Carbon Offsetting, a new form of CO$_2$lonialism?

Local implications of tree-planting projects in East Africa

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Abstract

Carbon offsetting has a growing presence on the global climate action agenda where it is promoted as a triple-win for the environment, business and development. However, the opinions on carbon offsetting are divided. Projects with agroforestry and participatory methods are highlighted as having more positive aspects, but critics emphasize that carbon offsetting can become an excuse for the Global North to continue business as usual while using the Global South as a carbon dump. Carbon offsetting can reproduce unequal power structures where countries, while formally decolonized, are still affected by coloniality. This study examines carbon offsetting through tree planting projects and the potential discrepancies between discourse and documented effects in East Africa with focus on Uganda. Four projects are compared with each other, focusing on documented social effects and impacts on land access. We analyze how power structures are expressed in carbon offsetting generally and in the projects. This is a literature study with a combined theoretical framework of political ecology and the decolonial approach. Findings imply that there, to varying degrees, are discrepancies between rhetoric and reality for the projects. Differences between the projects' outcomes mainly boil down to their planting method, degree of participation and operating logic. All the projects are to varying degrees based on a coloniality, permeated by power structures and have some level of exclusion. However, findings also imply that best practices involve the local communities in a bottom-up approach with an agroforestry method and carbon offsetting as a co-benefit.

Keywords: Decoloniality, Political Ecology, Carbon offsetting, Tree planting projects, Social impacts, Power Structures, East Africa

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Acronyms

CDM - Clean Development Mechanism

GR - Green Resources

HANR - Humbo Assisted Natural Regeneration

KACP - Western Kenya Agricultural Carbon Project

NGO - Non-Governmental Organization

SALM - Sustainable Agricultural Land Management

TFGB - Trees For Global Benefit

UNFCCC - United Nations Framework Convention on Climate Change

VCM - Voluntary Carbon Market

1.Introduction

*The crooked rhetoric that naturalizes 'modernity' as a universal global
process and point of arrival hides its darker side, the constant
reproduction of 'coloniality'* (Mignolo 2007, p.450)

*Responsibility for over-consumptive lifestyles of those in richer nations is
pushed onto the poor, as the South becomes a carbon dump
for the industrialized world* (Bachram 2006, p.11)

In 1949 a new era of development began, as Harry S. Truman, President of the U.S., promised economic growth and welfare for the whole world (Rist 2014, pp.71-72; Ullrich 2010, p.308). The concept of 'underdevelopment' was created and development, through science, technology and increased production was proposed as the key to 'prosperity and peace' (ibid.). This was supposedly the end of the colonial age. The perception of development was that it is infinite and that some countries are developed while others are underdeveloped and therefore must catch up (Rist 2014, p.270). 'Underdevelopment' was seen as simply a natural pre-state to development (ibid., pp.73-74). However, development and modernization were not only the sharing of material resources and knowledge, but the idea of Western superiority and Western values, ontologies and epistemologies as universal was imposed on the world and became a form of social and cultural control (Alvares 2010, p.244; Quijano 2007, p.169). Colonial structures and colonizing mechanisms are still present within development with unequal conditions, power structures, hegemonial discourse and exploitation as essential parts of the accumulation of capital (Rist 2014, pp.73-74; Esteva 2010, p.7).

When harmful effects of development became clear, with growing environmental problems and still prominent issues of global inequality, the concept of sustainable development was introduced in the Brundtland Report in 1987 (Mignolo 2019, p.59; Rist 2014, p.180). It proposed a development which should meet present needs without compromising those of future generations (Rist 2014, p.181). This 'new era of economic growth' is meant to reduce poverty and work towards repairing ecosystems, but in practice it hardly differs from the original idea of development as economic growth and modernization (Rist 2014, p.186). Sustainable development could never solve the problems of inequalities since it is an oxymoron, as development is proposed as both the problem and solution (Mignolo 2019, pp.53, 62; Rist 2014, p.186). The global development agenda promotes economic growth, exploitation of nature and imposes knowledge and technology on the Global South (Shiva 2010, pp.235-236).

A green economy is often mentioned as the solution for environmental degradation, climate change and economic recession (Nel & Hill 2014, p.19). In the Paris agreement of 2015, 196 countries agreed to reduce emissions to avoid global temperatures increasing more than 1,5 degrees Celsius compared with pre-industrial levels (UNFCCC n.d.). This is a prominent part of the sustainable development agenda where the aim is for the world to be climate neutral by

2050 (ibid.). In the Kyoto Protocol of 1997, carbon offsetting was suggested as an efficient way to give the Global North a degree of flexibility in meeting the legally required carbon reduction targets (Hyams & Fawcett 2013, pp.92-93). It was seen as an economically effective way to reduce global emissions while simultaneously providing technological support and funding to the Global South. There are two markets for carbon offsets: the compliant market established in the Kyoto Protocol, mainly operating through Clean Development Mechanism (CDM), and the Voluntary Carbon Market (VCM), meant for individuals or private actors. VCM was created by corporations and NGOs in the early 1990s (ibid.). Carbon offsetting can for example be forestry projects, wind farms and cooking stoves and it relies on the supposition that a ton of carbon emitted is equivalent to a ton stored elsewhere (Bumpus & Liverman 2011, p.203; Hyams & Fawcett 2013, p.91; Fairhead, Leach & Scoones 2012, p.245).

The ongoing debate about carbon offsetting is divided between the positive mainstream views and the more critical opinions. Carbon offset projects are often portrayed as win-win-win scenarios for both investors, the environment and local communities (Richards & Lyons 2016, p.213). Some emphasize that carbon offsetting projects can be successful when consisting of bottom-up initiatives involving agroforestry, which can increase food security and have positive aspects for communities. However, the carbon market has been criticized for distracting from reducing emissions and being misleading in its effects (Hyams & Fawcett 2013, pp.92-93). Carbon offsetting as a part of sustainable development also raises questions regarding global power dynamics and winners and losers. Critics see carbon offsetting as an immoral practice or even a new form of colonialism, where the Global North pushes the burden of their emissions onto the Global South as a way to continue business as usual, instead of undertaking more radical measures to reduce emissions (Bachram 2006, pp.10-11).

This study deals with carbon offsetting through tree planting projects in East Africa and their implications for local communities. It is conducted through the theoretical framework of political ecology and the decolonial approach which are two theories closely interconnected. If a future with global justice and environmental sustainability is to be achieved, Eurocentric and hegemonic ideas about development must be challenged (Mignolo 2007, p.459). The world must delink from colonial power structures within knowledge, what Quijano (2007, p.171) calls the colonial matrix of power. What the world needs is not sustainable development, but sustainable economies where we move away from modernization as the only way forward and the economy is seen as one part of society instead of society being seen as part of the economy (Mignolo 2019, pp.49, 52).

Originally, carbon offsetting was meant to be a supplement for reducing emissions, but it has now become a large component in global environmental action (Hyams & Fawcett 2013, pp.92-93). Companies seek quick-fix solutions and offer consumers the possibility of carbon neutrality, creating the idea that consumers do not have to change their lifestyles (Bachram 2006, pp.10-11). Carbon offsetting can cause a shift in power and valuation of knowledge, away from local communities towards corporations and scientific, technical ways of understanding and measuring the environment (Dehm 2016, p.135; Fairhead, Leach &

Scoones 2012, p.254; Kröger 2014, pp.244-245). Furthermore, carbon markets contribute to the commodification of nature and green capitalism which changes the valuation of nature in both an economical and ontological sense (Fairhead, Leach & Scoones 2012, pp.253-254). The terms and the content of the conversation within carbon offsetting discourse must change for other ontologies and epistemologies to emerge (Quijano 2007, pp.177-178). Many critics state that carbon offsets are in fact opening a door to a new form of colonialism, justified with moral reasons of climate action (Bachram 2006, p.10-11, 19). The environmental crisis is created by the Global North, the old colonizers who are now creating a new market opportunity through carbon offsetting on the expenses of the Global South (ibid., p.20).

Tree planting is one method of conducting carbon offsets, due to the trees' ability to store carbon (Holl & Brancalion 2020, pp.580-581). Since deforestation is causing 17 % of the world's carbon emissions, a growing number of actors, from NGOs to governments, are involved in tree planting projects (Holl & Brancalion 2020, pp.580-581; Kiyani et al. 2017, pp.174-175). Tree planting projects have received critique for having negative impacts both environmentally and socially. If social factors are not considered, projects can result in increased social inequality, corruption, land appropriation and displacement of communities (Carton & Andersson 2017, p.832; Dehm 2016, p.137; Holl & Brancalion 2020, pp.580-581). Furthermore, there is a maximum capacity of the amount of carbon that can be absorbed by planting trees, which is approximately a third of the carbon which is emitted globally on a yearly basis (Skelton 2020, p.5).

Plantation forestry has grown almost 50 % between 1990 and 2010, mainly taking place in Africa (Richards & Lyons 2016, p.209). Africa is often portrayed as an 'ultimate investment frontier', with vast amounts of unused land and access to labor, which has attracted investors (Baglioni & Gibbon 2013, pp.1559, 1561). The number of carbon market initiatives has grown a lot in Eastern Africa. Uganda was one of the first countries in Africa to participate in carbon markets and now hold the fourth largest market share in carbon forestry (Lyons, Westoby & Nel 2017, pp.327-328). However, the Ugandan forestry context has however been characterized by forcible evictions and violence (Hajdu, Penje & Fischer 2016, p.414).

A usual criticism within carbon offsetting is that there is a difference between rhetoric and what is actually being done. Many projects state to work for both environmental and social sustainability, but the results do not always reflect the visions. Carbon offsetting has become a global strategy, but what does this new green market represent and produce? Power is integrated within carbon offsetting, on the global level between North and South and the local level for targeted communities. There are always winners and losers and environmental injustice where dimensions of coloniality exist (Bachram 2006, p.20). Is carbon offsetting a triple win for the environment, biodiversity and social empowerment or is it a way for the Global North to continue business as usual while shifting the burden of their emissions on the Global South?

1.1 Purpose and research questions

The purpose of this thesis is to examine and problematize carbon offsetting and the potential discrepancies between discourse and documented effects in East Africa, with a specific focus on Uganda. The study compares four tree planting projects where the main focus is on the documented social effects for local communities and their access to land. The projects are Green Resources (GR) and Trees for Global Benefits (TFGB) in Uganda, the Humbo Assisted Natural Regeneration (HANR) project in Ethiopia and the Western Kenya Agricultural Carbon Project (KACP). We analyze how power structures are reflected in carbon offsetting and why some projects have better outcomes than others.

The general discourse in carbon offsetting, found in scientific articles, is examined as well as how the projects present themselves in documents or on their website. Comparisons are conducted between all projects as well as each projects' self-presentation and their documented effects, found in scientific articles. The material is analyzed through our theoretical framework of political ecology and a decolonial approach. The research questions which guide the analysis are the following:

RQ1: What differences and similarities can be identified between the projects, focusing on the course of action and impacts on the local community?
RQ2: How are power structures and coloniality reflected in carbon offsetting and the projects?

In both questions, discrepancies between the Western carbon offsetting discourse and practice, both generally and for the specific projects, are distinguished. Furthermore, they also connect to the quandary regarding how values, interests and ontologies are reflected in global carbon offsetting as well as in the projects. We will also identify possible reasons for the projects' different courses of action and outcomes. For RQ1, focus is on the operational logic of the projects (commercialization, conservation, community development), structure (top-down or bottom-up/participatory), planting methods (monoculture, agroforestry) and outcome for the community (land access, livelihood, inclusion/exclusion). For RQ2, focus is on whose epistemologies and ontologies the projects are based on, who is included in decision-making and who receives the main benefits (the project initiator, local elites or marginalized groups). Furthermore, we examine the mainstream discourse within carbon offsetting in order to analyze the phenomenon as a whole and how power, knowledge and discourse are interlinked.

1.2 Delimitations

This thesis investigates carbon offsets, but the scope is limited to carbon offsetting through tree planting projects. We have not included any projects from the UNFCC carbon mitigation mechanism Reducing Emissions from Deforestation and Forest Degradation (REDD). Environmental aspects are included to a degree, but the focus is mainly on social aspects. The social impacts include access to land, participation, livelihood, benefit sharing, work conditions, power structures and inequality since these are the main aspects raised in the

literature. Local elites, gender related issues, minorities, cultural aspects and economic situation is included to the degree that it is present within the literature. Since a field study could not be conducted, a comprehensive mapping of communities' livelihood activities in the project areas was not included. Social effects and impacts on land access were studied on a more general level, based on information in the selected literature. Furthermore, due to time constraints and a large variance in available documents a deeper discourse analysis of the project's documents is not included. Instead excerpts from their websites or profile documents as well as parts of scientific literature serves to show their rhetoric. When examining the overall discourse, we will not focus on particular words, but rather on narratives and on capturing the debate.

2.Theoretical framework

In this section the theoretical framework of political ecology and a decolonial approach is presented. The theories are first presented in an introduction. Thereafter follows a theoretical summary including how the theories suit the purpose and the themes selected for the analysis of the material.

2.1 Political ecology

Political ecology dates back to the 1970s and 1980s (Peet, Robbins & Watts 2011, p.24). It came forth from a critique where environmental problems were analyzed as isolated phenomena, instead of something which is connected to and affected by political and economic conditions. Environmentalists used to see the main driver of environmental destruction as people's values, that they did not value nature enough to protect it (ibid.). However, political ecology connects peoples' actions and behavior to the political, economic and social processes and the incitements behind people's actions (ibid., p.25). Political ecology can be understood to "*address the condition and change of social/environmental systems, with explicit consideration of relations of power*" (Robbins 2012, p.20).

Political ecology is a critical approach while at the same time making space for new ideas and practices (Robbins 2012, pp.98-100). This function is usually referred to as the hatchet and the seed. The hatchet exposes flaws in dominant environmental narratives and questions what is seen as natural. The seed on the other hand, is more progressive and sheds light on alternative ways of managing the environment and natural resources. Those alternatives are often local knowledge or traditional methods (ibid.).

Three prominent research themes can be distinguished as main focal points in political ecology: the political ecology of environmental degradation, environmental production and environmental conservation (Peet, Robbins & Watts 2011, p.24). The political ecology of environmental degradation refers mainly to the way capitalist development affects the environment. Connections can be seen between the production of environmental conditions and the mechanisms of capitalism, such as accumulation, growth and crisis (ibid., pp.29-30). Thus, environmental degradation can be seen as a consequence of the mechanisms of capitalism and market forces. The political ecology of environmental production refers to the way humanity shapes and transforms nature. Therefore, we may question which types of environmental conditions are produced and why (ibid.).

The political ecology of environmental conservation deals with the social and political implications of protecting and managing the environment (Peet, Robbins & Watts 2011, p.27). Conservation can be seen as a form of control of resources, land and the value that can be extracted from them. Therefore, the question should be asked who is in power to control it (ibid., p.28). Instead of working from the bottom-up and challenging the uneven power relations produced by global capitalism, conservation efforts can build on colonial systems of environmental management (ibid., pp.26-27). Conservation can often be conducted through

enclosing areas, also called the 'fortress model'. People's land access is then reduced or lost, which also affects indigenous people or other groups who use the land sustainably or have protected it. Even in projects where local needs are prioritized higher, there is still need for critical scrutiny, since power differences also exist in the local context. Therefore, power may still affect the outcome of conservation efforts. Furthermore, if the core drivers for environmental degradation are the global capitalist market forces, conservation or institutional measures may not challenge these drivers enough to prevent them from further degrading the environment (ibid.).

Environmental efforts and power are interconnected and therefore it is important to distinguish which individuals, groups or actors become winners or losers (Robbins 2012, p.87). Causes and consequences of environmental problems can be uneven between different social classes, communities or countries. Generally, it is groups with less power and fewer economic or political resources who receive the worst outcomes in environmental problems. Unjust outcomes can be the rule and not the exception and some groups are continually disadvantaged (ibid.).

Fairhead, Leach and Scoones (2012, p.241) see discourse as fundamentally connected to environmental solutions and green markets such as the carbon market. Discourse turns attention towards an issue such as global warming or loss of biodiversity, through science policy is created and different solutions seen as effective. For example, forests are portrayed as threatened to disappear without interventions (ibid.). Thus, not only the physical world needs to be studied, but also the representation of the physical world (Robbins 2012, p.97). Political power, social and cultural norms are influential on human beliefs about nature and what nature should be (ibid.). The way we learn about the environment through definitions and categorizations is seen to affect the way environmental problems, causes and solutions are viewed (ibid., p.34). This is connected to the ideas of Michel Foucault, who saw the truth as an effect of power (Robbins 2012, p.70). The idea of a truth is formed by discourse (through language and narratives) and through social systems or practices (science, forestry, education) they are taken for granted as true. Thus, the truth and power are interlinked, and the truth can be different in different societies or contexts (ibid.).

To see Western science as the universal truth risks marginalizing other epistemologies and ontologies (Peet, Robbins & Watts 2011, p.38). There is a risk that local knowledge systems are discounted or lose power to science, which is generally more technical, numbers-focused and narrow in scope (ibid., p.40). Science is also embedded in the social and economic context in which it is produced (ibid., p.38). Political ecology does not question the utility or value of science, but rather "*[...] the way specific forms of ecological knowledge are selected and validated, the way environmental problems are narrated and structured, and what assumptions and practices become normal and internalized for people.*" (Peet, Robbins & Watts 2011, p.40).

2.2 The decolonial approach

Coloniality is a way to make people believe and follow the rhetoric of modernity where development is used as a tool to impose West's agenda on the world (Mignolo 2017, p.39; Mignolo 2019, p.39). Mignolo (2021, p.724) also describes it: "[...] *coloniality refers to the underlying logic of all Western (North Atlantic) colonialism*". The decolonial approach was created as a conceptual framework in the 1990s by the Peruvian sociologist Aníbal Quijano (Mignolo 2019, p.51). The meaning of de-coloniality is to strive towards a goal where no one is dependent on imposed ideals (Mignolo 2007, s.459). Quijano argued that modernity and coloniality are two sides of the same coin where the universal process of modernity is constantly reproducing coloniality (Quijano 2007, p.171; Esteva 2010, p.7, 13; Mignolo 2019, pp.51, 58). Modernization and development are interlinked with neoliberalism, which promotes development and modernization and homogenizes the planet after its convenience (Mignolo 2021, p.729, 734). Colonialism is a direct consequence of the primitive accumulation of capital (Mignolo 2007, p.450). Through modernity, there are not only material aspects which are imposed on the world, but also ideas, values, ontology and the proposed superiority of science and technology (Mignolo 2019, p.60). Therefore other ontologies and epistemologies are marginalized (ibid.).

Quijano coined the concept 'colonial matrix of power' which is a way to control and organize people in a hierarchical world order (Mignolo 2007, pp.479, 451; Quijano 2007, p.171). More specifically, the colonial matrix of power are structures of knowledge and power within modernity and Western hegemony (ibid.). In this hierarchical world order some people's voices are preferred and others are seen as less worthy (Mignolo 2007, p.479). The colonial matrix of power allows one to see power relations within communities and how it controls politics and the economy and capital is what keeps the colonial matrix of power together (Mignolo 2007, pp.455, 480). To be free, the world must unite and find alternatives to development (ibid., p.479).

Decolonial thinking aims to change the rhetoric of modernity as it determines the terms of knowledge and discourse (Mignolo 2019, p.60). There are power structures behind discourse and knowledge and therefore a decolonization of the mind is needed (Sachs 2010, p.xii). Words can have different underlying meanings like 'poverty' which has a materialistic prejudice, 'population' might just be statistics instead of looking deeper at people's complex lives and the word 'needs' creates dependency. The foundation of the decolonial approach is that knowledge and words need to be decolonized in order for it to be free from prevailing power structures to find a common understanding and equal language (Mignolo 2007, pp.464, 450). This can be done through a delinking process (ibid.).

The concept of delinking was coined by the Marxist economist Samir Amin and it is one of the most central concepts of the decolonial approach (Amin & Bush 2014, p.113; Mignolo 2007, p.463). Amin emphasizes that the delinking process started in connection with the Bandung conference, but the politics and economy of the Global South is still in a dependency position (Amin & Bush 2014, p.112). The Bandung conference of 1995 was an initiative of the Global South with the aim of creating a common development plan based on

independence and the condemnation of colonialism (Rist 2014, s.82). Instead the Global North put a focus on knowledge and technology transfers to the Global South as this was seen as the key to welfare (ibid., p.88-89). Amins theories have however been criticized by Quijano for merely focusing on politics and economy whereas it is lacking the important aspect of the decolonization of knowledge and the mind (Quijano 2007, pp.174, 177-178; Mignolo 2007, pp.450, 494). Delinking is a liberation process from the Eurocentric production of knowledge and the dominating Western discourse, but this does not mean that one totality should be replaced by another (ibid.). Delinking will lead to the emergence of other ontologies and epistemologies where the imperialistic West should adapt and not the other way around (Quijano 2007, pp.177-178; Amin & Bush 2014, p.113).

There are several alternatives to development that encourage living well instead of striving for more (Mignolo 2019, p.49). For example, Sumak Kawsay and Suma Qamaña which are concepts for 'living in harmony and plentitude' or Buen Vivir which means 'to live well'. The current Western discourse promotes to 'live better' instead of living well which is increasing discontent and inequality (ibid., p.50). It is not possible to solve the problems of today with the same mindset that got us into the problems in the first place (ibid., p.51). This is why it is important to change the terms of the conversation within the Western discourse, also called the colonial matrix of power (ibid.). Amin states that the alternative to today's development discourse might be more self-sufficiency and independence (Amin & Bush 2014, pp.112-113).

Mignolo (2019, p.49) emphasizes that the world does not need sustainable development, but sustainable economies. This is where the delinking process comes in where we move away from the idea that development and growth is the only way forward. One problem might be that states are not open to the idea of sustainable economies as an example of a way to live well instead of striving towards the idea of growth (ibid, p.50). Instead, modernity and sustainable development are ways to maintain Western privileges which is why it is important to allow economies to thrive on their own (ibid., p.55).

"*For better or worse, the clouds of Westernization contaminated everyone in the planet, directly or indirectly encroaching on all areas of human experience*" (Mignolo 2021, p.721). The Western way of conducting development programs with advanced technology and knowledge transfers, through coloniality, a way to impose knowledge on the rest of the world (Mignolo 2007, p.459). Some of the knowledge has also been expropriated from the local communities (Quijano 2007, p.169). Local knowledge and techniques are more easily accessible for many people and should be promoted and valued as high as Western values and knowledge (Mignolo 2007, p.459; Amin & Bush 2014, pp.112-113). Communities willingly or through force, are made to follow others' ideas and means to structure their community and join the pursuit of increased economic growth (Mignolo 2007, pp.450, 464).

When decolonizing knowledge all ontologies and epistemologies are welcome and can take place in something the decolonial approach calls 'the pluriverse' (Mignolo 2007, p.460; Mignolo & Walsh 2017, p.3). The pluriverse is a place where many worlds are accepted as this universal project is not decided by a specific group which means that it is not possible to

unite around one way to live (ibid., p.463, 497). The Western way will still be a part of the world but not imposed on others and this is something the decolonial approach calls re-existence where life and dignity are redefined (Mignolo & Walsh 2017, p.3). To be free and live in a pluriverse is according to Mignolo and Walsh the key to de-colonization and to do so the delinking process is needed (ibid., p.170; Mignolo 2007, p.499).

2.3 Theoretical summary

Political ecology and the decolonial approach are closely interlinked and both deal with differences in power, inequality, the power behind knowledge, representation and discourse. They are both critical but at the same time propose alternatives to the dominating discourse. The decolonial approach focuses on the harmful effects of modernity, Western hegemony and the power behind knowledge. Political ecology further incorporates the relationship between society and nature in its analysis, which will be very valuable for our study. The political ecology of conservation is a focus of this study, more specifically regarding carbon offsets. Both study social relations, but decoloniality looks more at the specific relationship between West/North and South. The problem around carbon offsetting boils down to colonial patterns re-emerging in the current global context. Political ecology studies exploitation mainly in relation to capitalism, which can include the North/South dynamic. These different focal points complement each other when critically analyzing carbon offsetting. Key concepts in the theories are power, knowledge, decolonizing the mind, winners and losers, colonial matrix of power, conservation/control, discourse and enclosure/fortress model. Based on key concepts in both theories and the subject of carbon offsets, the themes power/inequality, knowledge, discourse/representation and modernity/capitalism will serve as the basis for the analysis.

When analyzing the theme of power/inequality, we will incorporate concepts like the colonial matrix of power, power behind knowledge, colonization and conservation/control. We will look closer into the way the projects are structured and analyze power relations on the global level and between project management and local communities. Which actors on the global and local level are involved in carbon offsetting and how do they control the structure of the project and the environment in which they operate? We will distinguish winners and losers, examine which groups are excluded and if people on a village/society level experience land use/livelihood changes. The 'fortress model' may be related to projects, their structure and courses of action. Regarding the theme of knowledge, the decolonial approach emphasizes the importance of local knowledge and the acceptance of several ontologies. This perspective will help us see the degree of local participation and local ontologies in the project and explaining outcomes. We will examine who makes decisions about the projects, which type of knowledge the projects are built on: local knowledge or Western knowledge. Is the language used technical and bureaucratic and hard to understand?

Regarding the discourse theme, several of the theory's concepts shine through when looking at the discourse of carbon offsetting in the mainstream debate but also in the way the projects present themselves. John Dryzek defines discourse as "*a shared way of apprehending the*

world", and through putting together a certain language and pieces of information, narratives are created (Dryzek 2013, pp.9-10). Through discourses, meanings and relationships are created and knowledge legitimated. Discourse is intertwined with material reality as well as politics and power (ibid.). In this study, potential discrepancies between what is said and what is done will be examined. The theories will be used to distinguish any colonial discursive elements in carbon offsetting. When analyzing the theme of modernity/capitalism, the production of nature will be used to see how projects operate: which trees are chosen (domestic or foreign species), which model of tree planting (monoculture, agroforestry) and so forth. Why may these methods have been chosen and how do they affect the local community?

3. Previous research

In this section we present previous research. We will touch upon subjects like the market of carbon offsetting, positive and negative views, examples of forestry projects and environmental discourse.

The debate on carbon offsetting is divided between the more positive accounts and the more critical. Sharma, Chauhan and Tripathi (2016, p.641) believe that the carbon offsetting market provides needed technical support and creates new and positive possibilities for local communities. Some support carbon offsetting and others reject it as being a distraction. Friends of the Earth is very critical against all forms of carbon offsetting while the label Gold Standard for carbon offset projects is supported by several NGOs and founded by WWF (Hyams & Fawsett 2013, p.91).

Bumpus and Liverman (2011, pp.204, 212) emphasize the importance of critically reviewing carbon offsetting projects as it links the Global North and South in complex ways through discourse, knowledge and technologies. Carbon offsets can be seen as a spatial fix, which refers to geographical expansion during crises in capitalism (Bumpus & Liverman 2008, p.134). When reducing domestic emissions are costly, the market relocates to an area with cheaper labor and land (ibid.; Bumpus & Liverman 2011, p.204; Sharma, Chauhan & Tripathi 2016, p.632). However, carbon offsetting has received critique for the unequal terms of trade, inequality and negative impacts on local communities and livelihood (Bumpus & Liverman 2011, pp.205, 212, 213). In the carbon market, resource-strong stakeholders define and set the terms of trade and some authors refer to it as 'Carbon colonialism' or 'CO2lonialism' (Bumpus & Liverman 2011, pp.205, 212, 213; Dehm 2016, p.136).

Colonial legacies are a major part of forest discourse and can be reinforced through development discourses (Leipold 2014, p.17). During the colonial era, science was used as an instrument for exercising power and control over forests (ibid.). Peasants were often seen as environmental destroyers through the eyes of colonial scientists and administrators (Fairhead, Leach & Scoones 2012, p.248-249). Mechanisms of exclusion, appropriation or enclosures of nature can date back to colonial times and the historical context of land use and environmental management can affect projects' outcome (ibid.).

Fairhead, Leach and Scoones (2012, p.238) see green grabbing as a growing global issue. They define green grabbing as "*the appropriation of land and resources for environmental ends*" (ibid.). Green grabbing links agrarian struggles over land and resources to virtual markets and commodities such as carbon offsets (ibid., pp.254-255). Dehm (2016, pp.135, 160) sees large scale monoculture tree plantations as green grabbing which promotes unjust development, increases poverty and is a form of colonialism. As local communities lose access to land in order to meet commercial imperatives, some people feel like they become slaves of the carbon trade (ibid.; Leach & Scoones 2015, p.69).

The discourse of local blame has been present since colonial times, with much current focus on African deforestation and the so-called 'slash and burn' farming (Leach & Scoones 2015, pp.24-25). This is no longer practiced but the discourse still blames farmers for forest loss and therefore foreign investors need to fix the problem at hand (ibid.). The expansion of carbon forestry plantations is generally led by states and private corporations and not smallholders (Bachram 2006, p.12; Kröger 2014, pp.244-245). Unequal power structures are maintained through carbon offsetting discourse with bias for certain technologies and the control some actors have over procedures and documents (Bumpus & Liverman 2011, p.216). Local power relations can result in some smallholders ending up winners in terms of land control and some getting even more marginalized (Kröger 2014, p.251). Leach and Scoones (2015 p.68-69) argue that carbon forestry projects will fail due to the contradictions as the land is already used and owned by others that will resist. For Mbow et al. (2014, p.65) beneficial carbon projects should have offsets as a co-benefit and focus on food security and livelihood, for example through agroforestry. For African farmers seeking to enhance their farming methods, carbon offsetting has not been a driver since it does not lead to short-term income increases and this may be unlikely to change in the future (ibid., p.64).

Green markets change the way nature is seen and valued, both in an economic and ontological sense (Fairhead, Leach & Scoones 2012, pp.253-254). Ontologies seeing humanity and nature as connected can be marginalized by green market logics, science and business (ibid.). Economically, nature used to be valued for resources or conservation but now it is also valued for reparation possibilities (ibid., pp.241-242). The idea of commercializing nature to discourage environmental damages may instead have led to incentives to grow this double economy of use and repair (ibid.). Nature is controlled for the purpose of accumulation, having socio-environmental implications, but it is also a discursive way to remake nature to fit the carbon market (ibid., p.244; Carton & Andersson 2017, pp.830-831). A forest is not just a forest but an ecosystem service, a carbon sink, or a source of conservation funding (Fairhead, Leach & Scoones 2012, p.244).

Over two thirds of the African population rely on forests, where wood is an important energy source for households (Murugan & Israel 2017, p.24). Africa is the region most targeted by land deals and 71 % of farmland investments come from outside the continent (Anseeuw 2013, pp.161, 163). The land rush can affect economic development, income and food security (ibid., p.165). Foreign land deals also affect local self-determination and people's right to choose their local development (ibid.). Tienhaara (2012, p.562) sees forest carbon projects as a risk for governments and local communities, because contracts are made for long periods of time. Contracts are legally binding and highly enforceable, whereas land tenure rights and indigenous rights may not be inscribed in law (ibid., p.568). Furthermore, there can be asymmetric information between buyer and seller, regarding knowledge about carbon markets and its language (ibid., p.554). Between 1961 and 1989, the World Bank rated Uganda as the worst performing economy in Sub-Saharan Africa and many of the country's protected forest areas had suffered degradation (Cavanagh & Benjaminsen 2014, p.58). The Ugandan government has seen financialization of nature as a strategy for reafforestation and participation in carbon markets (Lyons & Westoby 2014, p.18-19).

Cavanagh and Benjaminsen (2014, pp.58-59) argue that this could be a reason for accepting carbon projects unfavorable for local communities. Lyons and Westoby (2014, p.19-20) see plantation forestry in 'degraded' areas as being more about the carbon trade than reducing deforestation, since 70 % of Ugandan deforestation happens on privately owned land.

Carbon offsetting through tree planting can be conducted differently, ranging from monocultures to agroforestry. Agroforestry is a concept in which livestock, trees and crops all interact in the same area for a more efficient and sustainable agriculture (Kiyani et al. 2017, pp.174-175; Sharma, Chauhan & Tripathi 2016, p.632; Mbow et al. 2014, p.61; Liu, Kuchma & Krutovsky 2018, p.6, 9). Agroforestry can improve food security, soil fertility, increase income, provide shade for crops, conserve water in the ground and enhance biodiversity (ibid.). However, most tree plantations are monocultures and due to global demand they are increasing and expanding (Liu, Kuchma & Krutovsky 2018, p.3). These plantations cause changes in land use, livelihood and ownership, from local communities to companies or foreign investors (Kröger 2014, p.256; Liu, Kuchma & Krutovsky 2018, p.4). Planting trees can rehabilitate degraded landscapes and provide timber but fast-growing species such as pine and eucalyptus demand more water, harms biodiversity and can cause socio-environmental damages (Kröger 2014, p.256; Liu, Kuchma & Krutovsky 2018, pp.3-5; Bachram 2006, p.12; Carton & Andersson 2017, p.833). If trees are cut down and burned prematurely, carbon is re-emitted and therefore a more long-term strategy is needed (Fairhead, Leach & Scoones 2012, p.254; Kröger 2014, p.243).

In carbon forestry, areas are often closed off and controlled, which poses risks for local livelihood opportunities when communities lose land access (Richards & Lyons 2016, pp.209-211; Shiva 2010, pp.236-237). Enclosures are justified with the need for efficient and measurable carbon sequestration and can lead to forced evictions where local community members are labelled trespassers (ibid., p.211; Bachram 2006, p.11-12; Lyons, Westoby & Nel 2017, p.327-328). Pastoralists and low-income or forest dependent groups are most likely to be negatively affected by land management changes (Anseeuw 2013, p.165). Employment opportunities offered in projects may not weigh up for livelihood possibilities lost and workers at the plantations can be exposed to chemicals with little or no protection (ibid., p.166; Bachram 2006, p.12).

Previous research distinguishes several factors for the success or failure of carbon offsetting projects. Nel and Hill (2014, p.32) see a possible link between controversy and projects based on a commercialization logic, striving for profit and efficiency. Reynolds (2011, Pp.542, 552) has similar findings and sees private for-profit projects as having a higher risk of collapsing. If a large project competes with local households over land, extra monitoring or enforcement costs and negative publicity can lead to failure (ibid., p.552). Projects that are community-based or emphasize local benefits with socio-economic and gender equality, democracy in project governance, as well as land tenure and ownership were seen to have higher chances of success (Reynolds 2011, p.552; Baynes et al. 2015, pp.227, 233). Furthermore, Baynes et al. (2015, pp..227, 233) found that projects providing both short-term income as well as long-term material benefits had a larger chance of success.

4. Methodology

In this section the study's methodology is presented, which includes a comparative method, selection of literature, analytical method and a self-critical reflection.

This study used a qualitative methodology with a literature review of secondary sources. A qualitative methodology aims for a "*holistic understanding of complex realities and processes*", striving to depict people's different realities without claiming complete objectivity (Mayoux 2006, pp.116-118). The material included in the results is the general discourse and logic behind carbon offsetting based on literature, followed by four projects with their self-presentations and documented social effects.

4.1 Literature review

An integrative, or critical literature review was used, which is not meant to cover all articles in a research area, but to combine perspectives or let new perspectives emerge (Snyder 2019, p.335). Snyder (2019, p. 334) sees the integrative literature review as appropriate for studies aiming to synthesize and criticize, with both narrow and broad research questions. This type of review usually critically analyzes information, main ideas and relationships within an issue and therefore we saw it as fitting both our purpose and our theories (ibid., p.336). Transparency is important to make clear to the reader what has been done and how (ibid.; Torraco 2005, p.365). Therefore, a search strategy was created and decisions documented.

4.2 Comparative method

This study has used a comparative method to compare the four projects with each other and also each projects' self-presentation and documented effects. A comparative method is "*causal analysis focused on a small number of regions or states where spatial variation assumes a most-similar format*" (Gerring 2007, p.212). This is a research design where information from several studies is combined and compared (ibid., p.27). A comparative analysis allows us to understand and explain the relationship between different factors in the material and assess the impact of external forces (Lim 2010, pp.2, 13, 23-25). Cases were selected based on the research design and the theoretical framework (ibid., p.26).

The most-similar method contains a minimum of two cases, chosen based on common attributes, but differing in regard to the variable(s) of interest (Gerring 2007, p.131, 138; Lim 2010, p.22). Differences are crucial in a comparative analysis as there would not be a reason to compare the projects if they were all the same (Lim 2010, p.22). In this thesis, common attributes were carbon offsetting projects conducted through tree planting as well as geographical location. The selected projects also differ in their code of conduct and the motivation behind the projects.

4.3 Search strategy and selection of material

To find literature a search strategy was created. Searches were made in Scopus, Google Scholar and SöderScholar. In Scopus results were sorted by most cited. Limitations included the subject of social sciences, published in journals and in English. Search words were used in various combinations and included: discourse, climate compensation, carbon, carbon offset, power relations, critical, political ecology, carbon colonialism, coloniality, Uganda, Africa, carbon mitigation, project, tree plantation, Vi Agroforestry, The Humbo project, Green Resources and Trees for Global Benefits. The snowball method, which means finding material within references in key articles, was used on occasion to complement the selection (University Library Groningen 2020). Projects' self-presentations were found on their websites and in published documents.

Literature was selected for the projects' documented effects and for the discourse in carbon offsetting. The selection strategy was to get an overview of articles by reading abstracts, purpose and conclusion, followed by a deeper review (Snyder 2019, pp. 336-337; Hart 1998, pp.49,54). Selection criteria for the projects were differing codes of conduct and enough literature on their effects. Articles published before 2010 were included if deemed significant, but newer well-cited articles were preferred in the selection. We strived to include authors from the Global South throughout the study when possible.

4.4 Justification of cases

The projects GR and TFGB from Uganda are included, HANR from Ethiopia and KACP from Kenya. Uganda receives extra focus, since they were an early participant and now prominent on the global carbon forestry market with forestry projects characterized by controversy, evictions and injustice (Lyons, Westoby & Nel 2017, p.327; Hajdu, Penje & Fischer 2016, p.414). The Kenyan and Ethiopian projects are included to get a broader sample and increase comparability. GR operates through CDM and was selected because it is the largest plantation forestry company in Africa and has faced criticism (Edstedt & Carton 2018, p.318; Westoby & Lyons 2015, pp.63-64). TFGB uses agroforestry, operates through VCM and received the SEED Low Carbon award from the UN in 2013 (Carton & Andersson 2017, pp.833-834). HANR is one of the largest carbon projects in the world and has been praised as one of the few successful large-scale CDM projects in Africa (Murugan & Israel 2017, p.24, 29). KACP operates through VCM and was the first African project selling carbon credits, i.e., receiving payment for carbon offsets (Shames et al. 2016, p.4).

4.5 How to analyze the material

This study uses secondary data analysis, meaning data collected by others (Frankfort-Nachmias, Nachmias & DeWaard 2015, p.262). A thematic analysis, which is a method for identifying and analyzing patterns, is used (Snyder 2019, p.335). Braun and Clark (2006, p.12) differ between the inductive thematic analysis where themes are decided from the collected material and the theoretical thematic analysis where the themes are decided based on research questions and theory. This study uses a theoretical thematic analysis, with themes

based on the theoretical framework and initial knowledge on the research subject. The analysis and discussion are combined, starting with a comparative table and then continuing with the four central themes: power/inequality, knowledge, discourse/representation and modernity/capitalism.

4.6 Validity, reliability and self-critical methodological reflections

Validity refers to the degree that researchers are actually investigating/measuring what they are intending (Frankfort-Nachmias, Nachmias & DeWaard 2015, p.131). Since this study is written by two researchers and has been read both by a supervisor and peers, the validity increases. To further increase the validity, interviews and field studies could have been included. Reliability refers to the variance between observations and actual reality as well as generalizability (ibid., p.136-137). The project comparison may have generalizable attributes but are also affected by historical-cultural contexts. The secondary data analysis enabled us to use a wider range of material which can facilitate replication of the study (ibid., p.263). Apart from the projects' self-presentations all material used is from scientific articles. Due to the use of secondary data, the study is unfortunately biased since only projects and documented effects written about in literature were included. Projects, experiences and perspectives outside of scientific literature are thus excluded. Only articles in English were included, which excludes articles written in other languages. However, we strove to include research from the Global South.

The decolonial approach is also included in the methodology. The word 'research' itself is a powerful word and it is according to Smith (2008, p.1) linked to colonialism and imperialism. Researchers have appropriated local knowledge and presented it as their own discovery. To transform old knowledge and produce it as new is according to Smith (2008, p.59) a colonial exploitation. All research is interpreted by the researcher, filtered through her/his own ontology, experience and assumptions (ibid., p.1). We have kept this in mind, both regarding ourselves and the literature. We are aware that we are a part of what we are trying to criticize as we are born and raised in a Western country and have a Western education.

This study has a critical perspective, which means that we cannot claim complete objectivity. Both theories strive to shed light on injustices and therefore can be seen as taking a stand. A large part of the literature is critical in their examination of carbon offsetting and individual projects. Since there is controversy surrounding carbon offsetting, we found the critical literature relevant and important. In studies on injustice or asymmetrical relations of power, there may be inevitable subjectivity (Lembke, Lalander & Galindo 2020, p.14-17). However, academic objectivity is not the same as neutrality, and research emphasizing the local perspective is inevitably affected by the context or conflicts it examines (ibid.).

The theoretical framework advocates for other alternatives, political ecology with its hatchet and seed and the decolonial approach with sustainable economies and pluriversality. Therefore we have conducted our analysis in a similar manner. It is possible to criticize the theoretical framework for romanticizing grassroots organizations and local perspectives, and

being utopian in its solutions (Ziai 2017, p.2725; Rist 2014, p.274). A new universality is not what is proposed and the theories can be used to transition towards something else (Nirmal & Rocheleau 2019, p. 467). Power permeates the local context as well which means that bottom-up initiatives are not devoid from inequality and each local context presents new analytical challenges (Lembke, Lalander & Galindo 2020, pp.14-16).

5. Results

In this section the results are presented. The first section is a general overview of global environmental discourse in payment for ecosystem services and carbon offsetting. Subsequently, the four tree-planting projects are examined, including their self-presentations and documented social effects, as found in literature.

5.1 Discourse and rhetoric in carbon offsetting

Authors see an increase of economic concepts and principles in mainstream environmental discourse (Leipold 2014, p.16). The value of nature is increasingly reduced to its economic exchange value (McAfee 2012, pp.2, 4). Climate change is spoken of in the terms of a 'market failure' but despite this, market solutions are still prominent in discourse and promoted as the most effective way to allocate resources efficiently (ibid., pp.4-5, 8-9, 17). Commodification of nature is proposed as a strategy of 'selling nature to save it' (ibid., pp.2, 4). Green markets are promoted as a triple-win for nature, development and business, which McAfee (2012, p.5) calls a "*greener economic growth but with a human face*". The triple-win narrative is common within carbon offsetting (Lyons & Westoby 2014, p.13; McAfee 2012, p.19).

In discourse, payment for ecosystem services has become the new 'key to development' for the Global South, but what type of development is supposed to be achieved is rarely specified (McAfee 2012, p.3, 19). Through development discourses and narratives, colonial heritages can be reproduced (ibid., p.19-20). Local populations are also portrayed as economically rational actors in line with the idea of homo economicus, even though research shows that values and communal norms in many cases are more important than money when people make decisions (ibid., pp.13-14; Fairhead, Leach & Scoones 2012, p.245).

The discourse and language in carbon offsetting tends to be technical and bureaucratic which can make it difficult for local communities to understand what participation in these projects really mean (Bachram 2006, p.16; Dehm 2016, p.135; Tienhaara 2012, pp. 554, 568). This is part of the administrative discourse, using standardized procedures and reducing local communities to homogenous 'project participants' (Tienhaara 2012, pp. 552-553, 566). Law and investment contracts can construct new concepts such as carbon offsets and have been used to legitimize exploitation and protect imperial interests since the end of colonization. Investment contracts perform a legal function and can risk overriding domestic law and customary land rights (ibid.).

The labeling of land as empty, under-used or unproductive can be used as a justification for introducing modern forestry regimes (Anseeuw 2013, p.167; Lyons & Westoby 2014, p.14). Defining land in these terms invisibilizes how the forest may be important for local livelihoods (Lyons & Westoby 2014, p.14). This terminology favors market efficiency and scientific definitions and management of land over local or indigenous knowledge and management (ibid.). Enclosures of land have a long history of being used to change common

land rights in the interests of capital accumulation and colonization (Richards & Lyons 2016, p.211). In carbon offsetting, enclosures are justified by minimizing 'leakage' and conducting effective carbon sequestration (ibid.). Enclosures redefine territories and people living off the forest are labelled 'trespassers' or 'encroachers' (Murugan & Israel 2017, pp.26, 33; Richards & Lyons 2016, p.211).

Hajdu and Fischer (2017, p.545) see narratives of degradation in carbon forestry as highly problematic. Degradation is a term which is frequently used in global climate mitigation, but rarely defined (Hajdu, Penje & Fischer 2016, p.412). Instead of being based on empirical studies, narratives of degradation can be arbitrary (ibid., pp.413, 415). Old ideas about unsustainable natural resource use in Africa can affect degradation narratives. In discourse, causes for degradation is generally attributed to local practices and rarely mentions climate change or private large-scale industry. Private investments are instead portrayed as a solution (ibid.).

5.2 Carbon offsetting projects

5.2.1 The Western Kenya Agricultural Carbon Project (KACP) - Kenya

The project's self-presentation
The Swedish NGO Vi Agroforestry presents themselves as mitigating both poverty and climate change through agroforestry (Vi Agroforestry n.d.a). Vi Agroforestry runs the project KACP where the goal is to increase smallholders' resilience to climate change, increase food security and income as well as reducing emissions (Vi Agroforestry n.d.b). Using the method Sustainable Agriculture Land Management (SALM) designed to suit smallholders, Vi Agroforestry (n.d.b) describes increased yields for families as the main benefit. To conserve biodiversity and for high carbon sequestration, mainly indigenous tree species are planted but also exotic trees adaptable to the local setting are planted (Vi Agroforestry 2014, p.68).

The documented effects in the literature
KACP is described as the first African project to sell carbon credits and to benefit smallholders and rural communities (Shames et al. 2016, p.4;Tennigkeit et al. 2013, p.1). KACP was initiated by the World Bank and is run through VCM by Vi Agroforestry since 2009 (Tennigkeit et al. 2013, p.1; Shames et al. 2016, p.4). SIDA (The Swedish International Development Fund) initially provided crucial funding for KACP and Vi Agroforestry connects carbon buyers with smallholders (Lee 2017, p.75; Tennigkeit et al. 2013, p.3). KACP is presented as a triple win for climate change mitigation, adaptation and food security (Lee 2017, p.72).

Vi Agroforestry supports local farmers organizations and around 60 000 smallholders in Western Kenya (Shames et al. 2016, p.4; Lee 2017, p.74). They do not only focus on the carbon sequestration but have a more holistic way at looking at development through improving local communities' livelihood (Shames et al. 2016, p.4; Tennigkeit et al. 2013, p.2). The average farm size in the region is 0,6 ha and smallholders must own more than 0,5

ha to adopt the practice on their farm (Lee 2017, p.74). Vi Agroforestry takes care of the monitoring but to reach a large number of smallholders they rely on community-based informers who are farmers themselves who recruit and train other smallholders (Shames et al. 2016, p.4). KACP strives to involve women as instructors and as farmers in the project, but they do not play a significant leadership role due to women's low land ownership and a lacking social acceptance of women as leaders (ibid., p.5, 7). KACP has faced challenges due to small budgets and the costs to monitor smallholders and train staff. The material used for training has received some critique for containing too technical and bureaucratic language. There were not enough illustrations nor were the information translated into the local language. Many smallholders join the project to improve their farming methods, but some are hesitant since they first want to see how the project works for others (ibid.). Therefore, KACP organizes farmer tours where the methods are demonstrated (Tennigkeit et al. 2013, p.3).

Through workshops and advisory meetings, KACP is strengthening and establishing the knowledge within the local communities so that smallholders can continue after the project finishes (Tennigkeit et al. 2013, p.3). Training and workshops are provided free for smallholders, but not the tools, seedlings or credit. The payment for the carbon credits is however fairly low and the farmers see the extra income as a co-benefit or a token of appreciation for the environmental contribution (Lee 2017, p.75).

5.2.2 The Humbo Assisted Natural Regeneration Project (HANR) - Ethiopia

The project's self-presentation
HANR presents itself as a community-managed reforestation initiative with both environmental and social benefits (Farmer Managed Natural Regeneration n.d.). HANR provides grass for livestock, firewood and increased income through carbon revenue. HANR describes previous problems with high amounts of rainfall causing flooding and erosion in the area, but through planting trees this problem is mitigated. Furthermore, biodiversity and natural resource management are benefitted. HANR is described as successful and some of the reasons are regular stakeholder meetings and assisting vulnerable households affected by temporary losses of income or firewood access. HANR delivered benefits of fodder and firewood access already in the first year as well as securing long-term benefits for communities through legally binding tree user rights granted from the government (ibid.).

The documented effects in the literature
HANR is one of the largest carbon projects in the world (Negewo, Ewnetu & Tesfaye 2016, p.89; Murugan & Israel 2017, p.24). The aim is to restore degraded communal forestland through improved farming techniques, generating income through carbon credits and restoring native forests and biodiversity (ibid.; FAO 2020). According to the World Bank, HANR is the first successful large-scale CDM forestry project in Africa (Murugan & Israel 2017, pp.24, 29). HANR was introduced in 2005 and it was a cooperation between the Ethiopian Government, World Vision, the communities in Humbo and the World Bank which provide funds and technical support (ibid., pp.24, 26; Negewo, Ewnetu & Tesfaye 2016, p.89). The Humbo area had previously been forest covered but due to an increased need of

grazing lands, firewood and charcoal the forest decreased little by little (Murugan & Israel 2017, p.26). The plan was to regenerate 2 728 hectares of forest to enhance local communities' livelihood as well as improve environmental conditions (ibid., pp.25, 27). The Farmer's Forest Union were the ones who measured, advised and provided further support but the local communities interests were not taken into account (ibid., p.30).

There has been clear power asymmetry within the project (Murugan & Israel 2017, p.29). International actors have been in control and the local community was only able to participate on a smaller scale with little power to influence the project. Locals describe trying to speak their mind during consultation meetings but that the agenda had already been set (ibid. p.30). Decisions were mostly made from above, which resulted in negative livelihood impacts. Furthermore, the project area was enclosed and people from communities nearby who have been dependent on the forest were denied entrance (ibid., pp.30, 33). Only some communities received the generated income from the project (ibid.) People were, however, allowed to collect twigs and branches from the area (Negewo, Ewnetu & Tesfaye 2016, p.92).

The community in Humbo believes that the microclimate and reduced soil erosion are some of the best parts of the project (Negewo, Ewnetu & Tesfaye 2016, p.92). Biodiversity was improved as well as the availability for grass for the animals which in turn increased milk production. The positive aspect of the return of wildlife has however had negative consequences as nearby farms have been exposed to more frequent animal attacks (Murugan & Israel 2017, p.37). Local communities that manage the forest are provided with tree seedlings for free but are expected to take over all management including costs for new trees (Negewo, Ewnetu & Tesfaye 2016, p.89, 92). Some community members are worried that the community-based management can lead to exploitation of the forest as well as corruption (ibid., p.101).

5.2.3 Trees for Global benefits (TFGB) - Uganda

The project's self-presentation
The NGO Environmental Conservation Trust of Uganda (Ecotrust), who coordinates TFGB, presents the project as producing 'long-term, verifiable emission reductions' through a combination of carbon offsetting and rural livelihood improvements (Ecotrust n.d.). TFGB is described as farmer-led, focusing on smallholders, and its activities designed from needs and aspirations of the communities. The project is agroforestry based and focuses on threatened indigenous tree species. TFGB strives to provide income and livelihood benefits for smallholders both short- and long-term. They support community farmer groups and strive for representation of women and other marginalized groups (ibid.).

The documented effects in the literature
TFGB is one of the oldest carbon offsetting projects in Uganda (Carton & Andersson 2017, p.833). They have been active through VCM since 2003 and the project engages smallholders to plant trees on their own land (ibid.). TFGB assists smallholders to develop carbon credits through the Plan Vivo system (Shames et al. 2016, p.8). TFGB is considered a best-practice

as they are community-based with 4600 smallholders involved (Carton & Andersson 2017, p.834). TFGB have received the SEED Low Carbon award in 2013 and are acknowledged for not prioritizing economic efficiency. Through planting native species and fruit trees, they benefit biodiversity and create alternative income possibilities for smallholders (ibid.). TFGB involves the community and puts a lot of effort on internal knowledge sharing which many actors see as a winning concept (Shames et al. 2016, p.13).

The smallholders agree to a contract where they receive 5 payments over 10 years (Carton & Andersson 2017, p.834; Shames et al. 2016, p.8). Farmers are however expected to let the trees remain on their land for about 25 years until cut down (Carton & Andersson 2017, p.834). TFGB visits the farmers to see if the tree's growth stage matches the objective stated in the contracts, and only then are payments received (ibid.). In the beginning TFGB staff measured carbon offsets, recruited and trained farmers in SALM practices (Shames et al. 2016, p.8). They conducted training programs and involved the government to raise awareness about the program. Smallholders were not provided with seeds and the training budget was limited. To make the program more effective TFGB employed community-based instructors who then recruit and train other smallholders as well as monitor and report the health of the trees (ibid.).

TFGB has a focus on local communities' capabilities, empowering women and creating partnerships with local NGOs and the government (Shames et al. 2016, p.8). To involve women, TFGB focused on communicating the benefits of agroforestry (ibid., p.10, 12). However, men's attitudes and barriers for women owning land hinders women's participation. Several smallholders experienced difficulties to join the project as they did not meet the minimum land size requirement of 0,3 ha (ibid.).

5.2.4 Green Resources (GR) - Uganda
The project's self-presentation
The Norwegian company GR presents themselves as mitigating climate change, producing sustainable timber and easing pressure on natural forests through plantation forestry (GR 2021a, p.4). GR (ibid., p.3) writes in their company profile that 2 million ha of forest are lost every year in Africa due to population growth, a growing middle class and urbanization. GR (ibid., pp.8-9) states that the company "*prides itself to be people-centric and sustainability-orientated*" and sees surrounding communities as a crucial aspect of its business model. They strive to generate jobs and develop local economies (ibid., p.4). In their sustainability report, GR states that "*sharing value is a core pillar in our approach to doing business*" and through a Social Development Fund they support projects chosen by local communities (GR 2020, p.28-29). There are no reports published before 2018 on the GR website (GR 2021b).

The documented effects in the literature
GR is the largest plantation forestry company in Africa, active in Uganda through CDM on two 50-year licenses (Richards & Lyons 2016, p.212; Westoby & Lyons 2015, pp.63-64). GR claims to be a driver behind positive changes for communities both socially, environmentally

and economically (Richards & Lyons 2016, p.213). The GR plantation is a monoculture of fast-growing pine and eucalyptus which according to villagers and environmental officers are unsuitable for the local ecology (Edstedt & Carton 2018, p.317; Richards & Lyons 2016, pp.214-215). Villagers and NGOs describe heavy chemical use by GR, which has run off into rivers and poisoned animals (Richards & Lyons 2016, p.214).

GR created employment opportunities and services such as infrastructure and health facilities, but these services were disconnected from local needs (Lyons & Westoby 2014, p.17; Richards & Lyons 2016, p.213). For a majority of community members, food security and secure land access was described as the most urgent issue (ibid.). Jobs mostly entailed unskilled work with low wages for men, with bad employment conditions, delayed or reduced salaries and safety equipment was deducted from wages (Richards & Lyons 2016, pp.213, 215). People described having had access to the land for cultivation, grazing, hunting and firewood collection for a long time before GRs' arrival (Edstedt & Carton 2018, p.318; Lyons & Westoby 2014, p.18). Livelihood and food security was affected negatively by the project due to loss of land and according to Richards and Lyons (2016, pp.213, 215) GR did not attempt to make up for this.

Richards and Lyons (2016, p.215) see a divide between GRs rhetoric and the projects' actual effects. Enclosing the area have displaced local people, changing their status from villagers to trespassers (ibid.). Villagers describe being harassed, fined or jailed for trespassing, evicted with little or no notice and having crops destroyed and animals confiscated (ibid., p.213-214). In the beginning of the project villagers could grow food within the area but GR increasingly excluded people (Lyons & Westoby 2014, p.19; Richards & Lyons 2016, p.214). Employees at GR described people's firewood collection or animal grazing as a reason for 'carbon leakage' and that enclosures were necessary for conservation and for maximizing carbon profits (ibid.). Lyons and Westoby (2014, pp.18-19) describe the acquisition of land by GR as a state enabled land grab where people's traditional access rights were prioritized lower than foreign investors' interests. Most communities were not aware of the way that their local environment was connected to carbon markets which gave them little bargaining power (ibid.).

6. Analysis

In this section the results are analyzed and discussed. First, a comparative table is introduced, followed by a theoretical analysis around power/inequality, knowledge, discourse/representation and modernity/capitalism. The comparative analysis is integrated within these themes. Finally, an analytical summary is provided.

6.1 Comparative table

Table 1: Below is the comparative table with similarities and differences between the projects.

Comparative table	KACP	TFGB	HANR	GR
Carbon market mechanism	VCM	VCM	CDM	CDM
Operating logic	Community development	Community development	Conservation	Commercialization
Global/media view of the project	Successful	Award winning	Successful	Criticized
Priority	Smallholders	Smallholders	Conservation	Economical gain
Management	Participatory	Participatory	Community based	Top-down
Forestry model	Agroforestry	Agroforestry	Conservation	Monoculture
Tree species	Indigenous & exotic	Indigenous	Indigenous	Exotic
Degree of conflicts	Low	Low	Medium	High
Degree of enclosure	Low	Low	Medium	High
Inclusion in the project	> 0,5 ha farm size	> 0,3 ha farm size	Closest community	Employees
Project based on	Western knowledge	Western knowledge	Western knowledge	Western knowledge
Plans for ownership transition	Smallholder takeover	None	Community takeover	None

6.2 Theoretical thematic analysis

6.2.1 Power/inequality

Differences in power can be identified on both global and local levels. Carbon offsetting as a whole can maintain and reproduce unequal power structures (Bumpus & Liverman 2011, p.216; Kröger 2014, pp.244-245). There can be a shift in power, from smallholders to states and private corporations, due to the technicality of the carbon trade and that some actors have more control than others (ibid). All projects involve a transformation of natural and social conditions, ranging from enclosed conservations to small scale tree planting. Changing conditions amounts to changes in power and control, where some groups receive benefits and

others are excluded. One factor influencing power relations within the projects can be the logic by which they operate: conservation, community development or commercialization. TFGB and KACP focus on community development and strive for economic gain, but for the community's sake and not for their own. HANR operates on a conservation logic to replant and protect the forest and to bring back wildlife to the area. GR focuses on commercialization through timber production, has a more business focus and we see their operations as primarily working for economic gain.

All projects provide some form of employment for communities, but this has increased inequality and unequal distribution of benefits on the local level. Especially for HANR and GR when land is transformed from community- to privately owned and only some community members are employed. HANR employees are only from the closest community, thus other people who previously depended on the forest are excluded. GR provides employment opportunities but according to local informants in literature, conditions are bad and wages unreliable.

TFGB and KACP engage the most people, including participating smallholders or employees. Despite TFGB's positive attention, power differences regarding control over the project still affect their operations. Control over the carbon sequestration is characterized by a top-down structure where payments are dependent on whether the trees live up to the expected standard. Smallholders are expected to let trees remain on their land for 25 years but only receive payment over the first 10 years. This creates an uncertain situation where payment is conditional and power over people's income lies in the hands of project management. In HANR, monitoring, measuring and instructing was not done by smallholders, but by larger farmers organizations with funding and technical support provided by the World Bank. Even though HANR states to be community-based, the knowledge and management structure is top-down.

All the projects have some level of exclusion. TFGB and KACP exclude everyone who owns little or no land. Landless groups, who may be most marginalized, are thus unable to receive project benefits. HANR is enclosed to a degree where people are allowed to collect twigs but cannot use the area as before. Several communities depended on the forest but only the closest community was employed and received payments from carbon credits. Project employees can benefit the most and emerge as winners on the local level, whereas non-employees lose land access and livelihood opportunities. GR's operations are similar but to a larger degree. GR operates through the fortress model where benefits are limited to employees or the few smallholders allowed to access the project area, whereas whole communities lose forest access and experience livelihood changes. When projects do not match the needs of the local community it creates a barrier to local livelihoods. Trust and capability building are crucial between the actor who initiated the project and the participating smallholders. It is essential to have a strong participatory method for the project to be sustainable. This is one of the reasons why the GR project was not successful, from a social/livelihood perspective, as they only included a few workers and excluded the rest of the community.

KACP and TFGB strives to include women in the project but are unsuccessful due to societal norms. Since women do not own land to the same degree as men, they are excluded from TFGB and KACP where land ownership is necessary. For TFGB, they have tried to include women through communicating the benefits of the project, but without dealing with the structural issue of women's land ownership, communicative measures seem ineffective. This raises the question whether TFGB and KACP work together with the local community to improve the inclusion of women or not. In the literature on HANR and GR, no particular effects for women as a group were mentioned, which can indicate that it is not a fundamental part of the projects.

We found that all the projects had a degree of conflict but GR is the most controversial and criticized, since land access and livelihood opportunities were dramatically altered. People who had access to the land for a long time were victims of violence, jailed and labeled encroachers and trespassers. In previous research, authors see links between large-scale commercial carbon offsetting projects and controversies (Nel & Hill 2014, p.32; Reynolds 2011, pp.542, 552). Conflicts can arise when projects compete with local households over land which can be seen in the case of GR (ibid.). Uganda has strived for reforestation and economic growth through foreign investments, with more project outcomes similar to GR, meaning that controversies can stem from both national mechanisms of exclusion and GR's operations (Lyons & Westoby 2014, p.18-20). The GR project has been described as a state enabled land grab. Interests and needs of the local community were prioritized lower than those of foreign investors. GR's operation model increases poverty and is a form of colonialism as the local community is exploited (Dehm 2016, pp.135, 160). GR refers to law and what is legal and encourages people to blame the government for the failures in relation to the project. Law as a mechanism has been used since the end of colonization to legitimize exploitation and protect outside interests (Tienhaara 2012, pp. 552-553, 566).

Furthermore, there are power differences between the Global North and the Global South reflected within carbon offsetting. The Global North is responsible for the majority of global emissions and represents most of the buyers in carbon offsetting. Studies show that there is an upper limit to the amount of carbon that can be absorbed through tree planting and for the carbon to remain, the trees cannot be cut down too early (Skelton 2020, p.5; Kröger 2014, p.243). This makes carbon offsetting problematic from both an environmental and social point of view. As a climate strategy, it will not be enough without reducing emissions. In sustainable development, the aim is to meet the needs of today without compromising those of future generations. However, for many people today, their needs are not met whereas others have the ability to purchase their way out of the guilt coming from living in unsustainable excess. Many people in the Global North have the ability to have not only their needs but their wants met. As previous research shows, carbon offsetting is not always used as a last step but as a way to relieve guilt about continuing business as usual. For the Global South, forest carbon contracts can be riskful since they are highly enforceable, long term, and there may be asymmetry of information between buyer and seller (Tienhaara 2012, p.554, 562).

6.2.2 Knowledge

The meaning of de-coloniality is to strive towards a goal where no one is dependent on imposed ideals (Mignolo 2007, p.459), but technology transfers and imposed knowledge are present within all four projects. Carbon offsetting relies on scientific measurements, concepts and analyzes for suitable tree planting locations. However, science is not free from the social and economic context in which it is produced and when solely focusing on numbers and data, aspects of justice are not included. The sheer complexity enables a top-down structure of management and knowledge. Many communities were not aware of the connection between carbon markets and their local environment, thus had little or no bargaining power. Advanced technology and knowledge transfers, through coloniality, is a way to impose Western knowledge on the rest of the world (ibid.).

Despite the inclusion of local communities and the use of indigenous tree species, the structures of all the projects are based on Western ontologies, epistemologies, values and ideas of conservation. To varying degrees, they have top-down knowledge and management styles and provide workshops with techniques developed by the West. In HANR, the land was used for grazing by pastoralists and the conservation was thus unwanted by the local community and it was initiated through the World Bank. Regarding KACP, Vi Agroforestry is Swedish which means that knowledge and strategies are formed externally. The agroforestry projects only give out advice for free, but not seedlings or tools where payment was required. Knowledge structures are thus top-down, even if it is spread by local smallholders.

TFGB conducts training programs, involves the local community and values internal knowledge sharing. In the beginning TFGB were the instructors but they employed locals instead to keep the project more community based. A participatory approach aligns more with the decolonial and political ecology view of bottom-up initiatives as a way to step away from domination and colonization. Since local smallholders are the instructors, they may have some ability to affect which information is shared, but the project as a whole is not based on local knowledge. KACP provides workshops and demonstrations of their methods and are transparent with information. However, the material has faced criticism due to its technical and bureaucratic language, few illustrations and not being translated into the local language. This makes the information available for fewer people. To make information and farming methods more accessible, local knowledge and techniques should be promoted (Mignolo 2007, p.459).

KACP emphasizes the importance of community-based projects where they involve the local smallholders as recruiters, teachers and informers. They have also involved local governments and organizations. This could be the reason why the social effects are predominantly positive compared to the other projects. HANR and KACP have plans to hand over the project to the local community, while this is not mentioned in TFGB or GR. KACP strives to enhance knowledge within the community in order to have a successful hand-over. Even though they strengthen the knowledge for the local communities to take over, it is still

knowledge that is based upon the colonial matrix of power, due to the power structures behind knowledge. To change the terms as well as the content of the conversation within the knowledge structure of these projects, decolonization of the mind is needed (Sachs 2010, p.xii). In this context it could mean including a plurality of perspectives on society and nature. Regarding HANR, locals were worried that the project would be corrupt or taken over by elites if handed over to the local community. This may be due to there not being good enough conditions for a transition of the project ownership while KACP seems to put more focus on making sure the transition will work well. The four projects are all based on coloniality in the sense that carbon offsetting is something externally imposed. Even though some of the projects are more community managed or inclusive, the structure and ownership is external. The locals in these projects are not valued for their knowledge and the Western epistemology and ontology override.

6.2.3 Discourse/representation

Carbon offsetting is not only the commercialization of nature but also a discursive creation of new concepts and ideas. Like the ideas of Foucault, power, knowledge and discourse are interlinked. The idea of a truth is formed by discourse, which in turn is legitimized through science and affected by power (Robbins 2012, p.70). In carbon offsetting, discourse and scientific measurements create the idea that a ton of carbon is the same everywhere and that offsetting can be beneficial for all. Coloniality affects the world and makes everyone see what the rhetoric of Western modernity wants us to see (Mignolo 2017, p.39). Poverty mitigation is also an objective mentioned in the projects, for example KACP. The meaning of the word 'poverty' can go deep and hold specific values and Sachs (2010, p.xii) emphasizes that the word 'poor' includes a materialistic view and prejudice. TFGB also uses the word 'need' which contains a prejudice for dependency (ibid.). This hegemonial discourse creates a 'we and them' which also is clear in these four projects. The neo-liberalization of the natural resources and the global agenda of green economy legitimize possession and dispossession of land (Mignolo 2021, p.721). Furthermore, the administrative, technical, scientific discourse within carbon offsetting can serve as a mechanism of exclusion since this makes the information unavailable to those who are not familiar with this language or measurements.

Within carbon offsetting, the narrative of it as a triple-win for the environment, development and business is common (Lyons & Westoby 2014, p.13; McAfee 2012, p.19). This narrative presents only winners and no losers. Naturally, actors want to sell their carbon credits and to mention negative outcomes would probably prevent this. We recognize the triple-win narrative in GR. KACP also present themselves in the terms of a triple win, but for climate change adaptation, mitigation and food security. HANR and TFGB describe themselves as simultaneously working for environmental and social benefits. The triple-win narrative contributes to an invisibilization of the groups who have to pay for carbon offsetting by losing land access or cannot say no to being a part of the carbon market. And with triple aims there is also the question which has the highest priority.

The concept of 'underproductive land' as a justification for introducing forestry plantations or carbon offsetting projects has parallels to development in the semantic sense in Truman's speech. This formulation is similar to the idea of underdevelopment as a natural pre-state to development. The assumption here seems to be that land should naturally be productive, meaning modernized, developed or used to bring in profits and that 'under-productive' is somehow an undesirable state where it is free to use. The portrayal of Africa as a continent with unused or empty land has been used as justification for investment, business or exploitation for a long time (Baglioni & Gibbon 2013, pp.1559, 1561). People are portrayed as acting rationally based on economic opportunities. Rooted in the Western idea of homo economicus, this idea is promoted as universal. It reduces the importance of other drivers of human behavior such as values, community or social factors.

In their documents GR describes population growth, urbanization and a growing middle class as the reasons for African deforestation. This portrays the problem as caused by people and does not mention other causes even though 70 % of Ugandan deforestation happens on privately owned land (Lyons & Westoby 2014, p.19-20). In African deforestation, the discourse of local blame has been present since the colonial times (Leach & Scoones 2015, pp.24-25). Unsustainable local practices are portrayed as causing the problem and therefore the foreign investors need to fix the problem at hand. Large-scale industries or climate change is rarely mentioned in relation to degradation (Hajdu, Penje & Fischer 2016, p.413). This discourse maintains a dichotomy of 'us and them' which we see as an expression of power and coloniality. For example, the GR project operates through the fortress model where people are labeled trespassers or encroachers and livelihood activities as a reason for 'carbon leakage'. The discourse of local blame is thus present in both the 'problem' that GR is trying to fix, and also presented as an obstacle for their operations. The problematic discursive elements described in the literature are most similar to the discourse and operations of GR. Both GR and HANR labelled people as trespassers.

We found that there were discrepancies between the project's self-presentations and documented effects. For HANR, some aspects live up to the vision. They strive to benefit the local community as well as the environment and they have succeeded in increasing biodiversity, improving the microclimate, reducing soil erosion and increasing the availability of grass. Benefits in the form of carbon credits and employment have been realized, but only for the communities in closest proximity which means that other forest-dependent communities were excluded. If local voices had been heard, problems such as exclusion of communities and animal attacks may have been possible to prevent. This is the issue with modernization and sustainable development, that primarily Western epistemologies and ontologies are taken into account. HANR has been praised by the World Bank as they kept frequent meetings with the stakeholders, but according to the literature local communities have had little or no possibility to influence the project.

For TFGB, they describe themself working for rural livelihood improvements which is also recognized in the literature. Though, it is only true for the Ugandans owning 0,3 ha land or more. The project is presented as farmer led, which it is, but the knowledge and technology

comes from the project initiators to begin with. TFGB promotes agroforestry which the literature supports as being a successful farming method, especially as they use indigenous tree species. It also creates alternative incomes for the smallholders. TFGB strives to empower women but the land requirement constitutes a barrier.

KACP presents themselves as striving to mitigate poverty, conserve biodiversity, reduce emissions, increase food security and climate change resilience through agroforestry. We find that KACP has a strong livelihood focus and generally lives up to their rhetoric. Their method is designed for small-scale farmers, but the average farm size in the region is 0,6 ha. In their aim to mitigate poverty, only farmers owning more than 0,5 ha of land can participate. In relation to this, we may question how many people in the community can benefit from the KACP project. They also strive to conserve biodiversity which may be contradictory to the fact that they also plant exotic tree species.

GR claims to be people-centered and focus on sustainability. We find that the rhetoric does not match the actual outcome and social and environmental implications for the local community, and this is also recognized in the literature. GR claims to create employment opportunities but these are few, low wage and mainly for men. GR has put in place projects to benefit the local community, but since food security and land access were the most urgent issues according to the local community, GR's efforts cannot make up for their overall negative impact. GR states that "*sharing value is a core pillar in our approach to doing business*" (GR 2020, p.28-29). This statement shifts focus towards their good will as a company and away from the fact that the project, due to loss of land, has resulted in a loss of value for the local community. GR does not have any reports published before 2018, which may indicate that they attempt to hide mistakes and the harsh criticism they previously received.

6.2.4 Modernity/capitalism

Carbon offsetting can be seen as a spatial fix where capitalism reaches a crisis, thus expanding to places with cheaper land and labor (Sharma, Chauhan & Tripathi 2016, p.632). Capitalism has incorporated its own destructive abilities through commercializing both exploitation and reparation of nature (Fairhead, Leach & Scoones 2012, pp.241-242). The idea is that the pricing of nature discourages unsustainable use, but the risk is that it instead has the opposite effect (ibid). Carbon offsetting is based on a capitalist logic and that the market naturally distributes resources efficiently and cheaply. Structural questions of why land is cheaper in the Global South or the morality of taking up land to compensate for the Global North's emissions are not included in this logic. The buyer and seller are distant from each other which hinders insight into the actual areas, people and structures in which carbon projects take place. The Ugandan economy was rated low for almost 30 years which may be one reason behind accepting carbon offsetting projects unfavorable to local communities. Even though the countries are not colonized, carbon offsetting through tree planting builds on a continued coloniality and justifies exploitation through neoliberalism.

Modernity does not only impose material aspects but values and knowledge, leading to marginalization of other ontologies and epistemologies. Development is used as a tool to impose a Western agenda where capital is what keeps the colonial matrix of power together (Mignolo 2019, p.39; Mignolo 2007, pp.455, 480). Carbon offsetting is a part of sustainable development, which states to take environmental and social aspects into account. But is it really different or is it the same old development striving for economic growth packed up in a new terminology? Carbon offsetting relies heavily on scientific and technical measurements and concepts and due to the sheer complexity it is generally top-down in structure. It is a way for the economy to continue to grow without limits.

All projects transform nature and produce it in new forms. Planting large-scale monocultures and fast-growing species relates to the economic idea of efficiency and maximizing profits or yields. This type of production is more about privatization, industry, creating value and can be enclosed to prevent 'leakage'. Planting through agroforestry together with the community can strive for a more bottom-up approach and focus on food security and resilience for farmers. The literature advocates agroforestry as it is more efficient and sustainable for individual farmers as the area can be used both for crops, trees and animals (Mbow et al. 2014, p.61; Kiyani et al. 2017, p.174-175).

TFGB and KACP use agroforestry, HANR focuses on replantation and conservation and GR plants in monocultures for timber production. GR uses fast-growing exotic eucalyptus and pine while TFGB and HANR exclusively use indigenous species. GR has been criticized for planting species unsuitable for local environmental conditions. KACP seems to use a mix where indigenous species are preferred but exotic species are used if they are adaptable to the local environment. By using exotic species, ecosystems and biodiversity can be affected negatively and species such as eucalyptus need more water than indigenous species (Liu, Kuchma & Krutovsky 2018, p.4-5). Monoculture plantations affect livelihood possibilities and changes ownership and land use whereas agroforestry does not and can have positive effects for smallholders.

A problem within the green economy is that 'sustainable' within sustainable development is not defined (Rist 2014, p.257). The coloniality of power behind knowledge and technology transfers is hidden behind the neoliberal global environmental agenda of sustainable development. Carbon offsetting is presented as a new 'key to development' for the Global South but the concept of development is not deconstructed, which can pose a risk that people become recipients of green charity or need to compete in the export of commodified nature. Furthermore, development is still seen as a process which can be imposed from the outside. In these four projects it is exercised through carbon offsetting via tree planting. Green capitalism encourages continuous consumption when the solution should be to delink and scale down to sustainable economies (Rist 2014, s.257; Mignolo 2019, p.49). There is too much focus on treating the symptoms instead of the cause: the Western strives towards development and economic growth. The world must leave the traditional dichotomies and the Eurocentric coloniality behind.

The theoretical framework is critical but strives to find new ways of being, both between people and between people and the environment. Political ecology uses a metaphorical hatchet to deconstruct dominant narratives and practices but simultaneously plants a seed for new ideas. The decolonial approach emphasizes the importance of sustainable economies and to live well 'Buen Vivir'. Modernity and capitalism must be delinked from in order for all worlds and ontologies to take place, in a pluriverse. Mignolo (2019, p.49) does not see sustainable development as the right way forward, but instead sustainable economies. The West needs to adapt and not the other way around. Through delinking, other ontologies and epistemologies will emerge and communities and economies can thrive on their own, based on their values and perceptions of development (Quijano 2007, pp.177-178; Mignolo 2019, p.49).

6.3 Analytical summary

To summarize, what we can identify in carbon offsetting and the projects is what Mignolo (2021, p.724) emphasizes: that the countries in Africa are not colonized but have not escaped coloniality. In this study, the aim has been to examine and problematize carbon offsetting and the potential discrepancies between discourse and documented effects. We have compared the four projects and their documented social effects for local communities and their access to land. Furthermore, we have analyzed how power structures are reflected in carbon offsetting and why some projects have better outcomes than others.

Regarding RQ1 and differences and similarities between the projects, it mainly boils down to their planting method, degree of participation and operating logic. The differences in outcome depend to a large degree on these three factors. The projects that are more successful (TFGB, KACP) are those using agroforestry, having a participatory approach and having carbon offsetting and economic growth as a second objective. In line with the decolonial approach, this may be due to increased inclusion of the local perspective, knowledge and priorities. HANR is partly participatory and does not strive for economic gain but operates through enclosure which has livelihood impacts for surrounding communities. GR is the project with the most negative outcome for local communities and livelihood, due to displacing communities, using the fortress model and monocultures.

We found that there are discrepancies between the projects' visions and the documented effects. The projects using agroforestry lived up to their rhetoric more, whereas the discrepancy for GR is large. HANR lives up to the rhetoric but there have been unforeseen effects of the projects, which could be due to the fact that the local community was not involved in the beginning phase of the project. Generally, carbon offsetting projects are portrayed as resulting in a triple-win but this invisibilizes the fact that there are groups who receive negative outcomes of the projects. Companies selling the carbon credits benefit the most from these projects where several smallholders see carbon offsetting incomes as only a token of appreciation for helping the environment. The income from carbon credits thus does not seem to have a large livelihood impact for individual smallholders. At local level, participants and employees tend to emerge as winners while forest dependent smallholders,

women and groups owning little or no land are excluded from participation. As emphasized in political ecology, it is generally groups with less power and fewer economic or political resources that are disadvantaged.

Regarding RQ2, global power structures and coloniality are reflected mainly through the projects being based on Western ontologies and epistemologies instead of local. The logic behind creating the carbon market was to give the Global North flexibility in reducing emissions, but instead carbon offsetting has become a global business. Through new concepts, science and technology, nature is reframed, transformed and sold. While some projects are based on participatory methods, the local community does not have the possibility to decide or affect the terms. Sustainable development is seen as the only way forward instead of incorporating multiple views. In mainstream discourse, economic values are expressed to a large degree: from the portrayal of humans as economically rational to the market's efficiency and resource distribution as the solution to climate change.

7. Concluding remarks

This study has examined carbon offsetting through tree planting projects and the mainstream discourse in carbon offsetting. Differences between the four projects have been examined as well as differences between their rhetoric and documented effects, focusing on social impacts and land access. The method used was a literature review with a comparative method and the material was analyzed through a theoretical thematic analysis based on our framework of political ecology and the decolonial approach. Our findings indicate that there are differences between rhetoric and reality both on a global and local level. Carbon offsetting as well as the projects are based on Western ontologies and epistemologies where local priorities are disregarded to varying degrees. Even though some of the projects operate through a participatory approach, the projects are not initiated from the bottom-up. Differences between the projects' social effects and impacts for land access mainly boil down to their operating logic and degree of enclosure. There are varying forms of projects, but agroforestry with indigenous tree species with carbon offsetting as a co-benefit have proved to be more successful. However, carbon offsetting as a whole is permeated by coloniality and inequality which has also resulted in negative consequences for local communities involved as well as the environment.

There are many aspects to take into consideration with carbon offsetting such as environmental, moral and social implications. From an environmental perspective, carbon offsetting should be a last step to reduce emissions since it treats the symptoms instead of the origin of climate change. Carbon neutrality is a chimera where the carbon offsetting cannot make up for a continued high level of emissions. Furthermore, from a moral perspective, carbon offsetting pushes the burden onto the Global South which becomes a carbon dump for the Global North. Carbon offsetting reproduces unequal power structures where countries, while formally decolonized, are still affected by coloniality. The discourse of carbon offsetting changes the way nature is seen and valued, both in an economic and ontological sense which increases the risk of carbon projects turning into green grabs. From a social perspective, projects can be conducted in various ways and for different reasons which affects their outcomes. In some aspects, the impacts of carbon offsetting have been positive where agroforestry, participation and a community focus over economic growth can improve livelihood possibilities. However, projects operating through enclosure can result in dispossession and conflict since the land is already used. Local communities also lose the right to form their local development based on their own definition.

The question of carbon offsetting is complex, where it can bring material gains for individuals and communities but exclude others. However, the positive aspects cannot always make up for the negative ones and carbon offsetting can by itself never be a solution to climate change. If used, carbon offsetting projects should be formed from local values and priorities and be participatory to delink from the colonial matrix of power. It is the Global North that needs to adapt and not the other way around. Possibly, carbon offsetting could

increasingly be conducted in the Global North where the majority of emissions take place, as a complement to locally beneficial projects in the Global South.

> *It is not possible to solve the problems of today with the same mindset*
> *that got us into the problems in the first place* (Mignolo 2019, p.51)

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