

Competing claims on land for food and biodiversity

Drivers, impacts and responses



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Prologue

This document consists of two papers that address the issue of competition on land for food and biodiversity. The increasing world population and the overall rising global wealth call for an increasing demand for food and energy. Agricultural production has to increase to feed present and future generations, but also with sufficient energy, fibre and ecosystem services such as clean water and air, next to biodiversity and recreation. Biodiversity, referring to the diversity of all forms of life within an ecosystem, biome or of planet Earth, is also an important source of food security: over 1 billion people rely on forest products for food and income, and forest products provide an important safety net as harvests of agricultural commodities fall short. The two brief essays were initiated by the Ministry of EL&I (Directorate Nature and Environment) responsible for the implementation of the EU biodiversity strategy, but also accountable for preventing the possible trade-off between biodiversity protection and food security.

The first paper highlights the trade-offs in the relation between food security, biodiversity and land use. The essay clarifies the driving forces behind the increasing need to produce more food and biomass and points at the implications for land use and biodiversity, referring to several examples of land dynamics in certain countries. As competing claims on land increases, the question is how to diminish the trade-off between land used for agricultural purposes and land used for other ecosystem services. The essay suggests possible solutions to help ease competing claims on land. There are many, such as reducing demand or increasing the supply by using natural resources much more efficiently. Technological change appears to be a solution that is often referred to but depends on the agronomic and economic conditions that drive technological change in dampening competing claims on land, and the institutions that are necessary facilitating the transfer towards sustainable production systems. Solutions come closer when there is a local basis and that requires the involvement of local and regional stakeholders. The essay concludes that competition on land for food and biodiversity is subject to a complex process of global, regional and local forces and policies affecting demand for and supply of natural resources. This implies that responses to increasing competing claims should not be limited to the international or local area but should be a co-ordinated action of stakeholders at local, national and international levels.

The second paper zooms in on the activities of the World Food Programme (WFP) in Africa, based on the question whether an organisation like WFP could be instrumental in reducing the loss of biodiversity in countries where poverty and food insecurity prevail. WFP spends more than 50% of its global assistance in Africa. In response to an emergency food situation WFP purchases food, largely in the region, with the aim to make local communities more resilient and help to reduce chronic hunger and undernutrition. The study investigates WFP operations and seeks for a link between food security and biodiversity. The paper shows that biodiversity is not in the WFP mandate and the organisation does not have programmes to conserve biodiversity. Yet the unspoken policy is to provide food aid without harming biodiversity, illustrated by a number of examples such as a reforestation project in the Philippines, a recycling project in DR Congo and a land management project in Ethiopia. WFP, however, does not communicate its biodiversity-safeguarding activities loudly. By liaise with FAO and ODA, for instance, the paper concludes that WFP activities that conserve biodiversity could be made more visible.

Part 1

Competing claims on land for food and biodiversity; Drivers, impacts and responses

Paper in response to a EL&I Helpdesk Knowledge Question: What are the trade-offs in the relation between food security, biodiversity and land use; how to find solutions to reduce those trade-offs?

Siemen van Berkum (LEI Wageningen UR) and Eric Arets (Alterra Wageningen UR) ¹

1.1 Introduction

By the end of 2011 the world population reached 7 billion people, of which an estimated 900 million were undernourished. In 2050 the world has to feed 9 billion people. At the same time due to these increasing food and energy demands the natural environment including biodiversity will be increasingly under pressure. Food security and biodiversity are linked in many ways. Land and its natural resources are the basis for the production of many products, like food and bio-energy, and also for biodiversity, while providing many goods and services. Approximately one billion people worldwide depend on forest products for nutrition and income. Food security and livelihoods of these people are directly linked to ecosystems providing their first needs. Natural systems and biodiversity are also important safety nets during times of food insecurity resulting for instance from crop failure. About 45% of global food production comes from such diverse smallholder systems.

Besides ecosystem goods and services that represent a direct economic value and trade opportunities, there are also services that do not represent a direct economic value, but still are important for ecosystem functioning, agricultural productivity and human well-being in general. In this way biodiversity also has an enabling role for agriculture, with healthy ecosystems supporting agricultural production through pollination services, preventing soil degradation and erosion and regulating the hydrological system. Many studies show that in comparison to intensive monocultures, bio-divers, multi-functional landscapes are more resilient to climate change and continue to provide services while maintaining productivity.

When productivity of one or a few (agricultural) species is intensified, usually some of the ecosystem services are replaced by human activities, such as the substitution of soil fertility based on nutrient cycling with application of artificial fertilisers. As a result agricultural production is increasingly based on a relatively small number of high yielding crop varieties and livestock breeds. On the longer term this may increase vulnerability to diseases with potentially large impacts on food security.

While some resources and ecosystem services can be delivered simultaneously from the same area of land, they are also often mutually exclusive and therefore tend to compete for land. Especially when demand for resources in an area becomes higher than the current supply, competing claims can occur. Therefore, given the limited area of available land and natural resources, a major global challenge is how to sustainably provide current and future generations with sufficient food, energy, and fibre without compromising biodiversity and ecosystem services. Due to the pivotal role of land as input for food and other 'goods and services' this essay focuses on competing claims on land.

Competing claims is a notion that different and/or excessive claims are made on land that may jeopardise its sustained use. Increasing demand for food and energy in the world leads to further intensified

¹ The essay draws heavily on Arets et al. (2011), Van Berkum et al. (2011a) and Van Berkum et al. (2011b), which report results from the EL&I-financed BOCI Competing Claims project 2009-2011. More specific literature references can be found in those reports.

use of agricultural land or to the transformation of non-agricultural land into productive agricultural land, with negative consequences for the environment and biodiversity.

This essay clarifies the driving forces behind the increasing need to produce more food and biomass and points at the implications for land use and biodiversity, referring to several examples of land dynamics in certain countries. As competing claims on land increase, the question is how to diminish the trade-off between land used for agricultural purposes and land used for other ecosystem services. The essay suggests possible solutions to help ease competing claims on land.

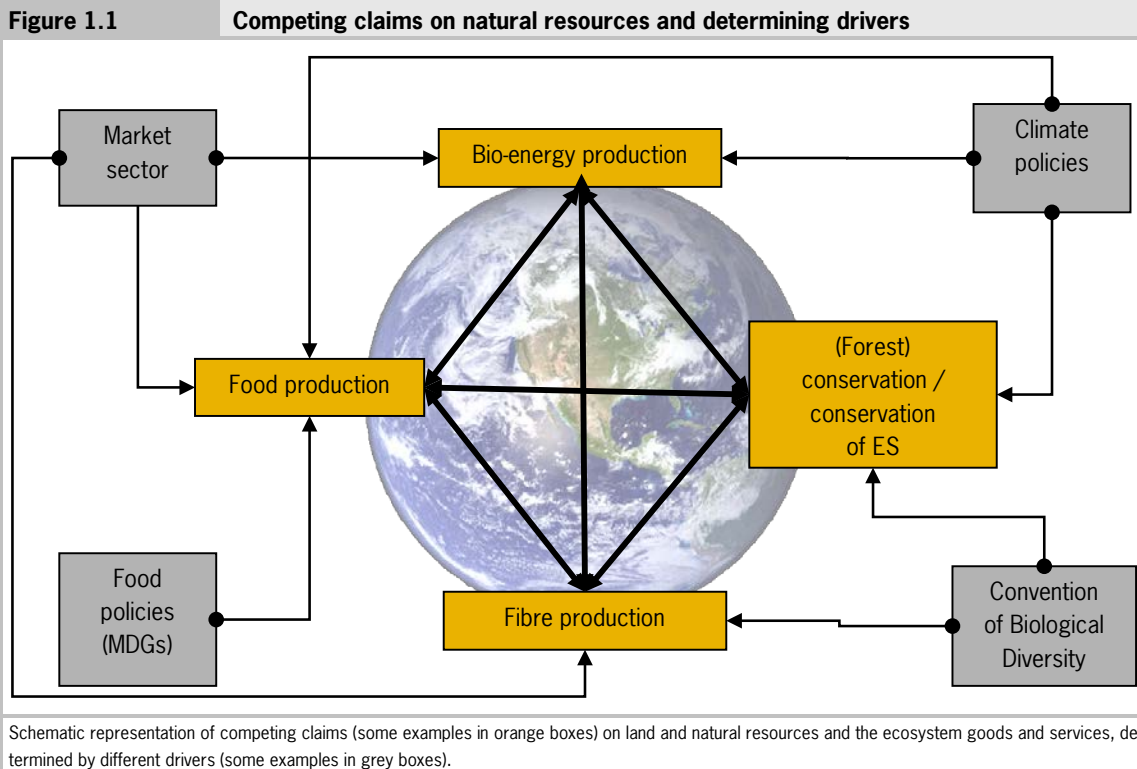
1.2 Main factors of competing claims

We identify three main components determining competing claims on natural resources. The first component is increasing demand for resources and commodities to satisfy global, regional and local needs. This demand is influenced by changes in demography, economic development (GDP and wealth), scarcity (relative prices of factor endowments and goods) and by policies at different levels (e.g. trade policies, policies on international development, conservation of biodiversity etc.). The second factor is related to the requirements for natural resources in terms of availability, quality, sustainability, efficiency and timing of production, that is, the supply side. Finally, the third factor is related to institutional and power processes that govern land use and land-use planning. Demand for land and resources may be strongly influenced by international and regional policies and by market trends, while also local power relations and customs play a significant role in competing claims and the result of competition for land.

1.3 Global trends resulting in competing claims on natural resources at local level

At the global level one may identify a number of important international policies and market trends that have an effect on demand and supply and hence determine claims on resources for food, feed, bio-fuels, fibres and conservation of biodiversity and ecosystem services (Figure 1.1). Such increasing demand for feed, fibre, fuel and the protection of ecological vulnerable areas will subsequently increase non-food claims on agricultural land.

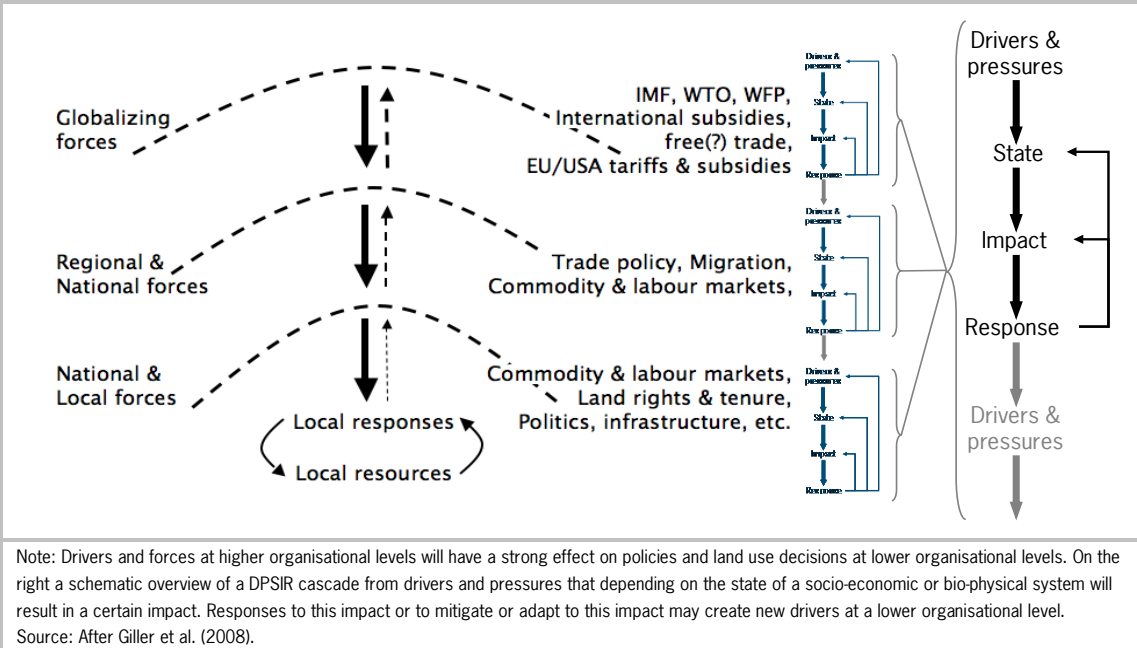
The different claims from the market sector are usually regulated by price mechanisms, determining demand and supply for certain agro-commodities, natural resources and land. When demand for resources in an area becomes higher than current supply, competing claims can occur among different land-uses. At the same time, also international and national policies, at least partly, affect the demand for land and resources through target setting, subsidies and taxes. There is a wide variety of underlying causes for these international policies, like for instance existing food insecurity, increasing population, the loss of biodiversity or climate change. As an example, in the case of climate change, policies are aimed at reducing anthropogenic carbon emissions, for which use of fossil fuels and land conversion to agricultural use are two important sources. Subsequent policies to mitigate the potential impact of climate change have been drafted including, for example, higher objectives and targets for use and production of biomass for bio-fuels including subsidies for their production. Such increasing demand not only directly initiates competing claims, but also the associated increasing prices of food products may influence land use decisions.



Implementation of international and national policies and market trends thus have the potential to strongly influence decisions and responses at lower organisational levels (Figure 1.2, after Giller et al., 2008), while effects in the opposite direction (bottom-up) are often much weaker. Eventually local decisions on the use of land and natural resources will be largely determined by bio-physical constraints and are strongly influenced by the various forces that work from higher organisational levels downwards to the level of local decision makers and land users. Responses to drivers at one level can become drivers at a lower level. Some global drivers may have a straightforward direct effect on local land-use decisions, while others work through the levels in several steps (Figure 1.2).

Global factors (international trade policies and trade relations, transnational investments), regional factors (regional trade policy, regional market development) eventually, however, only define a portion of the land use. National factors (juridical frameworks, infrastructural development, labour conditions, market policy and migration) and local factors like land ownership, local market circumstances, customs and taboos play a significant role as well. Hence, competing claims at the local level are not simply a matter of tensions between supply and demand affected by (inter)national policies, but also include complex processes related to political, economic and social power balances among stakeholders.

Figure 1.2 The inter-linkages between global, regional and local forces and policies structuring the space within which local response and decisions on land use can be generated



1.4 Examples of land use dynamics

A few examples can illustrate the complexity of drivers and their impacts on land use on the one hand and responses to mitigate competing claims on land on the other hand. These examples show that competing claims are the result of a mix of local, national and international drivers, which implies that responses to increasing competing claims should not be limited to the international or local area, but should be a coordinated action of stakeholders at local, national and international level.

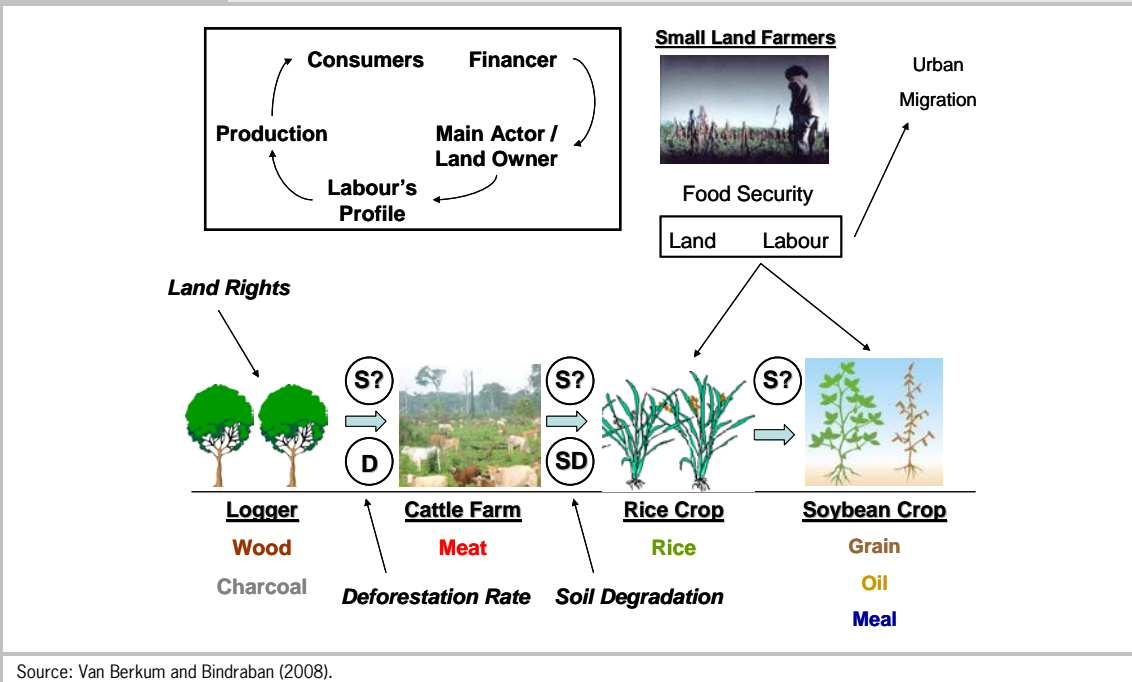
Dynamics of land use in Brazil

A schematic overview of the dynamics in land use, presented in figure 1.3, shows the chain of activities that affects land use changes in Brazil's Amazon Biome. The example is about changing non-agricultural land into agricultural land.

At first, forest or savannah land is cleared for wood and charcoal by national and international loggers. Concessions are given by the government and in several cases illegal logging has been reported. Much public land has no land title and loggers may simply claim land. Logging for timber generally does not lead to a complete clearing of the land as useable trees are extracted only. The demand for wood and related products is expected to grow, with Asia increasing its imported share, while Brazil takes a more important role in export. Subsequently, the land is further cleared and converted into grassland by sowing with grass species like *Brachiaria* that performed well under the prevailing soil conditions for cattle raising to produce meat. Generally, investments to maintain soil quality are not made. The stocking density remains low and the productivity of the grassland itself is subject to degradation. Improvement of productivity per hectare would be obtained with high investments to increase the pH (i.e. reduce the acidity) of the soils by liming and to improve the P-status by fertilisation, but appears economically unfeasible. It remains attractive therefore to expand into new lands as profit margins are higher, also because public land is cheaply acquired.

Figure 1.3

Land dynamics in Brazil



Source: Van Berkum and Bindraban (2008).

After 3 to 5 years, these grazing lands may be converted into cultivation land. For that, trunks are burned and roots uprooted. The first arable crop to be grown is dry land rice. After 2-3 years, other crops including soybean generally occupy the land. For these crops, the lands should be well cleared to allow mechanical operations.

Due to this complex process with multiple actors, multiple products and various phases, no direct claim can be made between the rate of deforestation and the various activities. It might be argued that it is more related to charcoal production, or cattle ranging, rather than to soybean production for instance. Still the overall pressure on the agricultural frontiers in Brazil results from these various claims and pressures on the forest, savannah and land resources. Soy, however, is believed to be the single most important economic activity justifying the large investments in massive infrastructural developments. There are indications though that these agricultural activities are indirectly related, such as a close correlation found for soybean and deforestation. It remains important therefore to monitor these dynamics and to identify a package of measures that impact on all the activities. It is also for the ambiguous relations that individual or private enterprises can claim not to cause deforestation, neither can they prove, when required for purposes of certification, that they are not indirectly causing deforestation.

Land dynamics in Central Africa

Across most of Central Africa (here defined as Sub-Sahara Africa except Southern Africa) increased agricultural production has been achieved by bringing more land into production, where most of the expansion has been at the expense of natural vegetation cover. Crop land expansion is dominated by smallholders who, in traditional shifting cultivation production systems, and under the pressure of increasing population size and increasing dietary requirements, have found themselves returning more and more often to the same area. Increasing livestock densities and increased cropping frequencies of newly cleared land, without a proper rehabilitation of the soils used for agricultural production, lead to unsustainable soil degradation. Usually, cultivation started in the wetter and more fertile areas, but currently expansion towards areas with reduced suitability for agriculture production is the logical trend.

In many countries in the region land tenure is not clear or disputed, with customary rights that are sometimes overlapping or centrally controlled access rights. As a result, farmers appear to have little in-

centives to make improvements, like irrigation systems, that need large investments. Also due to unpredictable weather conditions, such as droughts and flooding leading to crop failure, the risk involved in investing in management measures such as fertilisation or pest and disease control, has become too large to be profitable on the short run.

In Ghana, the forest cover declined significantly over the last decades. Forests produce charcoal and timber to satisfy domestic and international demand. Deforestation however also affects those people who depend on typical forest food products such as bush meat, forests fruits and fuel wood for cooking: their livelihood and hence food security may be threatened if tree cutting continues. At the same time, efforts to maintain forests, like with FLEGT (EU-Ghana) or the establishment of the transfrontier Great Limpopo National Park between South Africa, Mozambique and Zimbabwe may also have a detrimental effect on the livelihood of people living in these savannah and forest areas if the management of the area according to such agreements implies a different way of living or would mean resettlement of locals.

1.5 Solutions

A solution to the global problem of feeding the world in a sustainable way lies in local development, where obstacles towards increasing productivity should be removed and competing claims on natural resources be tackled. Aggregate measures on deforestation and human activities require coordination at governmental level, while the international community should create conditions to prevent undesired developments.

Solution seeking through negotiations including all stakeholders

Overall the global drivers identified result in a strongly increasing demand for food and other land-based natural resources and the way they are produced and delivered. The increasing pressure on land and its natural resources and resulting competition on land appears to be the result of many targets and priorities that, in many cases, conflict with each other.

It is very difficult to design global responses that are effective in local situations. Global trends and local dynamics, although strongly interconnected, do not follow the same logic and are hard to capture in linear causalities. Much depends on the functioning of local institutions, and power relations between stakeholders, each of which has their own interests, and are embedded in trans-local networks of an economic and political nature.

Solutions can be reached by agreeing on common targets and how to achieve them. Negotiation platforms like round tables are an important basis for coming to agreements on these issues. However, such agreements may lead to the displacement of the problem to other areas. For instance, the moratorium on expansion of soy in the Amazon region, as agreed on within the round table on sustainable soy, has resulted in increasing expansion of soy into natural areas in Paraguay.

The idea that negotiation between stakeholders is necessary is very important in the concept of Competing Claims. However, our case studies showed that negotiation is not often explicitly used by stakeholders as the approach for solving the conflicts of competing claims on land or water resources. This may be due to complexity (it is difficult to identify stakeholders) but may also be political as some stakeholders may have an interest in excluding others purposely. Much depends on the specific situation and it is questionable whether one approach would fit in all situations. Besides, in practice there is not yet much experience on how to do this process of negotiation at different levels.

Solutions should focus on sources of competition

Solutions may be reached at different levels and at different ends of the value chains of natural resources. These solutions should be focused on the sources of competition:

1. Demand of resources, which is determined by the various, often competing objectives or needs of different stakeholders. Working on the demand side may also imply that in order to resolve competing claims on resources in a certain region in a (developing) country, international demand for products from that region will have to be decreased or regulated, or that ways have to be found to use the re-

source more efficiently (for example fewer losses in transport and processing of the raw material, or more emphasis on recycling of materials in consumer countries). In order to make such changes it is necessary in developed countries to change consumer behaviour and behaviour of food suppliers. Making these groups more sensitive for sustainability issues is a fairly new research topic.

2. Production, which should be more efficient and make use of natural resources. More can be produced in the same or even smaller areas, reducing pressures on land. Also, by combining uses and development and integrated land-use planning with more ecological synergy among uses, the incompatibility and competition between different land uses will be reduced.
3. Streamlining institutional processes and regulations of land-use planning. While this may result in a geographic shift of the problems, combined with increased productivity, the ultimate trade-off can be more transparently negotiated and responsibilities can be shared.

Generally, biodiversity and the ecosystem goods and services it enables are considered a lower priority than food security. This is often presented as an obvious choice. Yet, biodiversity and ecosystem services play an essential role in the livelihoods of many people and are crucial for the functioning of ecosystems, including healthy agricultural systems. Negative feedback on agricultural productivity can be expected if essential services get lost. One could conceive different ways to reduce the impact of increasing agricultural production on biodiversity and ecosystem services. Currently there is a discussion on what works better, sharing of functions with extensive farming that has a lower impact on biodiversity but needs larger areas to fulfil the demand for food and other agro-commodities (and potentially leading to new competing claims), or intensifying farming on current agricultural areas allowing to spare natural systems, but with a bigger impact around these agricultural lands. We believe, however, that there is no single best solution and that there is a need for integrated spatial planning of these landscapes. Depending on the ecological and social conditions more intensive agriculture could be planned on fertile areas with limited impact on surrounding ecosystems while in other parts of the landscape where potentially more adverse effects are expected one could plan more extensive/organic agriculture, agro-forestry etc. In all cases it pays to explicitly take into consideration in the planning the services different ecosystems and landscapes provide.

Role of technological change and institutions

In thinking about solutions on how to ease competing claims on land, the use of existing technology and technical innovations may play an important role. There are yet many questions that need to be addressed. There are two important issues. First, what are the agro-eco-technological options and the economic conditions under which technology development can help to ease the competing claims on land (e.g. increasing land productivity & water use efficiency, reducing high global levels of food waste, applying livestock yield increasing investments); and, second, which institutions are required to facilitate or help facilitate transitions to a more sustainable production system (e.g. government interventions, property rights, access to knowledge, credits etc.), and under what conditions would these institutions be successful?

These aspects are hardly addressed in a structured way and would need the insights of several scientific disciplines. Bindraban et al. (2009) point at the potentials in Africa and propose a package of related measures in the biophysical, social-economic and institutional area that should help to increase the agricultural productivity in that continent. The World Bank (2007) addresses the importance of institutions for a proper functioning of the market, taking into account the respective role of government and private actors in the economy. With key references mentioned above, this literature may give ample thoughts on policy options that can facilitate efficient and effective use of new technologies that help easing competing claims on land and lessen the pressure on ecosystem goods and services. What is also clear in this context is that there is a need for a significant increase of public expenditures on agricultural research and the implementation of resource use efficient production systems and technologies, in order to make agricultural productivity significantly higher, especially because investments in public (and private) agricultural research impact after a long time lag.

Towards an action perspective of managing competing claims

Until now the concept of 'competing claims' has been largely used as an *analytical framework*, to better understand today's problems of unsustainable resource exploitation, land degradation, deforestation, biodiversity loss and poverty. The concept, however, could also be used as a *management framework*: visualising the competing claims of stakeholders and the power dynamics between them, allows for a better management of conflicts or emerging conflicts, and puts in place the necessary negotiation frameworks and skills to balance local entitlements, national development interests and global concerns with sustainable utilisation strategies.

This action perspective of managing competing claims will depend very much on the analysis of context and power relations between the stakeholders and the availability of information and knowledge. Generally we can distinguish five response categories: regulatory responses, market incentives, innovation, capacity development, and participatory approaches. These categories are neither presented as stand-alone approaches nor are they presented as the predominant domains of government, private sector, academia, civil society, consumers and local communities respectively, but more so as elements of integrated innovation and change processes. Rather, innovation and change needed to deal with competing claims towards sustainable development is by definition a multiple stakeholder process. This also implies that solutions to the problem of competing claims have to be found at different levels, e.g. in countries where products, originating from the area affected by the competing claims, are processed and consumed.

Regulatory approaches - While rules and regulations governing the natural resource sectors sometimes cause conflict (by design or by not being implemented), a regulatory framework can also contribute to balancing competing claims. Examples are policies for more equitably sharing costs and benefits of resource conservation. Another example is the purchase of land for conservation (a compensation mechanism) or similarly the 'hiring' of land and resources for conservation through conservation contracts. Such a contract establishes a direct link between the wish of an interested party to conserve biodiversity and the payment to resource managers (e.g. a government authority, a community, an individual farmer) to provide a conservation service.

Interesting examples of regulatory approaches are Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA). These are instruments to balance the impact of - often industrial - activities on the environment and sometimes on society as a whole (social and environmental impacts combined). These instruments still take one sector as the starting point and look for ways to diminish and/or mitigate negative impacts on other sectors. However, they could be useful in certain situations of 'competing claims'.

Market incentives - The market demand for environmental goods and services may offer opportunities for more equitable sharing of access to and control over the use of natural resources (balancing competing claims). International consumer demand for *fair trade*, the *green economy*, and *responsible tourism* is prompting a critical analysis of 'unfair' claims and offers so-called bonus prices for the opposite, bringing along market-driven innovation and change towards more sustainable development ('people, planet and profit'). Furthermore, the above described market demand is sometimes accompanied by a changing outlook of the (international) corporate sector through *social responsibility agreements*, the *social entrepreneur* and corporate global responsibility.

Innovation - Competition between claims on land and resources could benefit from both technical and institutional innovation. Both the scientific community (through research) and the stakeholders (through social learning processes) have the potential to balance claims on these resources by increasing yields, improving harvesting techniques, improving farming systems, introducing new natural resources management mechanisms, benefit sharing mechanisms, information management systems, decision-making mechanisms, etc. But innovation can also take place further in the value chain, for example by diminishing losses during storage and processing, and by recycling materials in consumer countries (if applicable). Such in-

vestments are contributing to 'green growth' meaning fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our wellbeing relies (see OECD, 2011, for a broad policy toolkit for green growth).

Capacity development, including empowerment and advocacy. There are no competing claims without claimants, and there are always claimants who are better at claiming than others. Any attempt to balance this process is to build the capacity of stakeholders, not only of 'losers', but also of 'winners' who may be unaware of the consequences of their claim-making power. Training and organisation development are key ingredients of capacity development, the process by which individuals, organisations and institutions enhance and organise their systems, resources and knowledge. The degree of capacity development is reflected in their abilities, individually and collectively, to perform functions, solve problems and achieve objectives. Capacity development is therefore an important ingredient of empowerment. And, when specifically targeted to marginalised groups, an important element of advocacy strategies. Capacity development may also imply raising of awareness of food suppliers and consumers in developed countries on sustainability issues and the need to get raw materials from sustainable sources.

Participatory approaches - Competing claims on natural resources are largely man-made rather than caused by resource scarcity. Addressing these claims and finding solutions may benefit from participation of stakeholders (from local to global). Jointly made decisions may be more effective and sustainable in the long run than formal top-down approaches. Participatory approaches such as joint visioning, joint problem analysis and joint scenario development generally help to inform and more equitably balance decision-making, invoke collaboration and institutionalise solutions. More egalitarian and network-based communication among all parties for example at community level, in producer associations, and at landscape level may increase acceptance and balancing of each other's competing claims.

In developed countries governments, NGOs and the food processing industry may work together in order to make food supply more sustainable.

1.6 Concluding remarks

Competition on land for food and biodiversity is subject to a complex process of global, regional and local forces and policies affecting demand for and supply of natural resources. This implies that responses to increasing competing claims should not be limited to the international or local area but should be a coordinated action of stakeholders at local, national and international level.

In this essay we highlighted the position of various groups in society that are affected by the increasing claims on land and water. Whatever solution or policy intervention is used to address competing claims on natural resources, there will always be conflicting interests among the stakeholders. The key to reducing these conflicts is to promote a dialogue with the various stakeholders in order to bring forward possible solutions to reduce trade-offs between claims on natural resources. This calls for a strategy and an operational plan to improve sustainable food production in developing countries where serious competing claims on natural resources have been identified. While this requires action at governmental level in the first place, the international community should create conditions that facilitate sustainable food production and conservation of global biodiversity.

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Part 2

World Food Programme in Africa and Loss of Biodiversity: Are there ways to improve the relationship?¹

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15 August, 2012

2.1 Introduction and approach

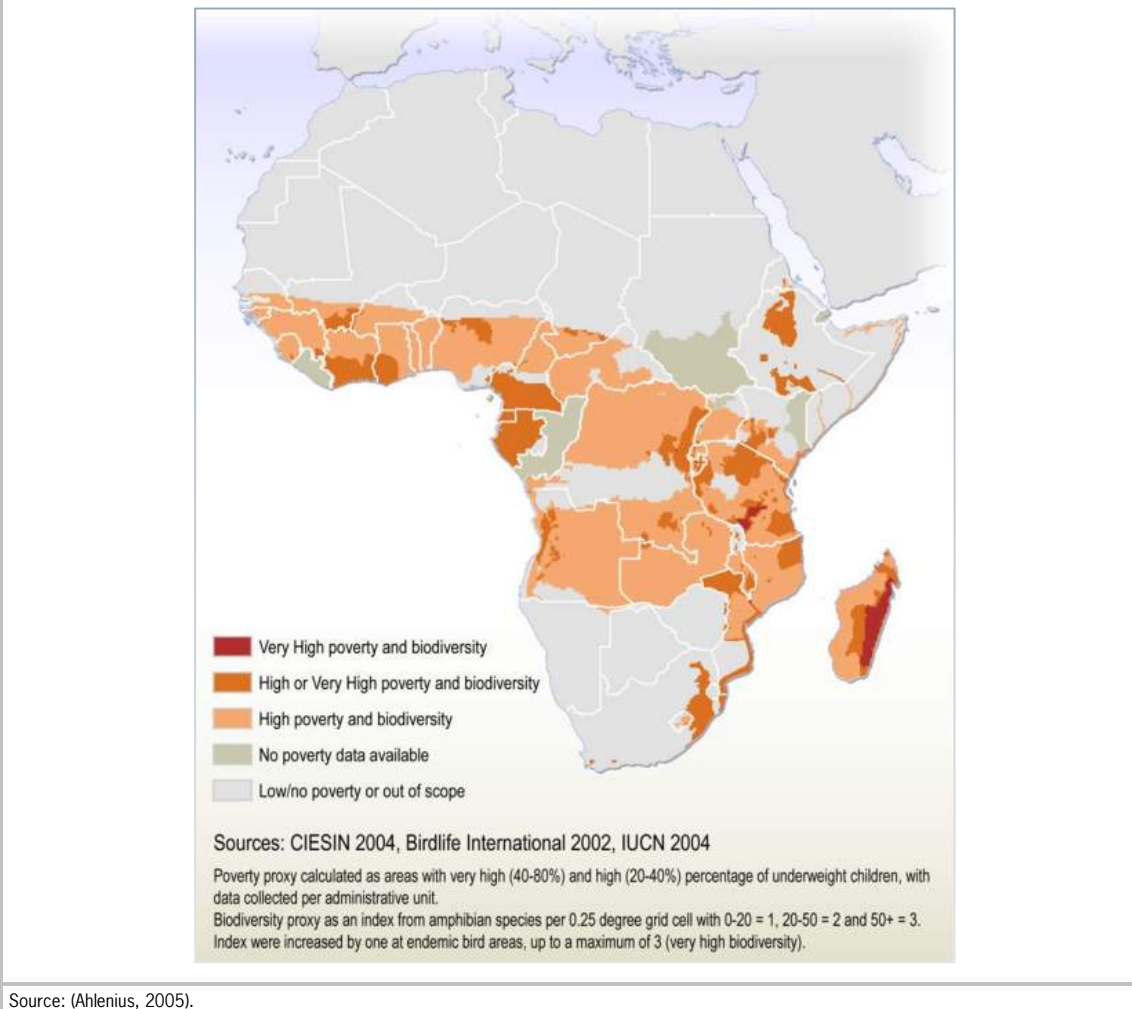
2.1.1 Objective

One of the biggest challenges facing global society today is the widespread and growing presence of hunger and food insecurity. The explorative study by the Netherlands Environmental Assessment Agency (Tekelenburg et al., 2009) concludes that decreasing poverty usually coincides with decreasing biodiversity, creating a 'win-lose' situation. Overexploitation can lead to a collapse of the system and an increase in poverty with even more loss of biodiversity, and become a 'lose-lose' situation. Reducing poverty while conserving biodiversity - a 'win-win' - can be achieved on a local scale. However, such a positive impact is hard to realise when all trade-off effects elsewhere and in the future are considered.

Everywhere in the world there are areas in which biodiversity is threatened in relation to poverty. A map has been produced from a simple site selection using poverty data on a first level administrative boundary level together with endemic bird areas and amphibian species (see Map 1). Areas where a high percentage of underweight children - used as a proxy for poverty - coincide with a high occurrence of amphibian species and endemic bird areas - a proxy for biodiversity - may indicate areas in which poor people likely have no other choice than the unsustainable extraction of resources, in turn threatening biodiversity.

¹ This research is part of the research project BO-11-011.01-000 on International Biodiversity and was financed by the Ministry of Economic Affairs, Agriculture and Innovation (EL&I).

Map 2.1 Relationship between biodiversity and poverty in Africa



The World Food Programme (WFP) was jointly established by the United Nations and the Food and Agriculture Organisation of the United Nations (FAO) to defeat hunger in the world by providing food aid. This organisation spends more than 50% of its funds in Africa.

The objective of this brief paper is to give an overview of the activities of the World Food Programme in Africa that may impact biodiversity.

2.1.2 Approach

This desk research is based on evidence analysis. The publicly available documents at the World Food Programme website (www.wfp.org) have been studied. Among those are Annual Reports, Management Reports for various years, Mission Statements, Country Programmes Reports. These documents have been screened regarding potential link to biodiversity. The activities of the WFP in Africa have also been searched for and are presented in the form of budgetary allocation in Appendix 1 for the year 2010.

This report describes:

- The WFP policy on biodiversity;
- The WFP activities in Africa;
- Various activities and programmes of the WFP impacting biodiversity;
- Opportunities to strengthen the WFP's impact on biodiversity conservation.

2.2 World Food Programme: structure and programmes

2.2.1 Purposes and Strategic Objectives

Following the General Regulations (WFP, 2012e), the World Food Programme (WFP) is jointly established by the United Nations and the Food and Agriculture Organisation of the United Nations (FAO). All three organisations work together to defeat hunger in the world.

The purposes of WFP are:

- a) to use food aid to support economic and social development;
- b) to meet refugee and other emergency and protracted relief food needs;
- c) to promote world food security in accordance with the recommendations of the United Nations and FAO.

WFP's strategic plan for 2008-2013 lays out five Strategic Objectives (SO) and all work is geared towards achieving them. Each objective has goals and main tools to operationalise the objectives. They are:

1. Save lives and protect livelihoods in emergencies

Goals

1. To save lives in emergencies and reduce acute malnutrition caused by shocks to below emergency levels.
2. To protect livelihoods and enhance self-reliance in emergencies and early recovery.
3. To reach refugees, internally displaced persons (IDPs), and other vulnerable groups and communities whose food and nutrition security has been adversely affected by shocks.

Main Tools

- General and targeted food assistance and emergency nutrition interventions.
- Emergency needs assessments.
- Emergency logistics, special operations, and information and communications technology (ICT) capacity.
- United Nations cluster leadership for logistics and emergency ICT.

2. Prevent acute hunger and invest in disaster preparedness and mitigation measures

Goals

1. To support and strengthen capacities of governments to prepare for, assess and respond to acute hunger arising from disasters.
2. To support and strengthen resiliency of communities to shocks through safety nets or asset creation, including adaptation to climate change.

Main Tools

- Vulnerability analysis and mapping.
- Early warning products and tools.
- Disaster preparedness and mitigation programmes.
- Programmes to help communities reinforce their essential food and nutrition security systems and infrastructures, as well as their adaptability to climate change - including voucher, cash and food-based safety nets.

3. Restore and rebuild lives and livelihoods in post-conflict, post-disaster or transition situations

Goals

1. To support the return of refugees and IDPs through food and nutrition assistance.
2. To support the re-establishment of livelihoods and food and nutrition security of communities and families affected by shocks.
3. To assist in establishing or rebuilding food supply or delivery capacities of countries and communities affected by shocks and help to avoid the resumption of conflict.

Main Tools

- Targeted programmes that facilitate the reestablishment of livelihoods.
- Special operations to rebuild essential hunger-related infrastructure.
- Food distribution programmes that facilitate re-establishment of food and nutrition security.
- Voucher and cash-based programmes that facilitate food access.
- Capacity strengthening for the re-establishment of community service infrastructure.

4. Reduce chronic hunger and undernutrition

Goals

1. To help countries bring undernutrition below critical levels and break the intergenerational cycle of chronic hunger.
2. To increase levels of education and basic nutrition and health through food and nutrition assistance and food and nutrition security tools.
3. To meet the food and nutrition needs of those affected by HIV/AIDS, tuberculosis and other pandemics.

Main Tools

- Mother-and-child health and nutrition (MCHN) programmes.
- School feeding programmes.
- Programmes addressing and mitigating HIV/AIDS, tuberculosis and other pandemics.
- Policy and programmatic advice.

5. Strengthen the capacities of countries to reduce hunger, including through hand-over strategies and local purchase

Goals

1. To use purchasing power to support the sustainable development of food and nutrition security systems, and transform food and nutrition assistance into a productive investment in local communities.
2. To develop clear hand-over strategies to enhance nationally owned hunger solutions.
3. To strengthen the capacities of countries to design, manage and implement tools, policies and programmes to predict and reduce hunger.

Main Tools

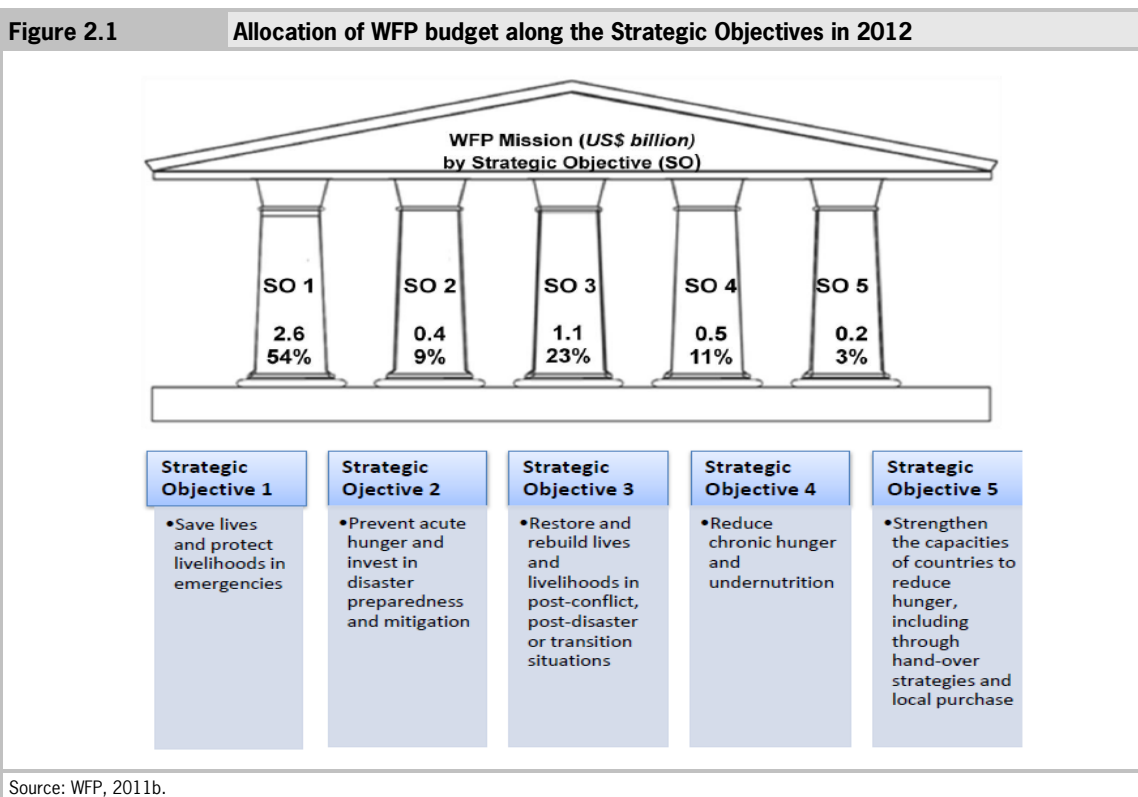
- WFP's procurement activities.
- Hand-over of WFP hunger tools.
- Policy and programmatic advice.
- Advocacy.

WFP relies entirely on voluntary contributions to finance its humanitarian and development projects. Donations (governments, corporations, private) are made in three ways: 1) cash, 2) food such as flour,

beans, oil, salt and sugar; 3) items necessary to grow, store and cook food - kitchen utensils, agricultural tools, warehouses.

In 2012 the allocation of the total budget is as presented in Figure 2.1. The WFP Strategic Plan (2008-2013) reemphasises WFP's mission in preventing hunger. Strategic Objective 2, 'Prevent acute hunger and invest in disaster preparedness and mitigation measures' is the one that focuses on long-term adaptation strategies, including those to adapt to climate change. This Strategic Objective targets food assistance rather than food aid, the trend that in the communication of the WFO is presented as one of the core changes: moving away from food aid towards food assistance. The 9% of funds allocated to the SO2 is still rather low in comparison to the 91% allocated to food aid.

The Netherlands is ranked 13 based on the five-year basis (WFP, 2012b). In the period 2007-2011 the Dutch government altogether has donated USD417,987,604 (about €350m). The contribution that the Netherlands donates to the WFP is not earmarked (van Zwieter, 2012). The WFP decides on the allocation of funds in accordance with the Strategic Goals and the approved Management Plan (WFP, 2011b).



2.2.2 Operations

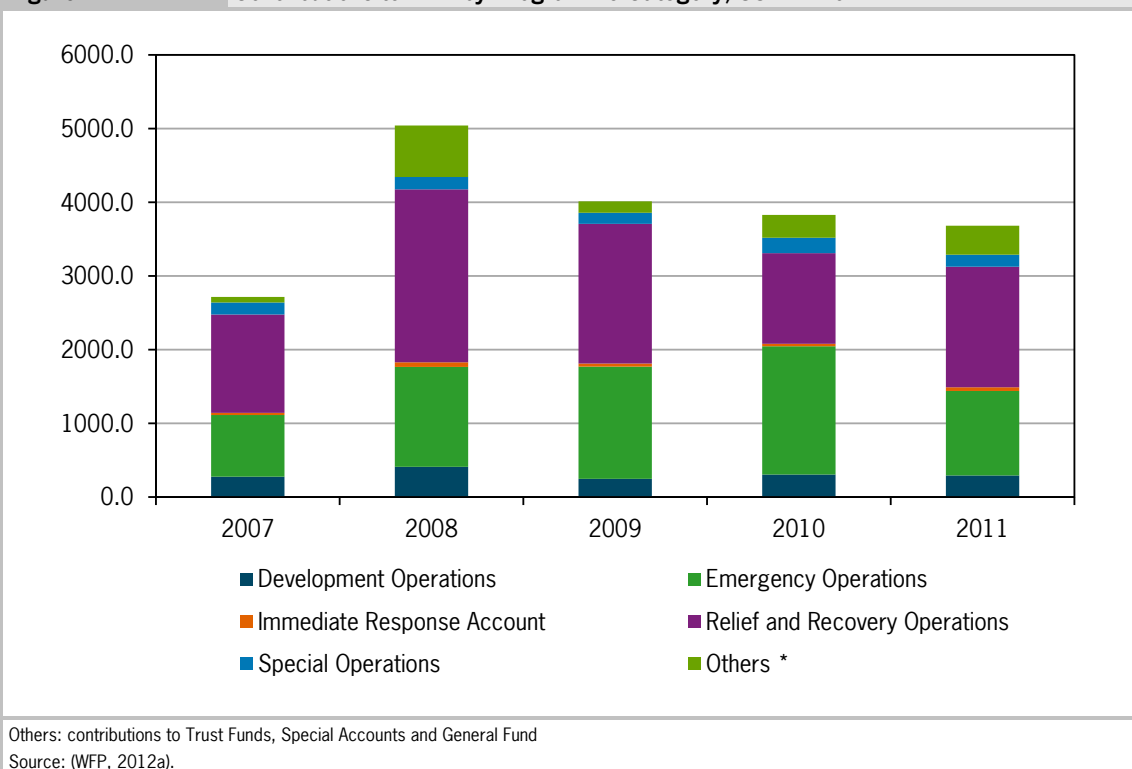
WFP has 4 major types of operations (see also Figure 2.2 for allocation of expenditures):

1. Emergency operations (EMOPs) provide immediate assistance. WFP's emergency operations cover three main kinds of crises:
 - Sudden disasters: natural disasters which affect food access and/or cause population displacements, and which require special UN coordination procedures.
 - Slow-onset disasters: these are usually droughts and crop failures.
 - Complex emergencies: these can involve conflict, widespread social and economic disruption and large population displacements and usually involve UN coordination.
2. WFP's Protracted Relief and Recovery Operations (PRRO) help sustain disaster-hit communities as they re-establish livelihoods and stabilise food security. A PRRO is drawn up when it becomes clear that the

24-month assistance provided under a WFP emergency operation (EMOP) will not be enough. WFP's PRROs can include one or more of the following components. Relief and rehabilitation operations (PRROs) rebuilt after an emergency may include:

- Food for education and training: WFP supplies food to encourage/support women, teenagers and ex-combatants as they learn new skills. The agency also supports the education of children in food insecure communities by providing nutritious meals at school as well as take-home rations for schoolchildren and teachers.
 - Extended relief: provided for returning refugees, internally displaced people, the acutely malnourished and vulnerable households, such as single parent families or ones in which the normal breadwinners are suffering from sickness or disability.
 - Relief for refugees: assistance for refugee populations, who live in a host area for a period of years without achieving self-sufficiency. Most of the food that feeds refugees in camps is supplied by WFP.
 - Food for recovery: through the establishment of food-for assets programmes, PRRO's provide food for people whilst they rebuild damaged infrastructure and replant crops.
3. Development operations (DEVs) improve food security for communities
WFP makes sure its aid is concentrated on pre-identified, food-insecure areas inside recipient countries
- usually rural areas of low productivity, areas prone to natural disasters and areas vulnerable to periodic food shortages.
4. Special operations (SOs) create the specific infrastructure needed for EMOPs. Special Operations are short-term in nature and usually complement emergency operations or longer rehabilitation projects (PRROs). Special operations are funded by donor appeals carried out separately from the plea for funds covered under an EMOP or a PRRO.
- Special operations can cover:
- repairs to roads, bridges, railways;
 - repairs to airports, port infrastructure and equipment;
 - intermittent airlifts;
 - provision of common logistics services including Joint Logistics Centres and communications initiatives.

Figure 2.2 Contributions to WFP by Programme Category, USD million



2.2.3 WFP in Africa

Almost all of the world's undernourished people live in developing countries. WFP's geographical coverage mirrors this fact: operations in Asia and East and Central Africa account for most of the 2012 operations (WFP, 2011b). WFP spends more than 50% of its global assistance in Africa (WFP, 2011a). In 2010, out of the total USD4bn expenditure, more than USD2.3bn was allocated to Africa, benefitting the regions as following: 23.7m to East and Central Africa, 16.3m to West Africa, 5.6m to Southern Africa and 0.5m to North Africa (WFP, 2011a).

WFP is the world's biggest buyer of food for humanitarian operations and it is the largest single purchaser of food assistance in Africa. In 2011 about 713,654 metric tons of commodities were procured in Africa with the total value of US\$ 305,170,553, which is about 25% of the global food purchases. The interactive map of Food Procurement provides further details on food origin and procurement flows (see also http://one.wfp.org/operations/Procurement/food_pro_map_11/foodmap.html).

Although in 2010 the WFP made the majority of its food purchases in Asia, between 2005 and 2008 most food purchases were made in Africa. Ethiopia was the country where WFP procured the most in value terms in Africa in 2010. South Africa and Uganda also ranked among the top 15 countries for WFP food purchases.

2.3 World Food Programme and Biodiversity

2.3.1 WFP policy on biodiversity

Following the official documents of the WFP it can be concluded that biodiversity is not in the WFP Mandate. The WFP does not have a notice of biodiversity, ecosystems, protected areas in the documents like Annual Plan, management Report, Country Programmes, nor does it deliver search results on these keywords within its website. The WFP did not participate in the International Year of Biodiversity in 2010 (CBD),

2012). According to the Dutch Ministry of Foreign Affairs (van Zwieter, 2012), the WFP does not get involved in discussions regarding the safeguarding the biodiversity. Its unspoken policy is to provide food aid without harming biodiversity.

Indirectly the WFP supports projects to protect and conserve biodiversity (see Box 2.1-2.3). However the support is not done through structural programmes.

Box 2.1	WFP supports a reforestation project to protect and conserve the biodiversity in Philippines
<p>'The Liguasan Marsh is a 288,000- hectare marshland which plays a vital role in <i>maintaining the ecological balance</i> of the Central Mindanao region in the southern Philippines. The communities surrounding the marsh, together with their local government, has embarked on a reforestation project to protect and <i>conserve the biodiversity of the marsh</i> - and WFP was there to support them. A 288,000- hectare marshland plays a vital role in maintaining the ecological balance of the Central Mindanao region in the southern Philippines. The marsh is threatened by deforestation and other unsustainable practices which are resulting in the rapid decline of many species of fish, trees, flora and fauna. As a result, the community feels strongly regarding the need to protect and conserve the biodiversity of the marsh. The Department of Environment and Natural Resources and the Department of Agriculture initiated a reforestation project in the area that aimed to establish 138 household nurseries. <i>The World Food Programme (WFP) supported this local initiative by providing rice to the project's participants, as they planted indigenous seedlings that will help rebuild the environment.</i> Over 1,200 households took part in the effort, and Butotong herself received 5 sacks of rice as an incentive to participate in this community project. The rice helped support her family's food needs.'</p>	
Source: WFP (2012c).	

Box 2.2	Recycling to fight hunger and help the environment in DR Congo
<p>'KIBUMBA, Eastern Democratic Republic of Congo - In North Kivu, the World Food Programme feeds the hungry but also contributes to the <i>protection of the environment</i> and creates jobs through a recycling project. A briquette initiative was launched in August 2008 by the Congolese Wildlife Authority (Institut Congolais pour la Conservation de la Nature) to create job opportunities and <i>to protect the nearby Virunga National Park</i>. This park, which has been designated a World Heritage Site by UNESCO, is home to a wide variety of animals, including rare mountain gorillas. <i>The recycling project helps to stop deforestation</i> and improves livelihoods around the park. The paper mostly coming from used WFP bags collected at two food distribution sites is recycled to make wood briquettes. These briquettes are a good substitute for charcoal and firewood and are used in stoves. WFP fabric bags are also recycled and used to pack and transport the briquettes. Some of the fuel is used to cook meals for children in primary schools supported by WFP and the rest is sold at the local market.'</p>	
Source: WFP (2012c).	

Box 2.3	Ethiopian project prevents hunger by managing land
<p>'The MERET project, run by the Ethiopian government and WFP, helps poor farmers manage land better, so that it becomes more productive and does not become desert. The MERET project (Managing Environmental Resources to Enable Transition) enables chronically food-insecure communities participate in <i>environmental rehabilitation and income generating activities</i> designed to improve livelihoods through the sustainable use of natural resources. Among the programme's many activities are measures to build and rehabilitate feeder roads, <i>reforest barren hillsides, restore springs and rainwater ponds, and reconstruct and refurbish agricultural terraces.</i> Among the programme's many achievements, not least was the reclamation of more than 86,000 hectares of degraded land.'</p>	
Source: WFP (2009).	

2.3.2 Strengthening the emphasis of the WFP on biodiversity: Potential actions

2.3.2.1 Communication

From the evidence presented above it can be concluded that activities that WFP initiates and completes do contribute to safeguarding biodiversity (mainly agricultural biodiversity). This is however not clear from pol-

icity documents of the WFP and thus this contribution could be emphasised stronger in their communication.

Appendix 1 presents a list of programmes realised in Africa in 2010¹. The food-for-work and food-for-asset programmes (FFW/FFA) that target Land, Water development and improvement, Agroforestry, Agricultural Production Promotion are examples of biodiversity-safeguarding activities. Such activities are strongly represented under Strategic Objective 2 (76% of its total) that targets food assistance (long-term impact) rather than food aid (short-term impact).

Even stronger, applying the criteria that support the OECD indicator on aid related to bio-diversity (as presented in Box 2.4), the above-mentioned activities of the WFP can certainly be classified as targeting the biodiversity conservation.

Box 2.4 Aid targeting the objectives of the Convention on Biological Diversity: Definitions	
DEFINITION An activity should be classified as bio-diversity-related	It promotes at least one of the three objectives of the Convention: the conservation of bio-diversity, sustainable use of its components (ecosystems, species or genetic resources), or fair and equitable sharing of the benefits of the utilisation of genetic resources.
CRITERIA FOR ELIGIBILITY	The activity contributes to: <ul style="list-style-type: none"> - protection or enhancing ecosystems, species or genetic resources through in-situ or ex-situ conservation, or remedying existing environmental damage; or - integration of bio-diversity concerns with recipient countries' development objectives through institution building, capacity development, strengthening the regulatory and policy framework, or research; or developing countries' efforts to meet their obligations under the Convention.
EXAMPLES	Integration of biological diversity concerns into sectoral policy, planning and programmes; e.g.:
Typical activities take place in the sectors of: <i>Water and sanitation</i> <i>Agriculture</i> <i>Forestry</i> <i>Fishing</i> <i>Tourism</i>	<ul style="list-style-type: none"> - Water resources protection and rehabilitation; integrated watershed, catchment and river basin protection and management; - Sustainable agricultural and farming practices including substitution of damaging uses and extractions by out-of-area plantations, alternative cultivation or equivalent substances; integrated pest management strategies; soil conservation; in-situ conservation of genetic resources; alternative livelihoods; - Combating deforestation and land degradation while maintaining or enhancing bio-diversity in the affected areas; - Promotion of sustainable marine, coastal and inland fishing; - Sustainable use of sensitive environmental areas for tourism.

Source: adopted from (OECD, 2009).

2.3.3.2 Partnerships and Education

FAO - one of the three Rome-based organisations dealing with hunger issues - in this respect is an organisation that focuses on safeguarding biodiversity and locates this Global Issue on the front page:

<http://www.fao.org/biodiversity/en/>. The work of WFP on safeguarding biodiversity could be made more visible through liaison with partner organisations like FAO that focus on conserving the biodiversity.

Since WFP is very strong in supporting schooling, one can think of reaching long-term biodiversity protection goals through trainings. Increasing awareness of biodiversity through the introduction of relevant concepts can make difference in the future when taught at young age.

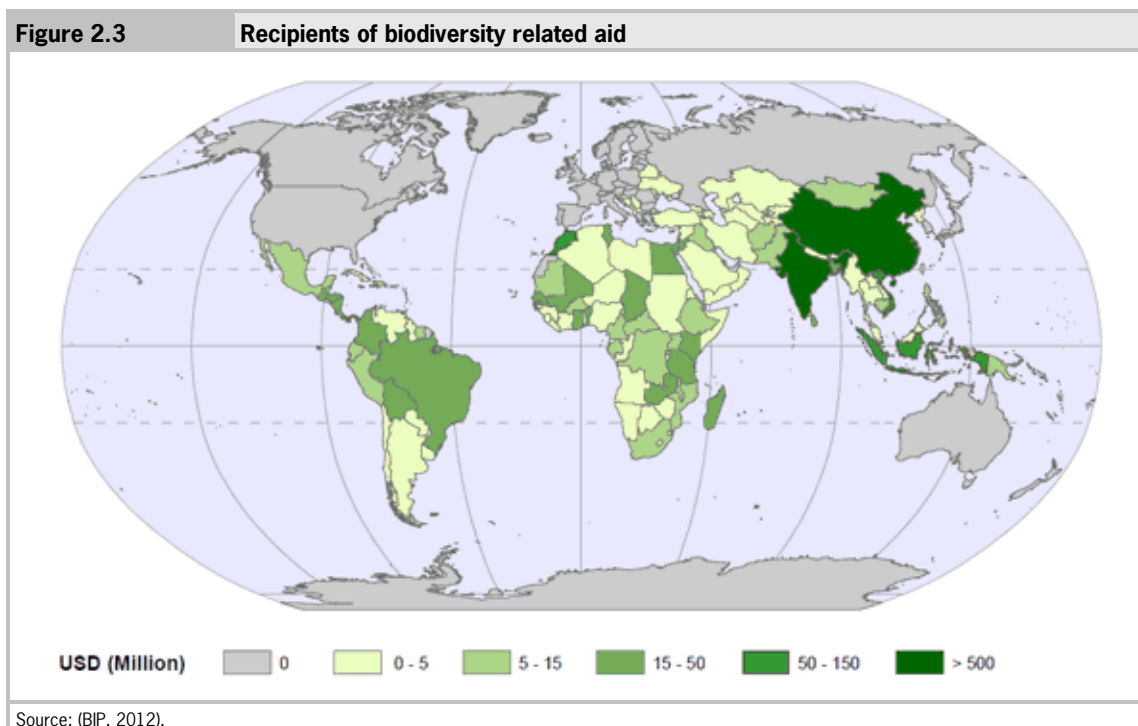
The involvement of the Netherlands in safeguarding biodiversity is prominent through a different channel.

The Official Development Assistance (ODA) indicator provides a global picture of biodiversity related international aid (BIP, 2012). Biodiversity-related aid is defined as activities that promote at least one of the three objectives of the Convention: the conservation of biodiversity, sustainable use of its components

¹ The Purchase for Progress (P4P) programme is not visible on the list of expenditures however according to WFP (2011a), by the end of 2010, WFP had contracted almost 130,000 tons of food under P4P in 15 African countries.

(ecosystems, species or genetic resources), or fair and equitable sharing of the benefits of the utilisation of genetic resources.

The current indicator (see Figure 2.3) shows biodiversity-related aid to be of the order of USD 3 billion per year which represents 2-3% of total ODA. The donorship of the Netherlands to bio-diversity aid is rather substantial. The Netherlands is the third highest donor contributing 9.2% of the global total ODA for 2005-2007.



2.4 Concluding remarks

It can be concluded that biodiversity is not in the WFP Mandate. The WFP does not have a notice of biodiversity, ecosystems, protected areas in its strategic documents and does not use the concept of biodiversity in its communication.

Indirectly, however, the WFP supports the projects protecting and conserving biodiversity. Box 2.1 illustrates how through providing rice to local communities in Philippines the biodiversity of a local marsh was helped to be conserved. Box 2.2 points how recycling project helps protecting the National Park in DR Congo from deforestation. Box 2.3 refers to land management measures such as re-forestry barren hillsides, restoring springs and rainwater ponds, rebushing agricultural terraces in Ethiopia that overall help to restore the environment and biodiversity.

The current relationship between the activities of the WFP and biodiversity can be improved by:

- Emphasising the link between biodiversity and adaptation to climate change that is promoted under Strategic Objective 2.
- Intensifying agriculture in a sustainable way. Food for Assets programme to ensure sustainable practices in agricultural/crop production. Promotion of climate-smart land use practices.
- Keeping trade flows as local as possible. Purchase for Progress Initiative that started with pilot countries in Africa in 2010 aims at purchasing food from local farmers and using it for operations within the same country rather than importing food from the USA and Europe.

2.5 Literature and websites

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Appendix 1

2010 direct expenditure in Africa by WFP strategic objectives, in thousand US dollars (Source: (WFP, 2011a))

STRATEGIC OBJECTIVE 1 - Save lives and protect livelihoods in emergencies	1 597 904,60
Care and Treatment (ART, TB, PMTCT and HBC)	250,28
Cash transfers and/or vouchers	12 123,18
Emergency school feeding	9 030,38
FFA/FFW: Land or water development and improvement	32,91
FFA/FFW: Other	3 429,36
FFA/FFW: Transportation (e.g. access roads, rural roads, etc.)	37,11
General food distribution	1 311 928,90
Micronutrient supplementation	11 880,11
Special operations	113 698,27
Supplementary feeding	135 494,09
STRATEGIC OBJECTIVE 2 - Prevent acute hunger and invest in disaster preparedness and mitigation measures	134 609,36
Care and Treatment (ART, TB, PMTCT and HBC)	11 915,94
Cash transfers and/or vouchers	516,39
FFA/FFW: Agricultural/crop production promotion	14 543,08
FFA/FFW: Agroforestry projects	13 823,48
FFA/FFW: Food reserves	3 946,87
FFA/FFW: Land or water development and improvement	49 567,68
FFA/FFW: Other	39,32
FFA/FFW: Transportation (e.g. access roads, rural roads, etc.)	34 340,39
Food for training (FFT)	983,40
General food distribution	960,83
Mitigation/Safety nets (HIV-affected households and OVC)	3 971,98
STRATEGIC OBJECTIVE 3 - Restore and rebuild lives and livelihoods in post-conflict, post-disaster or transition situations	101 025,82
Care and Treatment (ART, TB, PMTCT and HBC)	5 521,77
Cash transfers and/or vouchers	3 104,86
FFA/FFW: Agricultural/crop production promotion	10 012,93
FFA/FFW: Agroforestry projects	1 439,37
FFA/FFW: Animal husbandry and pisciculture projects	6 223,49
FFA/FFW: Land or water development and improvement	5 795,19
FFA/FFW: Other	3 297,74
FFA/FFW: Public amenities/schools/housing	22 920,35
FFA/FFW: Transportation (e.g. access roads, rural roads, etc.)	5 364,71
Food for training (FFT)	8 939,32
General food distribution	820,81
Mitigation/Safety nets (HIV-affected households and OVC)	7 883,97
Mother-and-child health and nutrition (MCHN)	3 452,51
School feeding: Primary and secondary schools	15 239,81
Settlement/resettlement	462,18
Supplementary feeding	546,82
STRATEGIC OBJECTIVE 4 - Reduce chronic hunger and undernutrition	312 861,40
Care and Treatment (ART, TB, PMTCT and HBC)	32 516,97
Cash transfers and/or vouchers	3 916,56
FFA/FFW: Agricultural/crop production promotion	6 258,56
FFA/FFW: Food reserves	1 637,86
FFA/FFW: Land or water development and improvement	2 586,77
FFA/FFW: Other	101,83
FFA/FFW: Public amenities/schools/housing	111,37
FFA/FFW: Transportation (e.g. access roads, rural roads, etc.)	177,46
Food for training (FFT)	1 120,48
Micronutrient supplementation	15 238,64
Mitigation/Safety nets (HIV-affected households and OVC)	37 472,51
Mother-and-child health and nutrition (MCHN)	33 512,23
School feeding: Nurseries and kindergartens	2 993,09
School feeding: Primary and secondary schools	175 217,05
STRATEGIC OBJECTIVE 5 - Strengthen the capacities of countries to reduce hunger, including through hand-over strategies and local purchase	23 646,40
Capacity development (local procurement/hand-over/advocacy)	11 211,42
Special Operations	12 434,98
Grand Total	2 170 047,59

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