Quantifying The Multiple Environmental Benefits of Sustainable Land Management Projects: An Analysis of The Land Degradation Portfolio Of the Global Environment Facility (GEF)

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Summary

The Global Environment Facility (GEF) is the financing mechanism of several Multilateral Agreements for the Environment. The Land Degradation (LD) Focal Area is the GEF mechanism under the United Nations Convention to Combat Desertification (UNCCD) for investing in Sustainable Land Management to improve or restore ecosystem services in production systems.

This paper aims to make the first analysis of the Land Degradation tracking tools submitted with the GEF projects over the fifth replenishment (GEF5, 2006-2010). The Land Degradation Focal Area tracking tools were defined to capture the necessary data and information during project design and implementation to 1) Demonstrate GEF's catalytic role as a strategic partner for implementing/up-scaling SLM, 2) Monitor Global Environment Benefits from GEF investments in production systems, including multi-focal area synergies involving biodiversity, international waters, and climate change, 3) Report effectively and reliably on GEF financing for implementation of the UNCCD by Parties, and 4) Enhance portfolio level management and accountability for the Land Degradation Focal Area.

We used the available data from 117 LD and LD/Multi-Focal Area projects tracking tools to assess these initial questions. These 117 projects represent an investment of $504 million and more than three billion US dollars in cofinancing. These investments show that each dollar from the GEF was able to leverage 6 dollars of cofinancing from various sources. These projects will include direct interventions on more than 50 million of ha of production landscapes benefiting to approximately 40 million of rural people, including 25 million of poor, half of whom are women. The average LD project amount is $4.5 million, ranging from $2.6 million for LD stand-alone projects to the double, $5.2 million, for Multi-Focal Area projects (MFA).

The analysis of these 117 projects highlighted the importance of investing in pastoral system and rangelands, and the duality of the LDFA portfolio on generating Global Environment Benefits and including increasing the well-being of a large population or rural poor, with a gender balance. Multi-Focal Area projects helped to develop integrated/landscapes approaches and mobilize more resources. Interestingly, we also identified a number of limits inherent to the tracking tools that led us to look for new ways of doing from recent studies or on-going initiatives, basically the Value for Money study from the GEF Independent Evaluation Office and the Land Degradation Neutrality Target Setting Program (LDN-TSP).

One conclusion is that the number of ha under SLM appears to be an acceptable proxy to reflect the multiple global environmental benefits related to the maintenance, enhancement, and restoration of ecosystem services, including soil properties, vegetation cover, forests resources, biodiversity, carbon, and water.

We recommend the development of a framework that is compatible with the future UNCCD long-term strategy, the Land Degradation Neutrality approach embraced by UNCCD and the Sustainable Development Goal 15 on the protection and restoration of terrestrial ecosystem services and lands and its target 15.3 on LDN. This will be dependent on the selected geographical scale (global, regional, national, project) and the temporal scale (annual monitoring, biennial, four or five year frequencies). Three indicators, namely land cover/use change, vegetation net primary productivity trend and soil organic carbon – used in interaction, seem to respond to the different requests; data and reliable and continuously maintained databases are now relatively easily available, at different scales and for global, national, down to landscape units. These elements will help to revise the next LD strategic framework, the indicators at portfolio and project levels, as well as the GEF corporate results.

Key words: Global Environment Benefits, Land Degradation, Sustainable Land Management, Tracking Tool, production landscape

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Background: The GEF a financing Mechanism of the UNCCD

The Global Environment Facility (GEF) is the financing mechanism of several Multilateral Agreements for the Environment, including the Rio Conventions for Biodiversity, Climate Change, and to combat Desertification, the Stockholm Convention on Persistent Organic Pollutants, and the recent Minamata Convention on Mercury. The GEF also support programs on transboundary waters, forests, depleting ozone substances, and waste; the common purpose of these investments being to generate multiple environmental benefits for the planet.

The GEF was established on the eve of the Rio Earth Summit as a pilot program implemented by the World Bank, the United Nations Development Programme, and the United Nations Environment Programme (now UN Environment). After the evaluation of its pilot phase, the GEF was restructured and has evolved as a unique partnership including now 183 countries, 18 agencies including multilateral banks, United Nations agencies, national entities, and international NGOs. The GEF also includes a network of Civil Society Organizations and receives guidance from a Scientific and Technical Advisory Panel. The GEF partnership is completed by an Independent Evaluation Office. The GEF financing cycle is based on a four-year period. Since, the pilot phase, the GEF has been successfully replenished. Over the last two cycles, the GEF has invested an average of $1 billion per year in the environment through its five focal areas and a series of cross-cutting activities. At the moment, the GEF is approaching the last year of its sixth replenishment (GEF6: July 2014-June 2018).

Land Degradation and Sustainable Land Management: a GEF focal area since 2003

Land Degradation refers to the reduction or loss of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as: i) soil erosion caused by wind and/or water; ii) deterioration of the physical, chemical and biological or economic properties of soil; and iii) long-term loss of natural vegetation. Combating land degradation is critical in the fight against poverty, hunger, food insecurity, malnutrition, and natural resource conflicts throughout the developing world. The land degradation–poverty nexus is particularly obvious in the world's drylands.[1]

Sustainable land management (SLM) is the response to reverse land degradation and desertification. SLM can be defined as "the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions" (United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992). SLM is achieved through the adoption of land use systems, which, through appropriate management practices, enable land users to maximize the economic and social benefits from the land while maintaining or enhancing the ecological support functions of the land resources (TerrAfrica, 2006; World Bank, 2006). SLM practices reduce soil and land degradation whether it is caused by physical (winds, runoffs, surface sealing, etc.) or chemical (nutrient leaching, loss of organic matter, etc.) factors, and ensure the provisioning of land-based ecosystem services. From a GEF perspective, well designed SLM interventions and programs have the potential to generate global environmental benefits through their contribution

[1] Based on the UNCCD definition, "drylands" is used here to include all arid, semi-arid, and dry sub-humid regions.

to combating land degradation, mitigating climate change, preventing loss of biodiversity and ecosystem services, and promoting resilience in socio-ecological systems to enhance capacities for adaptation to environmental change. Effective implementation of SLM programs will also deliver social and economic benefits, including improvement of human well-being, through productivity gains and enhanced resilience of agroecosystems.

The Land Degradation (LD) Focal Area is the GEF window under the United Nations Convention to Combat Desertification (UNCCD) for investing in Sustainable Land Management to improve or restore ecosystem services in production systems.

LD issues have been present in the GEF since the pilot phase in 1991. Initially, LD issues were dealt as a cross-cutting issue in Biodiversity or International Waters projects. For instance, the protection of crop wild relatives or local livestock species in productive landscapes, or mainstreaming biodiversity and environmental considerations in agriculture, especially in buffer zones of protected areas, were some ways to tackle land degradation under the biodiversity focal area. But it is under the International Waters focal area, that land degradation issues were tackled at scale to protect transboundary basins from erosion and siltation by stopping forest destruction and degradation in catchments areas, restoring the tree cover in agriculture landscapes, and supporting the enabling environment to increase awareness and actions on LD issues (institutional support, capacity building, planning, monitoring, mapping, etc.).
It is only in end 2002 that the GEF Assembly took a decision to "include land degradation, primarily desertification and deforestation as a new focal area of the GEF[2] and that the GEF Council approved the Operational Program #15 on Sustainable land management at his 22th Council in December 2003. Between GEF3 and GEF4, 185 projects with a LD component were financed, 25% being Multi-Focal Area and 75% of LD projects.

In GEF5 (2010-2014), the LDFA was included in the System for a Transparent Allocation of Resources, assigning allocations to every eligible country. In GEF5, $400 million were attributed to the LDFA with a replenishment of 4.2 billion of US$, including $231 million under the allocation system. It is also in GEF5, that the GEF focal area result based monitoring system was completed by the tracking tools to monitor and assess the LD portfolio.

This Paper discusses portfolio-level data from the tracking tools of the Land Degradation Focal Area submitted with project documents for CEO endorsement. It is important to remind that this information is provided before the projects start and reflect the expected targets. This analysis would deserve to be redone eventually at mid-term, but more importantly after the final evaluations, once the projects would have been closed to compare the expected targets to the achieved outcomes and outputs.

The UN Convention to Combat Desertification (UNCCD): How it works.

The international community recognized a long time ago that desertification, land degradation, and the effect of drought were serious and global problems for the environment and to combat poverty. However, the way to tackle this issue had been a complex process between the Plan of Action to Combat Desertification in 1978 and the Rio Conference in 1992. It is finally only in Paris in 1994 that the *United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa* (UNCCD) was adopted and entered into force in 1996.

[2] Beijing Declaration approved at the Second GEF Assembly on October 18, 2002.

Sustainable land management (SLM) can be defined as "the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions" (UN Earth Summit, 1992). SLM is achieved through the adoption of land use systems, which, through appropriate management practices, enable land users to maximize the economic and social benefits from the land while maintaining or enhancing the ecological support functions of the land resources (TerrAfrica, 2005). The World Bank (2006) defines SLM as "….a knowledge-based procedure that integrates land, water, biodiversity, and environmental management to meet rising food and fiber demands while sustaining livelihoods and the environment " (World Bank 2006).

SLM practices reduce soil and land degradation whether it is caused by physical (winds, runoffs, surface sealing, etc.) or chemical (nutrient leaching, loss of organic matter, etc.) factors, and ensure the provisioning of land-based ecosystem services. From a GEF perspective, well designed SLM interventions and programs have the potential to generate global environmental benefits through their contribution to combating land degradation, mitigating climate change, preventing loss of biodiversity and ecosystem services, and promoting resilience in socio-ecological systems to enhance capacities for adaptation to environmental change. Effective implementation of SLM programs will also deliver social and economic benefits, including improvement of human well-being, through productivity gains and enhanced resilience of agroecosystems.

In March 2017, the UNCCD will have 196 *Parties* among which 144 are eligible under the GEF.

The objective of the UNCCD is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa. The UNCCD promotes effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach, which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas (article 2).

The Convention formulates a range of *obligations* of affected country Parties, as well as of developed country Parties, including the adoption of an integrated approach to address land degradation, desertification and drought, integrating strategies for poverty eradication into efforts to combat land degradation, promoting cooperation between countries in the fields of environmental protection, land and water conservation, strengthening regional cooperation including with inter-governmental organizations, determining institutional mechanisms, and promoting the use of existing financial mechanisms and arrangements.

National Action Programmes (NAP) are the basic instruments for countries in the implementation of the Convention. They are completed by Action Programmes at Sub-regional (SRAP) and Regional (RAP) levels.

The Convention has five *Regional Implementation Annexes* for Africa, Asia, Latin America and the Caribbean, the Northern Mediterranean, and Central and Eastern Europe. These annexes help to consider the particular conditions of the specific regions, their Parties, and identify contents and priority areas for national and regional action programmes.

In terms of governance, the *Conference of the Parties* (COP) is the supreme governing and decision-making body. The COP meet every two years. The next COP will be COP13 in Ordos, Inner Mongolia province in Popular Republic of China.

The Convention established a *Secretariat*, based in Bonn, Germany, to support the arrangement of the COP and its subsidiary bodies, facilitating assistance to affected developing countries (article 23). At the

COP8 in Madrid in September 2007, the UNCCD adopted *a ten-year strategy* to enhance its vision, its implementation, and reinforce the role of the Secretariat on specific objectives and outcomes on advocacy, awareness, education, policy framework, science, technologies and knowledge, as well as operational objectives on capacity building, transfer of technologies and finances. Now, a new long term strategy (2018-2030), also aligned with the SDGs, should be discussed at the next COP13 in China.

The Convention also established a *Global Mechanism* (GM) to increase the effectiveness and efficiency of existing financial mechanisms, mobilizing and channeling resources to affected developing country parties. The GM acts as a hub for financing and technical partners.

It is in 2003 that the COP6 accepted the *Global Environment Facility* (GEF) as a financial mechanism of the UNCCD. This decision corresponds to the establishment of a new GEF focal area on Land Degradation, technically operationalized at the beginning of GEF3 (2002-2006) through the Operational Program #15 on Sustainable Land Management, or OP15.

In 2001, the COP established the *Committee to Review the Implementation of the Convention* (CRIC), as a subsidiary body. The CRIC aims to facilitate the work of the COP and facilitate information exchange. It adopts conclusions and recommendations The CRIC meets at sessions of the COP and also serve as meetings between two sessions of the COPs.

The Convention also established a *Committee on Science and Technology* (CST) as a subsidiary body of the COP. The CST aims to provide scientific and technological advises related to desertification, land degradation, and the mitigation of the effects of drought. The CST emits recommendations and meets in conjunction with ordinary sessions of the COP. At the COP11 in Namibia, the COP agrees to establish a *Science and Policy Interface* (SPI) to facilitate the science and policy dialogue and ensure the delivery of policy relevant information, knowledge, and advice on DLDD. The SPI mandate will be reviewed at COP13. The first reports deals with soil carbon and the implementation of the LDN concept (http://knowledge.unccd.int/home/science-policy-interface).

The Portfolio Monitoring and Assessment Tool (PMAT)

Focal area tracking tools are an important component of projects submitted to the GEF for incremental financing. These tools are invaluable for monitoring results of GEF operations in the various focal areas, including progress towards achieving the GEF mandate on global environmental benefits (GEBs).

The focal area tracking tools are a mean to capture the necessary data and information during project design and implementation. The portfolio level monitoring of GEF investments is based on outcome indicators and targets set out in each focal area results based framework. This require information on key indicators at the project level that are amenable to aggregation. All information required is mainly based on the project baseline for monitoring and for impact assessment at project closure. The tracking tools are expected at three periods of a project life: at CEO endorsement, at mid-term, and after the project closes with the final project evaluation.

In GEF5 (2010-2014), the GEF focal area result based monitoring system was completed by the *Portfolio Monitoring and Assessment Tool* (PMAT) to monitor and assess the LD portfolio (= the LD Tracking Tools, or LDTT).

The Land Degradation Focal Area *Portfolio Monitoring and Assessment Tool* (PMAT) was defined to capture the necessary data and information during project design and implementation to 1) Demonstrate GEF's catalytic role as a strategic partner for implementing/up-scaling SLM, 2) Monitor Global Environment Benefits from GEF investments in production systems, including multi-focal area

synergies involving biodiversity, international waters, and climate change, 3) Report effectively and reliably on GEF financing for implementation of the UNCCD by Parties, and 4) Enhance portfolio level management and accountability for the Land Degradation Focal Area.

The PMAT template is available on the following link: http://www.thegef.org/documents/gef-land-degradation-tracking-tool-gef-5. Basically, the template includes two main parts completed by a Project Identification cover with 1) a contextual information to define the baseline and the targets for impact assessment at the end of the project, and 2) outcome indicators for annual progress monitoring, adaptive management and learning during project implementation.

The *Project Identification* cover includes only basic information about the project for record purposes.

Part 1 covers the *contextual information* about the project (i.e. context in which it will be implemented) and targeted global environmental and development benefits to be generated (i.e. anticipated impacts). In addition to the context, information provided here essentially constitutes baseline and targets for impact assessment at end of the project.

Part 2 focuses on the *outcome indicators* for progress monitoring, adaptive management and learning during project implementation. Projects are expected to be reported annually with a Project Implementation Report, but the tracking tools are only expected before the project starts, at mid-term evaluation, and with the final evaluation report. Data required should be based on the project results framework, which specifies outcome targets to be achieved from investments. The first submission is therefore expected to indicate only existing baselines for all relevant indicators, so that subsequent years will demonstrate progress toward achievement of targets as defined in the results framework. The information here will be aggregated at portfolio-level to facilitate annual monitoring of progress by project cohorts funded under the LDFA. This is crucial for decision-support and management accountability in the GEF Secretariat, including reporting to Council and the Conference of Parties of the UNCCD.

The Data: Tracking Tools from 117 projects from 8 GEF agencies (table 1, 2, 3 & 4)

- In the Project Identification Management Information System, *150 projects from 10 agencies* were identified with a LD component, 21 of these projects were exempt of tracking tools (8 contributions to Small Grant Projects, 4 UNCCD enabling activities, and 9 methodological projects), tracking tools were available for 117 projects, including 40 stand-alone Land Degradation and 77 LD/Multi-Focal Area projects. Tracking Tools for twelve projects were not available at the time of the analysis: essentially because these projects were not fully CEO endorsed at the moment of this analysis and the Tracking Tools were still under review. For a few of them (less than 5%), further investigation will be needed as either the Tracking Tools were not submitted and this omission was not detected at CEO endorsement, or we faced a system issue from the database where the TT are logged.
- The analysis is done on the whole cohort of *117 projects*, representing *91% of the GEF-5 LD and LD/MFA project portfolio* that have been CEO endorsed or approved as of 30 June 2016. For some aspects, we will focus on the 107 LD projects with field activities. Ten projects are actually not pertinent when we focus on land coverage, SLM, and socio-economic information[3].

[3] Basically, for each Convention the GEF is the financing mechanism, grants are provided for 1) Enabling Activities, including the strategies, reporting, and capacity building activities for the countries to implement the conventions, 2) the Small Grant Program via a corporate program implemented by UNDP, 3) Medium Size Projects (MSP are under $2 million) and Full Size Projects (FSP are over $2 million) financed by the country allocations for the Rio

- All projects are under implementation. We received the midterm evaluation report only for one project. Given the early implementation stage of this cohort of projects, the figures reported in the analysis reflect the expected results or the targets of these ongoing projects. It will be recommended to redo this analysis at mid-term and once the projects will have closed to measure the outcomes and appreciate the possible impacts.
- The 117 GEF LD related projects were implemented by *eight* agencies: UNDP, WB, UN Environment, FAO respectively representing 35%, 24%, 18% and 18%. The other four agencies were involved in three projects for ADB and one project for IFAD and IADB. The projects from AfDB (five projects under the Lake Chad Program) and IUCN (who took over AfDB for the GEF5 regional project on the Mano River) were not fully CEO endorsed at the time of the analysis.
- ***The high proportion of Multi-Focal Area projects in the LD portfolio*** may need some clarifications, as two-third of the projects are MFA, and only 41 percent of GEF resources are from LD. Three explaining factors are proposed.
    - Land Degradation issues are central to natural resources management and a root cause of environmental degradation problems, with consequences for biodiversity, water, and climate change; the high number of MFA is another proof of it;
    - In GEF5, many MFA projects were designed to trigger the supplementary resources of the Sustainable Forest Management Programme. The SFM incentive resources were added when countries were developing projects using the resources from at least two focal areas, also highlighting the importance of SFM as a cross-cutting issue.
    - Last, but not least, every GEF5 LD objective of the GEF5 Strategy was potentially matching with other objectives from Biodiversity, Climate Change Mitigation, or Sustainable Forest Management: LD1 on agro-ecological intensification, LD2 on Climate Smart Agriculture, LD3 on landscape restoration, LD4 on SLM scaling up, and LD5 on mainstreaming LD in development.

Results: GEF5 LD = 117 projects, $504 million of GEF grants, $3 billion in cofinancing with the ambitious targets of 50.5 million ha under SLM, 40 million rural beneficiaries, including 25 of poor with a balanced gender

- This cohort of projects represents **117 projects equivalent of $504 million of grants**, including $222 million from the LDFA and **more than three billion of US dollars in cofinancing**. These investments show that each dollar from the GEF was able to leverage 6 dollars of cofinancing from various sources.
- Among these 117 projects, 40 are LD stand- alone projects (34%), with **an average amount of $2.5 million**, while 77 are multi-focal area projects (66%): the LD resources being associated to other focal areas as biodiversity, climate change mitigation, and/or sustainable forest management, reflecting the central role of land for nature resource management projects and sustainable forest management projects and the increasing importance of addressing land issues from a systems perspective. **The average amount of such MFA project is $5.2 million**, showing that MFA/SFM opportunities were a way to develop projects with higher amount, more than double than usual LD stand-alone projects. Some of these projects were developed under programmatic approaches as

Conventions, and 4) MSP and FSP at regional and global levels, for multi-country based projects, cross-cutting issues, including targeted research.

the WB/GEF Sahel and West Africa Program to Support the green Wall Initiative, or the WB/GEF MENA-Desert Ecosystems and Livelihoods Program (MENA-DELP).

- If we remove the 10 projects focusing on capacity building and knowledge to focus the analysis on SLM related projects with field interventions: the average GEF LD related project is a $4.5 million project with differences between LD stand-alone projects ($2.6 million in average) and Multifocal area projects ($5.2 million in average). Each dollar from the GEF is associated to 6.16 dollars from cofinancing. **Each LD dollar is associated to $3.4 from other focal areas.**

Global Environment Benefits

- The justification of the LDFA within the GEF is based on the cost effectiveness to invest in SLM to control and prevent land degradation in production landscape to deliver multiple global environmental benefits (GEBs) and creating local and national socio-economic benefits, especially for the poorest. The benefits of SLM are known on ecosystem processes of soil formation, nutrient cycling, water cycling, and the provision of goods as food, fuel, and fiber. The LDTT include indicators for these key GEBs which can potentially be expected from SLM: improvement of vegetation cover, avoided carbon emissions, carbon sequestration, habitat protected, and improved water management (tables 11-16).
- Among the cohort of 107 projects, 80 projects included positive results in terms of vegetation cover (89 million ha), a third of projects included gains in carbon (avoided emissions and/or carbon storage), half of them included benefits for natural habitats (25.6 million ha protected), less than a quarter expect results in term of water management and availability.
- The first positive observation is that there is information under each indicator, comforting the assumption of multiple benefits of SLM (STAP, 2006). Now, the lack of information in the LDTT does not mean that the project will not produce these different benefits, but often highlight the difficulty at a project level (timeline, resources, scale…) to identify the right indicators, the right baseline, the best sources of information, and have the human and financing resources to implement such scientific monitoring. Moreover, some of the outcomes and impacts may need a certain time beyond the project duration (increase of underground water tables, tree growth, carbon increase for instance). These observations were also made during the LD learning mission and is also coherent with the literature (GEF, 2014; Kotiaho et al., 2016).
- These indicators might be discussed under the lights of new available technologies at global level (land use change, NDVI, carbon soil, water availability, etc.), the new directions of the UNCCD towards the Land Degradation Neutrality approach, and the indicators proposed under the SDGs, especially the target 15.3 on LDN.

Agro-ecological context of LD projects

- One of the first question in the LDTT is to describe the landscape where the project occurs. This area is going beyond the project intervention sites, including the mosaics of landscapes or the watershed area, also corresponding to where the GEF catalytic effects could occur through upscaling and replication.
- The description includes 123 million ha of productive landscapes (table 8). Without surprise, the projects focus on production systems – rangeland (28%), pastoral systems (28%) agricultural (9%), forest ecosystems (17%), mixed systems (16%), and agriculture (9%) – where links to human livelihoods, especially farming and pastoral communities are crucial.

- **The importance of pastoral systems and rangelands (56%)** reflect the importance of these landscapes in the drylands. Pastoral systems occupy two-thirds of global dryland areas and livestock is at least a partial source of income and food security for 70 percent of the world's 800 million rural poor.
- Because of the importance of agro-pastoral systems, including grasslands and rangelands, the GEF requested FAO to assess a series of SLM projects related to these systems to better address the cause-effect of SLM in pastoral lands, and assess the multiple benefits (carbon storage, enhanced soil health and productivity, reducing risks to drought and food, improved livestock based livelihoods).

Estimation of Land Degradation

- Referring to the figures 1 and 2 about the extension of land degradation, almost half of the projects address rangeland/pastoral issues of land degradation, covering more than 24 million of ha, and only 22% or 11 million ha address agriculture issues. However, 22 percent also the share of mixed systems.
- Five primary drivers of land degradation are recurrent with in order of importance (Figure 4): 1) Loss of vegetation cover, 2) Poverty, 3) Education, awareness raising, and access to knowledge and support services and loss of knowledge, 4) Degradation of soil properties, and 5) Degradation of vegetation (biomass, health, damage, age structured).

Sustainable Land Management on the ground

- These 107 projects target 50.5 million of ha under SLM in a landscape of more than 123 million of ha (table 8).
- Within these 107 projects, SLM means the promotion of integrated landscape management notably to manage the nexus land/water/vegetation on 34 percent of the area (almost 17 million ha) (Table 9 and 10). Improved rangeland and pasture management come in second with 23% of the coverage (11 million ha), followed by improved agricultural management (crop and crop-livestock) with 16% (8 million ha) and sustainable forest management (6 million ha). 9% of the coverage include different forms of protection, either newly protected areas, or areas protected against erosion, flood, landslide control (4.5 million ha). Lastly, Restoration of degraded lands, reforestation, or revegetation stayed relatively marginal.

Socio-economic aspects

- Development benefits are important for the LDFA as the GEF investments are linked to human livelihoods through agriculture, livestock, and forest management, especially in the areas where there are rural poor people (drylands). This section in the PMAT aims to understand the livelihood context and assess potential beneficiaries. Disaggregation by gender is also essential for portfolio reporting.
- This information is aligned with the raison d'être of the LDFA and the recommendations from the Millenium Ecosystem Assessments to invest in the prevention and control of land degradation in areas that are essential for peoples' livelihoods and in affected areas where the social

consequences of continuing land degradation can trigger serious environmental and developmental problems (MEA, 2005).

- The analysis shows that **40 Million of rural people** have been targeted as beneficiaries of LD projects, including **25.3 million of poor**.
- The data shows a balanced gender population in all UNCCD annexes.

Geography of the UNCCD

- Referring to the geography of the UNCCD: The Africa region, the Asia region, and the LAC region, or annexes I, 2, and 3 received the more: 36%, 34%, 21% of projects or 38%, 33%, and 22% of resources. The annex 4 for Northern Mediterranean and annex 5 for Central and Eastern Europe respectively received 2% and 7% of resources and 2% and 5% of resources (table 5).
- In a future analysis, it will be possible to make further distinction between the regions and the focus of LD and SLM. For instance, it is mainly the regions LAC and Northern Mediterranean who promoted the integrated landscape approach. In the LAC region, it worth noting that more than 8.4 million of ha are targeted under integrated landscape management and 6.4 million ha are expected from improved rangeland and pasture management. This is the region 2 (Asia) who present from far the highest coverage under better protection of natural resources, with 4.1 million ha. Heavily degraded regions where the main drivers of LD are unsustainable agriculture practices trend to focus more on improved agriculture management (Africa region).
- In terms of agriculture, almost all land/farming practices in Africa target rain-fed agriculture, while it is 50%/50% between rain-fed and irrigated agriculture
- Last, but not least, 32 projects were targeting Least Developed Countries (29%) and 15 projects (14%) were targeting Small Islands Developing States (table 6 and 7).

Discussions

The contribution of the "Value For Money for the Land Degradation Projects at the GEF": a new way to consider LD project monitoring

The paper entitled "Value For Money for the Land Degradation Projects at the GEF" prepared by the Independent Evaluation Office (2016) has paved the way for a different way of quantifying the outcomes and impacts of LD projects.

This study took UNCCD 2015 guidance on indicator selection and GEF STAP 2014 guidance on assessment to quantify 1) impact attributable to GEF LD project locations using three indicators capturing vegetation productivity, forest fragmentation, and forest cover change and 2) the Value For Money (VFM) resultant from these impact of GEF LD projects in terms of carbon sequestration. The three indicators were:

1) Vegetation productivity change: change in productivity between 1985 and 2015 using the long term data record NDVI product.
2) Forest cover change: the Hansen et al. (2013) tree cover product from University of Maryland Global Land Cover Facility is employed to detect forest cover change. 30m resolution products were used. The baselines were calculated with data from before 2000 (1980, 1990, and 2000 data were

available, and a yearly basis since 2001). The absolute annual change in tree cover is calculated post-2020.

3) Forest Fragmentation: within the area of influence calculated for each GEF LD project, a regionally varying threshold is applied to the percent tree cover. This produces a binary forest (denotated by 1) versus non forest (denoted by 0) cover map for each time period for which cover change information is available.

The resulting value for money was then estimated based on converting changes in the three indicators listed above into carbon stock and sequestration values, using Ecofloristic Zone Carbon Fractions datasets derived by the Oak Ridge National Laboratory. The combination of field-based data, estimated values and also remote sensing techniques has become the primary method of examining carbon stocks and carbon sequestration.

The VFM study screened 202 projects, represented by 1,704 project locations from which 446 sites with exact geographic locations were used.

The VFM study identified a net global positive impact of GEF LD projects along all three indicators examined, but also found considerable heterogenity in these impacts across different geograpahic contexts. Key findings included:

- Lag time of 4.5 to 5.5 years: There was an important inflection point at this time when impacts were observed to be larger in magnitude, noting that some projects were still under implementation;
- Initial state of the environment is a key driver in GEF impacts: GEF projects tend to have larger impacts in areas with poor initial conditions;
- Africa and Asia projects lack positive impacts on forest fragmentation, while projects in LAC and Oceania all had positive impacts on all the three indicators. The projects located in Africa and Asia showed positive impacts on only vegetation productivity and forest cover change.

In terms of Value For Money, the study estimated that GEF LD projects contributed $7.5 million (2014) on average from carbon sequestration alone, well above the average costs of most of the LD projects ($4.18 million). A multiple parmeter analysis would be the next step to estimate other ecosystem services and values.

It seems therefore feasible to define a common framework for the GEF and UNCCD requirements for the "*developpment of improved methods for multi-scale assessment and monitoring of land degradation trends, and for impact monitoring of GEF investments in SLM*". The VFM study recommended the colllection of the precise geographic locations of GEF LD activities (latitude and longitude). By providing exact geographic information on GEF LD project locations, it would be possible to leverage decades of satellite and other spatial information in ways that is not otherwise possible.

The contribution of the Land Degradation Neutrality Target Setting Programme, the SDG 15 & the target 15.3

In September 2015, the United Nations General Assembly adopted the Sustainable Development Goals (SDGs), including goal 15, which aims to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss". Amongst the results under this goal is target 15.3 to "combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world" by 2030.

In October 2015, the 12th session of the COP of the UNCCD endorsed LDN as a core driving principle for UNCCD implementation, agreeing to:

- Define LDN and endorse the concept as guiding principle for the implementation of the Convention;
- Invite country Parties to formulate national voluntary targets to achieve LDN and to integrate LDN targets into UNCCD National Action Programme (NAPs);
- Establish LDN partnerships recognizing the unique role of UNCCD in addressing target 15.3 and the contributions required from other bodies, agencies and Conventions to achieve LDN.

The LDN Target Setting Programme (TSP) is testing a methodology to assess LDN targets against three core indicators, selected from the six UNCCD progress indicators adopted by COP11/Decision 22, using data available from publicly available global databases.

These three core indicators include: (i) Trends in land cover (Metric: vegetative land cover); (ii) Trends in land productivity or functioning of the land (Metric: land productivity dynamics); and (iii) Trends in carbon stocks above and below ground (Metric: soil organic carbon stock). These indicators and their metrics are expected to contribute to the measurement of the global indicator that is currently prepared by the UN Statistical Commission for monitoring the SDG target 15.3. These globally comparable indicators provide a strong basis for reporting and for initiating progress, but countries are also encouraged to use additional locally relevant indicators -nationally based available standardized data for decision-making and target-setting, according to the availability of data.

Within on-going internal GEF discussions and informal discussions with the LDN TSP, we would like to share the following and potentially provocative elements:

Selection of indicators and sources of data:

- For GEF indicators, there is an on-going analysis to revise the nature of key indicators as well as the the frequency and methods of data collection. Nothing is decided yet, but the system should be aligned with UNCCD and SDGs indicators, and compatible with the needs at project and country level. The three indicators mentioned previously (land use change, vegetation cover, and carbon) seem to respond to these criteria.
- For Land Use change data, The LDN TSP used the year 2000 and 2010, as the baseline. Twenty-two original land uses classes -and fourteen additional complementary regionally relevant- were aggregated into six main land cover/use types aligned with the six land use classes recommended by IPCC to easily estimate the critical change trend. Some provisionary recommendations can be taken from the on-going work: The analysis should target not only the vegetation cover, but also the landscape structure. At the coarser scale, it seems difficult to distinguish between “naturally restored” forests and forestry plantations and tree-based (agroforestry) monocrops. This aspect needs greater attention in a near future. For the NDVI, 36 measures per year since 1998 are available for free at 250m of resolution. UNCCD/GM/TSP used databases comprising 540 measures per each pixel of 6.25 ha. Linear Regression and statistical test of consistence help to compare to a baseline. Sampling of soil should be incorporated to complete the framework at a frequency to be determined (annually or five years for instance). The use of satellite image, using ISRIC models, can be used for extrapolations at 250m (SoilGrids250).
- Forest cover data are available globally on a yearly basis at 30m resolution (some countries are available weekly at 30m). Many experts highlighted the need for more frequently updated Land Use datasets at the last WRI Global Forest Watch meeting, in February 2016.

- For soil organic carbon, there are datasets being used for global analysis (http://www.nature.com/nature/journal/v540/n7631/full/nature20150.html). The LDN TSP used data proposed by Hengl et al (2016). These elements are a way to start, acknowledging that there are on-going discussions about accuracy of soil carbon estimates in the research community.

The scale aspects at Global, Regional, National, and Project levels

- At global and regional scales, including the UNCCD annexes, a time interval of 4-5 years of the interval would suffice for the three indicators. Now, because of the relative coarseness of the datasets, countries can and should use national or sub-national datasets for the indicators when available, also to contextualize the changes seen in the global datasets. The coarse resolution often fails to pick up changes that occur at a finer scale.
- At the national level, and for each priority action area, the LDN TSP tested combined maps expressing the spatial distribution of valued for the three LDN indicators: Land Use Change (reflecting deforestation issues for agriculture, pastoral uses, forest artificialization, impacts on wetlands, agriculture, fuelwood, etc.), Net Primary Production (trend evolution of land capacities to produce biomass on a 15 year period , identification of limits for forest degradation, grasslands, crop areas, wetlands), and Soil Organic Carbon (carbon soil geography, links to topography, vulnerability of lands to degradation). In parallel, national mapping should complete the framework with urban areas, communication networks, economic areas, and population density.
- At the project scale, the way of working should be similar, with the same indicators, but should use high resolution data and at a landscape scale to reflect the functionality of ecosystem services (1:50,000).

Conclusions

1) The GEF Land Degradation Tracking Tools respond to the need to manage the portfolio at global level and eventually per region. The current analysis is based from the tracking tools from 117 projects representing $504 million of GEF grants associated with $ 3 billion in cofinancing. These projects target 50.5 million ha under SLM, benefiting approximately 40 million rural people, including 25 million of poor, half of whom are women. Half of the targeted landscapes are rangelands and pastures and half of the projects address land degradation in these same habitats, highlighting their importance in the drylands, their vulnerability and their role for rural and poor communities.
2) The average funding for a GEF LD related field project is $4.5 million ($2.6 million for LD stand-alone projects and $5.2 million for Multifocal Area project). Two-thirds of the LD related projects are MFA: Each dollar from the LDFA catalyzing two dollars from other focal areas.
3) The GEF Land Degradation Tracking Tools only partially helps to understand the catalytic role of the GEF for implementing/scaling up SLM because the lack of cofinancing data. The definition of cofinancing also varies among agencies.
4) The GEF Land Degradation Tracking Tools provide elements of information about the targets of the project, the environment, the problem and the beneficiaries, but a number of limits have been identified letting the door open for interpretation and potential misunderstanding. Some concepts or definition in the LDTT are difficult to use (e.g.: project area/intervention sites, distinction between different kinds of habitats, definition of primary and secondary drivers, notion of beneficiaries, distinction between co-financing and GEF resources…). Upstream guidance on

indicators, methods, and baseline would be useful. It is certain that the LDTT should be mainstreamed very early in the project development process to give the time for data collection, if needed.

Since the launch of the LD tracking tools at the beginning of GEF5 (2010-2014), much progress has been made in terms of improved methods, data, and databases to measure some of these Global Environment Benefits. We recommend the development of a framework that is compatible with the future UNCCD long-term strategy, the Land Degradation Neutrality approach embraced by UNCCD and the Sustainable Development Goal 15 on the protection and restoration of terrestrial ecosystem services and lands and its target 15.3 on LDN. This will be dependent on the selected geographical scale (global, regional, national, project) and the temporal scale (annual monitoring, biennial, four or five year frequencies). Three indicators, namely land cover/use change, vegetation net primary productivity trend and soil organic carbon – used in interaction, seem to respond to the different requests; data and reliable and continuously maintained databases are now relatively easily available, at different scales and for global, national, down to landscape units. These elements will help to revise the next LD strategic framework, the indicators at portfolio and project levels, as well as the GEF corporate results.

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List of Tables and figures

Table 1: Full cohort of LD and LD related MFA projects in the GEF5 portfolio

Focal Area	Projects	GEF Amount	Co-Financing	LD $
Land Degradation	46	112,932,970	540,091,364	98,063,181
Multi Focal Area	104	697,067,528	3,543,023,661	176,093,303
Grand Total	**150**	**810,000,498**	**4,083,115,025**	**274,156,484**

Table 2: Nb of LD and LD/MFA projects with tracking tools

Focal Area	Projects	GEF Amount	LD contribution	Cofinancing
Land Degradation	40	102,570,960	102,570,960	514,783,864
Multi Focal Area	77	401,656,333	119,532, 889	2,510,097,466
Grand Total	**117**	**504,227,293**	**222,103,849**	**3,024,881,330**

Table 3: Cohort of LD Projects excluding the “Capacity Building” projects

Focal Area	Projects	GEF Amount	LD contribution	Cofinancing
Land Degradation	31	$81,210,336	$81,210,336	$444,180,949
Multi Focal Area	76	$397,026,703	$116,755,110	$2,500,097,466
Grand Total	**107**	**$478,237,039**	**$197,965,446**	**$2,944,278,415**

Table 4 Cohort LD Capacity Building projects in GEF5

Focal Area	Projects	GEF Amount	LD contribution	Cofinancing
Land Degradation	9	$21,360,624	$21,360,624	$70,602,915
Multi Focal Area	1	$4,629,630	$2,777,779	$10,000,000
Grand Total	**10**	**$25,990,254**	**$24,138,403**	**$80,602,915**

Table 5: Regional context

UNCCD Region	GEF LD contribution	Projects	Average GEF LD Amount
Annex I – Africa	$89,766,286	42	2,137,293
Annex II – Asia	$66,399,737	36	1,844,437
Annex III - Latin America and the Caribbean	$30,806,279	22	1,400,285
Annex IV - Northern Mediterranean	$4,410,207	2	2,205,104
Annex V - Central and Eastern Europe	$13,013,601	8	1,626,700
Multi-region or Global projects	$17,707,740	7	5,272,203
Grand Total	**222,103,849**	**117**	**1,898,323**

Table 6: GEF5 LD projects in LDCs

UNCCD Region	GEF LD contribution	Projects
Annex I	50,840,961	23
Annex II	10,954,270	8
Annex III	268,527	1
Grand Total	**62,063,758**	**32**

Table 7: GEF5 LD projects in SIDS

UNCCD Region	GEF LD contribution	Projects
Annex I	3,914,862	3
Annex II	9,477,566	7
Annex III	4,575,077	5

Grand Total	**17,967,505**	**15**

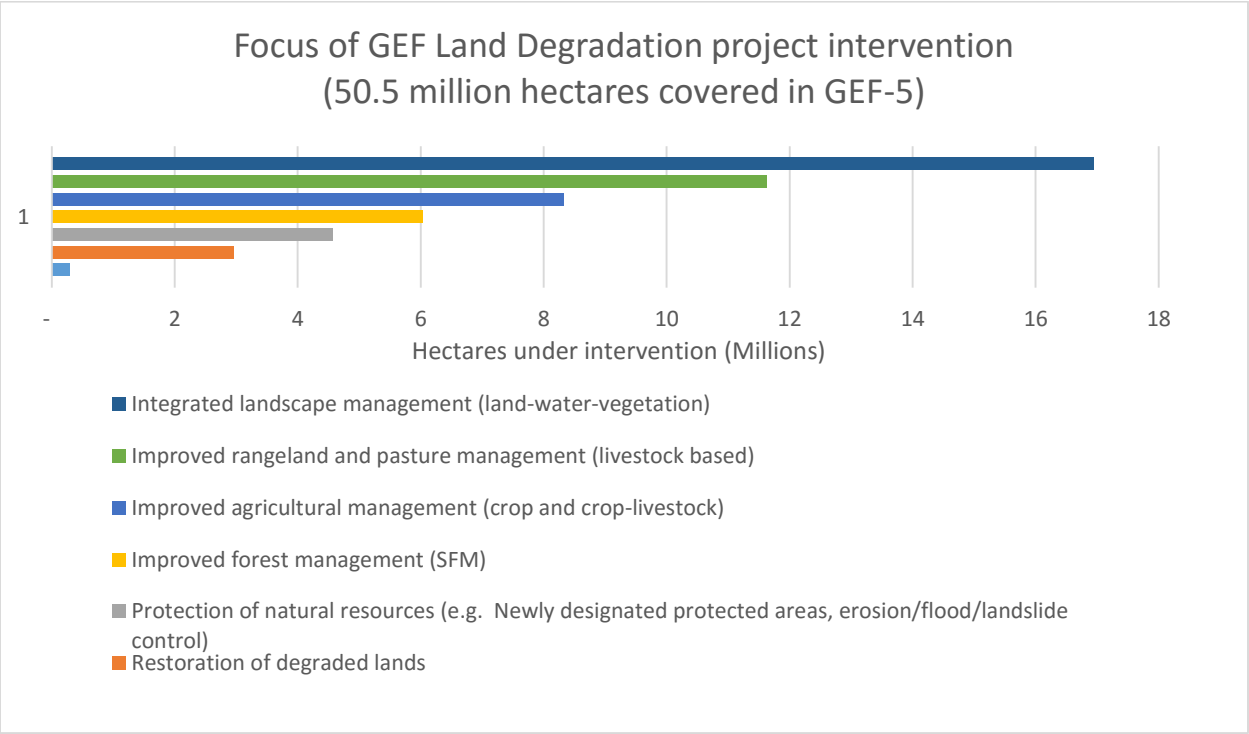
Table 8: Description of landscapes in the project interventions (ha)

Row Labels	Landcape description (area in ha)	GEF LD Amount	Projects
Annex I	33,242,831	83,335,623	39
Annex II	52,598,686	66,399,737	36
Annex III	33,922,971	30,806,279	22
Annex IV	1,475,125	4,410,207	2
Annex V	1,891,768	13,013,601	8
Grand Total	**123,131,380**	**197,965,446**	**107**

Table 9: SLM interventions

SLM Interventions	# ha	# projects
Re-vegetation, Reforestation	**298,142**	1
Restoration of degraded lands	**2,953,157**	6
Protection of natural resources (e.g. Newly designated protected areas, erosion/flood/landslide control)	**4,563,652**	9
Improved forest management (SFM)	**6,039,988**	12
Improved agricultural management (crop and crop-livestock)	**8,318,240**	16
Improved rangeland and pasture management (livestock based)	**11,631,014**	23
Integrated landscape management (land-water-vegetation)	**16,950,014**	34
Focus of project interventions	**50,541,074**	100

Figure 1 & 2: Focus of GEF Land Degradation project interventions



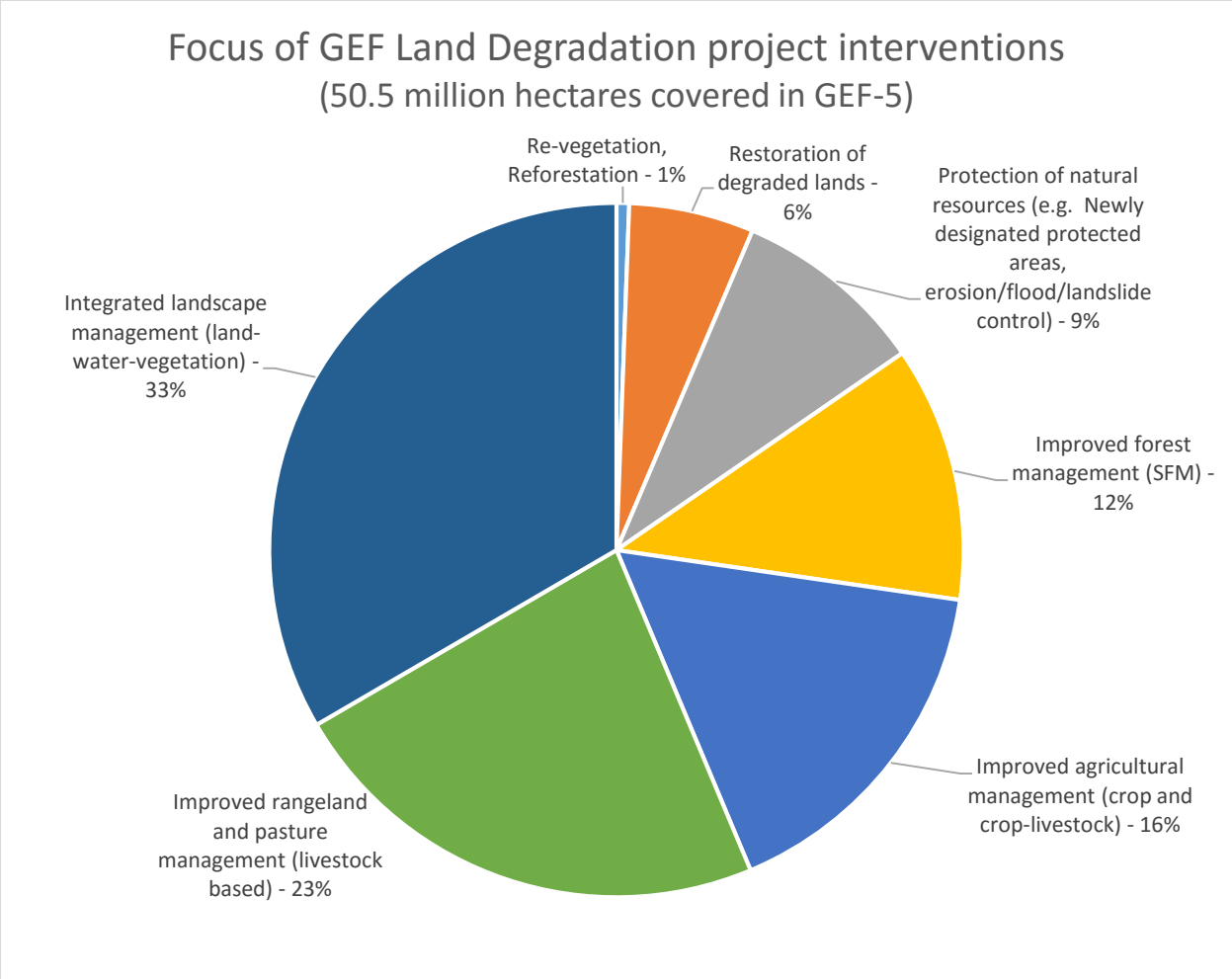

Focus of GEF Land Degradation project interventions
(50.5 million hectares covered in GEF-5)
Re-vegetation, Reforestation - 1%
Restoration of degraded lands - 6%
Protection of natural resources (e.g. Newly designated protected areas, erosion/flood/landslide control) - 9%
Improved forest management (SFM) - 12%
Improved agricultural management (crop and crop-livestock) - 16%
Improved rangeland and pasture management (livestock based) - 23%
Integrated landscape management (land-water-vegetation) - 33%

Table 10: LD Interventions per UNCCD regions

Region	Projects	i. Improved agricultural management (crop and crop-livestock)	ii. Improved rangeland and pasture management (livestock based)	iii. Improved forest management (SFM)	iv. Restoration of degraded lands	v. Re-vegetation, Reforestation	vi. Protection of natural resources (e.g. Newly designated protected areas, erosion/flood/landslide control)	vii. Integrated landscape management (land-water-vegetation)
Annex I	42	**5,984,205**	2,933,501	2,791,453	2,301,235	107,233	146,562	**4,667,700**
Annex II	36	961,515	1,944,792	1,573,453	446,788	113,681	**4,154,341**	**2,985,751**
Annex III	22	1,311,471	**6,405,621**	1,016,719	135,968	43,697	19,213	**8,403,205**
Annex IV	2	40,000	103,600	**270,000**	27,500	21,300	10,200	**194,000**
Annex V	8	21,050	243,500	**388,364**	41,666	12,232	233,336	**699,358**
Grand Total	**110**	**8,318,240**	**11,631,014**	**6,039,988**	**2,953,157**	**298,142**	**4,563,652**	**16,950,014**

50,754,207

Table 11: Vegetation Cover

Row Labels	Count of GEFID	Gef Amount (9_15)	Amount to use (9_15)	Co-Financing	# of projects reporting	i. Vegetative cover (ha)
Land Degradation	31	81,210,336	81,210,336	444,180,949	22	9,684,930
Multi Focal Area	76	397,026,703	116,755,110	2,500,097,466	58	79,095,048
Grand Total	107	478,237,039	197,965,446	2,944,278,415	80	88,779,978

Table 12: Avoided emissions of tons of CO2e

Row Labels	Count of GEFID	Gef Amount (9_15)	Amount to use (9_15)	Co-Financing	# of projects reporting	Avoided Emissions - Calculated Total over project lifetime (Tons CO2e)
Land Degradation	31	81,210,336	81,210,336	444,180,949	5	3,431,575
Multi Focal Area	76	397,026,703	116,755,110	2,500,097,466	28	190,481,733
Grand Total	107	478,237,039	197,965,446	2,944,278,415	33	193,913,308

Table 13: Carbon sequestration (tons CO2e)

Row Labels	Count of GEFID	Gef Amount (9_15)	Amount to use (9_15)	Co-Financing	# of projects reporting	Carbon Sequestration - Calculated Total over project lifetime (Tons CO2e)
Land Degradation	31	81,210,336	81,210,336	444,180,949	3	463,249
Multi Focal Area	76	397,026,703	116,755,110	2,500,097,466	33	175,437,446
Grand Total	107	478,237,039	197,965,446	2,944,278,415	36	175,900,695

Table 14: Habitat protected (ha)

Row Labels	Count of GEFID	Gef Amount (9_15)	Amount to use (9_15)	Co-Financing	# of projects reporting	ii. Habitat protected (ha)
Land Degradation	31	81,210,336	81,210,336	444,180,949	14	12,792,712
Multi Focal Area	76	397,026,703	116,755,110	2,500,097,466	43	12,878,536
Grand Total	107	478,237,039	197,965,446	2,944,278,415	57	25,671,248

Table 15: Improved Irrigation flow – land area (ha)

Row Labels	Count of GEFID	Gef Amount (9_15)	Amount to use (9_15)	Co-Financing	# of projects reporting	i. Improved irrigation flow - land area (ha)
Land Degradation	31	81,210,336	81,210,336	444,180,949	6	687,851
Multi Focal Area	76	397,026,703	116,755,110	2,500,097,466	5	14,882
Grand Total	107	478,237,039	197,965,446	2,944,278,415	11	702,733

Table 16: improved/increased water availability

Row Labels	Count of GEFID	Gef Amount (9_15)	Amount to use (9_15)	Co-Financing	# of projects reporting	ii. Improved/increased water availability - land area (ha)
Land Degradation	31	81,210,336	81,210,336	444,180,949	5	318,715
Multi Focal Area	76	397,026,703	116,755,110	2,500,097,466	19	209,568
Grand Total	107	478,237,039	197,965,446	2,944,278,415	24	528,283

Table 17: Beneficiaries

Row Labels	**Sum of Rural - Male**	**Sum of Rural -Female**	**Sum of Rural - Total**	**Sum of Poor-Male**	**Sum of Poor-Female**	**Sum of Poor - Total**	**Projects Reporting**
Annex I	8,605,670	8,668,846	17,274,515	4,058,884	4,021,626	8,080,510	28
Annex II	5,211,028	4,768,674	9,979,702	3,316,400	2,429,817	5,746,217	29
Annex III	3,212,918	3,171,651	6,384,569	3,284,689	3,262,195	6,546,885	14
Annex IV	61,229	62,447	123,676	12,188	12,432	24,620	2
Annex V	3,507,818	3,280,781	6,788,599	2,412,071	2,476,267	4,888,338	7

Grand Total	**20,598,663**	**19,952,398**	**40,551,061**	**13,084,233**	**12,202,337**	**25,286,571**	**80**

Table 18: Type of agricultural land/farming practice in target area (area in hectares)

Row Labels	#	Rain-fed	Irrigated	Mixed
Annex I	39	6,037,337	102,187	3,671,657
Annex II	36	2,824,208	2,684,169	240,171
Annex III	22	7,511,287	1,072,377	7,307,082
Annex IV	2	87,900	500	
Annex V	8	2,525,520	506,000	100
Grand Total	**107**	**18,986,251**	**4,365,233**	**11,219,010**

Figure 3: gender aspects within the beneficiaries (rural poor)

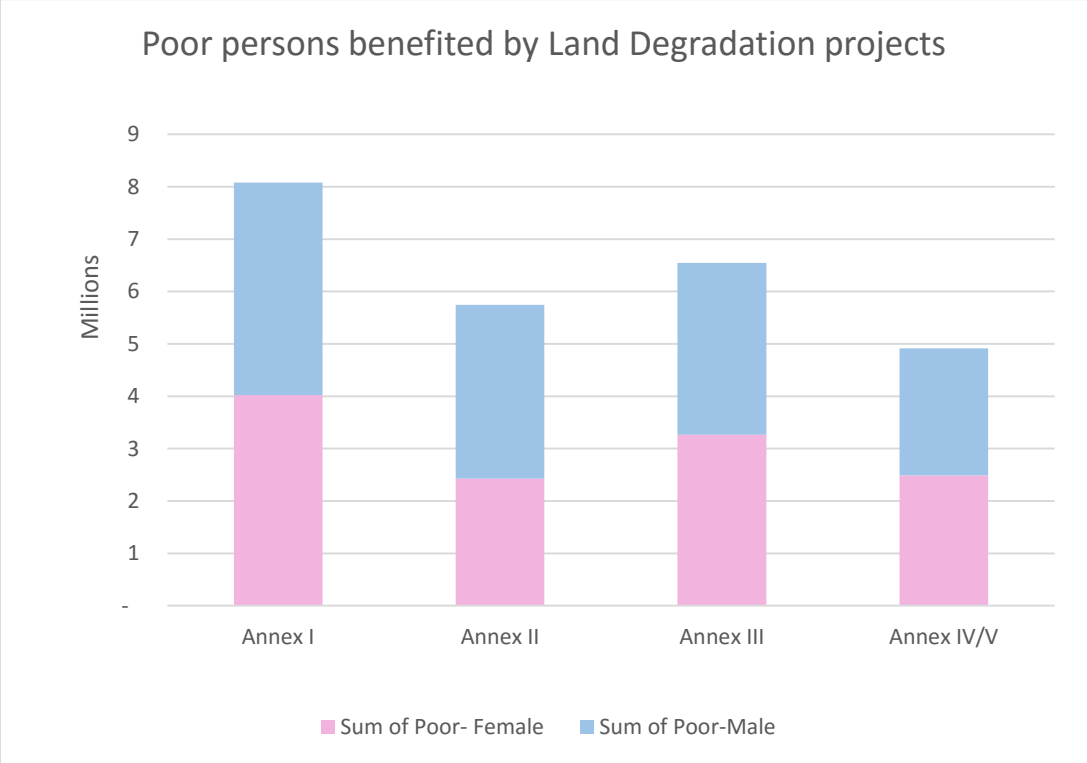


Figure 4: Primary drivers of land degradation identified across the portfolio