



Local involvement in the Great Green Wall of Africa  
A systematic review of guidelines on how to  
involve local communities in nature conservation  
projects



**GROWING A  
WORLD WONDER**

A systematic review of guidelines on how to

Source photo 1 (women working): Great Green Wall (n.d.)

Source photo 2 (vegetation): Great Green Wall (n.d.)



**Universiteit Utrecht**

# Local involvement in the Great Green Wall of Africa

## A systematic review of guidelines on how to involve local communities in nature conservation projects

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Bachelor Thesis

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This thesis is about the involvement of local communities with the Great Green Wall of Africa. The Great Green Wall for Sahara and Sahel Initiative (GGWSSI) is a project in which already 21 African countries work together to stop further desertification of the Sahel region, that started in 2007. The initiative aims to revegate the entire belt surrounding the Sahara, while making agricultural practices more sustainable. It is estimated that 60 million locals have to migrate, would the initiative fail. Many researchers and specialists agree that for the initiative to succeed, local communities have to be involved. This thesis aims to give an overview of strategies that promote the participation of local communities in nature conservation projects in general and the GGW in particular. During the research an answer is being sought to the question: *“What are the guidelines for involving local communities in the nature conservation project ‘the Great Green Wall’?”*. The method being used to answer this question is a systematic review. Documents published by the United Nations Convention to Combat Desertification (UNCCD), the United Nations Convention on Biological Diversity (CBD), the United Nations Framework Convention of Climate Change (UNFCCC), the Food and Agricultural Organization (FAO) and the International Union for the Conservation of Nature (IUCN) are thoroughly reviewed. In these documents, 8 main strategies with 11 sub-strategies were identified. The systematic review shows how often the strategies are mentioned but not how well the strategies work.

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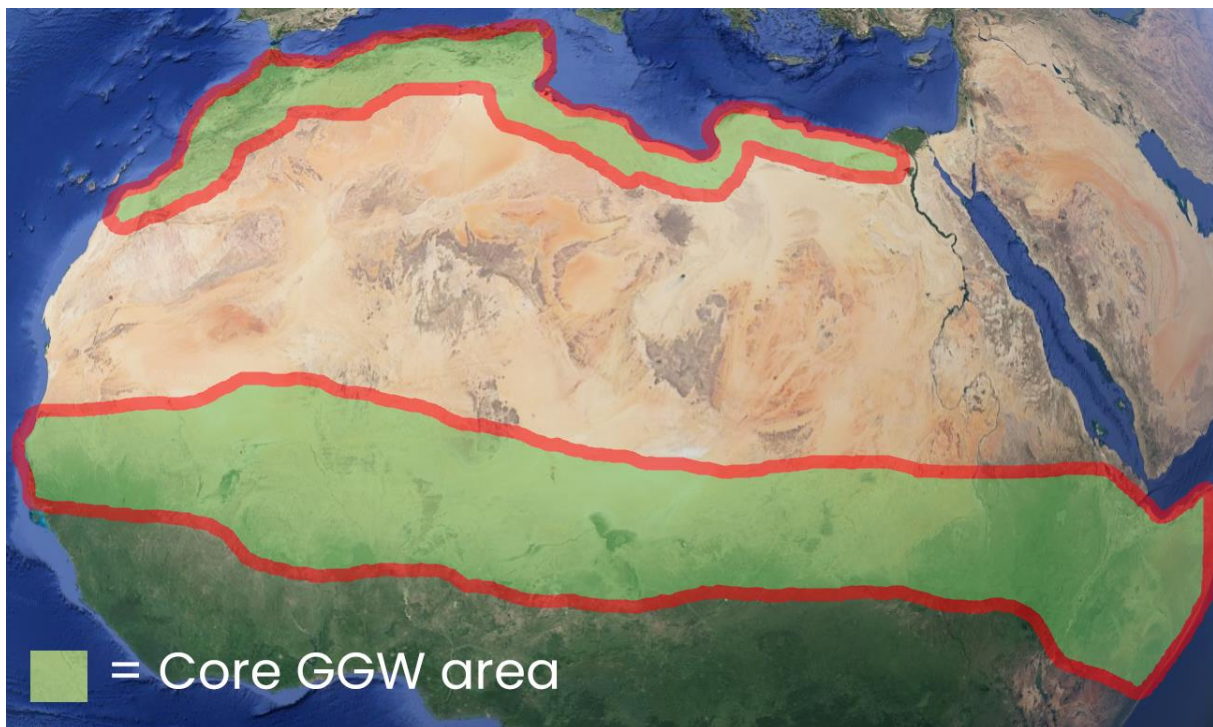
## 1. Introduction

*The Sahel traditionally stands for drought and famine, but today large parts are beautifully green and fertile. With already 250 million trees being added, it is the largest environmental improvement in Africa, not thanks to Western aid organizations, but to local farmers (Van Raaij, n.d.)*

A natural disaster like an earthquake, volcano eruption or drought, is according to the Merriam-Webster's collegiate dictionary (2020) defined as "a sudden and terrible event in nature (such as a hurricane, tornado, or flood) that usually results in serious damage and many deaths". A natural disaster can have a devastating impact on a society, disrupting lives, assets and the economy. However, mankind has proven to have an influence on these natural hazards as well, affecting their likelihood and intensity. Desertification is the process of becoming a desert, also known as arid land with usually sparse vegetation, for example by land mismanagement or climate change. It is not a typical natural disaster, as it is not as sudden, but it does usually lead to serious damage, mass migration and possible deaths (Luttikhuis, 2016; Merriam-Webster's Collegiate Dictionary, 2020). From the 1960's onwards, scientific papers have been written about the prolonged droughts in the Sahel region in West Africa (Agnew & Chappell, 1999; Charney, 1975; Dai et al., 2004; Glantz, 1977). The process that is taking place in the Sahel region is an example of desertification which is both heavily influenced by humanity and has a substantial influence on humankind itself. Overuse of the soil by people and climate change are turning soils unfertile, which results in desertification at the south border of the Sahara (Morrison, 2016). In turn, if the Sahel region is actually turning into barren soil, it affects millions of people, and around sixty million locals would be forced to migrate (Luttikhuis, 2016).

To combat this desertification, the Great Green Wall for the Sahara and Sahel Initiative (GGWSSI) was first proposed in 2005 by the Nigerian president Olusegun Obasanjo (Great Green Wall, n.d.; Hodge, 2019). The GGWSSI aims to restore a wide belt of vegetation, with a mosaic of land use practices like agriculture and forestry, surrounding the Sahara (see Figure 1) (Bilski, 2018; Laestadius, 2017). Part of this initiative is to revegetate a fifteen kilometer broad and almost 8.000 kilometer long stroke of fragile ground at the south border of the Sahara and through the Sahel region, stretching the entire width of Africa from Senegal in the west to Djibouti in the east (Great Green Wall, n.d.; Hodge, 2019; IPS, 2018; Laestadius, 2017). In the GGWSSI, both conservation as well as restoration actions get combined. Conservation is about the "careful preservation and protection of something, especially planned management of a natural resource to prevent exploitation, destruction, or neglect" (Merriam-Webster's Collegiate Dictionary, 2020). Restoration on the other hand is about bringing something back to its former condition, in this case to the state of nature before desertification (Merriam-Webster's Collegiate Dictionary, 2020). In 2007 the GGWSSI was actually launched by the African Union

(Great Green Wall, n.d.; Hodge, 2019; IPS, 2018). More than twenty countries, namely Burkina Faso, Cameroon, Chad, Djibouti, Eritrea, Ethiopia, Ghana, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan, Algeria, Benin, Cabo Verde, Egypt, Gambia, Libya, Somalia, and Tunisia, have since then committed to the GGWSSI (Great Green Wall, n.d.). However, not every contributing country has seen an evenly smooth development of the revegetation process. There are many natural factors that can hinder the growth, like the sort of vegetation being planted, local weather patterns and local type of soil. Besides, there is political instability in some of the regions which results in conflicts that negatively influence the revegetation process (Hodge, 2019).



*Figure 1: Core area of the GGWSSI*

The reason for revegetating this area is that grasses, shrubs and trees are to stop the desertification southwards (Hodge, 2019; Tapsoba & Dampha, n.d.). Vegetation will increase the organic matter concentration on the soil and stop soil erosion, leading to a better micro-climate for other vegetation to grow. However, restoring the belt of vegetation is not done by only planting grasses, shrubs and trees. To succeed, one has to take into account droughts, climate change, biodiversity loss and land degradation (Hodge, 2019; Tapsoba & Dampha, n.d.).

Elvis Tangam, project coordinator of the GGWSSI at the African Union, emphasizes that the GGW is more than a physical wall of trees. New jobs are created, giving people meaningful work and the chance to earn money and invest in their community. As a result of this, the resilience of human and natural systems to extreme events linked to climate change can be improved. There can be a shift from emergency, short term solutions to sustainable actions which are made in advance and are

beneficial for a longer period of time (Great Green Wall, n.d.; IPS, 2018; Tapsoba & Dampha, n.d.).

Also, food security will rise in a region where 29.2 million people lived without certainty on sufficient food in 2018 (IPS, 2018). Although the agricultural sector is often seen as an obstacle to reforestation, there is a high interdependency between agriculture and the forest. Forests enhance the water cycle nationally and regionally. Furthermore, they reduce soil erosion and sedimentation, they filter litter and take up pollutants from the air and soil, turning them into less harmful substances. Finally they offer protection against extreme weather, storing water in wet periods and releasing it during times of drought (du Preez, 2014). These functions improve local agriculture and therefore food security. If nothing is done, environmental defense organizations of the United Nations expect more than half of the African farmland that existed in 2016 to be lost to drought by 2026. Sixty million people would be forced to migrate somewhere else (Luttikhuis, 2016). Camilla Nordheim, from the United Nations Convention to Combat Desertification (UNCCD) too connects the desertification with migration. According to her the planting of trees helps to make local communities more resilient and gives young people a reason to stay due to job prospects and the hope for a sustainable future (Luttikhuis, 2016).

There is a general agreement that local communities of the Sahel region are to be involved in the GGWSSI for it to succeed (Bilski, 2018; Grainger, 2013; Hodge 2019; IPS, 2018; Luttikhuis, 2016; Morrison, 2016). Marine Gauthier, environmental expert at the Rights and Resources' initiative, stresses that a lot of people in the Sahel region are dependent on the land for their survival. The project is likely to influence a lot of cattleman that live in the Sahel region, who rely for their lives on their cattle rack, in a region not unknown to conflict. According to her the key to long-term success, same as with any other nature conservation project, is having intensive contact with the local communities and making them the beneficiaries of the project (IPS, 2018). Grainger (2013) calls the involvement of local communities in nature conservation projects 'community forestry' and explains that it is beneficial for three reasons. The first is that by mobilizing the communities, more vegetation can be planted than the forestry department could ever do. The second is that by involving the communities in all stages, there is a better chance that trees that are planted are sheltered from damage and premature harvesting. The last reason is that the benefits of the increased land productivity can be distributed over the communities, thereby improving their livelihoods.

Considering the great amount of attention the involvement of local communities with nature conservation projects has gotten, one would expect a clear guidance on how to do this best. Although a lot of guidelines have mentioned some strategies, there is not one clear guideline in scientific literature about this subject that gives an overview of the consensus. If such a clear and comprehensive guideline would exist, countries implementing a nature conservation program can be assisted in involving the community and therefore have a better chance to succeed in the project. These



guidelines could then be used and adjusted to the local context and circumstances.

This paper aims to give an overview of the most commonly reported methods on how to involve local communities in nature conservation projects, which the GGWSSI is. This overview is based on a systematic review of the reported guidelines of the Conference of Parties (COP) to the three Rio de Janeiro (Rio) conventions and two intergovernmental organizations (IGOs) that are all closely involved with the GGWSSI. These conventions and IGOs are the United Nations Convention to Combat Desertification (UNCCD), the United Nations Convention on Biological Diversity (CBD), the United Nations Framework Convention of Climate Change (UNFCCC), the Food and Agricultural Organization (FAO) and the International Union for the Conservation of Nature (IUCN). Documents published by these COP to the conventions and IGOs will be analyzed for strategies on how to best involve local communities in nature rehabilitation and conservation projects. Within this research, the GGWSSI is used as a case study to manage the scope of the research. This leads to the following research question:

*“What are the guidelines for involving local communities in the nature conservation project ‘the Great Green Wall’?”*

This question will be answered both within the theoretical framework as a result of a scientific literature review, and in the results chapter by a content analysis of the guidelines. The latter will be done by a systematic review, leading to an analysis scheme. To conclude, the lessons learned from the scientific literature and the guidelines are compared. In this way, an overview of the consensus concerning guidelines to involve local communities in the nature conservation project the GGW is composed.

In the following chapter, the theoretical framework elaborates on every aspect of nature conservation, participation and local communities that is important to answer the research question in a thorough way. After this chapter, the methodological approach discusses the method being used, the search strategy, the actors and the in- and exclusion criteria. This is followed by the results chapter, which shows the information that has been generated in the systematic review in tables, figures and a narrative synthesis. To conclude this research, the results are thoroughly reviewed in the discussion chapter. Furthermore, limitations and strengths of the research are being discussed. Lastly, the conclusion chapter reflects on whether the main question has been answered and on any future research possibilities. The literature list and appendix will close the research.

## 2. Theoretical framework

### 2.1 Nature conservation

Nature conservation is the care and protection of earth's natural resources so that they can remain for future generations. It involves the preservation of a variety of species, genes, and ecosystems, as well as functions of the environment, such as the nutrient and water cycles (Fiedler, 2012). Natural resources can be divided in stored resources, like soil, oil and other minerals, and flow resources, like flora, fauna, wind and water (Lyle, 1999). These different natural resources do not only have intrinsic value but also provide 'ecosystem services' (Torkar & McGregor, 2012). Without ecosystem services human life cannot exist. Natural ecosystems and the species of which they consist, provide both 'ecosystem goods', like food, fuel and physical materials to make products, as actual life-support actions, like recycling and purification of the water and air. Together they form these ecosystem services (Daily et al., 1997).

Nature conservation is similar to nature preservation, in that they both try to protect the natural environment. There is a difference, however, in how they try to accomplish this. Preservation tries to protect nature from any human use, while conservation seeks to make this human use of nature sustainable (Sheail, Treweek, & Mountford, 1997). Because the GGWSSI does not aim to remove human interaction in the region, but aims to make this interaction sustainable, the concept nature conservation is central in this thesis. A wide consensus regards the consideration of humans entirely separate from nature as impossible, especially in the heavily human-dominated world that we live in (Torkar & McGregor, 2012).

According to McKee, Sciulli, Foose and Waite (2004), continued human population growth has led to unsustainable rates of consumption of our natural resources, resulting in a loss of biodiversity all around the world. The main determinants driving this global loss include habitat destruction, climate change, invasive species, overexploitation, and pollution (Clavero, Brotons, Pons, & Sol, 2009; Hooper et al., 2012; McNeely, 1992; Rosser & Mainka, 2002; Warren et al., 2013). In the Sahara and Sahel region, this biodiversity loss is leading to an ongoing desertification. The degraded soil structure and fertility leave little room for bio-productive resources, which is very important for the well-being of local residents (IUCN, 2016b; Sehmi & Kundzewicz, 1997). Desertification is different from a drought in that it is a long-term process of ground degradation instead of a short-term decline in the level of productivity (Grainger, 2013). According to Nicholson, Tucker and Ba (1998) the roots of the Sahel desertification lie in societal changes, "like increasing population, sedentarization of indigenous nomadic peoples, breakdown of traditional market and livelihood systems, introduction of new and inappropriate technology in the affected regions, and, in general, bad strategies of land management" (pp. 816). Associated with these changes are a growing number of livestock, deforestation, over-

cultivation and intensive irrigation. This in turn leads to soil that becomes increasingly more vulnerable by wind and water erosion, going into a positive feedback loop (Nicholson et al., 1998).

Planting trees and other vegetation is a way to break this positive feedback loop. The soil is being held in place by the roots of the plants and the fact that wind and rain will have less direct impact on the top layer of the soil by the branches and leaves of the plants, in this way protecting the vulnerable soil for erosion. Plants also increase the organic matter concentration of the soil. The combination of these factors, by which the fertile top layer of the soil remains in place, leads to a better chance of plants to grow. In this way, land that was degraded can be reclaimed, reversing the two physical characteristics of desertification; soil erosion and the removal of vegetative cover. Only by allowing grasses, shrubs and trees to cover a substantial part of the land, desertification can be stopped. Therefore, the combination of replanting forests and sustainable land use are of significant importance (Grainger, 2013). According to Berrahmouni, Parfondry, Regato and Sarre (2015) “restoration actions in drylands could range from on-the-ground activities such as habitat protection, sustainable natural resource management, assisted natural regeneration, sand-dune stabilization, seeding and planting of trees, shrubs and grasses for multiple purposes, to policy improvements, the provision of financial incentives, capacity development, and continuous monitoring and learning” (p. 245). This shows how broad restoration interventions can be.

## 2.2 Nature conservation organizations

In the field of nature conservation, several environmental organizations are involved. These organizations range from the internationally based United Nations (UN) organization and other inter-governmental organizations (IGOs), to international, national and regional non-governmental organizations (NGOs) (Boardman, 1981; Trzyna & Childers, 1992; Yang & Wu, 2010). Besides these nature conservation organizations, governments, businesses, local communities, scholars and many individuals with different professions are involved in the field of nature conservation (Boardman, 1981; Yang & Wu, 2010).

IGOs play an important role in nature conservation, especially if the area covers more than one country (Trzyna & Childers, 1992). IGOs are defined by Volgy, Fausett, Grant and Rodgers (2008) as “entities created with sufficient organizational structure and autonomy to provide formal, ongoing, multilateral processes of decision making between states, along with the capacity to execute the collective will of their members (states)” (p 839). An IGO consists of representatives from the governments of their member states. IGOs often work together with other IGOs, NGOs and societal stakeholders (Trzyna & Childers, 1992).

The UN is an IGO that focusses, with a variety of projects and specialized agencies, among others on the protection of the natural environment and resources. The United Nations Environment

Programme (UNEP) is seen by Tryzna and Childers (1992) as the overarching program that focuses on nature conservation under which all other UN nature conservation projects fall, although not all smaller projects concerning this topic are in direct contact with UNEP. Specific nature conservation projects are often carried out by multiple agencies or organizations together. The UN organizes conferences in which different environmental topics get discussed, like the UN Conference on Environment and Development held in 1992 in Rio de Janeiro (Rio), which focused the world's attention towards the link between nature conservation issues and economic and social development (Tryzna & Childers, 1992). This Rio conference established negotiations between almost every member state of the UN, leading to widely supported declarations like the declaration to address transboundary environmental measures or global environmental problems, which should "as far as possible, be based on an international consensus" (Held, 2003, p. 171). The conference also resulted in the forming of several conventions, which countries can be signatories of. There are regular conferences (or meetings) of the parties (COP) to the conventions. These COP are prepared by the conventions' secretariat. In these meetings, documents get adopted about the implementation of the convention, providing critical guidance to protect for example biodiversity. The conventions encourage their parties, other governments, and relevant stakeholder organization to make use of the guiding principles (Held, 2003). The UN, like some other IGOs, facilitates communication networks between governments, institutions and the public to collect, process and spread knowledge. In its multiple programs it advises governments and gives them the chance to meet and discuss with other governments. Also, it informs the public on behalf of the government or development funding agencies (Tryzna & Childers, 1992).

International NGOs are involved in nature conservation all over the world (Grainger, 2013). They are known as voluntary, non-profit or charitable organizations, who commit themselves to many community services (Grainger, 2013). At the UN, the term NGO has a specific meaning, namely 'not national government', as regional and local governments are considered NGOs (Betsill & Corell, 2008). In an international NGO, often representative of NGOs from different countries work together (Tryzna & Childers, 1992). According to the UNCCD, an inter-governmental organization, NGOs provide an important bridge between the international political stage and on-the-ground implementation, facilitating direct cooperation with societal stakeholders. Additionally they do research, inform and advise policymakers, prod states and IGOs into taking action, help to empower often marginalized groups, promote public awareness, raise funds and work together with businesses (Betsill & Corell, 2008; Boardman, 1981; Grainger, 2013; Stafford, Polonsky & Hartman, 2000; Tryzna & Childers, 1992). National NGOs are the international's more local equivalents (Osikhena & Chikadzi, 2014). According to Grainger (2013), locally active NGOs have the potential to involve and motivate local communities to participate in nature conservation projects. But they also encounter several constraints on their activities in nature conservations, like the staff having insufficient technical knowledge, getting

inadequate advice from consultants, and insufficient funding. Additionally, the coordination between governments, IGOs and NGOs is poor, which can lead to the exclusion of NGOs in the consultation and planning phase and to a limited knowledge exchange. The UN Non-Governmental Liaison Service is set up particularly to facilitate cooperation between the UN and NGOs in the field of nature conservation (Grainger, 2013). A schematic overview of the organizations that are active in the field of nature conservation can be seen in below (Figure 2).

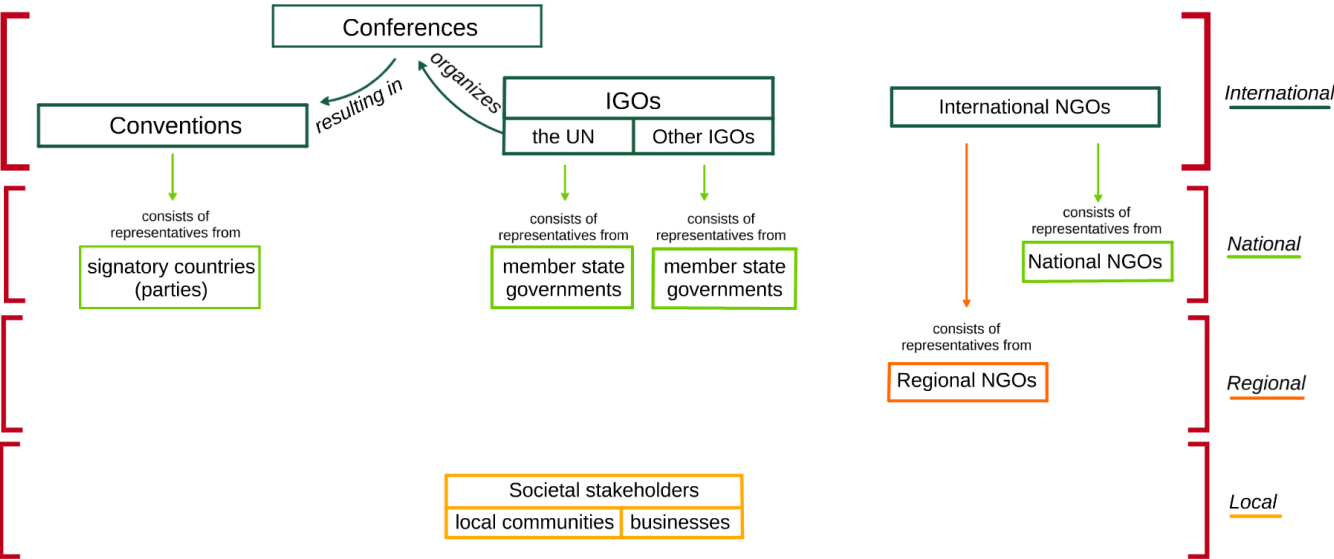


Figure 2: schematic overview of organizations active in the field of nature conservation

2.3 Community participation in nature conservation projects

Participation is a very broad concept that has a different meaning to different people (Claridge, 2004; Hussein, 1995; Kelly, 2001; Lane, 1995). This results in a variety of views on how participation is defined, whom it is expected to involve, what it is expected to achieve, and how it is to be brought about (Agarwal, 2001; Claridge, 2004). Many definitions of participation focus on the different roles communities take in the process (Claridge, 2004).

A ‘community’ can be described as a group of people that form a collective identity with shared goals. They often recognize themselves, or are recognized by outsiders, as sharing common cultural, religious, or other social features, backgrounds and interests. However, what is externally perceived as a community, might in fact be an entity with many subgroups, divided for example by clans, social class, language, or religion (Grodzińska-Jurczak & Cent, 2011a).

The community-based approach is an alternative to the conventional top-down approach in nature conservation, in which government agencies are responsible for nature conservation

(Grodzińska-Jurczak & Cent, 2011a; Lurie & Hibbard, 2008; Margerum, 2007; Torkar & McGregor, 2012). The top-down approach is criticized more often by the international scientific community, for many failures of the implementation of this approach in nature conservation have been documented (Inamdar, de Jode, Lindsay, & Cobb, 1999; Torkar & McGregor, 2012). The community-based approach takes into account the relationship between ecosystem conservancy and the sustainable livelihood of communities, in a world where social and economic factors are more closely tied to successful nature conservation (Torkar & McGregor, 2012).

A nature conservation project consists of three phases, the decision-making phase, the implementation phase and the maintenance phase. In the first phase, decisions are made about the planning and design of the project (Claridge, 2004). In the case of the GGWSSI, this is about what should be done to stop the desertification, what arrangements should be made to plant vegetation and involve communities, who should be involved, and where the green belt will actually be realized. The implementation phase starts when the design is made up, and the project can actually start (Claridge, 2004). In the GGWSSI this is about the actual tree planting phase, and making land-use sustainable in the green belt area. The maintenance phase is the last phase in which in the GGWSSI the newly planted vegetation gets protection and the project is made sure to endure.

The participation of communities can take place in all these different phases of the project. The importance of effectively integrating locals during the project, making sure they have the tools to live autonomous when the project has ended and to maintain the progress being made in the project, is highlighted by the FAO in their evaluation of reforestation and restoration projects in drylands (FAO, 2013). As Ahnström et al. (2008) express it in their article, the attitude of a community in the decision-making process is a theoretical readiness to act, but this attitude does not always lead to actual conservation actions in practice. This stresses the importance of actually involving the local community in the implementation and maintenance of the nature conservation project.

However, most definitions of participation emphasize the involvement of the community in the decision-making phase, rather than the implementation or outcome phase of the project (Claridge, 2004). A distinction must be made here between participation and consultation in the decision-making process (Claridge, 2004; Coakes, 1999). Arnstein (1969) explains in her article the difference between the two, describing the different forms of participation in the decision-making phase with the use of a participation ladder. In this ladder, the influence of the community on the decision-making process ranges from none to full influence. According to Grodzińska-Jurczak and Cent (2011a), education about the upcoming nature conservation project, oriented towards shaping attitudes that are in favor of involving in environmental protection, is an important part of participation. Research shows that the education of farmers leads to an increase in willingness to participate in conservation schemes and adopt new technologies (Ahnström et al., 2008). However, according to Arnstein (1969) this is part of

the lowest rung of the participation ladder, ‘manipulation’, in which the real objective is to educate people instead of enabling them to participate (see Figure 3). In this case it are the officials who educate, advise and persuade the community, not the other way around. The next rung on Arnsteins (1969) ladder is ‘therapy’, also a nonparticipation form, in which “its administrators – mental health experts from social workers to psychiatrist – assume that powerlessness is synonymous with mental illness” (p. 218). Communities are in this case participating, but the focus is on curing them of their “pathology”, instead of tackling the causes that led to that “pathology” (Arnstein, 1969).

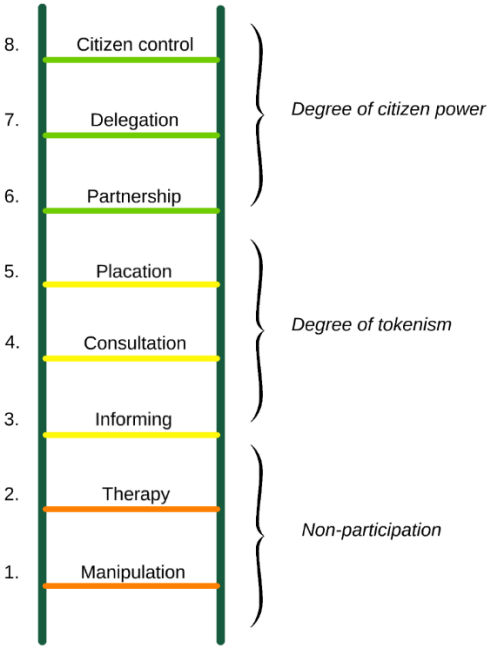


Figure 3: Ladder of participation (Arnstein, 1969)

Informing communities about their rights, responsibilities and options is a very important first step in community participation, but without the chance to give feedback or to negotiate, it is a one-way flow. Especially when this information is given later on in the decision-making process, it leaves little chance for a community to influence the process. Furthermore, communities can be intimidated by legalistic jargon, the prestige of an official or the focus on futilities, leading to misinformed acceptance of information (Arnstein, 1969). According to Arnstein (1969) ‘informing’ is the first rung on the ladder that is a level of ‘tokenism’, in which communities hear and have a voice, but still lack the power to have their voices heeded. The second rung of tokenism, and the fourth rung of the total ladder is ‘consultation’. Consultation is about sharing information but not necessarily power, whereas participation should lead to significant control over the project (Claridge, 2004; Sarkissian, Cook, & Walsh, 1997). A community can be consulted in meetings or questionnaires, with which power holders achieve the evidence that they involved the communities. However, communities are not always

informed well before these consultations, for example by not knowing what their options are (Arnstein, 1969). The highest rung of tokenism in Arnstein's (1969) ladder is 'placation'. At this level, communities begin to have some degree of influence, but this does not always apply for the whole community (Arnstein, 1969). A community might be inclusive and protective of its members, but might also be socially controlling and thereby making it difficult for, often marginalized, sub-groups to express their opinions and claim their rights (UNHCR, 2008). Arnstein (1969) names two factors on which the degree of placation of a community depends: "the quality of technical assistance they have in articulating their priorities; and the extent to which the community has been organized to press for those priorities" (p. 220). When getting appropriate technical assistance, participation can reduce differences between communities and experts and can help to put theory into locally adjusted practice (Claridge, 2004).

If decision-making can be influenced by the participants, even at the highest level, communities can actually control rather than guide the project (Chamala, 1995; Claridge, 2004). In the last three rungs of Arnstein's (1969) ladder, 'partnership', 'delegated power', and 'citizen control', communities actually have a degree of power. According to Chamala (1995), true participation is achieved if all different groups, including scientists, managers, politicians, financial institutions, communities and farmers, truly share the power and control over the project. Instead of the rungs in 'tokenism', communities have the power to heed their voices and negotiate with the traditional power holders. Experiments demonstrated that by handling the entire job of planning, policy-making, and managing a program, marginalized groups in a community can improve their own lives (Arnstein, 1969).

This thesis focusses on community participation in nature conservation projects in both the decision-making phase as well as the following implementation and maintenance phases. The different phases of community participation will be taken into account in the systematic review, by analyzing whether any of the phases get mentioned in the reviewed documents as being an important phase to involve local communities in. Also the participation ladder of Arnstein is taken in account during the systematic review. When participation is mentioned in this thesis, participation as a 'degree of citizen power' is meant, aiming to give local communities actual control over the project.

#### 2.4 The importance of involving local communities in nature conservation projects

Over the years, researchers have pointed out that many factors influence the sustainability of natural resource management. Factors such as institutional coherence, clear communication, co-operation, representation by a broad range of people, from governments to businesses to local communities, and good relationships between them, all result in more sustainable natural resource management (Ahnström et al., 2008; Grodzińska-Jurczak & Cent, 2011a; Pellow, 1999). In the last few years, winning over local communities for local environmental protection tasks has evolved in a necessity for effective environmental management, rather than something to just check off the list (Grodzińska-Jurczak &



Cent, 2011a; Mendez-Contreras, Dickinson, & Castillo-Burguete, 2008; Roth et al., 2004). It increases the effectiveness and acceptability of the undertaken actions, which in turn benefits the perceived importance of the environmental issue.

However, not only the nature conservation project benefits of local involvement, the community does as well. Education about the project increases the knowledge of community members, involvement in the decision-making process gives them a voice in selecting, in their point of view, the best solutions, and direct participation in the project leads to development of their social network and social skills (Grodzińska-Jurczak & Cent, 2011a). In a top-down approach, decisions about the place and specifications of the project are made based on views of researchers and policy-makers, who are often far away from the actual implementation place. Knowledge inherent in local culture and customs, which can be beneficial to the decision-making process and provided by the community-based approach, is not included in this scenario (Grodzińska-Jurczak & Cent, 2011a; Mendez-Contreras et al., 2007). This can lead to feelings of exclusion by the local residents which, in turn, can lead to indifference towards protecting their immediate environment, as they feel this is the project initiators' responsibility and not theirs (Grodzińska-Jurczak & Cent, 2011a; Wilshusen & Brechin, 2003). If long-term goals in nature conservation projects are to be achieved, participatory actions are of great importance (Grodzińska-Jurczak & Cent, 2011a; Schusler & Decker, 2002).

The community-based approach has its disadvantages as well, for example when participants of the process lack appropriate competence or knowledge about the project, or when a conflict of interest between different groups or communities exists (Grodzińska-Jurczak & Cent, 2011a). Advocates of the top-down approach are convinced that the needs and development of local communities are conflicting with nature conservation goals, and therefore decisions should come from more objective and effective government institutions (Torkar & McGregor, 2012). According to these advocates, the assumed objectives of nature conservation, like promoting forestry, combatting desertification and their focus on long-term goals generally do not agree with the, often economic, objectives of local residents, like livestock farming, rural development and immediate gain (Mugelé, 2018). Integration of socio-economic with ecological criteria sometimes includes compromises in the ecological conservation criteria, which are often found unacceptable among those who think the conservation of the ecology should come on the first place (Torkar & McGregor, 2012).

However, even though the community-based approach does not always lead to a perfect and complete solution to human-nature problems as described above, it does increase the effectiveness of the nature conservation process (Grodzińska-Jurczak & Cent, 2011a). Men and nature cannot be seen apart from each other. Integrating socio-economic criteria with ecological criteria within nature conservation opens up opportunities for both men and nature (Ferranti, Turnhout, Beunen, & Behagel, 2013). In order to prevent that new plants, shrubs and trees will be chopped soon after planting by the

local population, sustainable supplies of fuelwood, food, fodder and other products needs to be provided to local communities in a way that can sustain for a long time period (Grainger, 2013). To ensure that the ecological criteria get as much attention as the socio-economic criteria, Grodzińska-Jurczak and Cent (2011b) advise that bottom-up activities within the community-based approach should be accompanied by top-down regulations.

## 2.5 Concepts of justice

These different views on whether top-down or bottom-up regulations are desired, and on which role the government has to play in participating local communities in nature conservation projects result in different concepts that legitimate all this. These concepts include utilitarianism, libertarianism and egalitarianism (Begg, 2018; Thaler & Hartmann, 2016). They each have their own view on why communities should participate, which decision-making process is just, and who's responsibility it is to involve local communities. According to Schlosberg (2013), community participation can be used to achieve two key notions of justice, which are political recognition and the equal distribution of burdens and social goods. Each concept has different ideas on how these key notions of justice are achieved and what a good degree of recognition and division of burdens and goods is. These different concepts about equity are therefore called concept of justice, and their basic rationales will be described in the following sections. By mapping these concepts of justice, the different policy approaches to managing community participation the GGWSSI, that are being reviewed in this thesis, can be better understood.

Utilitarianism is a concept developed by economists Mill and Bentham and seeks the biggest utility for the greatest amount of people. The main focus is on the benefit, or utility, of all individuals as a group, as justice and equity are the sum of these individual benefits (Thaler & Hartmann, 2016). The concept sees the option that leads to the greatest happiness amongst the greatest number of people as the most just. What leads to the greatest happiness however, is different for every individual. Differences in views over the worth of local nature and how this ought to be valued, reflect the difference of these utility functions. There can be discussion about which preferences should be maximized (Okereke & Dooley, 2010). In utilitarianism the state is seen responsible for gaining the maximum utility for the money that is available for a nature conservation project and other structural measures. Local communities are seen as responsible for their own participation, preparedness and protection. The state's distribution of funds and other structural measures is based on an objective and economically rationalized decision-making tool like a cost-benefit analysis. Local communities have little influence on and responsibility for this (Begg, 2018). Utilitarianism is considered to be in between the top-down and bottom-up regulations, as the role of the state is rather big (top-down), but local communities carry their own responsibility to participate (bottom-up).

Libertarianism is based on free market principles, in which there is competition and the

freedom to make one's own economic choices. Information is available to all and the state makes sure there are pre-defined rules, like compensation payments, which are used by individuals to order their relationships (Thaler & Hartmann, 2016). Same as with utilitarianism, local communities are seen as responsible for their own participation, preparedness and protection in regard to nature conservation and natural hazards like desertification. The difference between the two however, is that local communities are also expected to take responsibility over the implementation of state-defined decisions. The capacity of the state to assist those at risk is seen as limited, and local communities are encouraged to contribute to the funding of structural measures (Begg, 2018). Another difference with utilitarianism, and a similarity with egalitarianism, is that the emphasis is rather on the separateness of individuals, than on the group of individuals as a whole (Okereke & Dooley, 2010). Libertarianism is considered to be a bottom-up regulation, as the role of the state is limited and the local communities themselves carry great responsibility for the nature conservation project.

Egalitarianism stands for the idea that there is equality between all citizens. Goods, services, benefits and burdens should be equally distributed between all communities and all members within a community. It are often the most vulnerable communities, groups or areas that benefit from this (Begg, 2018; Thaler & Hartmann, 2016). Those that are most vulnerable should be helped to participate, prepare and protect themselves in nature conservation and for natural hazards (Begg, 2018). The role of the state to do so is more prominent than in the former two concepts of justice, and local communities carry less responsibility to participate than in the former two concepts. This makes egalitarianism a top-down regulation.

## [2.6 Recommendations in scientific literature on how to involve local communities best](#)

The success and effectiveness of involving local communities with nature conservation projects depends on the methods being used to put this into action (Grodzińska-Jurczak & Cent, 2011a; Schusler & Decker, 2002). Often, it is necessary to invest financially in these strategies to involve the local communities, for example by compensating losses and setting up good communication methods. This may be costly in the short run but will most likely pay off in the long run. If handled carefully and skillfully, these financial investments have the potential to reduce or avoid costs later on, for example to handle social protests or if the project has to be postponed, litigated or even cancelled (Grodzińska-Jurczak & Cent, 2011a; Vandzinskaite, Kobierska, Schmeller, & Grodzińska-Jurczak, 2010). Although there is not one singular guideline which states how to involve local communities best into these kind of projects, scientists have indicated six factors and five sub-factors that can lead to an increase of the effectiveness of the community-based approach (Grodzińska-Jurczak & Cent, 2011a; Wagenet & Pfeffer, 2007).

The first important factor is clear and transparent communication. For this to happen,

communities have to be involved in an early stage of the process, as it has been demonstrated that if this happens, the different stakeholders get the chance to build mutual trust and respect, which is vital in the implementation of later stages in the nature conservation program (Grainger, 2013; Grodzińska-Jurczak & Cent, 2011a; Life-Nature, 2005). Active communication approaches like public meetings, consultations, negotiations, semi-structured interviews, and search conferences have proved to be satisfying for both communities and managers (Grodzińska-Jurczak & Cent, 2011a; Schusler & Decker, 2002). In a search conference for example, local communities plan their own most desirable future, and take responsibility to carry it out. The method is used to bring people or groups with diverse, often conflicting perspectives together, especially to deal with issues in the changing environment (Rehm & Cebula, 1996). These active communication approaches facilitate opportunities to have a clear communication and equal relations between actors. Chamala (1995) agrees with this, underlining the importance of truly sharing the power and control over the project to achieve participation as a 'degree of citizen power'. Another precondition for good communication is the involvement of more specialists from different disciplines other than natural science, which are often the designers of a nature conservation program (Ahnström et al., 2008; Gruber, 2010). The natural science factor has little control over other sectors that challenge their nature conservation project, like the agricultural or energy sector. However, all these sectors are related to each other and therefore need to communicate and collaborate (du Preez, 2014). When choosing the appropriate methodology, historical and social conditions of a geographical place have to be taken in account. Negligence of these conditions in the past often led to resistance of nature conservation projects and ultimately local communities not joining the program's implementation (Grodzińska-Jurczak & Cent, 2011a; Wilshusen & Brechin, 2003).

The second factor is that communities, groups or individuals who disagree have to be heard and have their voices heeded (Arnstein, 1969; Claridge, 2004; Grodzińska-Jurczak & Cent, 2011a). This agrees with the highest three rungs of Arnsteins ladder. When a nature conservation project is unlikely to generate conflict, the acceptance of the project by local residents is, theoretically, enough to make the decision-making phase of the project a success. In many projects, however, this is not the case and conflict or disagreement on certain matters will occur. Besides hearing and heeding the voices of the community, participatory actions have to be undertaken to reduce discontent about how the conflict is handled and seek for the best possible compensatory actions. If these communities or individuals do not feel they are heard and compensated, either financially or in another way, it can lead to various additional conflict, distrust in environmental protection institutions or unwillingness to participate in other public participation projects (Arnstein, 1969; Grodzińska-Jurczak & Cent, 2011a).

The third factor to encourage local communities to participate is to give them financial support and incentives. According to Grainger (2013), a financial incentive is often the most powerful stimulant

to plant trees. However, the time delay for communities between planting the trees and actually receiving the benefits can be too big. The nature conservation project should ensure to keep the short-term costs for enclosing community land while trees get planted as low as possible, while maximizing the short-term benefits by, for example, giving wages or food to communities for planting and protecting the trees on their land or providing grants or subsidies (Grainger, 2013). Furthermore, locals need to be compensated for the loss of land they could otherwise have used to provide them with, for example, food. Often, it are the poorer sections of the community that rely heavily on the communities common lands. If some local communities or groups within a community are not involved in and do not benefit from the nature conservation project, it is likely that they feel deprived by the enclosure of the land, and may try to keep continue using it (Grainer, 2013). Ahnström et al. (2008) note that although grants and subsidies may create changes in behavior in the short term, this does not mean that they create behavioral changes in the long term, for example by changing perceptions or the way local communities act if the subsidies stop.

And these perceptions, the fourth factor, matter, for wanting to conserve the land for future generations and feelings of attachment to the land were the most important reasons among farmers to join nature conservation projects (Ahnström et al., 2008). Different participators have different 'truths', as their view of what is true depends on the knowledge and perceptions they derived from their context. If different disciplines and local communities are involved, these different epistemologies and interests are integrated in the project (Torkar & McGregor, 2012). An epistemology, also known as the theory of knowledge, describes what gets considered as knowledge or 'the truth' and how this knowledge is acquired (Steup, 2018). Within these different perceptions and truths, local knowledge is emphasized to be of great importance for nature conservation projects in general and the development of the Sahel region in particular (Toulmin & Brock, 2016).

The fifth factor is the involvement of a broad group of communities and a broad group within the communities. First of all, the broader the group of local communities involved in the nature conservation project, and thereby involving all different perceptions, the better the chance of success of this project (Grodzińska-Jurczak & Cent, 2011a; McGurk, Sinclair, & Diduck, 2006). Many researchers reaffirm this by arguing that "processes that actively involve a wider range of stakeholders and which combine different forms of knowledge (formal, informal, theoretical, experiential, expert, lay) can enhance the legitimacy, integrity and value of the knowledge generated" (Stringer, Reed, Dougill, Seely, & Rokitzki, 2007, p. 1). Secondly, as mentioned previously, participation leads to a better social network between the people and communities involved, simultaneously teaching them a more collaborative and less antagonistic approach (Grodzińska-Jurczak & Cent, 2011a; McGurk et al., 2006). Grainger (2013) adds to this that for a better chance of success, it is important to not only speak to the men in a community, for it are often the women that grow food and collect fuelwood and other forest

products. Involving all different groups within a community, including the women, leads to an increased success rate, both for the social forestry project and the women (Grainger, 2013). This agrees with the higher rungs of Arnsteins (1969) participation ladder.

The last factor is that is considered an important strategy to involve local communities is education. Improved education in general and in nature conservation projects in particular, often leads to a raised public awareness, strengthened local capacities, and positive attitudes about being involved in nature conservation projects (Grodzińska-Jurczak & Cent, 2011a). Local innovations get encouraged, as the education of farmers leads to an increased willingness to participate and to adopt new technologies (Ahnström et al., 2008).

## 2.7 Concluding note on theoretical framework

Nature conservation is important, both for nature's intrinsic value as for the ecosystem values it delivers. Within nature conservation, a balance is sought to make human interaction with nature sustainable, acknowledging the common agreement that social and economic factors are closely tied to successful nature conservation. Biodiversity loss in the Sahara and Sahel region is leading to an ongoing desertification, negatively affecting the local communities. Many societal changes, under which population growth, and climate change are drivers of this. Planting trees and other vegetation is a way to break the positive feedback loop, in which already vulnerable soil becomes even more vulnerable to erosion due to the lack of protection by vegetation.

Organizations that are involved in nature conservation range from the very internationally based UN and other IGOs and the conventions they set up, to international, national and regional NGOs and other societal stakeholders. These organizations work together with governments, businesses, local communities, scholars and other individuals in the field of nature conservation.

The participation of communities is central in this thesis. A community can be described as a group of people forming a collective identity with shared goals. Participation can take place in the three different phases a nature conservation project consists of; the decision-making phase, the implementation phase and the maintenance phase. This thesis will evaluate participation in all three the phases. Different kinds of participation get evaluated based on Arnsteins participation ladder. According to her there are eight rungs, ranging from none to full influence. When in this thesis is talked about participation, the highest three rungs of this ladder are being meant, in which communities have an actual degree of citizen power.

The benefits of the involvement of local communities in nature conservation projects go two ways. On one hand the effectiveness and acceptability of undertaken actions gets increased, benefitting the nature conservation project, for example in that it gets more attention. On the other hand are many benefits for the community, like an increase of knowledge, a voice in selecting their

best solutions and a development of social skills and networks. When a community or members in a community do not feel heard or acknowledged, this can lead to feelings of exclusion and indifference towards protecting their immediate environment, feeling this is the project initiators' responsibility and not theirs. The biggest critique on the community-based approach comes from people who believe the objectives of local communities are conflicting with the objectives of nature conservation.

On why local communities should get involved, how to select the best solutions, and who's responsibility this is, is being elaborated in three concepts of justice; utilitarianism, libertarianism and egalitarianism. Within each concept of justice, the state plays a different role, giving the state and local communities different responsibilities. By classifying the documents used in the systematic review within these three concepts of justice, the guidelines for involving local communities can be better understood.

How local communities are best involved in nature conservation is a much discussed topic. Scientist have indicated six factors with five sub-factors that can lead to a better involvement and subsequently an increase in the effectiveness of the community-based approach. The first factor is good and transparent communication. This should start in an early phase, create clear communication and equal relationships between all actors, and involve specialists from different disciplines. The second factor is that communities or members of communities who do not agree with something have their voices heeded. Conflicts should be handled in a sensitive manner. The third factor is to provide financial support and incentives to the local communities, for example by helping to cover the financial gap between investments costs and benefits, and by compensating locals for the enclosure of community land. The fourth factor is acknowledging the different perceptions and integrating them sensitively in the project, in particular local knowledge. The fifth factor is trying to involve a broad group of communities and a broad group of people within the communities. The last factor that leads to an increase of the effectiveness of the community-based approach is the improvement of education.

In this theoretical framework, the information found in scientific literature concerning the research topic is presented. Following this chapter, the methodological approach will set out what method is used, including the search strategy, in- and exclusion of documents, and the operationalization of the concepts being studied. After this, the systematic review focuses, other than the theoretical framework, on documents published by COP to the conventions and IGOs, which is grey literature.

### 3. Methodological approach

The main method being used in this paper is a systematic review. In this review, several guidelines written by nature conservation organizations and Conferences of Parties (COP), about how the local population is best involved in nature conservation, are being examined. Systematic reviews are being used in several disciplines and professions to inform and contribute to decision-making (Boland, Cherry & Dickson, 2013). In this thesis it is used to answer the research question: “*What are the guidelines for involving local communities in the nature conservation project ‘the Great Green Wall’?*”. By using a systematic review as method, this internationally based research topic can be thoroughly researched, taking the many relevant documents that are already written about the topic into account. Taking interviews or conducting surveys are less preferred methods to answer this research question because of the internationally based topic, and the nature of the question. A systematic review is a quantitative rather than a qualitative analysis. It shows the most commonly reported strategies, but not how effective these strategies are (Boland et al., 2013).

#### 3.1 Search strategy

The main sources being looked into are inter-governmental organization databases and conference papers, which are unpublished, also known as grey or fugitive, literature. The main focus is on the three Rio conventions and two IGOs for three reasons. The first is because they are leading actors in nature conservation in general and the GGWSSI in particular. The second reason is that all countries that participate in the GGWSSI are signatories of these conventions and members of these IGOs, except for Libya, who is not a member of the IUCN (see Table 1). The third reason is that the COP to these conventions and IGOs collaborate with NGOs and other societal stakeholders that focus on the same subject (Gondo, 2015; Stringer et al., 2007; Trzyna & Childers, 1992). The main focus is on the United Nations Convention to Combat Desertification (UNCCD), the United Nations Conventions on Biological Diversity (CBD), the United Nations Framework Convention of Climate Change (UNFCCC), the Food and Agricultural Organization (FAO) and the International Union for the Conservation of Nature (IUCN). There are multiple reasons to focus on them.

*Table 1 The signatories of conventions and members of IGOs of the states that committed to the GGWSSI*

<i>Country involved in the GGWSSI</i>	<i>UNCCD</i>	<i>CBD</i>	<i>UNFCCC</i>	<i>IUCN</i>	<i>FAO</i>
<i>Algeria</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Benin</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Burkina Faso</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Cabo Verde</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>



<i>Cameroon</i>	X	X	X	X	X
<i>Chad</i>	X	X	X	X	X
<i>Djibouti</i>	X	X	X	X	X
<i>Egypt</i>	X	X	X	X	X
<i>Eritrea</i>	X	X	X	X	X
<i>Ethiopia</i>	X	X	X	X	X
<i>Gambia</i>	X	X	X	X	X
<i>Ghana</i>	X	X	X	X	X
<i>Libya</i>	X	X	X	-----	X
<i>Mali</i>	X	X	X	X	X
<i>Mauritania</i>	X	X	X	X	X
<i>Niger</i>	X	X	X	X	X
<i>Nigeria</i>	X	X	X	X	X
<i>Senegal</i>	X	X	X	X	X
<i>Somalia</i>	X	X	X	X	X
<i>Sudan</i>	X	X	X	X	X
<i>Tunisia</i>	X	X	X	X	X

First of all, the UNCCD, CBD and UNFCCC are known as the three Rio Conventions since the 1992 Earth Summit, and play a key role in international land degradation governance and the implementation of nature conservation practices (Akhtar-Schuster et al., 2017; du Preez, 2014; Stringer et al., 2007). They are called the Rio Conventions because the 1992 Earth Summit was held in Rio de Janeiro. At this summit, world leaders agreed to give rise to two international conventions, the CBD and the FCCC. They also agreed to develop a third convention, the CCD, which was signed in 1994 (Swiderska, 2002). All three of them are sustainable development conventions that focus on forestry and nature conservation, and contribute in their own way, respectively focusing on biological diversity, climate change and desertification, to the sustainable development goals of Agenda 21 (du Preez, 2014). Agenda 21 was first mentioned at the Earth Summit, also known as the United Nations Conference on Environment and Development, which sought to balance the environmental priorities of the global North with the developmental priorities of the global South. The CBD and FCCC were initiated by Northern governments due to their environmental concern, while the CCD was initiated by the global South with the aim to involve the development of the world's poorest nations. Agenda 21 sets a number of priorities concerning sustainable development in multiple sectors, for example by stressing technology transfer and improved trade terms for Southern countries (Swiderska, 2002). The

CCD aims to address the problem of land degradation in dryland countries, and was one of the first to support the idea publicly that local communities should be included and participate in this (Stringer et al., 2007; Swiderska, 2002). The CBD also aims its attention to community based forest management, with, among many other decision, the statement of the COP to provide “methodological guidance concerning the contributions of indigenous peoples and local communities” (CBD, 2018a). The convention focuses, except from the conservation of biological diversity, on the sustainable use of its components and the equal distribution of its benefits, like ecosystem goods and services (Gondo, 2015; Swiderska, 2002). The FCCC was one of the first to highlight the significance of the mitigating role of forests to combat climate change as they absorb carbon dioxide from the atmosphere (Gondo, 2015).

Secondly, the FAO and IUCN are both leading institutions in their thematic area, and are therefore interesting to take into account in this analysis (Gondo, 2015; du Preez, 2014). The IUCN is uniquely both an IGO and an international NGO, as sovereign states, governmental agencies and NGOs work closely together in this union. It has a department in every country that is concerned with the GGWSSI, and is therefore one of the focus IGOs of this thesis (Trzyna & Childers, 1992). The last IGO that is focused on is the FAO, which is often named in combination with the GGWSSI. The FAO is a very big supporter of the initiative and has set up guidelines for the restoration of drylands for the benefit of local communities, taking in account the complex environmental and socio-economic framework. In these guidelines, objectives of the UNCCD, CBD, UNFCCC and IUCN come together. The FAO has drafted these guidelines by thoroughly analyzing, evaluating and documenting forestation and restoration programs and setting up many workshops (FAO, 2012; FAO, 2013; Gondo, 2015). Altogether, the UNCCD, CBD, UNFCCC, IUCN and FAO are significant players in the field of nature conservation.

The time frame chosen for this systematic review ranges from 2007 to 2019. The frame starts in 2007, as the focus of this research is on the role of communities within the GGWSSI, which was launched in 2007. However, the earliest published document found during the google search was published in 2008 (see Appendix 1). The final year of consideration, 2019, was the most current research year when this systematic review was being initiated and was thus chosen to represent the most current developments. The systematic review therefore includes documents from 2008 until 2019, which is also the time frame of the documents that passed the selection of in- and exclusion criteria and were actually analyzed (see Table 2, Table 3 and Appendix 1).

There is no specific database in which all of the COP to the conventions and IGO guidelines concerning this topic can be found. Therefore, all sources are retrieved via the google search engine. Within google, a special search strategy was used to search the sites of the aforementioned conventions and IGOs in particular. Inclusion criteria used for searching are; “nature conservation”, “local communities”, participation, guideline, GGWSSI and “Great Green Wall”. An example of a search

is as follows: *site:unfccc.int "nature conservation" AND "local communities" AND participation AND guideline AND GGWSSI OR "Great Green Wall"*. Full text papers of any titles or abstracts that were considered relevant were obtained. The relevance of each study was assessed according to the inclusion criteria (see Table 2). Afterwards, the validity and reliability of each included document was assessed in a quality assessment (see Appendix 2). Only selecting documents published by the UNCCD, CBD, UNFCCC, FAO or IUCN contributed to the validity and reliability of each document, as each COP and IGO is in general known to be valid and reliable. This review most likely does not include all the available information about the subject, due to the limited time, access and labor force. This might influence the conclusion in a way that it may give a distorted or biased image, which will be considered more broadly in the discussion.

Table 2: In- & exclusion criteria for documents used for the systematic review

	<b><u>Inclusion criteria</u></b>	<b><u>Exclusion criteria</u></b>
1	Published by UNCCD, CBD, UNFCCC, FAO or IUCN	Published by organizations other than UNCCD, CBD, UNFCCC, FAO or IUCN
2	Available in English	Unavailable in English
3	Most current version of the document	Document was a draft or summary version or has been replaced with another document
4	Included guidelines for involving local communities in at least one the following areas: nature conservation, nature rehabilitation, nature projects, reforestation, recovery ecosystems, Great Green Wall, GGWSSI, environmental protection, desertification	<ul style="list-style-type: none"> <li>- Did not contain guidelines</li> <li>- Did not contain guidelines concerning participation of the community, locals or the public</li> <li>- Did not contain any of the nature areas.</li> </ul>
5	Includes Africa	Is not about Africa
6	It is a readable document	The document is not readable, for example because it is written in code or in an excel sheet with no context and structure

### 3.2 In- and exclusion of documents

During the google search on the 27<sup>th</sup> of November, 2019, a total of 83 records were identified. Of these records, 6 came from the CBD site, 8 from the UNFCCC site, 21 from the UNCCD site, 23 from the IUCN site, and 25 from the FAO site. From these 83 records, 13 were removed as they were duplicates. The remaining records' headings, table of contents, summaries and abstracts were then screened on the in- and exclusion criteria, eliminating 31 records. Of these records, 1 record was excluded because it was not published by one of the three COP to the conventions or the two IGOs. Furthermore, 8 records were excluded because they were not the most recent version of the document. Another 16 records were excluded because they did not contain any guidelines concerning the involvement of local communities. Lastly, 4 records were excluded because they were not about Africa, and two because

they were not readable, meaning that one is written in code and the other without any context and structure in excel. This left 39 full text articles that seemed relevant for the systematic review. During further examination of these articles, 8 more were excluded because they did not contain any guidelines for involving local communities after all. For a graphic representation of this, see Figure 4, for more specific details about the in- or exclusion reason of every record, see Appendix 1. Taking all of this in consideration, 31 documents were considered useable to enter the quality assessment test, after which they can be used for the systematic review.

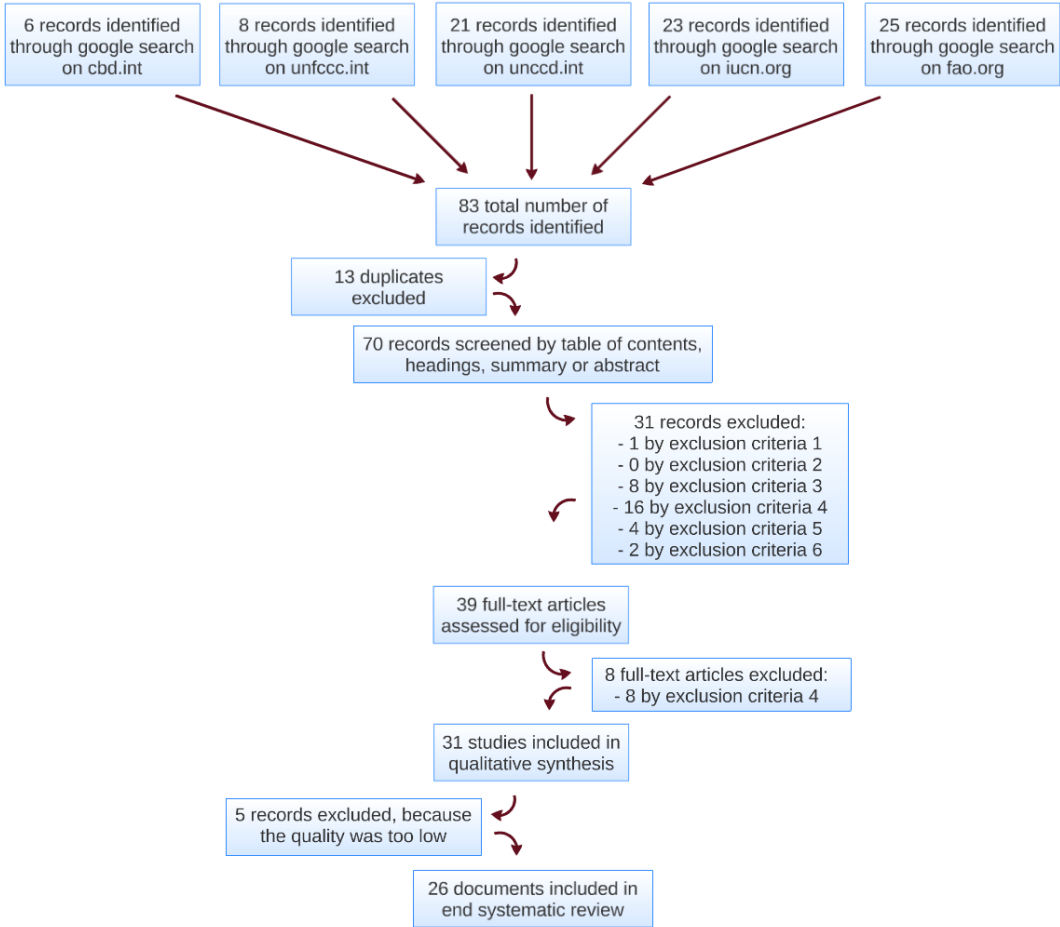


Figure 4: PRISMA-flow, documenting the search process (Moher et al., 2015)

A quality assessment tool was then used to rate the quality of every included document (see Table 3, Appendix 2 and Appendix 3, Table 8). The tool, which was originally made by Kmet, Lee and Cook (2004) for assessing primary qualitative research papers, was adjusted to assessing qualitative grey literature. In this adjustment the criteria ‘study design evident and appropriate’ and ‘sampling strategy described, relevant and justified’ were removed for the reason that the guidelines that were being examined were no studies and thus none had a study design or sampling strategy. The scoring

manual was also adjusted to these changes (Appendix 2). The quality scores were used to define a minimum threshold for the inclusion of documents in the systematic review. The minimum threshold is set at a score of nine points. With sixteen being the maximum possible score, records were being excluded if they had a score from zero to eight (see Appendix 3, Table 9), and included with scores from nine to sixteen (see Appendix 3, Table 8).

The five documents that were excluded after the quality assessment, had scores from one to eight. A possible reason for their low quality rate is that none of them has the format of a guideline. They are respectively, a description of undertaken activities in different countries (UNFCCC, 2016), a summary of a report (CBD, 2014b), a report of a conference (CBD, 2018b), a template for field projects (IUCN, 2017b), and a non-wood forest products magazine (FAO, 2009) (see Appendix 3, Table 10). The first three documents seem to be building on former meetings in conventions or working groups. It could be that in former meetings quality criteria like the objective, the context and the data collection methods are already described. This could be a possible explanation for them being absent in the recent documents, however this does not alter the fact that the researchers would do well to include every criteria in every document. The template for field projects might also have a document proceeding it, possibly explaining why there is little explanation next to the actual template and the annex in which the template is used in a case study (IUCN, 2017b). For the non-wood forest products magazine this could be the case as well, although it is considered less likely (FAO, 2009). It is more likely that it just does not follow any formal format, shortening the articles presented in the magazine so that they can give a sneak peek into several articles. However, this does not lead to a qualitative sound document.

One of the results of the quality assessment that was surprising, was the outcome of criterion eight. Criterion eight focused on the reflexivity of the document, so whether or not any sources of influences on the researchers, like their own characteristics or the methods used to obtain data, were mentioned and discussed. Remarkably only five documents mentioned that their researcher could have been influenced, but did not discuss what these influences or impact could be. Only one document did discuss the latter (UNCCD, 2019d). This means that in less than twenty percent of the documents there was any reflexivity, which seems to be just as important as the other quality assessment criteria, especially since a lot of the documents did contain context about how important it is to take different perspectives and truths into consideration.

### 3.3 Operationalization

In the content analysis the documents are thoroughly searched on different aspects. The first aspect is whether the document mentions the decision-making phase, the implementation phase and the maintenance phase. Some documents mention the planning- and decision-making phase as one, and

therefore, if the planning-phase is mentioned in the documents, it is considered the decision-phase as well. These different phases are being analyzed to see whether the recommendations are focused on a specific part of the process. Secondly, the documents are analyzed on any notion of the words restoration and conservation. Thirdly, the documents are searched on any concepts of justice. To fit the document in one of these concepts of justice, the role of the state, the form of decision-making and the responsibility for involving local communities are analyzed. A document is considered utilitarian when the state plays an important role and if objective and economically rationalized decision-making tools, like the cost-benefit analysis, are being mentioned. A document is considered libertarian when the government plays a small role and local communities carry their own responsibility to get involved. A documents is considered egalitarian when the responsibility of the state to take care of the most vulnerable is explicitly mentioned. These concepts of justice are analyzed to better understand the strategies they prescribe.

After these four aspects, the documents are analyzed for different strategies to involve local communities in nature conservation projects in general and in the GGWSSI in particular. In the theoretical framework, a start has been made to compose an overview of strategies that were being mentioned in scientific literature. These strategies are used to make a start in the analysis of guidelines from the UNCCD, CBD, UNFCCC, IUCN and FAO, by setting them in a table. Subsequently, the documents are being searched to confirm any of these already identified strategies, while at the same time being analyzed for any strategies that complement it. If a new strategy is identified, it is added to Table 4 and included in the analysis. The operationalization of all already identified strategies is very literal, with for example the box of (sub-strategy 1.1) 'early engagement' checked if the documents states that for successful involvement of local communities in nature conservation projects they should be involved in an early phase of the project. Providing subsidies and grants are part of the strategy to cover the gap between the investment costs and the benefits financially. Lastly, main strategy 5 exist of different components, that is the importance of involving a broad group of communities, the importance of involving a broad group within a community, and the importance of involving women. If one of these components is being mentioned in the documents, the box of strategy 5 is checked.

## 4. Results

After starting with 83 documents to investigate the question “*What are the guidelines for involving local communities in the nature conservation project ‘the Great Green Wall’?*”, the inclusion and exclusion criteria and the quality assessment tool left 26 documents ready to be reviewed systematically. Characteristics of the included documents can be seen in the table below (Table 3).

Table 3: Characteristics of included documents

	Document (name)	Organization	Year	Number of strategies	Quality rating
1	Institutional arrangements for national adaptation planning and implementation, Thematic report	UNFCCC	2014	5	14
2	Considerations regarding vulnerable groups, communities and ecosystems in the context of the national adaptation plans	UNFCCC	2018	7	12
3	Yearbook of global climate action	UNFCCC	2019	7	11
4	Mainstreaming biodiversity in practice; a STAP advisory document	CBD	2014	10	15
5	Synthesis report on experiences with ecosystem-based approaches to climate change adaptation and disaster risk reduction	CBD	2016	8	14
6	Conserving Dryland Biodiversity	UNCCD	2012	11	12
7	Final outcome of the UNCCD 2 <sup>nd</sup> scientific conference	UNCCD	2013	9	14
8	Report by the Global Environment Facility on its strategies, programmes and projects for financing the agreed incremental costs of activities concerning desertification	UNCCD	2015	11	14
9	Landscape connectivity; a call to action	UNCCD	2017	7	12
10	Final Government Distribution; Chapter 3: Desertification	UNCCD	2019	11	12
11	Global land outlook; west Africa thematic report: land degradation neutrality: benefits for human security	UNCCD	2019	8	12
12	Land restoration for achieving the sustainable development goals	UNCCD	2019	14	15
13	Sustainable rangeland management in Sub-Saharan Africa; guidelines to good practice	UNCCD	2019	12	16
14	Financing plan	IUCN	2015	6	10
15	Enhancing learning and collaboration on natural resource governance in IUCN	IUCN	2016	12	14

16	Regional assessment on Ecosystem-based Disaster Risk Reduction and Biodiversity in West and Central Africa A report for the Resilience through Investing in Ecosystems – knowledge, innovation and transformation of risk management (RELIEF Kit) project	IUCN	2016	3	14
17	Resolutions, recommendations and other decisions (same congress as three above)	IUCN	2016	11	9
18	Biodiversity and the Great Green Wall: Managing nature for sustainable development in the Sahel	IUCN	2017	11	13
19	IUCN 70 years; annual report of 2018	IUCN	2019	6	13
20	Building resilience in drylands; global guidelines for restoration of forest landscapes and degraded lands	FAO	-	2	14
21	Forest management in Africa; is wildlife taken into account?	FAO	2008	13	14
22	Global guidelines for the restoration of degraded forests and landscapes in drylands: Building resilience and benefiting livelihoods	FAO	2015	14	15
23	Sustainable management of forests and wildlife in Africa; enhancing value, benefits and services	FAO	2016	11	12
24	2017 Results partnerships, impact 2018	FAO	2018	10	12
25	Creating a forest landscape restoration movement in Africa; a call to heal planet earth	FAO	2018	13	13
26	Africa regional synthesis for the state of the world's biodiversity for food and agriculture	FAO	2019	7	14

The documents were thoroughly examined for content of the different phases of the nature conservation process, on the kind of actions, the concepts of justice, and lastly for content of any guidelines concerning the involvement of local communities in nature conservation projects. The results of the study can be found below, in Table 4.



Table 4: Results of content analysis

Document number	Decision-making phase	Implementation phase	Maintenance phases	Restoration actions	Conservation actions	Which concept of justice	Main and sub-strategies															Total # of strategies	
							1.Transparent communication			2. Disagreement taken seriously	3. Financial support & incentives				4. Accept & acknowledge different perceptions / local knowledge	5. Involve a broad group of/within communities (women)	6. Increase land tenure security	7. Encouragement of local innovations					8. Strengthen local governance
							1.1 Early engagement	1.2 Clear communication & equal relations between actors	1.3 Involvement of specialist from different disciplines		3.1 Access to credit	3.2 Payments for ecosystem	3.3 Cover gap investment costs and benefits	3.4 Compensate for the loss of land				7.1 Improve education	7.2 Support local business opportunities	7.3 Better access to markets	7.4 Increase local alternative income		
1	X					L		X						X			X				X	5	
2	X					E	X	X		X	X			X	X							7	
3				X	X	L		X		X	X			X		X	X					7	
4					X	L		X		X	X		X			X	X	X			X	10	
5	X	X	X			U	X	X				X		X	X		X				X	8	
6	X			X	X	L		X		X	X	X		X	X	X	X	X			X	11	
7					X	U			X	X	X	X			X	X	X					9	
8	X	X	X	X	X	E				X	X	X		X	X	X	X	X		X	X	11	
9	X	X	X	X	X	L		X			X			X			X	X	X			7	
10	X			X	X	U		X		X	X	X		X	X	X	X	X	X			11	
11	X	X				U				X	X	X		X	X	X	X	X				8	
12	X	X	X	X		E	X	X		X	X	X	X	X	X	X	X	X	X			14	
13	X	X	X	X	X	U	X	X		X	X	X		X	X	X	X	X	X			12	
14	X	X		X	X	E				X					X				X		X	6	
15	X					E	X	X		X			X		X	X	X				X	12	
16				X	X	E		X									X				X	3	
17	X				X	L	X	X		X				X	X	X	X	X	X		X	11	
18	X					U		X		X	X	X		X	X	X	X	X	X			11	
19	X			X	X	E		X		X				X	X	X	X					6	
20						U					X					X						2	
21	X	X	X			L	X	X		X			X	X	X	X	X	X	X	X		13	
22	X	X	X	X	X	U	X	X		X	X	X		X	X	X	X	X	X		X	14	
23	X	X	X	X	X	E		X		X	X			X	X	X	X	X	X		X	11	
24	X	X	X	X	X	U		X		X	X	X	X	X	X	X	X	X		X		13	
25	X				X	E		X		X		X		X	X		X	X	X			10	
26				X	X	U		X				X		X	X	X	X				X	7	
total	20	11	9	14	17		8	21	17	13	17	16	13	5	21	20	19	21	19	13	4	12	
U							3	7	7	5	7	7	9	1	8	9	9	7	7	5	1	3	
L							2	7	7	2	4	4	1	2	6	3	5	6	6	4	1	4	
E							3	7	3	6	6	5	3	2	7	8	5	8	6	4	2	5	

### 4.1 Narrative synthesis

In this narrative synthesis, the different aspects that are covered in the systematic review and displayed in Table 4 will be presented, following the same order as the table. By doing this, relevant results to answer the research question will be touched upon, before discussing them in the discussion chapter. First, the proportions of the different phases being mentioned in the documents are presented. Second, the results concerning the mentioning of conservation versus restoration practices are displayed. After this, any patterns regarding the different concepts of justice are stated. Lastly, the results of the different strategies on how to involve local communities in nature conservation projects in general and the GGWSSI in particular are elaborated upon. As a part of this, the strategies that were found in the documents, that were not found in scientific literature, are being presented.

#### 4.1.1 Different phases, actions and concepts of justice

All three different phases of the project, that is the decision-making phase, the implementation-phase and the maintenance-phase, were being mentioned in the documents. However, of the 26 documents included in the systematic review, 6 did not specify which phase they dealt with. From the 20 documents that did specify this, 9 documents only mentioned the importance of involving local communities in the decision-making phase and equally 9 documents mentioned all three of the phases.

Within the systematic review, it was also analyzed whether the documents specifically mentioned ‘conservation actions’ or ‘restoration actions’. Both terms were mentioned by the documents. In total, 13 documents mentioned both terms (50%), 8 mentioned neither (30.7%), 4 only mentioned conservation (15.4% and 1 only mentioned restoration (3.8%).

The idea behind why local communities should be involved, how decisions regarding nature conservations should be made, who’s responsibility it is to get local communities involved and at which group or groups the nature conservation intervention should be aimed at, differs between the documents. Ten documents reasoned from an utilitarian justice perspective, seven from a liberal justice perspective, and nine from an egalitarian justice perspective. Based on the included documents, the FAO seems to reason mostly from an utilitarian perspective, the UNFCCC mostly from a liberal perspective, and the IUCN predominantly from an egalitarian perspective.

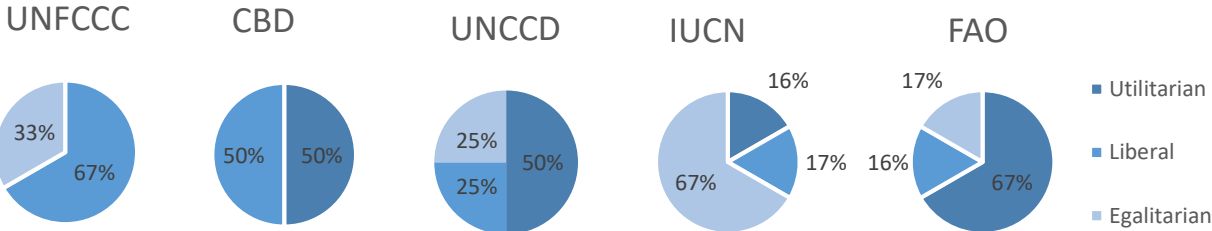


Figure 5: Dominant concepts of justice per convention and IGO

#### 4.1.2 Newly identified strategies and restructuring of strategies

Next to the already identified factors, that have been converted to six main strategies and five sub-strategies, seven new strategies were being discovered, of which two were categorized as main strategies and five as sub-strategies. These new found strategies consist of the access of local communities to credit, the payment for ecosystem services, increasing land tenure security, supporting local business opportunities, better access to markets, increasing local alternative income, and strengthening local governance. Furthermore, some structural changes were made to main- and sub strategies, including the organization of the newly identified strategies.

The first strategy that is identified in the documents which was not yet identified in the studied scientific literature is that communities have access to credit. Especially in the poorer communities, locals do not always have funds to access the equipment and expertise required to transition to nature-conservation practices (UNFCCC, 2019). Giving access to credits or loans is different from sub-strategy 3.3, in which it is advised to cover the gap between investment costs and benefits with for example subsidies or grants, in that a community does not have to pay back the subsidies or grants, whereas it has to pay back the credit. Nevertheless, access to credit is a simple incentive that encourages landholders to protect or restore ecosystems (UNCCD, 2019c). Because it is a financial incentive and support, it is classified as a sub-strategy of the main strategy 'financial support and incentives'.

The second newly identified strategy is the payment for ecosystem services. Ecosystem services are discussed in the theoretical framework, but the payment for these services were new. The COP to the CBD explain that the payment for ecosystem services work because "those that pay are fully aware of what it is that they are paying for, and those that sell are proactively and deliberately engaging in resource use practices developed to secure the provision of the services" (CBD, 2014a, p. 17). In this way, people that contribute positively to the balance of these services receive the benefits, and people that contribute negatively to the balance pay the costs. Because the strategy is about giving local communities a financial incentive to participate in a nature conservation project in general and the GGWSSI in particular, it is positioned under main strategy 3, 'financial support and incentives'.

The third strategy that was identified is the increase of policies that secure land tenure. It is close to the strategy 'compensating locals for the loss of land' in that both are about the custody of land, but different in that the latter is a financial amends, while increasing land tenure security is about giving local communities the certainty that investments made now are still available in the future. If local people are not certain that the land they invest on now is still owned by them in the future, it is less attractive for them to invest, as it is not sure that they reap the benefits of their investment. Unclear tenure rights, often coupled with poverty and food insecurity, drive people to overexploiting remaining natural resources and reduces the commitment of land users to invest in sustainable land use and restoration practices (FAO, 2015). "Uncertainty about land-use rights and the distrust this

generates can lead to conflicts and further degradation. Investments in time and resources need to be supported by guarantees that households own the products and other benefits they obtain through their use of the land” (FAO, 2015, p. 12). The strategy has become a main strategy of its own because it does not fit any of the other main strategies.

The fourth newly identified strategy is the support of local business opportunities. Improving local business opportunities, and therefore income opportunities, arising from nature conservation is one way of providing incentives for local stakeholders to participate in nature restoration and management. Supportive structures such as a network of producers and buyers can stimulate the development of small and medium-sized businesses (FAO, 2015). By supporting local business opportunities in the field of nature conservation, the opportunity arises for them to innovate and make their enterprises more sustainable. With these local innovations, a start can be made to erode old systems that according to the COP to the CBD are part of the “root causes” of the desertification, like “policies and fiscal incentives promoting negative impacts, and lack of production standards” (CBD, 2014a, p. 65). Both strategies ‘supporting local business opportunities’ and ‘improving education’ are ways to encourage local innovations. They are therefore both structured as sub-strategies of the main strategy ‘encouragement of local innovations’.

The fifth strategy is about the Improved access of local communities to markets. These markets include both global immaterial and local physical markets. This strategy is according to the COP to the CBD based on “the assumption that, though markets arguably created many of the problems, it is markets that can provide the solutions” (CBD, 2014a, p. 27). Limited access of local communities to these markets reduces their capacity to implement sustainable dryland restoration and management (FAO, 2015). The access to local physical markets can be improved for example by upgrading physical infrastructure (IUCN, 2016a). Other ways to improve access to markets are certification schemes and relieving institutional restraints (IUCN, 2015; IUCN, 2016a). By providing sustainable-, eco- or environmental-certifications, initiatives of local producers that adhere to predefined environmental and social welfare production standards get promoted. Because the strategy ‘better access to markets’ encourages locals to innovative in sustainable uses, it is considered a sub-strategy of the main strategy ‘encouragement of local innovations’.

The sixth strategy that was added was to increase local alternative income. Not all documents agreed on this, but those that did argued for the importance of local communities having incomes. Preferably these incomes come from jobs that were about restoring and conserving vegetation and fertile soils, as is the case in sub-strategies 3.2, 7.2 and 7.3. However, four documents argue that if this is not enough, alternative means of local income should be increased, making local communities less dependent of their near natural resources and making them more resilient. They also argue that if these alternative incomes are increased, local communities have more time and resources to get

involved in nature conservation projects. Increasing local alternative income is also considered as a way to encourage local innovations, and is therefore also considered a sub-strategy of the main strategy ‘encouragement of local innovations’.

The last added strategy to involve local communities is the strengthening of local governance. Strong local governance, or community institutions, is according to the COP to the CBD democratic, transparent, stable and accountable (CBD, 2014a). According to the FAO, only empowered local governance is able to sustainably manage and restore land that is tenured by the community. However, in many places these local institutions have been weakened (FAO, 2015). The FAO (2015) argues that to strengthen local governance and to provide these community institutions with sufficient capacity and resources to consolidate, become operational and be maintained in the long term, decentralization is needed. The IUCN (2016a) adds to this that ‘decentralised management enables local people to address unique social, political, and ecological problems and to find solutions ideal to their situation’ (p. 13). By strengthening local governance, other strategies get supported as well. For example, local communities’ knowledge can get more attention, communication can be improved and local innovations encouraged. However, for the reason that it does not fit any of the other main strategies, it is considered a main strategy of its own.

#### 4.1.3 Patterns in strategies

In total, eight main strategies were identified in the documents to involve local communities in nature conservation. Of these main strategies, three contained a total of eleven sub-strategies (respectively three, four and four strategies). There are two different ways to discover patterns in the strategies. The first is to look at the different sub-strategies in detail, putting the emphasis on the distinction between the different strategies. When a main strategy is divided in sub-strategies, the sub-strategies are count. When a main strategy is not divided by sub-strategies, it is counted how often this main strategy is mentioned. An example of this can be seen in Table 5.

*Table 5: Results for main strategies and sub-strategies, with the emphasis on sub-strategies*

Main strategies	Sub-strategies	Abs. #	Rel. #
1. Transparent communication	1.1 Early engagement	8	30.8 %
	1.2 Clear communication and equal relationships between actors	21	80.8 %
	1.3 Involvement of specialists from different disciplines	17	65.4 %
2. Disagreement taken seriously		13	50.0 %
3. Financial incentives and support	3.1 Communities have access to credit	17	65.4 %
	3.2 Payment for ecosystem services	16	61.5 %
	3.3 Covering the gap between investment costs and benefits	13	50.0 %
	3.4 Compensate locals for the loss of land	5	19.2 %

4. Accept and acknowledge different perceptions / local knowledge	21	80.8 %	
5. Involve a broad group of/within communities (women)	20	76.9 %	
6. Increase land tenure security	19	73.1 %	
7. Encouragement of local innovations	7.1 Improvements in education	21	80.8 %
	7.2 Support local business opportunities	19	73.1 %
	7.3 Better access to markets	13	50.0 %
	7.4 Increase local alternative income	4	15.4 %
8. Strengthen local governance	12	46.2 %	

Following this line of thought, there are three strategies that over 80% of the documents agreed on to be important for communities to be involved. The first is strategy 1.2 ‘clear communication and an equal relationship between all actors’. The second is strategy 4 ‘the acceptance and acknowledgement of different perceptions, in particular local knowledge’. The third strategy is strategy 7.1 ‘improvements in local education’, thereby raising awareness and strengthening local capacities.

Strategies that were only mentioned by 30% of the documents or less were that local communities should be engaged in an early phase of the project (mentioned by 30.7%), that local communities should be compensated for the loss of land that they could otherwise have used for their own benefit (mentioned by 19.2%), and that alternative means of local income, meaning not forest or nature related incomes, should be encouraged (mentioned by 15.3%).

The second way to discover patterns in the strategies is by putting the emphasis on the main strategies. A main strategy is then considered mentioned if a document mentions one of the sub-strategies. For example, 22 different documents mention one of the three sub-strategies of the main strategy ‘transparent communication’. This is higher than one of the sub-strategies score separately. An example of this can be seen in Table 6.

*Table 6: Results for main strategies and sub-strategies, with the emphasis on main strategies*

Main strategies	Sub-strategies	Abs. #	Rel. #
1. Transparent communication	1.1 Early engagement	22	84.6 %
	1.2 Clear communication and equal relationships between actors		
	1.3 Involvement of specialists from different disciplines		
2. Disagreement taken seriously		13	50.0 %
3. Financial incentives and support	3.1 Communities have access to credit	22	84.6 %
	3.2 Payment for ecosystem services		
	3.3 Covering the gap between investment costs and benefits		
	3.4 Compensate locals for the loss of land		
4. Accept and acknowledge different perceptions / local knowledge		21	80.8 %

5. Involve a broad group of/within communities (women)		20	76.9 %
6. Increase land tenure security		19	73.1 %
7. Encouragement of local innovations	7.1 Improvements in education	24	92.3 %
	7.2 Support local business opportunities		
	7.3 Better access to markets		
	7.4 Increase local alternative income		
8. Strengthen local governance		12	46.2 %

Following this line of thought, the main strategies that consist of sub-strategies score the highest. Two main strategies, that is strategy two 'disagreement taken seriously' and strategy eight 'strengthen local governance' are mentioned by half of the documents or less, scoring considerably lower than the other strategies.

## 5. Discussion

In this chapter, the results of this research are interpreted and discussed. Firstly, the validity of the research is considered. Then, the different phases of the project are discussed, followed by the type of actions and the concepts of justice. Subsequently, the focus of the discussion turns to the strategies themselves. Finally, the limitations as well as the strengths of this research are considered. Throughout the chapter, results of the systematic review are linked to results of the scientific literature search.

### 5.1 Validity

The method being used in this research is a systematic review. By using a systematic review, grey literature can be searched for, in this case, how often a strategy to involve local communities in the nature conservation project 'The Great Green Wall' gets mentioned. A systematic review shows how many times a strategy is mentioned, but not how well a strategy works. The analysis of the documents shows a high impression validity, for it identified eight main strategies with a total of eleven sub-strategies to involve local communities in nature conservation in general and the GGWSSI in particular. By focusing the research on the three Rio Conventions (the UNFCCC, the CBD, and the UNCCD) and on the two IGOs (the FAO and the IUCN), the ecological validity of the research rises. Every country that is involved in the GGWSSI is a signatory party of all the conventions and a member of the IGOs, with the one exception that Libya is not a member of the IUCN. All countries therefore support the guidelines written by these COP to the Conventions and IGOs. The internal validity is average, as the entire data collection process and analysis is well documented, but the research is nevertheless done by one researcher, leaving some space for subjectivity. The conclusions of this research can presumably be generalized to other nature conservation projects than the GGWSSI, as there are more nature conservation projects dealing with desertification, for example the Great Green Wall in China.

### 5.2 Phases of the project

The different phases of the project, that is the decision-making phase, the implementation-phase and the maintenance-phase, that were being mentioned throughout the systematic review corresponded with the scientific literature. In the theoretical framework it is addressed that most definitions of participation emphasize on the decision-making phase. The systematic review confirmed this finding. From the 20 documents that specified about which phase they were talking, 45% only mentioned the importance of involving local communities in the decision-making phase and equally 45% mentioned all three of the phases. This is in line with the findings of the scientific literature. However, 23.1% of the documents did not mention any phase at all.



### 5.3 Type of action

Within the systematic review, it was analyzed whether the documents made a distinction between conservation and restoration actions. Conservation is in this case conserving what vegetation or natural resources has remained, and restoration is about replanting and restoring what once was. Although there is a clear difference between the two concepts, scientific literature seems to use both terms interchangeably. The results of the systematic review agree with this. Both terms were used by 50% of the documents, 30.7% mentioned neither, 15.4% only mentioned conservation and 3.8% only mentioned restoration. There does not seem to be a specific focus on either of them. The FAO mentions that “the term ‘restoration’ covers a wide range of conservation, sustainable management and active restoration practices” (FAO, 2015, p. 13). A possible explanation for this is that different actors use different ways of explaining what restoration actions and what conservation actions are. Another explanation for the concepts being used interchangeably is that within the GGWSSI both kind of actions are important.

### 5.4 Concepts of justice

The utilitarian perspective is, in comparison to the other concepts of justice, considered to be the most in between top-down and bottom-up regulations. The states plays an important role considering the rightful division of money, which explains why strategy 3.3 ‘covering the gap between investment costs and benefits’ is one of the three strategies that is mentioned most by utilitarian documents. As a contrast, none but one libertarian document mentions this strategy, which is in agreement with the idea of liberalism that a government should play a more passive role. The other two strategies that are mentioned most by documents that reason from an utilitarian perspective are strategy 6 ‘increase land tenure security’ and strategy 5 ‘involve a broad group of/within a community, especially women’. These strategies are in agreement with the line of thought already set out in the theoretical framework, where local communities are still responsible for their own participation, preparedness and protection, and where the focus is on the benefit of all individuals as a group.

Documents that reason from a libertarian stand of view favor strategies 1.2 and 1.3 the most, that is ‘clear communication and equal relationships between all actors’, and ‘the involvement of specialists from different disciplines’. This is in line of thought with the reasoning set out in the theoretical framework, which shows the idea behind libertarianism in which information should be available to all and rules are predefined, but the responsibility of participation is ultimately on the individual.

Lastly, the focus of documents that reason from an egalitarian stand of view is beside the involvement of all kind of groups, especially the marginalized, on improvements in local education, thereby strengthening local capacities and raising public awareness. Again, both are in line of thought

with the reasoning set out in the theoretical framework, as both measures specifically improve the position of marginalized groups, which is the idea behind egalitarianism.

Apart from looking at the different concepts of justice, it can be interesting to look at the results of the different conventions and IGOs as well. The predominant perspectives of justice of every convention and IGO can be explained by their objectives (see Figure 5). The FAO (predominantly utilitarian) has as its goal to achieve food security for all, in other words, the biggest benefit for the biggest group of people. The UNFCCC (predominantly liberal) is a convention of countries where everyone contributes to a problem, and an answer is being sought to the question of how to make fair agreements about the solution. The IUCN (predominantly egalitarian) is an IGO with both countries and NGOs as members, who focusses on the question how to protect and conserve nature. The fact that fifty percent of the documents written by the COP to the CBD and UNCCD have an utilitarian perspective, as opposed to the UNFCCC, is possibly because both have a clear purpose for which resources must be deployed. These objectives comprise preserving biodiversity and reducing desertification.

## 5.5 Strategies

It is interesting to note that many strategies seem to be interconnected. As set out in the results chapter, the realization of main strategy 8 'strengthen local governance' can lead to improved communication (main strategy 1), encouragement of local innovations (main strategy 7), and more recognition for local knowledge (main strategy 4). If the statement of the FAO, that only empowered local governance can sustainably manage land tenured by the community, is true, this empowering of local governance can be a stimulus for policies that increase land tenure security for the local communities. With the strengthened local governance they have a reason to believe that land will be tenured in a sustainable way. Another example of how strategies are interrelated, is that when local innovations get encouraged (main strategy 7) it is very well thinkable that a broader group of communities, and more groups within a community get stimulated to participate as well (main strategy 5). Employment opportunities and equalization of education, which could be achieved with the improvements in education, tend to equalize individual earnings, giving women a better chance to participate (Hossain & Tisdell, 2005). In future research, it would be interesting to further investigate how the different strategies relate to each other.

One of the strategies that needs some discussion is sub-strategy 7.1, 'improvements in education'. First of all, when the strategy first came up in the scientific literature search, it was considered a main strategy, as there were no other strategies identified that contributed to the encouragement of local innovations. However, this changed with the identification of the strategies 'to support local business opportunities', 'better access to markets', and 'to increase local alternative

income'. Together with 'improvements in education', these strategies were all considered to contribute to the encouragement of local innovations. Therefore, 'improvements in education' was changed from a main strategy to a sub-strategy of 'encouragement of local innovation'. The second aspect of this strategy that needs some discussion is that some documents mention the possibilities of social media to educate (FAO, 2018a; UNCCD, 2019a; UNCCD, 2019c; UNCCD, 2019d). People tell their stories on different social media platforms, while learning from other stories being displayed here. "Social media enables the public to see environmental issues from a new angle different from politics enabling spreading of climate change awareness", as reported by the FAO (FAO, 2018b). Considering the growing influences of social media, it is interesting to research what the role of social media could be on involving local communities in nature conservation projects in general and the GGWSSI in particular. A prerequisite would however be that local communities have access to social media, which is something that would have to be researched as well.

Another strategy that is interesting to analyze is strategy 1.1, 'early engagement'. This sub-strategy was firstly identified in scientific literature and presented the strategy that local communities should be involved early on in the process. Not many documents mentioned this strategy explicitly, making it the third least named strategy when sub-strategies are counted separately (see Table 5). However, many documents did mention the importance of local communities being involved in the decision-making phase, which is the earliest phase of the project. It could be argued that although many documents did not mention early involvement explicitly, they did mention it implicitly by mentioning this early phase.

A main strategy that needs some discussion as well is strategy 5, 'to involve a broad group of communities and a broad group within a community'. In scientific literature, the importance of both was already discovered, with some literature naming the involvement of women in particular. However, the focus of involving women increased in the documents used for the systematic review. Women were explicitly named in 20 out of 26 documents. In most developing countries women have great responsibilities in working on the land and the household, but often lack (land) rights, access to micro-credits and loans, the chance to gain knowledge and the chance to participate. If women have the same access to resources as the men in their communities, they can substantially contribute to nature conservation. Development programs, particular those in Africa, have proven that women make more efficient use of investments and always share their benefits with their family and community. Furthermore, women have shown to be more trustworthy in their management of loans and equipment (FAO, 2015). The COP to the UNCCD stresses that "gender equality is crucial for long-term land management practices that result in degradation avoidance" (UNCCD, 2019c, p. 51).

It is also interesting to note that none of the documents specifically mentioned the ladder of participation that was set up by Arnstein or a comparable scale of participation. A possible explanation

for this is that the conventions and IGOs have other documents in which they specify their definition of 'true participation'. If they do not have this specified somewhere, they would do well to do so. However, some of the strategies implicitly stand for a rung on Arnsteins ladder. If a document only mentions the importance of education, the score on Arnsteins participation ladder is not high. As mentioned in the theoretical framework, only informing communities, or acknowledging their local knowledge, or involving different specialists, may encourage local communities to participate, but without giving these communities the chance to negotiate and have their voices heeded, this will not be participation as a 'degree of citizen power'. Additionally main strategy 5 stands for a rung of Arnsteins ladder, namely placation, the highest degree of tokenism. This strategy is aimed at involving all different groups within a community, especially often marginalized groups like women. If all groups within a community have technical assistance to articulate their priority and the community is organized in a way that they can press these priorities, there is actual participation as a 'degree of citizen power', something that is being checked and advised by strategy number 5. Of the documents, 76.9% mentions strategy number 5 and thereby mentions 'true participation' as defined by Arnsteins participation ladder.

Finally, the result of counting strategies with the focus on main strategies, as can be seen in Table 6, needs some discussion. Using this counting method, a main strategy is considered mentioned if one of the sub-strategies is mentioned. Remarkably, all but two main strategies, that is strategy 2 and strategy 8, score rather high. These two strategies both have no sub-strategies. The three sub-strategies that score the highest however, are the strategies with sub-strategies. A possible explanation of this is that when a main strategy contains of sub-strategies, it is more likely that one of the documents mentions one. This could however also be a coincidence.

## 5.6 Limitations

This research showed what strategies were mentioned by COP to the UNFCCC, CBD, UNCCD and the FAO and IUCN, on how to better involve local communities, and in how many documents they are mentioned. However, it is beyond the scope of this study to examine the quality of these strategies. It would be interesting to investigate more about why the strategies work and how well they work. Furthermore, the interconnected between the different strategies would be interesting to research, which is something this research can only speculate on.

Additionally, the reader should bear in mind that the study is done independently. By doing the research individually, the subject's scope had to be narrowed, eliminating some aspects of the subject that are interesting to research. With more researchers, the scope can be widened, presumably including more and different guidelines for example by involving more actors or expanding the search criteria. Due to the narrowed scope it is expected that the research does not contain all the relevant

information for this subject. For example, it could be that there is a more comprehensive guideline available to better involve local communities if the search included more criteria. Doing the research on my own also has consequences for the quality of the systematic review. If both the quality assessment and the context assessment of documents are done by more researchers, the outcomes are more objective. To counter this the best way possible, all the decisions per document are thoroughly described and documented, so every path of reasoning can be followed if needed.

## 6.7 Strengths

The extensiveness of the documentation of every made decision, which can be seen throughout the text and in the appendix, is at the same time one of the strengths of this research. This is a result of strictly following the guidelines to conduct a systematic review, as described in 'doing a systematic review, a student's guide' (Boland et al., 2013). Furthermore, the scope of the preliminary investigation is another strength, resulting in a well-imbedded subject, a well-founded theoretical framework and an extensive list of references. An actual answer to the research question was found, involving eight main strategies, of which three were divided in eleven sub-strategies, that are aimed at better involving local communities in nature conservation projects in general and the GGWSSI in particular.

## 6. Conclusion

In this research, an answer is sought to the question: *“What are the guidelines for involving local communities in the nature conservation project ‘the Great Green Wall’?”*. In total, eight main strategies to involve local communities in nature conservation were found in scientific literature. Of these eight main strategies, three were divided in a total of eleven sub-strategies. This research focuses on documents published by the three Rio conventions (UNFCCC, CBD, UNCCD) and two IGOs (IUCN and FAO), because of their leading role in the GGWSSI, and because all countries that are involved in the GGWSSI are signatories parties or members of them. The one exception on this is that Libya is not a member of the IUCN.

The first main strategy to involve local communities in nature conservation projects in general and the GGWSSI in particular is to have transparent communication between all actors. To achieve transparent communication, three sub-strategies are identified. The first sub-strategy that is a part of transparent communication is the engagement of local communities early in the process. The second sub-strategy is that all different actors that are engaged in the process are equal to each other and that the communication between them is clear. The third sub-strategy that contributes to transparent communication is the involvement of specialist from different disciplines. This way, different aspects of the project and the ways local communities are influenced are taken in account. If one of the sub-strategies is mentioned, the main strategy is considered mentioned. Of all researched documents, 84.6% mentioned the importance of transparent communication. The second main strategy is that disagreement of local communities have to be taken seriously. In the past, neglecting this led to feelings of resentment and local communities not participating in the nature conservation project. Half of all researched documents mentioned this main strategy. The third main strategy is to provide financial support and incentives to local communities. This main strategy is also divided in sub-strategies. The first sub-strategy is that communities have access to credit. The second is that there should be payment for ecosystem services, giving those that sell these ecosystem services, the local communities, a way to secure sustainable management over these resources. It is a compensation for conserving and restoring the ecosystem services. The third is to cover the gap between investments costs and benefits. The fourth sub-strategy is that locals should be compensated for the loss of land. Of all the documents, 84.6% mentioned one of these sub-strategies and therefore mentioned the importance of giving local communities financial incentives and support. The fourth main strategy is to accept and acknowledge different perceptions and local knowledge. The strategy is mentioned by 80.8% of the documents. The fifth main strategy is to involve a broad group of communities and a broad group within a community, especially the women. Other than common belief, it are often the women who carry responsibility for work on the land and in the house. If women get the same access

to resources as the men in the community, they can be great agents of change for nature conservation. This strategy is mentioned by 76.9% percent of all documents. The sixth main strategy is to secure land tenure security. When local communities have more certainty that the land they invest in are still tenured by them in the future, they have more certainty that they own potential future benefits. This increased certainty can be a motivation for local communities to participate in the nature conservation project. A little less than three quarters of the documents mentioned this strategy. The seventh main strategy is about encouraging local innovations. Of all main strategies, this one has the most sub-strategies. The first sub-strategy to encourage local innovations is to improve education. The second sub-strategy is to support local business opportunities that are involved in nature conservation related activities. The third sub-strategy is to improve the access of local communities to both the local physical market as the global trade market. The fourth sub-strategy is to increase local income that is not related to nature conservation actions. This way, local communities become more resilient and have more time and resources to get involved in the nature conservation project. In total, 24 out of 26 documents mentioned one of the sub-strategies, meaning that a total of 92.3% of the documents recommend a form of local innovation encouragement. The seventh and last identified main strategy is to strengthen local governance. This will increase the attention for locally social, political, and ecological problems. This is the strategy that, with a total of 46.2% of all documents, was least mentioned.

Overall, the research question has been answered, for multiple strategies were found in scientific literature and reviewed documents, leading to a framework of main and sub-strategies. By selecting the documents for this research, attention was paid to make sure every included document mentioned nature conservation, local communities, participation, the great green wall or GGWSSI, and guidelines. This way, all the strategies found in this research, are written with the GGWSSI in mind, and can accordingly be used to involve local communities on a higher level with the project. Every concept of justice, meaning the reasons behind involving local communities, has their own favorite strategies, which will lead to think that every country will have their favorite strategies as well, depending on the dominant concept of justice in their government; egalitarian, libertarian or utilitarian. However, the eight main strategies and eleven sub-strategies found in this research can all be used as guidelines to involve local communities. Further research opportunities exist for the expansion of these strategies, both in width, adding more strategies, as in depth, elaborating on successful implementing the different strategies.

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## 8. Appendix

### 8.1 Appendix 1; document, organization, year, link and reason of in-/exclusion

Document name	Organization	Year	Link	In-/excluded & reason why:
Institutional arrangements for national adaptation planning and implementation; thematic report	UNFCCC	2014	<a href="https://unfccc.int/files/adaptation/application/pdf/adaptation_committee_publication_-_web_low.pdf">https://unfccc.int/files/adaptation/application/pdf/adaptation_committee_publication_-_web_low.pdf</a>	Included
Synthesis report on the implementation of the framework for capacity-building in developing countries	UNFCCC	2014	<a href="https://unfccc.int/resource/docs/2014/sbj/eng/02a01.pdf">https://unfccc.int/resource/docs/2014/sbj/eng/02a01.pdf</a>	4. Overview of what happened so far, no guideline
Intended Nationally Determined Contributions (INDCs)	UNFCCC	2016	<a href="https://unfccc.int/files/focus/indc_portal/application/pdf/albania_to_ghana.pdf">https://unfccc.int/files/focus/indc_portal/application/pdf/albania_to_ghana.pdf</a>	4. It sets out the intended nation contribution to climate change, not a guideline for involving communities
Submissions on the knowledge-sharing and training activities undertaken by regional centres and networks on adaptation planning processes and processes and structures for linking national and local adaptation planning	UNFCCC	2016	<a href="https://unfccc.int/files/adaptation/application/pdf/submissions_rcns.pdf">https://unfccc.int/files/adaptation/application/pdf/submissions_rcns.pdf</a>	Excluded due to too low quality
Considerations regarding vulnerable groups, communities and ecosystems in the context of the national adaptation plans	UNFCCC	2018	<a href="https://unfccc.int/sites/default/files/resource/Considerations%20regarding%20vulnerable.pdf">https://unfccc.int/sites/default/files/resource/Considerations%20regarding%20vulnerable.pdf</a>	Included
Provisional list of registered participants	UNFCCC	2018	<a href="https://unfccc.int/sites/default/files/resource/PLOP.pdf">https://unfccc.int/sites/default/files/resource/PLOP.pdf</a>	4. List of participating countries at convention, no guideline
Yearbook of global climate action	UNFCCC	2019	<a href="https://unfccc.int/sites/default/files/resource/GCA_Yearbook2019.pdf">https://unfccc.int/sites/default/files/resource/GCA_Yearbook2019.pdf</a>	Included
SEORS, Side events/exhibits archive	UNFCCC		<a href="https://seors.unfccc.int/seors/reports/archive.html?session_id=COP18/CMP8">https://seors.unfccc.int/seors/reports/archive.html?session_id=COP18/CMP8</a>	4. It is an archive for side events and exhibits by the UN on climate change, not a guideline
Biodiversity scenarios: projections of 21st century change in biodiversity and associated ecosystem services	CBD	2010	<a href="https://www.cbd.int/doc/publications/cbd-ts-50-en.pdf">https://www.cbd.int/doc/publications/cbd-ts-50-en.pdf</a>	Content does not contain guidelines for the involvement of local communities after all
Mainstreaming biodiversity in practice; a STAP advisory document	CBD	2014	<a href="https://www.cbd.int/doc/case-studies/inc/Mainstreaming-Biodiversity-LowRes.pdf">https://www.cbd.int/doc/case-studies/inc/Mainstreaming-Biodiversity-LowRes.pdf</a>	Included
Summary of the global monitoring report on the implementation of the strategy for resource mobilization	CBD	2014	<a href="https://www.cbd.int/doc/meetings/wgri/wgri-05/information/wgri-05-inf-04-en.pdf">https://www.cbd.int/doc/meetings/wgri/wgri-05/information/wgri-05-inf-04-en.pdf</a>	Excluded due to too low quality
Synthesis report on experiences with ecosystem-based Report of the Conference of the Parties to the Convention on Biological Diversity on its fourteenth meeting	CBD	2016	<a href="https://www.cbd.int/doc/meetings/sbstta/sbstta-https://www.cbd.int/doc/c/1081/32db/e26e7d13794f5f011cc621ef/cop-14-14-en.pdf">https://www.cbd.int/doc/meetings/sbstta/sbstta-https://www.cbd.int/doc/c/1081/32db/e26e7d13794f5f011cc621ef/cop-14-14-en.pdf</a>	Included
Latest NBSAPs	CBD		<a href="https://www.cbd.int/nbsap/about/latest/#sn">https://www.cbd.int/nbsap/about/latest/#sn</a>	4. It sets out the latest national biodiversity strategies and action plans per country, no guidelines on how to involve local communities in nature conservation
Combating desertification and land degradation; proven practices from asia and the pacific	UNCCD	2011	<a href="http://catalogue.unccd.int/848_Combating_Desertification_and_LD_Asia_Pacific.pdf">http://catalogue.unccd.int/848_Combating_Desertification_and_LD_Asia_Pacific.pdf</a>	5. Is about Asia and the Pacific, not about Africa
Conserving dryland biodiversity	UNCCD	2012	<a href="http://catalogue.unccd.int/124_drylands_bk_2.pdf">http://catalogue.unccd.int/124_drylands_bk_2.pdf</a>	Included
UNEP yearbook, emerging issues in our global environment	UNCCD	2012	<a href="http://catalogue.unccd.int/UNEP_SER-UNEP%20year%20Book%202012_Emerging%20Issues%20in%20our%20Global%20Environment-20121085.pdf">http://catalogue.unccd.int/UNEP_SER-UNEP%20year%20Book%202012_Emerging%20Issues%20in%20our%20Global%20Environment-20121085.pdf</a>	Content does not contain guidelines for the involvement of local communities after all
Final outcome of the UNCCD 2nd scientific conference	UNCCD	2013	<a href="https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP11_CST_INF.3/cstin3eng.pdf">https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP11_CST_INF.3/cstin3eng.pdf</a>	Included
Final outcome of the UNCCD 2nd scientific conference	UNCCD	2013	<a href="https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP11_CST_INF.3/cstin3eng.pdf">https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP11_CST_INF.3/cstin3eng.pdf</a>	Duplicate
Report by the Global Environment Facility on its strategies, programmes and projects for financing the agreed incremental costs of activities concerning desertification	UNCCD	2013	<a href="https://www.unccd.int/sites/default/files/sessions/documents/ICCD_CRIC12_6/6eng.pdf">https://www.unccd.int/sites/default/files/sessions/documents/ICCD_CRIC12_6/6eng.pdf</a>	3. Not most recent version
Global guidelines for the restoration of degraded forests and landscapes in drylands. Building resilience and benefiting livelihoods	UNCCD	2015	<a href="http://catalogue.unccd.int/590_a-i5036e.pdf">http://catalogue.unccd.int/590_a-i5036e.pdf</a>	Duplicate
Rapport du Fonds pour l'environnement mondial sur ses stratégies, programmes et projets de financement des surcoûts convenus des activités se rapportant à la désertification	UNCCD	2015	<a href="https://www.unccd.int/sites/default/files/sessions/documents/ICCD_CRIC14_5/5fre.pdf">https://www.unccd.int/sites/default/files/sessions/documents/ICCD_CRIC14_5/5fre.pdf</a>	Duplicate
Report by the Global Environment Facility on its strategies, programmes and projects for financing the agreed incremental costs of activities concerning desertification	UNCCD	2015	<a href="https://www.unccd.int/sites/default/files/sessions/documents/ICCD_CRIC14_5/5eng.pdf">https://www.unccd.int/sites/default/files/sessions/documents/ICCD_CRIC14_5/5eng.pdf</a>	Included
Sustainable financing for forest and landscape restoration; opportunities, challenges and the way forward	UNCCD	2015	<a href="https://www.unccd.int/sites/default/files/relevant-links/2017-03/sustainable_financing_for_forest_and_landscape_restoration_opportunities_challenges_and_the_way_forward.pdf">https://www.unccd.int/sites/default/files/relevant-links/2017-03/sustainable_financing_for_forest_and_landscape_restoration_opportunities_challenges_and_the_way_forward.pdf</a>	Content aimed at financing, does not contain guidelines for the involvement of local communities after all
Global land outlook: First Edition	UNCCD	2017	<a href="https://www.unccd.int/sites/default/files/documents/2017-09/GLO_Full_Report_low_res.pdf">https://www.unccd.int/sites/default/files/documents/2017-09/GLO_Full_Report_low_res.pdf</a>	3. Not most recent version
Landscape connectivity; a call to action	UNCCD	2017	<a href="https://knowledge.unccd.int/sites/default/files/inline-files/WBCSD_Syngenta_LandscapeConn.pdf">https://knowledge.unccd.int/sites/default/files/inline-files/WBCSD_Syngenta_LandscapeConn.pdf</a>	Included
Federal republic of nigeria	UNCCD	2018	<a href="https://knowledge.unccd.int/sites/default/files/inline-files/1%20FINAL_NDP_Nigeria.pdf">https://knowledge.unccd.int/sites/default/files/inline-files/1%20FINAL_NDP_Nigeria.pdf</a>	1. Action plan of Nigeria, not written by UNCCD
Final Government Distribution; Chapter 3: Desertification	UNCCD	2019	<a href="http://catalogue.unccd.int/1244_Desertification2d.-Chapter-3_FINAL.pdf">http://catalogue.unccd.int/1244_Desertification2d.-Chapter-3_FINAL.pdf</a>	Included
Global land outlook; west Africa thematic report; land degradation neutrality; benefits for human security	UNCCD	2019	<a href="http://catalogue.unccd.int/1220_GLO_WEST_AFRICA_E.pdf">http://catalogue.unccd.int/1220_GLO_WEST_AFRICA_E.pdf</a>	Included

Global land outlook; Northeast Asia thematic report; partnerships to achieve land degradation neutrality	UNCCD	2019	<a href="http://catalogue.unccd.int/1218_GLO_Northeast_Asia_Report.pdf">http://catalogue.unccd.int/1218_GLO_Northeast_Asia_Report.pdf</a>	5. Is about Asia instead of Africa
Land restoration for achieving the sustainable development goals	UNCCD	2019	<a href="http://catalogue.unccd.int/1226_report_land_restoration_final.pdf">http://catalogue.unccd.int/1226_report_land_restoration_final.pdf</a>	Included
Sustainable rangeland management in Sub-Saharan Africa; guidelines to good practice	UNCCD	2019	<a href="http://catalogue.unccd.int/1204_SJUNE_E_Wocat_Rangeland_low_full_version.pdf">http://catalogue.unccd.int/1204_SJUNE_E_Wocat_Rangeland_low_full_version.pdf</a>	Included
Search in Knowledge Hub; feria internacional de energia y medio ambiente	UNCCD		<a href="https://knowledge.unccd.int/search?f%5B0%5D=type%3Acadm_content&amp;f%5B1%5D=type%3Acadm_professionals&amp;f%5B2%5D=type%3Acadm_pages&amp;f%5B3%5D=type%3Apage&amp;f%5B4%5D=type%3Aaction_programmes&amp;f%5B5%5D=type%3Aact&amp;f%5B6%5D=type%3Afocal_points&amp;f%5B7%5D=type%3Acso&amp;f%5B9%5D=type%3Aks&amp;f%5B10%5D=type%3Apublications&amp;f%5B11%5D=type%3Aroe&amp;text=&amp;sort=created&amp;order=asc&amp;page=367">https://knowledge.unccd.int/search?f%5B0%5D=type%3Acadm_content&amp;f%5B1%5D=type%3Acadm_professionals&amp;f%5B2%5D=type%3Acadm_pages&amp;f%5B3%5D=type%3Apage&amp;f%5B4%5D=type%3Aaction_programmes&amp;f%5B5%5D=type%3Aact&amp;f%5B6%5D=type%3Afocal_points&amp;f%5B7%5D=type%3Acso&amp;f%5B9%5D=type%3Aks&amp;f%5B10%5D=type%3Apublications&amp;f%5B11%5D=type%3Aroe&amp;text=&amp;sort=created&amp;order=asc&amp;page=367</a>	4. Search query on UNCCD site, no guideline
Search in Knowledge Hub; land rights	UNCCD		<a href="https://knowledge.unccd.int/search?f%5B0%5D=topic%3A1393&amp;text=&amp;page=2">https://knowledge.unccd.int/search?f%5B0%5D=topic%3A1393&amp;text=&amp;page=2</a>	4. Search query on UNCCD site, no guideline
Search in Knowledge Hub; dry forests special: Men, women and the power of food	UNCCD		<a href="https://knowledge.unccd.int/search?f%5B0%5D=topic%3A1393&amp;text=&amp;page=2">https://knowledge.unccd.int/search?f%5B0%5D=topic%3A1393&amp;text=&amp;page=2</a>	4. Search query on UNCCD site, no guideline
Forest management in Africa: Is wildlife taken into account?	IUCN	2008	<a href="https://www.iucn.org/sites/dev/files/import/download/s/nzooch_et_al_2008.pdf">https://www.iucn.org/sites/dev/files/import/download/s/nzooch_et_al_2008.pdf</a>	Duplicate
Conserving dryland biodiversity	IUCN	2012	<a href="https://www.iucn.org/sites/dev/files/content/documents/conserving_drylands_biodiversity_iucn_unccd_book_1_0.pdf">https://www.iucn.org/sites/dev/files/content/documents/conserving_drylands_biodiversity_iucn_unccd_book_1_0.pdf</a>	Duplicate
UNEP Year book; emerging issues in our global environment	IUCN	2012	<a href="https://portals.iucn.org/library/sites/library/files/documents/Man-SOE-UNEP-2012.pdf">https://portals.iucn.org/library/sites/library/files/documents/Man-SOE-UNEP-2012.pdf</a>	Duplicate
Building the future through nature-based and innovative solutions; annual report of 2013	IUCN	2014	<a href="https://portals.iucn.org/library/sites/library/files/documents/2014-021.pdf">https://portals.iucn.org/library/sites/library/files/documents/2014-021.pdf</a>	3. Not most recent version
Building the future through nature-based and innovative solutions; annual report of 2013	IUCN	2014	<a href="https://portals.iucn.org/library/sites/library/files/documents/2014-021.pdf">https://portals.iucn.org/library/sites/library/files/documents/2014-021.pdf</a>	Duplicate
Ecosystem alliance; annual report of 2014	IUCN	2014	<a href="https://www.iucn.org/sites/dev/files/import/download/ecosystem_alliance_annual_report_2014.pdf">https://www.iucn.org/sites/dev/files/import/download/ecosystem_alliance_annual_report_2014.pdf</a>	3. Not most recent version
Effective governance of natural resources and poverty reduction; annual report of 2014	IUCN	2014	<a href="https://portals.iucn.org/library/sites/library/files/documents/2015-015-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2015-015-En.pdf</a>	3. Not most recent version
Genetic considerations in ecosystem restoration using native tree species	IUCN	2014	<a href="http://www.fao.org/3/a-i3938e.pdf">http://www.fao.org/3/a-i3938e.pdf</a>	Duplicate
Financing plan	IUCN	2015	<a href="https://www.iucn.org/sites/dev/files/annex_1_rfp-gf-6_pif_ldcf_mauritania_wetlands_adaptation_and_resilience_to_climate_change.pdf">https://www.iucn.org/sites/dev/files/annex_1_rfp-gf-6_pif_ldcf_mauritania_wetlands_adaptation_and_resilience_to_climate_change.pdf</a>	Included
Annual report of 2015	IUCN	2016	<a href="https://portals.iucn.org/library/sites/library/files/documents/2016-002-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2016-002-En.pdf</a>	3. Not most recent version
Agenda and Documents	IUCN	2016	<a href="https://portals.iucn.org/library/sites/library/files/documents/WCC-6th-007.pdf">https://portals.iucn.org/library/sites/library/files/documents/WCC-6th-007.pdf</a>	Content about agenda of congress, does not contain guidelines for the involvement of local communities after all
Enhancing learning and collaboration on natural resource governance in IUCN	IUCN	2016	<a href="https://www.iucn.org/sites/dev/files/content/documents/mapping_analysis_final.pdf">https://www.iucn.org/sites/dev/files/content/documents/mapping_analysis_final.pdf</a>	Included
Regional assessment on Ecosystem-based Disaster Risk Reduction and Biodiversity in West and Central Africa A report for the Resilience through Investing in Ecosystems – knowledge, innovation and transformation of risk management (RELIEF Kit) project	IUCN	2016	<a href="https://www.iucn.org/sites/dev/files/content/documents/west_and_central_africa_regional_assessment_final.pdf">https://www.iucn.org/sites/dev/files/content/documents/west_and_central_africa_regional_assessment_final.pdf</a>	Included
Resolutions, recommendations and other decisions	IUCN	2016	<a href="https://portals.iucn.org/library/sites/library/files/documents/IUCN-WCC-6th-005.pdf">https://portals.iucn.org/library/sites/library/files/documents/IUCN-WCC-6th-005.pdf</a>	Included
Resolutions, recommendations and other decisions	IUCN	2016	<a href="https://portals.iucn.org/library/sites/library/files/documents/IUCN-WCC-6th-005.pdf">https://portals.iucn.org/library/sites/library/files/documents/IUCN-WCC-6th-005.pdf</a>	Duplicate
Biodiversity and the Great Green Wall: Managing nature for sustainable development in the Sahel	IUCN	2017	<a href="https://portals.iucn.org/library/sites/library/files/documents/2017-027-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2017-027-En.pdf</a>	Included
ESMS questionnaire & screening report - for field projects	IUCN	2017	<a href="https://www.iucn.org/sites/dev/files/esms_screening_report_wetlands_mauritania.pdf">https://www.iucn.org/sites/dev/files/esms_screening_report_wetlands_mauritania.pdf</a>	Excluded due to too low quality
ESMS questionnaire & screening report - for field projects	IUCN	2017	<a href="https://www.iucn.org/sites/dev/files/esms_screening_report_wetlands_mauritania.pdf">https://www.iucn.org/sites/dev/files/esms_screening_report_wetlands_mauritania.pdf</a>	Duplicate
Decisions of the 95th meeting of the IUCN council	IUCN	2018	<a href="https://www.iucn.org/sites/dev/files/decisions_of_the_95th_meeting_of_the_iucn_council_jeju_6-8_october_2018_with_annex_1-22.pdf">https://www.iucn.org/sites/dev/files/decisions_of_the_95th_meeting_of_the_iucn_council_jeju_6-8_october_2018_with_annex_1-22.pdf</a>	Content does not contain guidelines for the involvement of local communities after all
West and central Africa regional office; annual report of 2017	IUCN	2018	<a href="https://portals.iucn.org/library/sites/library/files/documents/2018-024-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2018-024-En.pdf</a>	3. Not most recent version
Term of reference; consultancy on engaging private sector in the Great Green Wall	IUCN	2018	<a href="https://hrms.iucn.org/iresy/index.cfm?event=vac.offline.download&amp;offline_vacancy_id=1517">https://hrms.iucn.org/iresy/index.cfm?event=vac.offline.download&amp;offline_vacancy_id=1517</a>	4. Calls for the making of a guideline concerning this subject, but does not contain any guideline
IUCN 70 years; annual report of 2018	IUCN	2019	<a href="https://portals.iucn.org/library/sites/library/files/documents/2019-007-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2019-007-En.pdf</a>	Included
MIME-Version: 1.0 Content-Type	IUCN		<a href="https://www.iucn.org/sites/dev/files/import/download/s/paco_news_mars_2016.mht">https://www.iucn.org/sites/dev/files/import/download/s/paco_news_mars_2016.mht</a>	6. No readable document
Building resilience in drylands; global guidelines for restoration of forest landscapes and degraded lands	FAO		<a href="http://www.fao.org/3/a-az442e.pdf">http://www.fao.org/3/a-az442e.pdf</a>	Included
Forest management in Africa; is wildlife taken into account?	FAO	2008	<a href="http://www.fao.org/3/a-aj987e.pdf">http://www.fao.org/3/a-aj987e.pdf</a>	Included
An information bulletin of non-wood forest products	FAO	2009	<a href="http://www.fao.org/3/a-i0641e.pdf">http://www.fao.org/3/a-i0641e.pdf</a>	Excluded due to too low quality
An information bulletin of non-wood forest products	FAO	2009	<a href="http://www.fao.org/3/i2455e/i2455e.pdf">http://www.fao.org/3/i2455e/i2455e.pdf</a>	Duplicate
Towards global guidelines for restoring the resilience of forest landscapes in drylands	FAO	2012	<a href="http://www.fao.org/fileadmin/templates/great_green_wall/docs/Towards_guidelines_for_restoring_resilience_of_forest_landscapes_in_drylands.pdf">http://www.fao.org/fileadmin/templates/great_green_wall/docs/Towards_guidelines_for_restoring_resilience_of_forest_landscapes_in_drylands.pdf</a>	4. Contains no guideline

Intergovernmental Technical Working Group on Forest Genetic Resources; reports of regional consultations to identify needs and priorities for action for the follow-up to the state of the world's forest genetic resources	FAO	2013	<a href="http://www.fao.org/3/mf724e/mf724e.pdf">http://www.fao.org/3/mf724e/mf724e.pdf</a>	3. Not most recent version
Report on measures taken by members to implement the recommendations of the eighteenth session of the African forestry and wildlife commission	FAO	2013	<a href="http://www.fao.org/3/mi268e/mi268e.pdf">http://www.fao.org/3/mi268e/mi268e.pdf</a>	4. Tells about what country did what in the GGWSSI, no guideline
Towards the assessment of trees outside forests; a thematic report prepared in the framework of the global forest resources assessment	FAO	2013	<a href="http://www.fao.org/3/a-aq071e.pdf">http://www.fao.org/3/a-aq071e.pdf</a>	Content does not contain guidelines for the involvement of local communities after all
A new dynamic for Mediterranean forests	FAO	2014	<a href="http://www.fao.org/3/a-i3837e.pdf">http://www.fao.org/3/a-i3837e.pdf</a>	5. Is about the Mediterranean, not Africa
Genetic considerations in ecosystem restoration using native tree species	FAO	2014	<a href="http://www.fao.org/3/a-i3938e.pdf">http://www.fao.org/3/a-i3938e.pdf</a>	Content does not contain guidelines for the involvement of local communities after all
Global guidelines for the restoration of degraded forests and landscapes in drylands: Building resilience and benefiting livelihoods	FAO	2015	<a href="http://www.fao.org/3/a-i5036e.pdf">http://www.fao.org/3/a-i5036e.pdf</a>	Included
Sustainable financing for forest and landscape restoration; opportunities, challenges and the way forward	FAO	2015	<a href="http://www.fao.org/3/a-i5174e.pdf">http://www.fao.org/3/a-i5174e.pdf</a>	Duplicate
FAO forestry newsroom 2016	FAO	2016	<a href="http://www.fao.org/forestry/news/91977/en/">http://www.fao.org/forestry/news/91977/en/</a>	4. Is a forestry newsroom, no guideline
Intergovernmental technical working group on animal genetic resources for food and agriculture; contributions of livestock species and breeds to the provision of ecosystem services	FAO	2016	<a href="http://www.fao.org/3/a-mq557e.pdf">http://www.fao.org/3/a-mq557e.pdf</a>	4. Does not contain a guideline on how to involve local communities
Intergovernmental technical working group on animal genetic resources for food and agriculture; contributions of livestock species and breeds to the provision of ecosystem services	FAO	2016	<a href="http://www.fao.org/3/a-mq557e.pdf">http://www.fao.org/3/a-mq557e.pdf</a>	Duplicate
Sustainable management of forests and wildlife in Africa; enhancing value, benefits and services	FAO	2016	<a href="http://www.fao.org/3/a-i5992e.pdf">http://www.fao.org/3/a-i5992e.pdf</a>	Included
Contributions of livestock species and breeds to the provision of ecosystem services	FAO	2017	<a href="http://www.fao.org/3/a-mr793e.pdf">http://www.fao.org/3/a-mr793e.pdf</a>	Content does not contain guidelines for the involvement of local communities after all
Creating a forest landscape restoration movement in Africa; a call to heal planet earth	FAO	2018	<a href="http://www.fao.org/3/i9937EN/i9937en.pdf">http://www.fao.org/3/i9937EN/i9937en.pdf</a>	Included
2017 Results Partnerships; impact 2018	FAO	2018	<a href="http://www.fao.org/3/i9057EN/i9057en.pdf">http://www.fao.org/3/i9057EN/i9057en.pdf</a>	Included
State of Mediterranean Forests 2018	FAO	2018	<a href="http://www.fao.org/3/CA2081EN/ca2081en.PDF">http://www.fao.org/3/CA2081EN/ca2081en.PDF</a>	5. Is about the Mediterranean, not Africa
Africa regional synthesis for the state of the world's biodiversity for food and agriculture	FAO	2019	<a href="http://www.fao.org/3/ca4643en/ca4643en.pdf">http://www.fao.org/3/ca4643en/ca4643en.pdf</a>	Included
FAO forestry newsroom	FAO		<a href="http://www.fao.org/forestry/news/91049/en/">http://www.fao.org/forestry/news/91049/en/</a>	4. Is a forestry newsroom, no guideline
Committee on Mediterranean Forestry Questions-Silva unreadable excelsheet	FAO		<a href="http://www.fao.org/forestry/silva-www.fao.org&gt;family-farming&gt;xls etc">http://www.fao.org/forestry/silva-www.fao.org&gt;family-farming&gt;xls etc</a>	4. A overview of past events, no guideline
Index of non-wood Nests	FAO		<a href="http://www.fao.org/forestry/32397-0143607f7335a0b9e279b048669050c95.pdf">http://www.fao.org/forestry/32397-0143607f7335a0b9e279b048669050c95.pdf</a>	6. No readable document 4. Only an index, no guideline

Colour legenda:
1st exclusion step: duplicates
2nd exclusion step: in-/ exclusion criteria 1, 2, 3, 4, 5 & 6
3th exclusion step: exclusion of full-text articles
4th exclusion step: because the quality is too low
Those that left are included

## 8.2 Appendix 2; quality assessment tool

Table 7: Quality assessment tool (Kmet, Lee, & Cook, 2004)

criteria	-	Yes (2)	Partial (1)	No (0)
1	Objective sufficiently described?	-	-	-
2	Context for the study clear?	-	-	-
3	Connection to a theoretical framework/ wider body of knowledge?	-	-	-
4	Data collection methods clearly described and systematic?	-	-	-
5	Data analysis clearly described and systematic?	-	-	-
6	Use of verification procedure(s) to establish credibility?	-	-	-
7	Conclusions supported by the results?	-	-	-
8	Reflexivity of the account?	-	-	-

### 8.2.1 Definitions and Instructions for Quality Assessment Scoring

#### 8.2.1.1 How to calculate the summary score:

- Total sum = (number of “yes” \* 2) + (number of “partials” \* 1)
- Total possible sum = 16
- Summary score: total sum / total possible sum

#### 8.2.1.2 Quality assessment

##### 1. Objective clearly described?

- Yes: Objective is clear by the end of the research process (if not at the outset).
- Partial: Objective is vaguely/incompletely reported.
- No: Objective is not reported, or is incomprehensible.

##### 2. Context for the study is clear?

- Yes: The context/setting is adequately described, permitting the reader to relate the findings to other settings.
- Partial: The context/setting is partially described.
- No: The context/setting is not described.

##### 3. Connection to a theoretical framework / wider body of knowledge?

- Yes: The theoretical framework/wider body of knowledge informing the study and the methods used is sufficiently described and justified.
- Partial: The theoretical framework/wider body of knowledge is not well described or justified; link to the study methods is not clear.
- No: Theoretical framework/wider body of knowledge is not discussed.

##### 4. Data collection methods clearly described and systematic?

- Yes: The data collection procedures are systematic, and clearly described, permitting an “audit trail” such that the procedures could be replicated.
- Partial: Data collection procedures are not clearly described; difficult to determine if systematic or replicable.

- No: Data collection procedures are not described.
5. Data analysis clearly described, complete and systematic?
- Yes: Systematic analytic methods are clearly described, permitting an “audit trail” such that the procedures could be replicated. The iteration between the data and the explanations for the data (i.e., the theory) is clear – it is apparent how early, simple classifications evolved into more sophisticated coding structures which then evolved into clearly defined concepts/explanations for the data). Sufficient data is provided to allow the reader to judge whether the interpretation offered is adequately supported by the data.
  - Partial: Analytic methods are not fully described. Or the iterative link between data and theory is not clear.
  - No: The analytic methods are not described. Or it is not apparent that a link to theory informs the analysis.
6. Use of verification procedure(s) to establish credibility of the study?
- Yes: One or more verification procedures were used to help establish credibility/trustworthiness of the study (e.g., prolonged engagement in the field, triangulation, peer review or debriefing, negative case analysis, member checks, external audits/inter-rater reliability, “batch” analysis).
  - No: Verification procedure(s) not evident.
7. Conclusions supported by the results?
- Yes: Sufficient original evidence supports the conclusions. A link to theory informs any claims of generalizability.
  - Partial: The conclusions are only partly supported by the data. Or claims of generalizability are not supported.
  - No: The conclusions are not supported by the data. Or conclusions are absent.
8. Reflexivity of the account?
- Yes: The researcher explicitly assessed the likely impact of their own personal characteristics (such as age, sex and professional status) and the methods used on the data obtained.
  - Partial: Possible sources of influence on the data obtained were mentioned, but the likely impact of the influence or influences was not discussed.
  - No: There is no evidence of reflexivity in the study report.

### 8.3 Appendix 3; extensive results of quality assessment tool per document

Table 8: Scores of quality assessment tool per included document. Yes = 2, partial = 1, no = 0.

Document #/ Criteria #	1	2	3	4	5	6	7	8	Total score
1	2	2	2	2	2	2	2	0	14
2	2	2	1	1	2	2	2	0	12
3	2	2	1	0	2	2	2	0	11
4	2	2	2	2	2	2	2	1	15
5	2	2	2	2	2	2	2	0	14
6	2	2	2	0	2	2	2	0	12
7	2	2	2	2	2	2	2	0	14
8	2	2	2	2	2	2	2	0	14
9	2	2	2	0	2	2	2	0	12
10	0	2	2	2	2	2	2	0	12
11	1	1	2	1	2	2	2	1	12
12	2	2	2	2	2	2	2	1	15
13	2	2	2	2	2	2	2	2	16
14	2	2	1	1	1	2	1	0	10
15	2	2	2	2	2	2	2	0	14
16	2	2	2	2	2	2	2	0	14
17	2	2	0	2	0	2	1	0	9
18	2	2	0	2	2	2	2	1	13
19	1	2	2	2	2	2	2	0	13
20	2	2	2	2	2	2	2	0	14
21	2	2	2	2	2	2	2	0	14
22	2	2	2	2	2	2	2	1	15
23	1	2	2	1	2	2	2	0	12
24	2	2	2	1	2	2	2	0	13
25	2	2	1	1	2	2	2	0	12
26	2	2	2	2	2	2	2	0	14

Table 9: Scores of quality assessment tool per excluded document. Yes = 2, partial = 1, no = 0.

Document #/ Criteria #	1	2	3	4	5	6	7	8	Total score
27	0	0	0	0	1	0	0	0	1
28	1	1	0	0	0	2	0	0	4
29	1	2	0	1	1	2	1	0	8
30	0	0	0	0	2	0	2	0	4
31	0	0	1	0	0	0	0	0	1

Table 10: Characteristics of excluded documents due to too low quality

	Document (name)	Organization	year	Quality rating
27	Submissions on the knowledge-sharing and training activities undertaken by regional centers and networks on adaptation planning processes and structures for linking national and local adaptation planning	UNFCCC	2016	1
28	Summary of the global monitoring report on the implementation of the strategy for resource mobilization	CBD	2014	4
29	Report of the Conference of the Parties to the Convention on Biological Diversity on its fourteenth meeting	CBD	2018	8
30	ESMS questionnaire & screening report - for field projects	IUCN	2017	4
31	An information bulletin of non-wood forest products	FAO	2009	1