-ecological systems

The complexity of social-ecological systems gets amplified in displacement settings. Challenges, such as lack of resources and conflicts with host communities, are made more complex in the face of local realities, such as poverty, lack of land and natural resources degradation (Gumisiriza 2018). Often, both refugees and host communities face economic, social and political conflicts, such as the case of Somalia refugees and host communities in North East Kenya (Kumssa and Jones 2014.)

Displacement puts additional pressure on natural resources, leading to clusters of deforestation, as observed for several regions in East Africa (Tafere 2018). Humanitarian agendas in supplying essential needs to camps, such as water, shelter and fuelwood, soon become part of wider socio-spatial relations. For example, in the already vulnerable dry environment near Kakuma refugee camp, the collection of fuelwood and water by refugees competed with the needs of the local population. This led to conflicts and violent situations for women and children collecting the firewood. This illustrates the early need for 'hybrid humanitarian governance' to co-govern spaces beyond the borders of the camp (Jansen and De Bruijne 2020).

The often long-term nature of displacement eventually creates new social patterns and relations within the camp (Jansen 2011). At the same time, it leads to new power relations between the main actors, including humanitarian aid organizations, state government, local government and local populations (Napier Moore 2005). New social networks and connections between refugees and host communities form systems for transactions between individuals and groups (Omata and Kaplan 2013). An assessment of social impact in refugee-host communities in Turkana County in Kenya shows the complexity of interactions. These include economic participation among host and refugee community households, organizations and institutions; conflicts and violence; and development activities, including the major actors in the host and refugee communities (Vemuru et al. 2016). At the same time, these new systems can offer opportunities to the parties involved. Economic interactions between host communities and refugees, for example, contribute to local economies, which depend on economic capacities, access to markets and opportunities to construct livelihoods (Omata and Kaplan 2013; Verwimp and Maystadt 2015; World Bank 2016).

Pillar 2: Multifunctionality and trade-offs

Landscapes offer a multitude of ecological, social and economic functions. Trade-offs between the different functions and actors in a landscape add to the social-ecological complexities described earlier. In Uganda, around Rhino camp and Imvepi refugee settlements, collection of water and fuelwood soon led to resource depletion and lack of these much-needed resources (Duguma et al. 2019). Stress on biomass resources around camps, and increasing distances for firewood collection, exposes women and children to insecurity and violence. In so doing, it affects their opportunities to take part in livelihood or educational activities, such as reported for Kyangwali Refugee Settlement (Jickling 2018).

Pressures can induce conflicts between host communities and refugees, further impacting livelihood opportunities. Land conflicts may arise from limited communication between refugees and host communities, a sense of unfair treatment, insecurity, unclear boundaries, and land ownership and conflicting activities on the same land, such as by pastoralists and farmers (Ahimbisibwe and Frank 2013). National policies determine the extent of trade-offs by regulations on mobility and freedom of movement, access to markets, land and education (Betts et al. 2019). Multifunctionality and trade-offs in interactions between refugees and host communities should be addressed in the planning and design of refugee camps (Jahre et al. 2017). Mitigation measures include natural resources planning and targeted solutions, such as agroforestry, which considers needs of livestock, agriculture and tree resources (Grosrenaud et al. 2021).

Pillar 3: Interdisciplinarity and transdisciplinary approaches

Literature on displacement studies can be broadly divided into two categories. Targeted studies offer in-depth insights from one discipline, such as remote sensing, ethnographic research, psychosocial analysis or policy analysis. Conversely, cross-disciplinary studies combine more than one discipline. Remote sensing, for example, is often combined with ground truthing to understand vegetation changes (Bernard et al. 2019).

An integrated landscape approach generally calls for approaches that transcend disciplines. It looks at multiple relevant sectors simultaneously, considering the complexities and multifunctionality of social-ecological systems in displacement settings. A multisectoral approach, for example, could provide an enabling environment for economic self-reliance (Jahanzeb 2021). As another example, the systems approach to environment considers the environmental impact of aid in displacement settings as an integral part of humanitarian response, disaster-risk reduction, the Sustainable Development Goals and climate nexus (Tafere 2018).

Pillar 4: Participation

The complex and multifaceted nature of displacement settings underscores the importance of participation, including consultation and engagement by various actors at various stages in planning and management. The hybrid and sometimes hidden nature of humanitarian governance also co-shapes opportunities for meaningful participation. Key players include humanitarian organizations, government and local stakeholders, and power structures within camps (Jansen and De Bruijne 2020).

A UNDP study (2018) looks to conflicts and other issues around unresolved land ownership and limited benefits from sustainable livelihood solutions. It describes social cohesion and fair participation for hosting communities and refugees to equitable access as the main strategy for conflict resolution. Reported interventions in refugee-hosting landscapes generally involve one or more of various stakeholders: refugees; local population; local, subnational and national governments; humanitarian organizations; international organizations; non-governmental organizations; universities; research organizations; donor organizations; and the private sector.

Wide stakeholder engagement can help prevent or mitigate disputes related to land and property (EU, Norwegian Refugee Council and REACH 2019). Participation also helps understand perceptions of refugees and hosting communities towards use of natural resources and management solutions (Duguma et al. 2019). This may include forestry, alternative energy programmes, environmental planning or a programme for use of fire for rehabilitation (Bloesch 2001; Mulumba 2011; Jickling 2018; Maystadl et al. 2020). Refugees and host communities can be involved in joint action planning for planting and management of trees (Duguma et al. 2019).

Better coordination and integration of refugees with host communities on economic activities can contribute to appropriate localized contextual livelihood and economic planning (World Bank 2016; Schön et al. 2021). Multiple policy levels require stakeholder participation, such as formulation of refugee policy at regional or national level. Stakeholder engagement could, for example, support Uganda's Self Reliance Strategy by refining agriculture and livelihood requirements (Svedberg 2014). It could also help to include refugee services (such as energy supply, type of shelter and sanitation solutions) within local development plans (Watera et al. 2017; Thomas et al. 2021).

The private sector needs to be engaged at early stages for piloting new technologies in energy supply, financial and mobile services, among others (Bizzarri 2009; O'kongo 2020). Some argue for better inclusion of private sector, technology and innovation in developing economic opportunities for refugees and hosting communities (Omata and Kaplan 2013). Others look at the role of inclusion in marketplaces (Madhubalan et al. 2020); 'spaces of exchange and social services' (Monteith and Lwasa 2017); and digital and financial services (Okong'o 2020).

Monitoring of camp- and landscape-level changes also requires meaningful participation. For example, the use of the Camp Performance Indicator system could benefit by engaging stakeholders (Schön et al. 2021). Practitioners need to be trained on monitoring vegetation change through, for example, use of high-resolution radar (Braun et al. 2019).

Pillar 5: Sustainability

Sustainability, including social, economic and environmental dimensions to be agreed upon in a specific context, can be illustrated through numerous studies.

Social dimensions

Social sustainability in refugee-hosting landscapes is associated with **access to services and livelihood opportunities** (Jansen 2011; Vemuru et al. 2016). Household food security among refugees and host communities is a priority for **access to basic needs and services**. This must consider food supply, food diversity and preferences (Svedberg 2014; Roos 2015; Betts et al. 2018). In addition, there is a need for access to sustainable energy for cooking, lighting and heating (UNHCR 2019/2020) and to public services, such as healthcare and education (Betts et al. 2018). Also, there is need for socially accountable water services (Allen and Muturi 2020) and improved sanitation (Njoka et al. 2017). Equitable access to water and sanitation services contributes to healthier refugee populations (Allen and Muturi 2020).

Other options to improve health arise from clean energy options (Bizzari 2009; World Bank and FAO; 2020) and avoiding household air pollution (Barbieri 2018) caused by cooking biomass without improved cooking systems. Recently, camp design has evolved from more top-down, short-term isolated approaches to more holistic thinking that integrates camp design and planning for services into the wider society. However, implementation of this new approach remains limited, due to restrictions on time, space and resources (Jahre et al. 2017).

With refugee situations often emerging from conflict or other unsafe conditions, **protection** is a priority in creating a safe environment for refugees and their hosting communities. This includes various areas of attention, including power dynamics between key stakeholders (Napier-Moore 2005), local security issues (Kumssa and Jones 2014), land or environmental conflicts in areas of refugee settlements or mass exodus (Martin 2005; Afifi et al. 2012; Ahimbisibwe and Frank 2013) threatening security. Targeting refugee-host relationships is especially important in furthering peaceful co-existence (Kofi and Aglorti 2011; Hargrave et al. 2020). Other factors are understanding reasons behind land conflicts and dealing with land scarcity (Martin 2005; Ahimbisibwe and Frank 2013), or identifying mental health problems among the population (Eisenbruch et al. 2014). Refugees and hosting communities construct their livelihoods in a variety of ways, with inter- and intra-group differences (Omonding et al. 2020).

Economic dimensions

Livelihood opportunities link to social dynamics between refugees and hosting communities (Varalakshimi et al. 2016) and planning in context (Rohwerder 2016; Wissel 2017). Awareness on peaceful co-habitation and natural resources conservation helps prevent local conflicts that can endanger sustainable and equitable access to resources and services (Kummsa and Jones 2014; Tafere 2018) for sustainable peace between refugees and host communities (World Bank and FAO 2020). Diversification of livelihoods beyond dependance on land also helps reduce pressures and related conflicts (Couba and Lebrum Amombo). Inclusive decision making that comprises understanding of people's perception on landscape governance can mitigate stakeholders' sense of exclusion in landscape management (Omonding et al. 2020). Forest cooperation between local host communities and refugees, and joint tree-based interventions within refugee landscapes, has improved access to firewood and other resources, promoted social cohesion and reduced natural resource-related conflicts (Grosrenaud et al. 2021).

The literature has also noted that integrating refugees with host communities has enhanced economic and livelihood opportunities. For instance, such integration has created jobs and increased demand and supply of goods (Idris 2020), reduced reliance on aid (Grosrenaud 2021), and enhanced access to telecommunication services (World Bank 2016) and to land for commercial agriculture. In so doing, it has promoted self-reliance (REACH 2019) and equitable access to urban markets (Monteith and Lwasa 2017). Verwimp and Maystadt (2015) reported that host communities generated about $3 million in annual income from livestock and milk sales to the Dadaab and Kakuma refugee camps in Kenya.

Promoting self-reliance or self-sufficiency is often considered a long-term solution to livelihood improvements (Jacobsen and Fratzke 2016; Schön et al. 2021).

Economic sustainability within refugee-hosting landscapes requires a holistic view on refugee and hosting communities and their long-term access to economic activities. This can include support to income generating activities through income from diversified livelihood activities, job creation or access to employment and market mechanism (Boer 2013; Verwimp and Maystadt 2015; Betts et al. 2019; Idris 2020). Equitable access to markets (Madhubalan et al. 2020) and access to capital (Monteith and Lwasa 2017) contribute to this.

Access to urban markets and an enabling business environment positively impacts income generating opportunities (Monteith and Lwasa 2017; Okong'o 2020). Other studies link economic opportunities foremost to sustainable livelihoods (Omata and Kaplan, 2013) and productive agriculture (FAO 2018). Such opportunities may also make 'self-reliance' or access to land central to development of local economies and local incomes (Kaiser 2005; Omata and Kaplan 2013; Watera et al. 2017; Muarhashi 2021; Schön et al. 2021). Still others warn against over-optimism about the panacea of 'self-reliance' strategies or perceiving refugees as economic actors. They stress that not all refugees are farmers. They also fear such approaches may expose refugees as highly exploitable workers when they hold poor socioeconomic and political positions (Bhagat 2020; Ramsay 2020). Taylor and colleagues (2016) link access to land to increasing impact on local incomes and income spillovers (income generated by refugee exceeding cost of the World Food Programme [WFP]). Grosrenaud et al. (2021) describe the opportunity of diversified income resources from agroforestry. Better economic situations among refugees can help reduce environmental pressures and improve sustainable natural resources management (Hargrave et al. 2020).

Environmental dimensions

Environmental sustainability means mitigating and reducing the reported degradation of woodlands and other vegetation and natural (wildlife) habitats of refugee-hosting landscapes. It also means to protect or restore the multiple functions of landscapes, including trees, crops and livestock and associated positive benefits in form of increased biodiversity, soil fertility and water availability. This includes past, current and future impacts on vegetation in affected areas and how this affects environmental security and refugees (Mulumba 2011; Kyakize 2018; Bernard et al. 2019; Duguma et al. 2019). These losses are associated with loss of carbon stock and environmental economic losses (Ahmed et al. 2019).

In some cases, mitigation of impacts has not been enough to curb the trend. Kenya's Dadaab refugee camp, for example, increased fenced areas for pastoralism, as well as green belt areas. However, population influxes continued. The intensified human activities and animal movement negatively impacted vegetation density (Rossi et al. 2018). Numerous site-specific studies report on land cover changes and degradation as a result of increased population and human activities in refugee-hosting areas (i.e. Habou et al. 2001; Kyazike 2018; Rossi et al. 2018; Sula Musoke 2019).

Some overview studies draw conclusions on broader phenomena, such as the study by Tafere (2018) on environmental impacts by forced displacements in five East African countries. Maystadl and colleagues (2020) concluded that refugee influxes do indeed contribute to increased deforestation in refugee-driven landscapes in Africa areas. They identified agricultural expansion in refugee-hosting areas as the main probable underlying driver. The impact of refugee camps and associated human activities on the environment is thus a big concern in many host areas.

Institutional arrangements need to integrate refugee-hosting areas into environmental planning from the onset for long-term sustainability. This involves forestry and natural resources management and encompasses environmental education and awareness (UNHCR 2001). Sustainable land management with host and refugee communities helps protect ecosystems and ecosystem services in refugee-hosting landscapes (Leiters et al. 2018; Duguma et al. 2019).

Some studies deal with restoring environmental degradation in refugee-hosting areas (Bloesch 2001), and working with stakeholders towards this goal (Kyazike 2018). Reforestation, agroforestry or establishing woodlots are strategies to protect and establish tree resources in or near refugee camps (Nduwamungu and Hesron 2012; Adam-Bradford 2016; Brangeon 2017; Grosrenaud et al. 2021). Early controlled burning practices with aid of firebreaks, for example, have reduced uncontrolled fires (Bloesch 2001).

Agroforestry as part of productive landscapes contributes to resilience and more sustainable landscapes through stabilizing slopes, preventing floods, and providing energy supply, food security and shelter construction (Adam-Bradford 2016; World Bank and FAO 2020; Grosrenaud 2021). Environmental conservation and sustainable timber sourcing result from adequate forest planning and promotion of tree planting (Jickling 2019). Reforestation efforts coupled with use of alternative energy technology can also contribute to reducing environmental degradation (REACH 2019). Adoption of renewable energy in refugee settings leads to avoidance of deforestation and environmental degradation; preservation of biodiversity; reduced CO2 emissions and air pollution (Lahnand and Grafham 2015) and reduced pressure on biomass sources (Thomas, Williamson and Harper 2021). Appropriate technology and management for surface water drainage and wastewater management can mitigate flooding and contamination of drinking water. Proper water storage helps prevent droughts, while reusing water for irrigation contributes to agriculture productivity and food security (Ajibade et al. 2016).

Improved identification and monitoring of land use and land cover change for informed settlement planning can contribute to better land use management; it can also help counter misconceptions about refugee community impacts (Braun et al. 2019; Fredrich 2020). Remote sensing is also instrumental in estimation of carbon stocks and environmental economic losses of forced migration (Ahmed et al. 2019). Several approaches contribute to assessing land cover change, including earth observation, remote sensing (Bernard et al. 2019) and radar data (Braun et al. 2019). Assessing spatial and temporal dynamics, for example, helps inform protection or avoidance of forested lands and ecologically sensitive areas (Ahmed et al. 2019; Hassan et al. 2019), rangeland management (Rossi et al. 2018), forest management and environment conservation (Jickling 2018; Quader et al. 2019) and water management (Jaafar et al. 2020).

Despite positive outcomes and the availability of a wide range of guidelines for sustainable site selection and camp management, the effectiveness of these environmental measures is undermined by land conflicts; limited access to land; and environmental degradation (Ahimbisibwe and Frank 2013). Unsustainable use of resources continues to create conflict between refugees and host communities, adding to the complex political ecological landscapes (Martin 2005; Kumisa and Jones 2014).

Overview of GLADS-relevant tools and guidelines in displacement settings

Various tools and guidelines have been developed to assist in planning, implementation and monitoring of impacts resulting from an influx of refugees in displacement landscapes. The review identified relevant tools and guidelines (Table 3.1). Most target environmental planning or specific aspects, including forestry and household energy. Two frameworks target coordination and governance: the Comprehensive Refugee Response Framework and the Refugee and Host Population Empowerment (Re-HoPE) Strategic Framework.

Table 3.1 Tools and guidelines for displacement settings

Tools/guideline	Guideline/ tool type	Sector	Guideline/tool implementation/outcome
UNHCR 2006 Environmental guidelines	Guideline	Environment	This operational guideline helps governments, partners and field staff better understand and appreciate the need for careful and consistent approaches to environmental management in displacement settings. It presents basic principles of UNHCR's environmental activities, operational principles, how to conduct environmental operations during different phases of refugee, and examines technical issues related to environmental management and their links to other sector programmes.
Framework for assessing, monitoring and evaluating the environment in refugee-related operations (FRAME toolkit)	Toolkit	Environment	The UNHCR in collaboration with CARE International developed the FRAME toolkit to facilitate assessments, monitoring practices and evaluation with regards to environmental issues, projects and programmes (UNHCR & CARE-n.d.). It is a capacity building tool for UNHCR staff and partners (humanitarian practitioners, refugees and host government departments). Martin (2005) uses the FRAME toolkit to assess the environmental conflict nexus between refugees and host communities in Ethiopia. This underscores the significance of FRAME in providing better understanding of the relationship between environment and resource use conflict and the need for participatory environmental management among refugees and host communities (Martin 2005). However, the toolkit exposes challenges, including (1) inadequate skills from the local facilitators; (2) tension between imposing blueprints (handbooks, guidelines) and encouraging bottom-up planning; (3) lack of long-term environmental strategies from the organizations using the toolkit for their activities; (4) reduced donor support for environmental management; and (5) disagreements on who is responsible for environmental matters (Martin 2005).
Guidance notes for sustainable forestry interventions in displaced settings	Guidance notes	Environment	This was developed jointly by FAO and ICRAF in 2020 for displacement settings in five East African countries, including Kenya and Uganda. It was aimed at helping stakeholders develop forest and tree options for environmental conservation, restoration of ecosystems and livelihood improvement (FAO and ICRAF, unpublished).

Safe Access to Fuel and Energy (SAFE) framework. A user toolkit on woodfuel assessments in displacement settings.	Toolkit	Environment	The Food and Agriculture Organization of the United Nations (FAO) developed the SAFE framework to support field-based actors directly involved in the management of natural resources and protection of crisis-affected populations (FAO 2016). The framework helps in understanding how woodfuel is sourced, used and monitored in displaced settings. For instance, in 2020, FAO in partnership with Practical Action used the SAFE framework in evaluating energy access, challenges and recommendations and innovative SAFE programming in humanitarian settings in Kenya, Uganda and South Sudan. One key finding showed high demand by both displaced and host communities for firewood as fuel and to make charcoal (FAO and Practical Action 2020). The evaluation recommended curbing firewood demand and adopting clean cooking technologies to reduce environmental degradation and related resource tension and conflicts with local communities (FAO and Practical Action 2020). The SAFE framework also seeks to solve multisectoral challenges associated with energy access in displacement settings. The desired outcome and processes include food security; sustainably managed natural resources; livelihoods diversification, improved health; enhanced nutrition; climate mitigation; empowerment of youth; peace building; and social cohesion (FAO 2016).
Guideline on the management of natural and planted forest and woodlands in displacement settings (FAO and UNHCR 2020)	Guideline	Environment	The guideline is a training tool applicable to practitioners and refugees and host communities. It is used to assign planning, implementation and monitoring of appropriate management of forests and woodlands in displacement settings. It offers guidance on the management of natural resources and planted forests and woodlands in displacement settings. To that end, it considers woodfuel demand and supply, land suitability, land tenure, livelihoods opportunities, the prerequisite for suitable nursery and plantation sites, tree species selection, nursery establishment and management, and plantation establishment and management, as well as monitoring, evaluation and reporting. The guideline aims to provide management interventions in four critical areas: (1) the rehabilitation, protection and use of degraded forest land; (2) plantations for energy; (3) plantations for timber production; and (4) plantations for food and fodder production.
Satellite image-based settlement monitoring framework	Framework	Environment	This near real-time, satellite image-based settlement monitoring framework is an automated disturbance detection that captures rapid refugee settlement establishment, growth and changes in land use cover (Friedrich and Van Den Hoek 2020; World-Bank and FAO 2020). The framework can also be applied to assess wood fuel supply and demand in displacement settings, including above ground biomass stocks and land cover classification and timber management (Jickling 2018; World-Bank and FAO 2020). This monitoring framework can enable understanding of the spatial and temporal patterns of refugee settlement landscape dynamics and aid refugee response and evaluation efforts that are central to Uganda's refugee hosting and settlement plans. Other reviewed publications, especially scientific articles, expounded on the significance of remote sensing and GIS tools in assessment and monitoring of environmental/vegetation changes due to the influx of refugees (Hagenlocher 2011; Hassan et al. 2018; Leiterer et al. 2018; Rossi et al. 2018; Ahmed et al. 2019; Braun et al. 2019).

Handbook on safe access to firewood and alternative energy by World Food Programme (WFP)	Handbook	Energy/environment/ protection
The Comprehensive Refugee Response Framework (CRRF)	Framework	Coordination and governance
Toolkit for cooking systems in humanitarian settings (Vianello 2016)	Tool	Energy/environment

The handbook is a capacity building/training guide/tool for WFP staff and humanitarian practitioners concerned with safe access to firewood and alternative energy in displacement settings. The handbook provides guidance on fuel-efficient programming in displacement settings. The implementation of the Safe Access to Firewood and Alternative Energy in Humanitarian Settings (SAFE) programme in Uganda in 2009, for example, led to the formation of an Inter-Agency Standing Committee (IASC) Task Force on SAFE under WFP leadership. The task force launched SAFE guidance materials that promoted a comprehensive approach to address human and environmental protection, livelihoods, food and nutrition. The adoption of the comprehensive approach reduced the vulnerability of women to protection risks through dissemination of fuel-efficient stoves, and sensitization on food preparation and energy-saving cooking practices, through the creation of woodlots and tree planting (Bizzarri et al. 2009; Masete 2020).

This framework was developed by the UNHCR following the United Nations General Assembly's New York Declaration for Refugees and Migrants. It re-affirms the importance of international refugee rights and protection (UNGA 2016). The CRRF aims at easing pressure on host countries, enhancing refugee self-reliance, expanding access to third-country solutions and supporting conditions in countries of origin for return in safety and dignity (UNHCR 2018). Crawford et al. (2019) assessed the progress of the CRRF in Uganda, highlighting three key factors influencing Uganda's delicate progressive approach to refugees. These comprise: (1) receptiveness is underpinned by shared ethnicities and identities among the refugees and hosts; (2) land grants are offered to refugees; and (3) refugees are usually seen as a lever for economic development by their chronically poor hosts who hope to benefit from improved access to services, infrastructure and economic opportunities (although reality often falls short of expectations).

Uganda is viewed as a forerunner and early adopter of the CRRF and hailed for having some of the most progressive refugee policies in the world (Hargrave et al. 2020). However, there has been little progress on responsibility-sharing (Crawford et al. 2019). Humanitarian expenditures for refugee programmes in Uganda are severely strained. There is little systematic tracking of actual donor and government financial support to the CRRF. Finally, there is increasing fear that rhetoric around the CRRF is encouraging closer alignment between humanitarian and development approaches, which donors may use as an excuse to cut humanitarian aid (Crawford et al. 2019).

The toolkit is developed by Moving Energy Initiative (MEI), a collaboration between GVEP International, Chatham House, Practical Action Consulting, The Norwegian Refugee Council and UNHCR. It offers guidance on the design and implementation of improved cooking systems in displacement settings. The toolkit classifies different categories of cookstoves, reviews available cooking systems and provides guidance on clean cooking systems in humanitarian settings. It also proposes a market systems model that offers framework for analyzing how energy services are provided within the larger market systems and how cooking solutions for the displaced populations can be productively integrated within the wider economy of the hosting country. The toolkit calls for an integrated and multistakeholder approach to solving unsustainable energy supply in humanitarian setting. It also proposes that energy provision in humanitarian settings should be mainstreamed into the host country's energy policy. This can be achieved through collaboration between private and public sector actors from manufacture to consumption of energy solutions.

The Refugee and Host Population Empowerment (ReHoPE) Strategic Framework	Framework	Coordination and governance
UNDP Social and Environmental standards (SES): (UNDP 2019); https://info.undp.org/sites/bpps/SES_Toolkit/SES%20Document%20Library/Uploaded%20October%202016/UNDP%20Social%20and%20Environmental%20Standards_2019%20UPDATE.pdf	Standard	Environment
Forest Management in refugee and returnee situations (UNHCR and IUCN 2005) https://portals.iucn.org/library/sites/library/files/documents/2005-034.pdf	Handbook of sound practices	Environment
Assessing woodfuel supply and demand in displacement settings (UNHCR and FAO 2016)	Technical handbook/ guideline	Environment/energy

ReHoPE is a transformative strategy and approach to bring together a wide range of stakeholders in a harmonized and cohesive manner to ensure more effective programming (GoU et al. 2017; UNHCR 2018). It bridges the humanitarian and development approaches and actors to ensure humanitarian action is embedded in a long-term development approach. It is also a key component in the application of the Comprehensive Refugee Response Framework (UNHCR 2018). Through nine core principles, ReHoPE addresses the humanitarian and development needs of refugee-hosting districts in Uganda. It provides key roles for all stakeholders based on their comparative advantage and on the principle of partnership. Through the CRRF secretariat, the framework focuses on knowledge management, development of harmonized tools and approaches, and implementation support to deliver on a comprehensive response to displacement impacts.
The standard applies to five UNDP programming principles: (1) Leave No One Behind; (2) Centrality of human rights; (3) Gender equity and women empowerment; (4) Sustainability and resilience; and (5) Accountability. The SES ensures all UNDP programming maximizes social and environmental opportunities and benefits, and ensures that adverse social and environmental risks and impacts are avoided, minimized, mitigated and managed. Regarding displacement and settlements, the scope of application of the standard covers the following areas: undertaking environmental and social impact assessment to assess the potential environmental and social impacts of the proposed land acquisition and/or restrictions on land and/or resource use and potential impacts on host communities; and developing plans for displacements (resettlement action plan and livelihoods action plan.
This handbook advocates for greater involvement of refugees and host communities in decision making and management roles in relation to forest management. It offers a range of practical actions for users to consider and apply in different situations and at different phases of refugee operations. The handbook provides an overview of forest management during refugee and returnee operations, and provides ways of managing forests during refugee and related operations. It enlists several practical actions and options to consider: (1) initial damage prevention and control; (2) assessment of demand for forestry products; (3) assessment of possible supply of forestry products; (4) development of wood supply and harvesting plans; and (5) tree planting and forestry and income generating activities. Finally, the handbook addresses the need for a forestry management plan in displacement settings. In the plan, it emphasizes: (1) awareness raising; (2) broader constituency building; (3) identification of needs and opportunities; (4) forestry systems that address those needs; (5) forest rehabilitation at landscape level; and (6) monitoring and evaluation.
The handbook enhances understanding of the dynamics of woody biomass extraction and consumption in displacement settings. It also assists staff and technicians in the management of natural resources around displacement settings to use the guideline in assessing woodfuel supply and demand. The guideline enumerates four steps used in assessing woodfuel demand in refugee settings: (1) determining population and social units; (2) assessing energy consumption; (3) screening technologies and assessing local practices for cooking; and (4) assessing the multisectoral challenges to access and use of woodfuel. Similarly, in assessing woodfuel supply, the following four steps are required: (1) defining sources of woodfuel; (2) mapping distribution of woodfuel resources; (3) estimating stocks; and (4) assessing stock changes. The woodfuel supply and demand assessments are then integrated and used for M&E and planning in the targeted area. In addition to calculation methods for woodfuel supply and demand, the handbook also presents case studies in a refugee camp in Ethiopia where the guideline has successfully been piloted.

Conclusion

Our literature review on displacement settings found that assessment of environmental impacts and options for environmental and land management often addresses landscape scale. This has included, for example, planning of sites and settlements and certain services like water supply. However, most of the literature illustrates sectoral approaches that only reflect a landscape approach when looking at the wider social-ecological context and engagement with stakeholders. The targeted interventions aim to improve living conditions of refugees in the short term but also help address longer-term sustainability of livelihood options of both refugees and host communities, and the resilience of natural ecosystems.

We found no examples of an integrated landscape approach systematically applied or adapted to a refugee hosting or displacement setting. However, the five principles of the landscape approach appear as relevant in displacement settings:

- "Complexity of social-ecological systems" is coming to the fore in many studies. The influx of people in a certain area puts pressures on ecological services and creates new social relations and renegotiation of claims with host communities and other stakeholders.

- The need for "interdisciplinarity and transdisciplinary" approaches in planning and management across various sectors is acknowledged for addressing longer-term needs and sustainability in displacement settings.

- The "multiple functions and trade-offs" principle is illustrated through the reported multiple livelihood activities, and socioeconomic dynamics between refugees and host communities.

- "Participation and stakeholder engagement" appear relevant in most studies. They identify many different stakeholders: refugees; local population; local, subnational and national governments; humanitarian, international, donor and research organizations; NGOs, universities; and the private sector. Effectiveness of this participation and engagement contributes to management and monitoring and requires capacity enhancement and understanding of stakeholder perceptions.

- The literature provides guidance on key economic, social and environmental "sustainability" outcomes targeted or obtained through integrated interventions in refugee-hosting landscapes. A review of tools and guidelines shows relevant instruments, most of which are targeted to environmental planning and management. Two separate frameworks focus on overall governance and coordination for multisectoral planning and stakeholder engagement. The depicted graph on an "integrated landscape approach in displacement settings" summarizes core elements from the review that guidelines should reflect. This framework offers guidance to elements to be further conceptualized when co-developing guidelines with key stakeholders on how to apply the approach for sustainable development and resilience at landscape level.

Figure 2.3 Integrated landscape approach in displacement settings (preliminary conceptual framework). Based on ILA Principles by Freeman et al., 2015»

Table 2.1 Landscape approach in displacement settings: Draft principles

Principles
1. The appropriate landscape scale(s) has/have been determined to address sustainability and resilience in displacement setting.
2. The main sectors and interlinkages between these sectors within displacement setting are known.
3. Complexity of social-ecological systems, including the range of different processes and different scales and hybrid governance structures, are acknowledged by different stakeholders.
4. Multifunctionality and trade-offs within displacement setting have been identified.
5. Approaches transcend traditional sectoral or disciplinary boundaries.
6. Meaningful participation and engagement by stakeholders within displacement settings (involving capacity enhancement, considering perceptions and access to participate).
7. Sustainable social, environmental and economic outcomes in displacement settings.

Questions to pose regarding our landscape approaches and our case study sites:

1. What landscape scale(s) has/have been already considered?
2. What sectoral approaches have been applied?

From integrated landscape approach

3. What do we know about social-ecological systems and their complexity and the range of different processes within the refugee hosting landscape?
4. What do we know about multifunctionality and recognition of synergies and trade-offs in the refugee hosting landscape?
5. To what extent and how has there been interdisciplinarity and transdisciplinary approaches in planning and management, involving engagement with stakeholders inside and outside the landscape?
6. What do we know about participation, including consultation, engagement and capacity building (for meaningful participation) at various stages in planning and management?
7. What do we know about sustainability, including social, environmental and economic dimensions, to be agreed upon in the specific context of this refugee hosting landscape?

References

Adam-Bradford, A. (2016). Agroforestry for refugee camps. Agriculture for Development, 28.

Afifi, T., Govil, R., Sakdapolrak, P., & Warner, K. (2012). Climate change, vulnerability and human mobility CLIMATE CHANGE, VULNERABILITY AND HUMAN MOBILITY: PERSPECTIVES OF REFUGEES FROM THE EAST AND HORN OF AFRICA.

Ahimbisibwe, F., & Frank, M. A. (2013). The Effect of Land Conflicts on the Livelihoods of Refugees: Implications for Refugee Protection in Uganda Durable Solutions Project View project The Effect of Land Conflicts on the Livelihoods of Refugees: Implications for Refugee Protection in Uganda (p. 6). https://www.researchgate.net/publication/309209994

Ahmed, N., Islam, M. N., Ferdous Hasan, M., Motahar, T., & Sujauddin, M. (2018). Understanding the political ecology of forced migration and deforestation through a multi-algorithm classification approach: the case of Rohingya displacement in the southeastern border region of Bangladesh. https://doi.org/10.1080/24749508.2018.1558025

Ajibade, Oluwatoyin & Tota-Maharaj, Kiran & Clarke, Brian. (2016). Challenges of poor surface water drainage and wastewater management in refugee camps. ENVIRONMENTAL AND EARTH SCIENCES RESEARCH JOURNAL. 3. 53-60. 10.18280/eesrj.030402.

Allen, J., & Muturi, C. (2020). A Transition for All: Equity and community engagement in the transition of water supply management to utilities in refugee settlements in Uganda. https://www.oxfamwash.org/

Barbieri, J., Leonforte, F., & Colombo, E. (2018). Towards an holistic approach to energy access in humanitarian settings: the SET4food project from technology transfer to knowledge sharing. https://doi.org/10.1186/s41018-018-0038-3

Bhagat, A. (2020). Experimental financial inclusion as refugee management: shelter insecurities at the bottom of the pyramid in Kenya. https://doi.org/10.1080/19491247.2020.1818051

Bernard, B., Aron, M., Loy, T., Muhamud, N. W., & Benard, S. (2019). The impact of refugee settlements on land use changes and vegetation degradation in West Nile Sub-region, Uganda. https://doi.org/10.1080/10106049.2019.1704073

Betts, A., Chaara, I., Omata, N., & Sterck, O. (2019). What Difference Does the Self-Reliance Model Make?

Betts, A., Geervliet, R., Macpherson, C., Omata, N., Rodgers, C., & Sterck, O. (2018). Self-Reliance in Kalobeyei? 1 Self-Reliance in Kalobeyei? Socio-Economic Outcomes for refugees in North-West Kenya 2 Self-Reliance in Kalobeyei?

Bizzarri, M., Bellamy, C., Patrick, E., & Roth, C. (2009). Safe access to firewood and alternative energy in Uganda: an Appraisal report. *WFP, Rome*.

Bloesch. (2001). Use of fire in environmental rehabilitation of former refugee camp-Tanzania. http://meridian.allenpress.com/szf/article-pdf/152/9/377/1964796/szf_2001_0377.pdf

Boer, R. d. (2013). *LIMINAL SPACE: Home and Belonging in the Landscapes of Power of Exile. A Case Study of Congolese Refugees in Kampala, Uganda.*

Braun, A., Fakhri, F., & Hochschild, V. (2019). Refugee Camp Monitoring and Environmental Change Assessment of Kutupalong, Bangladesh, Based on Radar Imagery of Sentinel-1 and ALOS-2. https://doi.org/10.3390/rs11172047

Braun, A., Lang, S., & Hochschild, V. (2016). Impact of Refugee Camps on Their Environment A Case Study Using Multi-Temporal SAR Data. Journal of Geography, Environment and Earth Science International, 4(2), 1–17. https://doi.org/10.9734/jgeesi/2016/22392

Crawford, N., Sorcha O'Callaghan, Kerrie Holloway, & Lowe., C. (2019). The Comprehensive Refugee Response Framework Progress in Uganda." HPG Working Paper. September. https://bit.ly/3aAIX0V. 25.

Duguma, L., Ariani, C., Watson, C., A Okia, C., & Nzyoka, J. (2019). State of biomass resources in refugee-hosting landscapes: the case of Rhino Camp and Imvepi Refugee Settlements in West Nile, Uganda. https://doi.org/10.5716/WP19031.PDF

Duguma, L., Watson, C., Nzyoka, J., Okia, C., & Fungo, B. (2019). THE MIGRATION-ENVIRONMENT NEXUS The Situation in Northwest Uganda.

EU, Norwegian-Refugee-Council, & REACH. (2019). Owned Spaces and Shared Places: Refugee Access to Livelihoods and Housing, Land, and Property in Uganda. © IMPACT/2019, 52pp.

FAO and Practical Action, (2020). Key success factors and obstacles for FAO energy projects in humanitarian settings An evaluation of FAO's energy-in-emergency portfolio to inform future programming in three Eastern African Countries. Retrieved from: https://doi.org/10.4060/ca9913en

FAO & ICRAF. (2020). Guidance to put forward sustainable forestry interventions in displacement settings in Kenya (unpublished).

FAO, & UNHCR. (2018). Managing forests in displacements settings : guidance on the use of planted and natural forests to supply forest products and build resilience in displaced and host communities.

FAO. (2016). Meeting fuel and energy needs in protracted crises GUIDANCE NOTE The SAFE approach iii. www.fao.org/publications

FAO. (2016). Woodfuel Assessment in Displacement Settings Safe Access to Fuel and Energy (SAFE) Toolbox User guide.

FAO/UNHCR. 2016. Assessing woodfuel supply and demand in displacement settings, by D'Annunzio, R., Gianvenuti, A., Henry, M., Thulstrup, A. Rome, Italy

Freeman, O. E., Duguma, L. A., & Minang, P. A. (2015). Operationalizing the integrated landscape approach in practice. Ecology and Society, 20(1).

Friedrich, H. K., & Van Den Hoek, J. (2020). Breaking ground: Automated disturbance detection with Landsat time series captures rapid refugee settlement establishment and growth in North Uganda. Computers, Environment and Urban Systems, 82. https://doi.org/10.1016/j.compenvurbsys.2020.101499

Grosrenaud, E., Okia, C. A., Adam-Bradford, A., & Trenchard, L. (2021). Agroforestry: Challenges and opportunities in rhino camp and imvepi refugee settlements of arua district, northern uganda. *Sustainability (Switzerland)*, *13*(4), 1–18. https://doi.org/10.3390/su13042134

Government of Uganda, United - Nations, & World-Bank. (2017). The Refugee and Host Population Empowerment (ReHoPE) Strategic Framework - Uganda. 48

Gumisiriza, P. (n.d.). The Ugandan Journal Of Management And Public Policy Studies Challenges and Emerging Issues Affecting the Management of Refugees in Uganda.

Hagenlocher, M. (2011). Assessing the impact of IDP/Refugee camps in the state of environment-An indicator-Based Approach Utilizing high resolution satellite image time series of Zam Zam, Northern Darfur.

Hassan, M. M., Smith, A. C., Walker, K., Rahman, M. K., & Southworth, J. (2018). Rohingya Refugee Crisis and Forest Cover Change in Teknaf, Bangladesh. 10, 689. https://doi.org/10.3390/rs10050689

Hargrave, K., Mosel, I., & Leach, A. (2020). Public narratives and attitudes towards refugees and other migrants Uganda country profile.

Idris, I. (2020). Integrated approaches to refugee management in Uganda. Helpdesk Report 716. Brighton, UK: Institute of Development Studies. https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/14991 27.

Jaafar, H., Ahmad, F., Holtmeier, L., & King-Okumu, C. (2020). Refugees, water balance, and water stress: Lessons learned from Lebanon. Ambio, 49. https://doi.org/10.1007/s13280-019-01272-0

Jacobsen, K., & Fratzke, S. (2016). Building livelihood opportunities for refugee populations: lessons from past practice. www.migrationpolicy.org.

Jahre, M., Kembro, J., Adjahossou, A., & Altay, N. (2018). Approaches to the design of refugee camps: An empirical study in Kenya, Ethiopia, Greece, and Turkey. Journal of Humanitarian Logistics and Supply Chain Management, 8(3), 323–345. https://doi.org/10.1108/JHLSCM-07-2017-0034

Jahanzeb, P. (2021). *Economic Self -Reliance of Refugees in Uganda and Turkey: Lessons Learnt for Pakistan.* National Graduate Institute for Policy Studies. Thesis.

Jansen, B. J. (2011). The Accidental City Violence, Economy and Humanitarianism in Kakuma Refugee Camp, Kenya.

Jansen, B. J., & Bruijne, M. De. (2020). Humanitarian spill-over: the expansion of hybrid humanitarian governance from camps to refugee hosting societies in East Africa. https://doi.org/10.1080/17531055.2020.1832292

Jickling, N. (2018). Forest conservation and timber management A case study of Kyangwali Refugee Settlement, Hoima District, Uganda.

Kaiser, T. (2005). Participating in development? Refugee protection, politics and developmental approaches to refugee management in Uganda. In Third World Quarterly (Vol. 26, Issue 2, pp. 351–367). https://doi.org/10.1080/0143659042000339155

Kofi, S., & Agblorti, M. (2011). Humanitarian assistance to refugees in rural Ghana: Implications for refugee-host relations. Geografisk TidsskriftÁNorwegian Journal of Geography, 65, 75–82. https://doi.org/10.1080/00291951.2011.574319

Kumssa, A., & Jones, J. F. (2014). Human Security Issues of Somali Refugees and the Host Community in Northeastern Kenya. Journal of Immigrant & Refugee Studies, 12(1), 27–46. https://doi.org/10.1080/15562948.2013.810797

Kyazike, J. (2019). *Refugees and enviromental security in Uganda.* Makerere University. http://hdl.handle.net/10570/7049.

Lahn, G., & Grafham, O. (2015). Heat, light and power for refugees. http://www.unhcr.org/pages/49c3646c4d6.html.

Leiterer, R., Bloesch, U., Wulf, H., Eugster, S., & Joerg, P. C. (2018). Vegetation monitoring in refugee-hosting areas in South Sudan. Applied Geography, 93, 1–15. https://doi.org/10.1016/J.APGEOG.2018.01.013

Lyytinen, E. (2009). NEW ISSUES IN REFUGEE RESEARCH Household energy in refugee and IDP camps: challenges and solutions for UNHCR Policy Development and Evaluation Service Policy Development and Evaluation Service United Nations High Commissioner for Refugees. www.unhcr.org

Masete, A. (2020). *Effects of forced migration on the environment the case of Arua district, in Uganda.* UoN.

Maystadt, J. F., Mueller, V., Van Den Hoek, J., & Van Weezel, S. (2020). Vegetation changes attributable to refugees in Africa coincide with agricultural deforestation. *Environmental Research Letters*, *15*(4). https://doi.org/10.1088/1748-9326/AB6D7C

Maystadt. (2014). Winners and Losers among a Refugee-Hosting Population.

Monteith, W., & Lwasa, S. (2017). The participation of urban displaced populations in (in)formal markets: contrasting experiences in Kampala, Uganda. Environment and Urbanization, 29(2), 383–402. https://doi.org/10.1177/0956247817721864

Mulumba, D. (2011). The Gendered Politics of Firewood in Kiryandongo Refugee Settlement in Uganda. African Geographical Review, 30(1), 33–46. https://doi.org/10.1080/19376812.2011.10539134

Musoke, S. (2019). *South Sudan refugees and environmental degradation in Uganda.* Makerere University. http://hdl.handle.net/10570/7959.

Napier-Moore, R. (2005). Entrenched relations and the permanence of long-term refugee camp situations. https://www.researchgate.net/publication/253291694

Nduwamungu, J., & Munyanziza, H. (2013). Agroforestry practice in villages surrounding Nyamure former refugee camp, Nyanza District: tree species and purpose. Rwanda Journal, 28(1). https://doi.org/10.4314/rj.v28i1.5

Neves, D., Baptista, P., & Pires, J. M. (2021). Sustainable and inclusive energy solutions in refugee camps: Developing a modelling approach for energy demand and alternative renewable power supply. Journal of Cleaner Production, 298. https://doi.org/10.1016/j.jclepro.2021.126745

Njoka, R., Foote, A. D., Woods, E., Lokey, H., O, C. E., Magumba, F., Okello, P., Mintz, E. D., Marano, N., Morris, J. F., & Kenya, C. D. C. (2017). Sanitation practices and perceptions in Kakuma refugee camp, Kenya: Comparing the status quo with a novel service-based approach. https://doi.org/10.1371/journal.pone.0180864

Okong'o, K. (2020). Proportionate regulation in Uganda: A gateway for refugees accessing mobile services in their own name. *GSMA Mobile for Humanitarian Innovation Programme*, 9pp.

Omata, N., & Kaplan, J. (2013). Refugee livelihoods in Kampala, Nakivale and Kyangwali refugee settlements Patterns of engagement with the private sector Working Paper Series. www.rsc.ox.ac.uk

Omoding, J., Walters, G., Andama, E., Carvalho, S., Colomer, J., Cracco, M., Eilu, G., Kiyingi, G., Kumar, C., Langoya, C. D., Bugembe, B. N., Reinhard, F., & Schelle, C. (2020). Analysing and applying stakeholder perceptions to improve protected area governance in Ugandan conservation landscapes. Land, 9(6). https://doi.org/10.3390/LAND9060207

Quader, M. A., Dey, H., Malak, M. A., & Sajib, A. M. (2021). Rohingya refugee flooding and changes of the physical and social landscape in Ukhiya, Bangladesh. Environment, Development and Sustainability, 23(3), 4634–4658. https://doi.org/10.1007/s10668-020-00792-0

Ramsay, G. (2020). Humanitarian exploits: Ordinary displacement and the political economy of the global refugee regime. Critique of Anthropology, 40(1), 3–27. https://doi.org/10.1177/0308275X19840417

Roos, N. (2016). Edible insects for improved food and nutrition security at Kakuma refugee camp.

Rossi, M., Rembold, | Felix, Bolognesi, M., Nori, | Michele, Mureithi, S., & Nyberg, G. (2018). Mapping land enclosures and vegetation cover changes in the surroundings of Kenya's Dadaab refugee camps with very high resolution satellite imagery. https://doi.org/10.1002/ldr.3212

Ros-Tonen, M. A. F., Reed, J., & Sunderland, • Terry. (2018). From Synergy to Complexity: The Trend Toward Integrated Value Chain and Landscape Governance. *Environmental Management*, *62*, 1–14. https://doi.org/10.1007/s00267-018-1055-0

Sayer, J., Sunderland, T., Ghazoul, J., Pfund, J.-L., Sheil, D., Meijaard, E., Venter, M., Klintuni Boedhihartono, A., Day, M., Garcia, C., Van Oosten, C., & Buck, L. E. (n.d.). *Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses*. https://doi.org/10.1073/pnas.1210595110/-/DCSupplemental

Schoen, A. (2021). Measuring self-reliance in refugee camps. Retrieved from: https://www.researchgate.net/publication/348447383_MEASURING_SELF-RELIANCE_IN_REFUGEE_CAMPS

Stjernquist, M., Kth, D., För, S., & Samhällsbyggnad, A. O. (2019). Energy Access for the Most Vulnerable Groups A Study on the Long-Term Effects of Energy Access in a Refugee Camp Context with Inclusion of the Host Community. www.kth.se

Tafere, M. (2018). Forced displacements and the environment: Its place in national and international climate agenda. https://doi.org/10.1016/j.jenvman.2018.07.063

Taylor, J. E., Zhu, H., Gupta, A., Filipski, M., Valli, J., & Gonzalez, E. (2016). Economic Impact of Refugee Settlements in Uganda * Economic Impact of Refugee Settlements in Uganda.

Thomas, P. J. M., Williamson, S. J., & Harper, P. W. (2021). The diffusion of solar home systems in Rwandan refugee camps. https://doi.org/10.1016/j.esd.2021.05.003

UNDP. (2018). Understanding land dynamics and livelihoods in refugee hosting districts of Northern Uganda. *United Nations Development Programme (UNDP), Kampala, Uganda*, 25pp.

UNHCR. (2019). GLOBAL STRATEGY FOR SUSTAINABLE ENERGY. www.facebook.com/UNHCREnv/

UNHCR. (2018). Comprehensive Refugee Response Framework: The Uganda Model. *Comprehensive response, Case study*, 17.

FAO & UNHCR 2016. Technical handbook on assessing woodfuel supply and demand in displacement settings. Retrieved from: https://www.fao.org/forestry/energy/catalogue/search/detail/en/c/1306666/

UNHCR & CARE, (undated); Framework for Assessing, Monitoring and evaluating the environment in the refugee related operations

UNHCR, (2005). UNHCR Environmental guidelines

UNHCR & IUCN. (2005). Handbook on Forest Management in refugee and returnee situations . https://portals.iucn.org/library/sites/library/files/documents/2005-034.pdf

UNHCR. (2002). Livelihood options in refugee situations a handbook for promoting sound agricultural practices. Development

UNHCR. (2001). Practicing and promoting sound environmental management in refugee/returnee operations international workshop. https://www.unhcr.org/406c34174.pdf

UNHCR. (n.d.). Framework for Assessing, Monitoring and Evaluating the environment in refugee-related operations. https://www.unhcr.org/4a968ec59.pdf

Viswanathan, Madhubalan & Arias, Robert & Sreekumar, Arun. (2020). Extreme Exclusion and Relative Deprivation in Subsistence Marketplaces: A Study in a Refugee Settlement in Nakivale, Uganda. Journal of Consumer Affairs. 55. 10.1111/joca.12296.

Watera, W. et al (2017). Uganda's Refugee Management Approach within the EAC Policy Framework. Konrad Adenauer Stiftung. Retrieved from: https://www.kas.de/c/document_library/get_file?uuid=72aba01c-362f-bb7d-9285-2be31890913f&groupId=280229

Vemuru, V., Oka, R., Gengo, R., & Gettler, L. (2016). Refugee Impacts on Turkana Hosts A Social Impact Analysis for Kakuma Town and Refugee Camp Turkana County, Kenya.

Verwimp, P., & Maystadt, J.-F. (2015). Forced Displacement and Refugees in Sub-Saharan Africa An Economic Inquiry.

Vianello, M. (2016). Toolkit for the Moving Energy Initiative A Review of Cooking Systems for Humanitarian Settings.

Wissel, A. M. (2017). Patterns of Refugee Planning: A Comparative Analysis of Current Refugee Planning Approaches. Advances in Applied Sociology, 07(11), 349–363. https://doi.org/10.4236/aasoci.2017.711023

World-Bank. (2016). *An Assessment of Uganda's Progressive Approach to Refugee Management*: World Bank.

World-Bank, & FAO. (2020). Assessment of Forest Resource Degradation and Intervention Options in Refugee-Hosting Areas of Western and Southwestern Uganda. *Food and Agricultural Organization - FAO. http://www.fao.org/3/ca7832en/CA7832EN.pdf*, 92pp.

This initiative is part of the project Governing multifunctional landscapes in Sub-Saharan Africa: Managing trade-offs between social and ecological impacts (GML), which is financed by the European Union.

This research was carried out by CIFOR-ICRAF as part of the CGIAR Research Program on Forests, Trees and Agroforestry (FTA). FTA is the world's largest research for development program to enhance the role of forests, trees and agroforestry in sustainable development and food security and to address climate change. CIFOR leads FTA in partnership with Bioversity International, CATIE, CIRAD, INBAR, ICRAF and TBI. FTA's work is supported by the CGIAR Trust Fund: cgiar.org/funders/

The opinions expressed here belong to the authors, and do not necessarily reflect those of the CGIAR or CIFOR-ICRAF.