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A catalogue record for this publication is available from the British Library.

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April 2024

Summary

The Great Green Wall for the Sahara and the Sahel Initiative (GGWI), launched in 2007 by the African Union, is one of Africa's most important green transformation projects. From a pan-African environmental movement to a mosaic of locally managed projects to its considerable funding from the international community, the GGWI is now seen as a 'megaproject'. While this megaproject has been primarily studied along the lines of political ecology and critical development studies, both showing the material limits and effectiveness of the initiative, its impact on the ground remains important in that the Sahelian landscape is shaped by donor and development actors' discourses and imaginaries. The conceptual debates around the notion of 'future' thus make it possible to capture and facilitate the emergence of endogenous practices and environmental knowledge which involve the population, their history, and their culture using specific methods. By implementing the relationship formulated by Jacques Lacan between symbolic, reality and imaginary, this project will make it possible to approach the GGWI project as a social-technical imaginary while considering the complex social-ecological processes that this project involves.

Authors

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Contents

Acronyms

ACD	Action Against Desertification
ARR	afforestation, reforestation and revegetation
BRICKS	Building Resilience through Innovation, Communication and Knowledge Services
CEN–SAD	Community of Sahel–Saharan States
COP	Conference of the Parties
FAO	Food and Agriculture Organization of the United Nations
FLEUVE	Front Local Environnemental pour une Union Verte
GGW	Great Green Wall
GGWI	Great Green Wall for the Sahara and the Sahel Initiative
NGO	non-governmental organisation
SAWAP	Sahel and West Africa Program
UNEP	United Nations Environment Programme

1. Introduction

The Great Green Wall for the Sahara and the Sahel Initiative (GGWI) is one of the most prominent green transformation projects on the African continent (Macia *et al*. 2023). The GGWI is a pan-African programme, launched in 2007 by the African Union, that prioritises large-scale land restoration as the key approach to combat desertification and improve livelihoods of rural communities (African Union Commission 2012). In January 2021, world leaders at the One Planet Summit announced US$14bn of support for the GGWI over the coming five years, a significant expansion of funding (Laestadius, Reij and Garrity 2021), that was further increased to US$19bn only a few months later in October 2021 at the Conference of the Parties (COP)26. The political economy of the 'Green Wall' means that it is now becoming an umbrella term, almost like a brand, encompassing many development projects managed by different international organisations and international non-governmental organisations (NGOs),[1] behind which lies a strong donor-led conception of the project.

The idea of tree-planting initiatives across the Sahel is not new. Efforts to afforest and revegetate African drylands in the name of combating desertification date as far back as the colonial period (Benjaminsen and Hiernaux 2019; Davis 2016; Goffner, Sinare and Gordon 2019; Gritzner 1988; Taïbi 2019). This discourse on desertification made it possible to legitimise colonial control over territories previously managed by local populations (Roe 1999). Historically, these discourses explicitly drew on a concept of desertification that diagnosed landscape change primarily as driven by human mismanagement rather than climate (Giannini, Biasutti and Verstraete 2008). The desertification discourse became particularly prominent in the debates about the so-called Sahel-disaster in the 1970s, when the whole area south of the Sahara was affected by several consecutive years of drought, famine, and land degradation (Swift 1996). Meanwhile, scientific research has led to a more comprehensive understanding of the complex relationship between climate, land-use change, and land degradation.

This working paper argues that the GGWI acts as a powerful social-technical imaginary, defined as 'collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' (Jasanoff and Kim 2015: 4). Green imaginaries are now powerful drivers of change globally. The tree metaphorically becomes a source of life as opposed to the desert, and the act of planting is

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1   Action Against Desertification (ACD), Building Resilience through Innovation, Communication and Knowledge Services (BRICKS), Desert to Power programme, Front Local Environnemental pour une Union Verte (FLEUVE), and Sahel and West Africa Program (SAWAP).

lauded in an almost religious gesture. Heroes such as the Kenyan activist Wangari Maathai, the 2004 Nobel Peace Prize winner, are glorified for their leading role in reviving reforestation operations (Maupeu 2005), or Yacouba Sawadogo, the 2018 Right Livelihood Award winner (Sawadogo and Deville 2022) with the reactualisation of the ancestral zaï farming technique in Burkina Faso and other Sahelian and West African countries (Kebenei, Mucheru-Muna and Muriu-Ng'ang'a 2023; Ehiakpor *et al*. 2019). There is currently large global support, enthusiasm, and mobilisation for tree-planting projects and mass afforestation,[2] with the World Economic Forum's Trillion Trees initiative the most prominent example (1t.org 2024). Indeed, many countries have committed to restoring millions of hectares of degraded land through a range of activities that include restoring native habitats, promoting agroforestry systems, regrowing natural forests, and planting trees (Besseau, Graham and Christophersen 2018). However, they often do not materialise as originally envisioned and remain in most cases a **green fix**, i.e. the belief that global structural problems can be solved through green technologies. This working paper scrutinises the Great Green Wall (GGW) as a 'dreamscape of modernity' (Jasanoff and Kim 2015) and unpacks green politics in relation to 'future-making' and the 'capacity to aspire' (Appadurai 2013). The future is essentially a social category since it is based on shared aspirations and anxieties (Augé 2015). It does not simply emerge out of the present but is socially produced through practices that make it an issue in the present.

The remainder of this working paper is divided as follows. Section 2 describes the GGWI and shows how it has been approached in scholarly terms along two major lines of enquiry: political ecology and critical development studies. Section 3.1 highlights how the GGWI can be analysed as a social-technical imaginary and the practices of future-making, deconstructing the idea of the GGWI by focusing on the different perspectives and power dynamics shaping the various social-technical imaginaries around it. In section 3.2, we explain how future-making can be conceptually addressed, and then illustrate the various visions and imaginaries with respect to the GGWI. Finally, in section 4, we highlight the key methods to understand the contrasts and contradictions between these various visions and imaginaries.

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[2]   See, for instance, **The Bonn Challenge and the New York Declaration on Forests**.

2. The Great Green Wall: challenges, realities, and acceleration

Linking up to Thomas Sankara's dreams of a pan-African environmental movement (Reenberg 2012), ideas of an African Great Green Wall were resurrected by Olusegun Obasanjo, then president of Nigeria, at the seventh summit of the Community of Sahel–Saharan States (CEN–SAD).[3] The programme aims to restore 100m hectares of degraded land by 2030. Originally conceived of as a green belt, consisting of 'an 8000km-long line of trees and plants across the entire Sahel, from the Atlantic coast of Senegal to the east coast of Djibouti – halting desertification and creating a huge swathe of green across the entire African continent' (UNEP 2020), the GGWI is now conceived of as a mosaic of sustainable land management practices. The focus is not only on trees but also on feed, medicines, food, and fuel as well as actions that can generate climate change benefits through carbon sequestration in soils and vegetation, while also supporting adaptation to climate change, improving population health and nutrition, and combatting rural migration. This broader understanding is now covered under the five thematic priorities of the Great Green Wall Accelerator: (1) investment in small and medium-sized enterprises and strengthening of value chains, (2) land restoration and sustainable ecosystem management, (3) climate-resilient infrastructure and access to renewable energy, (4) enabling economic and institutional framework for effective governance, and (5) capacity building (UNCCD 2024).

While there is already a rich, long-standing, and well-documented literature on desertification and reforestation in the Sahel, there is now an increasing number of articles focusing exclusively on the GGWI (Boëtsch *et al*. 2019; Macia *et al*. 2023; Mugelé 2018; Turner *et al*. 2021). One can divide the literature across two major lines of enquiry, in terms of political ecology and in terms of critical development studies.

In terms of **political ecology**, the focus has been on the link between environmental rehabilitation and poverty alleviation (Goffner *et al*. 2019; Sacande *et al*. 2021; Turner *et al*. 2021). The GGWI, which is by nature an afforestation, reforestation, and revegetation (ARR) programme, is built around the assumption that any increase in ecological resiliency will lead to increases in social resiliency

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3   CEN–SAD was created with 30 member states in Tripoli in 1998. These included, in its northern part, most of the North African countries apart from Algeria, and in its southern part, the sub-Saharan states on the line of the Atlantic Ocean to the Red Sea and down to Kenya. The community aimed to create a vision of economic and political integration across what became known as the Sahel–Saharan Band. In succeeding years, the intention to promote an active coalition of countries to implement measures to promote the reversal of desertification and the move towards sustainable development became focused on states on the southern edge of the Sahara, without inclusion of the northerly states within CEN–SAD.

(Turner *et al*. 2021). As highlighted by many studies, the relationship between social and ecological resiliency is mediated by different synergies and trade-offs (see, for example, Goffner *et al*. 2019). While the study by Sacande *et al*. (2021) – that focused on a Food and Agriculture Organization of the United Nations (FAO) programme – highlights some positive socioeconomic impacts in terms of food insecurity and income, it nonetheless shows that survey results were less conclusive and varied from one country to another for indicators linked to social and human capital. The study by Turner *et al*. (2021), which is a review of project documents from 12 country programmes of the World Bank's Sahel and West Africa Program (SAWAP) initiative, is more critical. It argues that the goals were mainly technical, as in the number of trees planted, hectares restored, labourers hired, and people trained. It also contends that the goals are short term, with social benefits to inhabitants seen as either inherent or secondary to the improved ecological productivity and resilience that may stem from afforestation, with some of the most vulnerable either excluded (women with absent husbands) or ignored (pastoralists). Enclosure and green grabbing are important lenses through which to study ARR, in that projects either directly dispossess vulnerable people by enclosing land to conduct afforestation or environmental rehabilitation, or the changing vegetation/soils can affect the usefulness of the land for livestock grazing and for medicinal and culinary wild herb collection (Turner *et al*. 2021).

While political ecology studies have been the most prominent approaches to study the GGWI, other scholars have looked at the GGWI through a **critical development studies** lens. Rainfed agriculture and/or livestock production are the main livelihood activities of around 75 per cent of the Sahelian population and many local communities experience the effects of land degradation. Poverty levels are among the highest in the world, with low indicators for health, education, and standard of living (more than 30 per cent of the population in the G5 Sahel countries (Burkina Faso, Chad, Mali, Mauritania, and Niger), for instance, fall below the international poverty line and each country sits near the bottom of both the Human Development Index and the Human Capital Index (World Bank Group 2022), despite the clear limits of these indicators – see, for example, Amougou 2021). However, all the different evaluations point to the very limited impact and implementation of the GGWI on the ground, despite being started more than 16 years ago. Its spatial existence is therefore limited to 40,000 hectares (i.e. less than 4 per cent of the total projected area to be reforested) and public buildings (places of decision-making such as the Pan African Agency or the national agencies), which makes it a set of extremely modest achievements compared to the initial objectives of the project (Ladekjær Gravesen and Funder 2022).

From the perspective of **critical development studies**, the diagnosis highlights another point. While the mandate of the GGWI and its national agencies is to act 'by the people and for the people', the GGWI and its affiliated projects tend to

view the local population as abstract stakeholders. Many studies from a critical development lens show that the GGWI fails because of its top-down character and lack of local ownership (see, for instance, Mugelé 2018; Reij *et al*. 2021; Scoones and Toulmin 2021). Furthermore, the potential success of this green project may be limited as techniques for storing carbon in soils and vegetation are unlikely to be effective given the low biomass and forest cover. In this light, the GGWI may be seen as a megaproject (Flyvbjerg 2014), too complex to exist, but too hoped for to be abandoned. Mugelé (2018), for instance, sees the Great Green Wall as a fetish of development in the age of environmental globalisation and an example of the growing role of the environment in contemporary development thinking.

The literature on the GGWI has shown that it is mostly a project on paper rather than a project on the ground, despite the mosaic of projects that are scattered all along the zone of intervention. In this respect, the GGWI could be analysed as a social-technical imaginary, serving as a navigational tool of future-making. While the literature has mostly followed a political ecology or critical development studies perspective, we argue for an alternative approach that complements the two other critical approaches by focusing on the practices of future-making, deconstructing the idea of the GGWI by understanding the different perspectives and power dynamics shaping the various social-technical imaginaries around it.

3. Social-technical imaginaries and the Great Green Wall

To understand the GGWI in terms of social-technical imaginaries requires us to discuss how future-making can be conceptually addressed.

3.1 Visions of the future: conceptual debates

The focus on social-technical imaginaries has become an important scholarly strand in current social sciences debates. The methodological problem behind much of the literature on the topic is the circumstance that the future itself cannot be studied, because by definition the future has not yet arrived and is therefore not empirically accessible. As John Urry puts it, 'The future has most definitely arrived but what exactly it is remains a mystery...' (2016: 1). What can be researched, however, is how the future gets 'folded into the present' (Anderson 2010), i.e. how it becomes an issue in contemporary politics, an object of hope or fear, and a mobilising force of social change – which is happening in the present. All this is subsumed under the term 'future-making', which comprises all sorts of human activities that aim at shaping the conditions under which we shall live in the time to come. When we talk of future-making, the 'making' highlights the importance of human agency, in parallel to other conceptualisations that highlight emerging futures in terms of destiny, doom, or fate.

Conceptualising the future in terms of human agency places the topic in the focus of the social sciences. As Marc Augè points out, 'The future, even when it concerns the individual, always has a social dimension: It depends on others' (2015: 1). This is an interesting argument, because it distinguishes between individual and societal futures, which have different durations and potentially also different objectives. Individual futures are usually confined to a lifetime, serving the specific needs and interests of an individual. Societal futures extend beyond one's own life, reaching out at least into the next generation, and into collectively held imaginations and visions. Societal futures are therefore much broader, they are open for contestation, and they are typically the object of future studies like ours. The distinction between individual and societal futures becomes relevant for our argument because an environmental megaproject such as the GGW requires a type of future-making beyond the individual level. The GGW uses the logic of a 'dreamscape' (Jasanoff and Kim 2015) by producing an image of a desirable future.

In his essay *The Future as Cultural Fact*, Arjun Appadurai presents some thoughts about 'how humans construct their future' (2013: 286). He identifies three 'notable human preoccupations that shape the future as a cultural fact'

(*ibid*.: 286) or cultural practices of future-making, namely anticipation, imagination, and aspiration (*ibid*.: 285). These three practices make the future actionable, although in very diverse directions. In that sense Appadurai distinguishes between two types of future: on the one hand, a future of probabilities, and on the other hand, a future of possibilities. Conceiving the future in terms of probabilities means narrowing it down to calculated risks and opportunities, to forecasts and modelling, which is done through practices of anticipation. A future of possibilities, in contrast, is open to dreams, hopes or grand visions, and it is therefore approached through the practices of imagination and aspiration.

In this next section, we will therefore set out an initial mapping of possible futures with respect to the GGWI.

3.2 Great Green Wall and visions of futures

There are many visions and socio-imaginaries with respect to the GGWI, but the dominant one is a large-scale green corridor that will both promote growth and poverty alleviation on the one hand and address climate change concerns on the other. This vision is encapsulated in Figure 3.1, which expresses a rather technical approach, setting its objectives in terms of hectares planted, jobs created, and tonnes of carbon stored.

This kind of vision and narrative is built around econometric studies that illustrate the economic costs and benefits of future land restoration projects under this programme. Mirzabaev *et al*. (2022), for instance, show that every United States dollar invested in land restoration yields on average US$1.2 under the base scenario, ranging from US$1.1 to US$4.4 across the scenarios. At most, ten years are needed for land restoration activities to break even from a social perspective, accounting for both market-priced and non-market ecosystem benefits.

This is essentially a grandiose narrative of a megaproject; the Great Green Wall Accelerator website in fact refers to the project as 'growing a world wonder'. The symbolism of the wall reversing environmental degradation, quelling insurgency and conflict, and stemming the flow of migrants is dramatic and is well illustrated in different videos portraying the Initiative.[4]

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4   See, for example, a video produced by the United Nations Environment Programme (UNEP): **How Africa's Sahel Region Tackles Conflict, Poverty with Restoration**.

Figure 3.1 Vision and targets for the Great Green Wall Accelerator
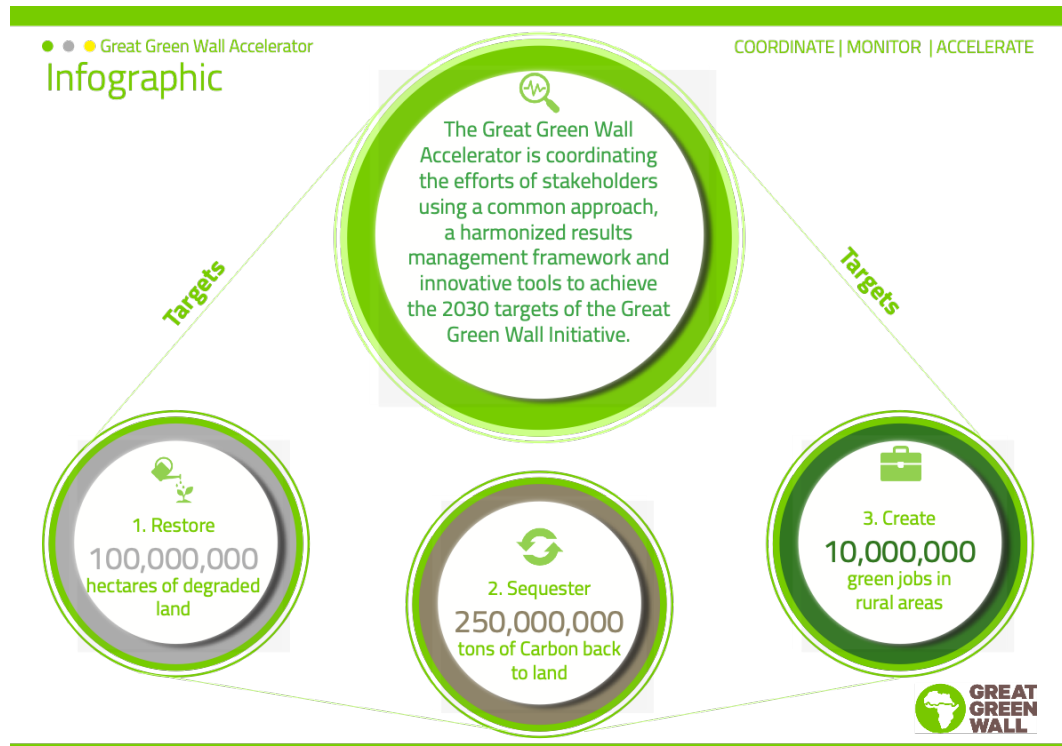
Visual description: A large circle sits centrally above three smaller circles. A thin line surrounds the four circles with the label 'Targets'. The larger circle contains the following text: The Great Green Wall Accelerator is coordinating the efforts of stakeholders using a common approach, a harmonized results management framework and innovative tools to achieve the 2030 targets of the Great Green Initiative. The targets sit in the three smaller circles. They read: (1) Restore 100,000,000 hectares of degraded land, (2) Sequester 250,000,000 tons of carbon back to land, and (3) Create 10,000,000 green jobs in rural areas'.

Source: © UNCCD. **Great Green Wall** (n.d.), reproduced with permission.

The current dominant vision, which is mostly supported by donors and the African Union, corresponds to a profound redefinition of its initial pan-African conception. While each of the 11 founding member countries had already redefined its GGW target zones as a function of national restoration priorities, and in some cases deviated from the original path, donor programmes have extended the reach of the initiative to other countries, expanding from the 11 original, aligned countries to a more modular structure including a total of 21 member countries (Goffner *et al.* 2019), with ongoing discussions about eastern and southern African green walls.[5] In terms of imagining the GGW, the pre-Acceleration vision had its own issues. It was essentially a very top-down, state-centric view, especially around the Ministry of Environment and the armed divisions of Water and Forestry, who are also responsible for the protection of national parks. Mugelé (2018) argued, in fact, that the GGW was a political

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[5] See **Southern African Development Community Great Green Wall Initiative** presentation.

strategy of extroversion by the Sahelian states. The interesting aspect is that those institutional visions, GGWI 1.0 and GGWI Accelerator 2.0, are still competing against each other, reflecting broader geopolitical concerns around the G5 Sahel and its relationship with Western countries and institutions. At the heart of it is the role and function of the Pan African Agency, as highlighted in the recent independent review on the Great Green Wall Accelerator (UNCCD 2023). As a result, it is slowly becoming a mega-aid project, moving away from this pan-African initiative structuring and representing particular relationships between the global North and the global South.

There is also a third vision, which foregrounds a bottom-up perspective, being pushed by different academic communities. It questions both visions and asks, 'acceleration for whom?' (Macia *et al*. 2023), considering that GGWI 1.0 and GGWI Accelerator 2.0 do not benefit local communities and land restoration activities as most of the financial resources have gone to large international NGOs and government programmes (Iyer *et al*. 2021). As Ian Scoones and Camilla Toulmin stressed, 'a focus on regenerating landscapes and promoting livelihoods through a sensitive, locally based approach to sustainable development is the way forward' (2021). Wanjira Mathai and Salima Mahamoudou of the World Resources Institute echoed this sentiment, arguing, 'the magic that can restore Africa's degraded farms, forests, and pasture is in the millions of local champions across the continent, especially youth and women' (2021).

This has led other scholars to develop frameworks to inform the design of future projects that would be more sensitive to local preferences and realities. O'Byrne *et al*. (2022) pointed out that limited attention was given to achieve wellbeing outcomes,[6] and developed a framework combining the capability approach to human development and the sustainable livelihood framework. Another article by Goffner *et al*. (2019) develops a transdisciplinary research framework with resilience thinking at its core, underlining the importance of combining scientific knowledge and the knowledge and experience of local Sahelian populations to find the best solutions through participatory approaches. Others have focused on alternative poverty alleviation solutions for the most marginalised, by suggesting a shift from planting trees in the GGW to utilising shrubs; for example, Leptospermum scoparium, Boscia senegalensis, Grewia flava, Euclea undulata or Diospyros lycioides. O'Connor and Ford (2014) argue that this would provide quicker benefits, especially for the Silvopastoral populations that could benefit from beekeeping and honey production livelihood activities. Overall, not much has been done to understand the vision and imaginaries of the local population benefiting from the GGW and hence methods are needed to understand the contrasts and contradictions between these various visions and imaginaries.

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[6]   According to their analysis of current monitoring and evaluation frameworks used by Global Environmental Facility-funded sustainable land management projects.

4. Merging futures: methodological approach

The methodology aims to understand future-makings related to the GGW at different sites (Côte d'Ivoire, Ethiopia, and Senegal), and to characterise dreamscapes at different scales (Jasanoff and Kim 2015). This methodological corpus is embodied in a travelling exhibition, aiming to bring out the imaginaries and aspirations of stakeholders.

4.1 Promoting the discussion: a set of methodologies to address emerging local future-making practices

To question the social-technical imaginaries behind the GGW project with a future-making approach, it appears essential to explore and document people's imaginaries, aspirations, and anticipations (Appadurai 2013) through the voices of diverse stakeholders. As a primer for delineating and producing boundary objects[7] allowing dialogue between stakeholders, the travelling exhibition aims to promote the expression of diverse future-making practices that will be translated into a boundary object through the work of local artists.

The methodological corpus supported by the travelling exhibition aims to mobilise a diversity of discourses, future-makings, and relationships with the *milieu* without restricting itself to the dominant 'travelling ideas' guiding many environmental projects (Hajer 1995; Behrends, Park and Rottenburg 2014). The methodological outlines are, therefore, broad enough to allow a degree of adaptive flexibility related to the specific features of the study sites. This methodological flexibility is also supported by the modular character of the travelling exhibition, allowing it to match local contexts and issues at stake.

The methodological corpus is divided around four key aspects: (1) information communication through knowledge co-construction, (2) artistic production by local stakeholders, (3) acoustic recording and analysis to shape a 'soundscape' understanding of the study sites, and (4) collaborative timeline.

Information communication through knowledge co-construction consists of informing stakeholders about the project and introducing the temporal dimension of the project using interactive posters with playing cards representing different

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7 Based on Star and Griesemer's (1989) formulation, Koskinen and Mäkinen (2009: 32) define boundary objects as 'an entity shared by several different communities but viewed or used differently by each of them'.

elements (animals past and present, tree species past and present, climate change, water availability, and other attributes).

The artistic production aims to provide stakeholders with a medium for free expression of future-makings (drawings, photographs, dance, theatre...). It makes it possible to explore the diversity of future conceptions as a social production through practice (Müller-Mahn 2020). Arts imply multidimensional responses from the artists and commentators (Eisner 1998). As Žižek (1993) analyses from Lacan, reality, imaginaries, and symbolic dimensions must be thought of in relation. The art philosopher Goodman (1968, cited in Chateau 1994: 101) describes art as a symbolic product 'because it refers'. Mobilising artistic production and its analysis in our methodological approach allows us to study the GGW as a construct and as a diversity of symbolic systems. In considering art as a set of symbols, it allows us to address future-making through imaginaries. This artistic production includes a Photovoice methodology (Wang and Burris 1997), enabling the projection of future-making (i.e. the practices of imagination, anticipation, and aspiration (Appadurai 2013)) into the *milieu*, which makes it possible to address the concept of 'dreamscape' (Jasanoff and Kim 2015) into the different study sites. In Photovoice methodology, stakeholders take photographs of landscapes, practices, or objects that are meaningful to them to highlight an issue or to illustrate their way of life (Gamage 2023). It gives a symbolic dimension to reality features which promote discussions about the symbol and invoke future-making practices.

Acoustic recording and collaborative analysis are a step forward in addressing future-makings through the concept of 'soundscape', defined by Francomano *et al.* as the 'entire collection of sounds occurring in a given place over a given timeframe, which may include geophysical, biological, and technological sounds' (2022: 2). Directly related to individual and collective experiential knowledge, soundscapes (*ibid.*) condition how people relate to the environment (Pijanowski *et al*. 2011). More precisely, our hypothesis is that the sensitive experience of the environment through soundscapes is affecting vernacular knowledge and 'care' dimensions that interact interdependently with the agency dimension to shape social-ecological strategies (Enqvist *et al*. 2018), and thus future-making production. Growing research suggests that 'nature' experience influences environmental commitment which underlies different environmental discourses and future-makings (Chawla 2007; Pijanowski *et al*. 2011; Rosa, Profice and Collado 2018; Xu and Jiang 2022).

The collaborative timeline methodology summons up the spatiotemporal aspects of the diverse relationships with the *milieu*, not only allowing the expression of imaginaries, anticipations, and aspirations that characterise future-makings (Appadurai 2013) but also replacing these discourses into a social-ecological trajectory which is of particular interest with regards to the historical background of the GGW project. The interest in adding a collaborative timeline

methodology is to draw on a diversity of memory narratives to question the GGW project as grounded in Sahelian histories and to contextualise future-makings into a spatiotemporal dimension. As Dubar and Rolle described, temporality has a 'collective origin providing frameworks for common benchmarks', they are 'plurals' and are sources of 'phenomenon intelligibility' (2008: 1). Practically, stakeholders will be invited to fill out sticky notes to inform the collaborative timeline. This exercise can be guided by specific themes identified during preliminary discussions. Participants can discuss others' provided information, change their minds on specific events, converge, diverge, argue, and interact. Through this collaborative timeline production, participants will be invited to reflect on the future based on the information they provided to the timeline, which invokes the three types of future-making practices: anticipation, imaginaries, and aspirations (Appadurai 2013).

These different methodologies embodied in the travelling exhibition must be considered as the primers of future-making expressions to be translated into an artistic boundary object allowing the adoption of a cross-scale and trans-site approach.

4.2 Artistic production as a boundary object

Local artists in each site have the role to translate the outputs of the travelling exhibition into a production that will fulfil the role of a boundary object. These boundary objects are described by Star and Griesemer (1989) as including 'interpretative flexibility', gradual specification of the boundary object around the objectives of the research project and a differentiated use of the object among stakeholders (Star 2010). In our case, these boundary objects will act at the interface of multiple actors, institutions and processes which implies bringing together different knowledge systems (Tengö *et al.* 2017). Tengö *et al.* (2017) summarised five tasks crucial to enable empowering and equitable sharing processes: mobilise, translate, negotiate, synthesise, and apply. The first task is to **mobilise** future-makings into a form that can be easily shared with the different stakeholders (*ibid.*). Artistic production realises this task through its ability to allow different interpretations and understandings independent of the individual and collective background and has been recognised as a powerful tool for bridging different knowledge systems (Rathwell, Armitage and Berkes 2015). Moreover, artistic production is itself a **translation** of different perceptions and worldviews, allowing shared understandings (Tengö *et al.* 2017). Through discussions about the product, artistic boundary objects integrate a process of **negotiation** between stakeholders with a common assessment of convergences and divergences, which allows constant feedback dynamics between the local artist, local stakeholders, and institutions on the one hand and between sites on the other hand (*ibid.*). Furthermore, this artistic boundary object could **synthesise** broadly accepted points of view while maintaining the integrity of

each knowledge system (*ibid.*). Finally, future-making outcomes promoted by the boundary objects should be assessed in terms of their performativity among the narratives of social-technical imaginaries at different scales and within different knowledge systems, described by Tengö *et al.* (2017) as the **application** task.

In summary, local artists in each site will have to summon up future-makings to produce an artistic boundary object that will 'travel' within sites and between sites. Videovoice methodology (Catalani *et al.* 2012), following the community voice process (Cumming and Norwood 2012), will allow the travelling exhibition to be continued across the three study sites through the medium of the artistic boundary object. Discussions and interpretations of the different artistic boundary objects through videovoice methodology will allow us to get a cross-scale understanding of future-makings related to the GGW project and to question this project as a 'feature' grounded in the Sahelian history.

4.3 Adopting a cross-scale and trans-site approach to the Great Green Wall imaginaries: a videovoice methodology

Beyond site comparison, the final methodological step aims to communicate the different study sites through the artistic boundary objects. This trans-site approach with multiple stakeholders' feedback allows us to question the GGW project as a pan-African emergence. It questions, in particular, the influence of the Great Green Wall Accelerator on the GGW project and negotiations about the integration of other African countries in the project. This final step of the methodological structure will be realised during the second phase of fieldwork. Stakeholders will have to reflect on their own participation and on the participation of stakeholders from the other study sites and discuss through the artistic boundary object, the convergent and divergent future-makings related to the GGW project. The aim of the videovoice methodology according to a community voice process is to link 'deliberation with participatory research' (Cumming and Norwood 2012: 435). The process is rooted in the premise of the 'transformative power of dialogue' (Innes and Booher 2004: 428) through a reflexive exercise on our participation and the participation of others making emerging new outcomes from the research project. The focus on the artistic boundary object as the fundamental material for bridging different future-making practices will allow a remote discussion on the artistic products that are overcoming the collaborative issues previously mentioned.

Table 4.1 Summary of the methodological structure

Step	Methodology	Method	Objective
1	Preliminary discussions	Face-to-face interviews	Engaging with stakeholders and adapting methodologies to local context
2	Travelling exhibition (or workshop)	Information communication through knowledge co-construction	Knowledge co-construction, project presentation, ice-breaking
		Artistic production	Invoking the imagination through artistic symbolism
		Acoustic recording and analysis	Linking experience to future-making and the performativity of environmental discourses
		Collaborative timeline	Investigating future-making as a production rooted in a historical context
3	Boundary object	Artistic production	Creating an artistic boundary object
4	Videovoice	Videovoice according to a community voice process	Allowing feedback between participants and project steps and allowing a trans-site approach

5. Conclusion

This working paper has highlighted how three different visions of the GGWI have been put forward. The first one (GGWI 1.0) was developed during the seventh summit of the leaders and Heads of State of the Community of Sahel–Saharan States (CEN–SAD) in 2005. It was strangely built on two pillars. On the one hand, it used a narrative developed during the colonial period, based on a discourse of desertification and reforestation contrasting environmental scarcity with a bright future, and on the other hand a pan-African narrative, based on Thomas Sankara's dream of a pan-African environmental movement, and the idea of uniting Sahelian countries. GGWI 1.0 envisioned a green belt, consisting of an 8000km-long line of reforested trees across the entire Sahel, that had to be managed and implemented as a state-centric programme through national authorities such as the respective Ministry of Environment. The second vision, GGWI Accelerator 2.0, builds on the evolution of GGWI 1.0 in the sense of a mosaic of sustainable land management practices. It aspires to achieve ambitious, some may say unrealistic, results in terms of land restoration, livelihoods, and carbon sequestration. Behind these objectives lies a strong donor-led conception of the project, whose interests see the greening of the desert as a way to support political stabilisation and control migration. In addition to these two visions of the GGW, as an environmental megaproject and a pan-African idea, a contrasting third vision has been articulated to push a more bottom-up vision, through a sensitive, locally based approach to sustainable development building on local champions and innovators.

While this megaproject so far remains very much only on paper, its impact on the ground remains important in that the Sahelian landscape is shaped by donor and development actors' discourses and imaginaries. While political ecology and critical development studies provide important insights on the material limits and effectiveness around the project, more work is needed to facilitate the emergence of new environmental knowledge which involves the population, their history, their culture, and their knowledge.

This approach leads to several key questions with respect to the GGWI in terms of grounding the project; in terms of past, present, and future; and finally, in terms of its boundaries. The literature and the various evaluations of the project shows the need for the project to be grounded in the history of the region, and leads to the following questions: How can the development of new imaginaries around the GGW take into account vernacular practices? What are the main environmental memory narratives that are socially constructed in the region? What is pan-African about the GGWI? How is the current expansion of the GGWI project brought about/negotiated?

Answering these questions through co-producing these imaginaries will allow for more diversity and ways of knowing, practicing, and doing green projects. This working paper highlights the gaps in our understanding of the relationships between socioenvironmental discourses and the performativity characterising the transition from discourse to action. Understanding the processes behind the materialisation of these discourses, but above all the processes of transformation of these discourses when they are implemented locally, is crucial for the implementation of effective and equitable actions. Investigating these issues by mobilising the concept of the imaginary requires an appropriate methodology, but above all one that is empirically tested and profoundly transdisciplinary, since the very object of these investigations cannot be restricted to a circumscribed field of expertise, which is what our new research project **The Great Green Wall and Sahelian Environmental Imaginaries: Green Fix and the Persistence of a Policy Idea**, aims to do.

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