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Aid and the environment: Uganda

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Abstract

This paper seeks to (i) establish the areas in which aid from the major donors is concentrated; (ii) examine how aid has been allocated to the environmental sectors, and (iii) review the factors behind the success of environmental projects. Using data from the Aiddata.org database, the distribution of environment-related aid, commitments and disbursements from the major donors over the period 2005–11 is examined. Recipients of aid and donors were interviewed to learn their perceptions on aid flows and the success of environmental projects. The analysis shows that although many of the key donors commit aid to environmental sectors, there was considerable non-disbursement by both multilateral and bilateral donors; a small percentage of aid from multilateral donors was geared towards the environment. Strong involvement of local communities in projects is a key to the success of environmental projects.

Keywords: development plan, environmental aid, aid commitments, aid disbursements

JEL: O2, Q3, Q56

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Acronyms

CDM	clean development mechanisms
EPRC	Economic Policy Research Centre, Uganda
GEF	Global Environmental Facility
MDGs	Millennium Development Goals
MFPEd	Ministry of Finance Planning and Economic Development
NDP	national development plan
NEMA	National Environmental Management Authority
NFA	National Forestry Authority
NORAD	Norwegian Agency for Development Cooperation
RAMSAR	The Convention on Wetlands of International Importance
UBoS	Uganda Bureau of Statistics
UNFCC	UN Framework Convention on Climate Change
WHO	World Health Organization
WMD	Wetland Management Division

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1 Introduction

Uganda's economy and human livelihood is directly underpinned by the integrity of the environment (NEMA 2010), and it is estimated that 87 per cent of households' needs are met through direct access to natural resources. The environment sector contributed 55 per cent to total GDP in 2010 (MFPED 2011). Consequently adverse effects on the state of the environment resulting from human and nature based disturbances such as climate change, including climate variability and extremes have deleterious effects on the health of ecosystems and their ability to provide eco services and on the welfare of many people in the country.

Changes in climatic patterns have resulted in extended periods of droughts and El Nino rains country-wide. A spectrum of devastating effects such as loss of human and animal lives, destruction of roads and bridges due to floods, massive destruction of social life and economic activities have been attributed to climate change (MFPED 2009). Indeed the variability in climate has been blamed for the resurgence of water borne diseases like cholera and dysentery, the disruption of agricultural production that has led to famine, hunger and malnutrition. This has also slowed the pace at which the country is moving towards the attainment of the Millennium Development Goals (MDGs) (MFPED 2009).

The 'national development plan' (NDP) (2010/1 to 2014/5) for Uganda has the following objectives: increasing household incomes and promoting equity; enhancing the availability of gainful employment; improving the stock and quality of economic infrastructure; increasing access to quality social services; promoting science, technology, innovation and ICT; enhancing human capital development; strengthening good governance, defence and security; as well as promoting sustainable population and use of the environment and natural resources.

With regard to the environment sector the NDP outlines the following strategic objectives and interventions:

Restore degraded ecosystems (wetlands, forests, rangelands and catchments). The planned interventions for this objective are:

- supporting re-afforestation and forestation on both public and private land;
- promoting participation of the population (civil society organizations, public institutions, local governments and the private sector) in tree-planting through national campaigns and provision of free and subsidized tree seedlings;
- enhancing private investment in forestry by promoting commercial plantations, agro-forestry and the use of trees as boundary markers;
- publicizing wetlands to increase acreage;
- implementing catchment based management systems; and
- monitoring and inspection of ecosystem restoration activities.

Ensure sustainable management of environmental resources and minimize degradation. The strategy here is to: (i) integrate environmental concerns in all development initiatives; (ii) strengthen policy, legal and institutional framework to support environmental management; (iii) develop national, regional and international networks (iv) enhance trans-

boundary environmental management; (v) enhance institutional collaboration among the key regulators for economic activities and environmental management; (vi) increase public awareness and environmental education and (vii) promote compliance with environmental laws and regulations. The planned interventions include:

- reviewing and updating sectoral specific guidelines, policies, plans, programmes and legal frameworks for mainstreaming environment;
- mainstreaming environmental concerns in all policies and plans;
- strengthening institutions that regulate the use of the environment to effectively carry out their duties;
- enforcing environmental impact assessment compliance through monitoring implementation of mitigation measures;
- increasing public awareness of environmental concerns via media; and
- strengthening law enforcement agencies for environmental protection.

Identify and address emerging environmental issues and opportunities. The planned strategies are: (i) improve electronic and other hazardous waste management; (ii) manage the oil and gas resources sustainably and (iii) improve the management of chemicals. The planned activities here include:

- developing policy, national action plans, guidelines, regulations and standards for management of e-waste and other hazardous wastes;
- compiling environmental databases and publishing an environmental atlas;
- developing national and sectoral chemical profiles;
- building sectoral capacity for sound chemicals management; and
- developing national chemical profiles and priority management interventions.

The urgent need to address the issue of climate change is well acknowledged in the NDP. A number of constraints are identified here. These include: (i) the critical shortage of expertise; (ii) insufficient and unreliable scientific climate data and information; (iii) limited awareness at all levels about the causes of climate change and climate variability, and the devastating impacts to socioeconomic plans and activities; (iv) inadequate institutional and financial resources; and the weak coordination mechanisms.

The objectives are to: (i) develop national capacity for coordination and implementation of climate change adaptation and mitigation activities in support of social welfare and national development; (ii) ensure climate-proof development planning; (iii) promote low carbon economic development path and (iv) meet the country's international obligations. In order to achieve these objectives, a number of interventions are laid out in the NDP. These include:

- addressing the legal and institutional frameworks necessary to implement the UNFCCC and following up the commitments and obligations in the conventions;
- strengthening the capacity and mandate of the climate change unit to enhance effective sector coordination, streamlining roles and linkages with other sectors;
- undertaking research to provide reliable information for climate change mitigation and adaptation actions;

- developing mainstreaming guidelines with a strategy to climate-proof development initiatives for use at all levels of government;
- developing a national climate change policy to provide a conducive policy regulatory framework;
- strengthening weather and climate monitoring so as to improve the quality of data;
- increasing climate change awareness, training and education at all levels;
- developing and implementing incentive mechanisms for reduced or avoided emissions;
- reducing overheads for the clean development mechanism (CDM) project formulation and development;
- building capacity of private sector to effectively participate in energy development initiatives;
- following up the commitments and obligations in the conventions; and
- implement climate change conventions.

Thus emphasis to a large extent has been on the allocation of resources and interventions that are critical to the achievement of the MDGs. Below we present the information on the environment concerns and responses for the following sectors: wetlands, transport, urban development, fisheries, forestry, agriculture, livestock, water, wildlife and protected biodiversity, land resources, and atmospheric and air quality.

1.1 Environmental concerns and responses

In this section we present a discussion on the key sectoral concerns relating to the environment and the interventions so undertaken, and how these have been changing over the last 10 years. It is important to note that a number of environmental concerns were commonly raised by a number of sectors. The main causes of the identified problems were rapid increases in population, weak enforcement of policies, and climate change.

Wetlands

The major problem for the wetland sector is the degradation and the conversion of wetlands by agents clearing land for settlements, farming, industries and resource appropriation. Wetland management started in 1986 following a presidential directive to stop wetland conversion. During the period 1989–94 emphasis was directed towards the development of wetland management policy. The national wetland management and conservation policy was enacted in 1995, and the Wetland Management Division (WMD) was set up in the ministry of water and the environment to take charge of the stewardship of wetlands in the country. Several projects have been undertaken in collaboration with donors to improve the condition and use of national wetlands. Information on the main projects during 1989–2012 as derived through interviews is given Appendix Table A1.

Important activities responding to environmental concerns for the sector include:

- development of wetland management policy, enacting laws to enforce policy and setting-up of institutions to manage wetlands at the local level (districts and villages) rather than national level;

- increasing awareness of the public on the importance and therefore the need to protect wetlands;
- raising conservation rates for Ramsar sites;
- generating information (eco-bio statistics, etc.) through research;
- developing wetland management models for various wetland systems;
- demonstrating sustainable use of wetlands to local communities; and
- engaging local communities in the management of wetlands.

In the recent past, emphasis has been placed on wise or sustainable use of wetland resources. The aim is increase the ways in which the local communities benefit from wetlands without injuring them or with minimal damage to the ecosystems.

Transport infrastructure

The efficiency of the transport system is acknowledged as a prerequisite for economic and social transformation in the country (NDP). The plan puts emphasis on improving the quality and stock of road, rail and marine infrastructure through: (i) upgrading specific roads from gravel to bitumen; (ii) reconstructing and rehabilitating sections of national and urban roads; (iii) constructing dual carriageways for the rail system; and increasing navigable routes and improving the marine transport infrastructure.

Major investments in the sector have focused on expanding the transport infrastructure and rehabilitating rural road networks. Opening up new roads and rehabilitating existing ones have been identified as a key strategy for increasing trade and reducing poverty levels in rural areas. This has seen massive investments from both the development partners and the government. Much emphasis has been geared towards opening up access to markets for producers.

The major environmental concerns for the transport sector are:

- Massive volumes of storm waters from the mountainous areas exceed the capacity of drainage systems and destroy bridges. Many of these mountains have lost forest coverage, thus the speed of downward water flows (plus soil erosion) is high and disastrous to the road infrastructure;
- High temperatures especially in the northern part of the country weaken tarmac roads, causing cracks and eventual potholes;
- Landslides have blocked several roads in the eastern part of the country;
- Unpredictable wet and dry seasons make it impossible to effectively plan the timing of road construction or upgrading or to estimate the cost (climate variation). If the rainy season sets in unexpectedly, construction materials are wasted away, and construction time and costs may exceed estimates. This has implications for the contractors of the work; and
- Falling water levels prevent vessels from docking at established piers.

The sector also faces other constraints related to capacity and funding. Many of the senior engineers were unaware of the principles of environmental science or the mechanisms for protecting the environment, as this topic has not been included in academic curricula. The national environmental plan stipulates that all projects undertaken by the sector must follow

pre-determined guidelines. Thus there has thus been a strict requirement that an environmental impact assessment be carried out before any road construction takes place. For this reason the ministry of works and transport established in 2001 a unit that deals specifically with environmental issues. The unit ensures that the sector's concerns regarding the state of the environment are mainstreamed in all projects.

The responses to the above environmental concerns include:

- construction of score checks in the drainage systems to control the speed of rain waters;
- strict adaptation to meteorological forecasts in deciding project commencement;
- adapting to climate change by introducing new structural designs that withstand heavy rains and high temperatures;
- development of policy and tools for environment mainstreaming in all road construction projects. these tools were disseminated to all districts, consultants and contractors;
- lengthening landing piers further inland; and
- allowing only appropriate vessels to operate during rainy seasons.

Urban development

Due to the high rates of population increase and limited employment opportunities in rural areas, the influx of people in urban centres has increased tremendously. Consequently the growth of urban settlements has been quite high, resulting in substantial clearance of natural vegetation and forests near urban centres. UBoS (2010) shows that over the last eight years, 78 per cent of the forests within a 30 km radius of Kampala have been destroyed.

The major concern of the urban authorities is how to plan urban and rural communities within upcoming and growing cities that would assure minimal disturbance to land resources on the one hand and yet provide, on the other hand, the basic services to secure healthy living conditions in urban area communities.

The identified problems include:

- rapidly increasing urbanization rates;
- escalating urban slums;
- illegal construction of settlements that block rainwater and sewage systems, resulting in the flooding of urban centres during heavy rains;
- solid waste or garbage disposal; and
- traffic jams.

The solutions include:

- encouraging private firms to engage in garbage collection and disposal;
- upgrading slum areas; and
- construction of low-cost houses;

Fisheries

The fisheries sector is an important source of food and employment in many rural areas. Exports of fish and fish products have emerged as one of the main foreign-exchange earners in Uganda (MFPED 2011). Currently the sector faces an immense problem of overfishing both in qualitative and quantitative terms. Fish catches have dwindled over the last 5 years, leading to a 300 per cent increase in the average price of fish per kilogram (UBoS 2011). Most Ugandans are consuming less than sufficient amounts of fish (WHO 2011).

The environmentally-related problems for this sector include:

- declining fish stocks due to overfishing and deteriorating quality of water from increased pollution loads in many of the water bodies;
- disappearance of some fish species due to use of illegal fishing methods;
- falling water levels reduce fish spawning and breeding areas; and
- invasive weed species like the water hyacinth, and alga damage fish life;

The responses to these problems have been:

- strengthening the governance of fishery operations;
- encouraging fishermen to engage in aquaculture; and
- increasing surveillance on invasive weed species on water bodies and checking their growth.

Forestry

Uganda has lost approximately 1.7 million hectares of forest cover since 1990, or almost 30 per cent of the 1990 acreage. The main factors at play are the fast expansion of farmlands, a rapidly growing population and increased urbanization (NEMA 2010). In the recent past, the tendency of people to migrate out of the increasingly crowded Kampala to its suburbs has seen the forest coverage in the districts of Wakiso, Mukono and Mpigi reduced to 22 per cent of their 1990 levels (NFA 2011). Forest coverage has decreased also due to weak management policies, lax enforcement of laws, and extensive use of fuel wood (over 90 per cent of the country's total energy resources are derived from fuel wood).

Effective from November 2004, the management of forest resources was placed under the jurisdiction of the national forestry authority (NFA). NFA develops management plans and enforces them; mobilizes farmers into tree planting groups; develops seedlings for sale to the public; provides scientific knowledge in forest management; develops participatory plantation action plans and promotes tree planting on private lands, local forest reserves and in degraded areas; strengthens institutional and community capacity for water shed management; licenses and monitors the production, processing and transportation of timber and timber products; maintains forest roads for ease of eco-tourism; and creates incentives for community-based forest projects.

The importance of forest resources as the source of regulatory services including soil protection, hydrological services and sequestration of greenhouse gases is widely acknowledged in the country (EPRC 2010). Thus there have been major efforts to curb the rapid deforestation rates. It is clearly articulated in the NDP that the key objective in this

sector is to increase forest cover from 3.60 million to 4.93 million hectares by the end of 2015.

During its earlier phase the national forestry authority (NFA) was mainly involved in the following activities:

- Strengthening institutional capacity for regulatory and fiscal framework for forest management;
- opening up forests boundaries so as to clarify the demarcation of lands under its authority. The objective here was to prevent people from encroaching on forestry lands;
- stock assessments of the various forest reserve biodiversity. Stock assessments were conducted for a few reserves (Budongo, Kalinzu, and Maramagambo);
- zoning of forests to guide users. that is, mapping out forests into accessible and non-accessible zones as public and buffer zones; and
- restoring bamboo plantations in northern Uganda.

In the recent past, attention has shifted to:

- promoting reforestation and planting of trees in new areas by developing/growing tree seedlings easily accessed by private investors in forests and local communities (carbon credit project);
- setting up resource centres where local communities can be trained in fuel wood energy saving practices (energy-saving stoves, bricket making);
- creating conditions for rural communities to become engaged in community-based carbon projects. This is where small-scale farmers are introduced to and encouraged to engage in agro-forestry programmes that produce long-term Plan Vivo-accredited emissions reductions while measurably improving farmer livelihoods and emphasizing sustainable land-use practices (Eco Trust project).

Agriculture

This is a subsector under the ministry of agriculture, animal industry and fisheries.

The agriculture sector employs more than 60 per cent of the country's rural workforce and contributes close to 21 per cent of the country's GDP (MFPED 2011). Although declining over the years, the agriculture sector's contribution to the economy and to household welfare remains significant, and its contribution to export earnings in 2011 was estimated at 46 per cent. Furthermore, 85 per cent of the rural population derive their livelihood from the agricultural sector. The sector's objectives include: enhancing production and productivity; controlling disease, pests and vectors; improving access to and sustainability of markets for farm produce; strengthening agriculture sector institutions to ensure that government programmes are effectively implemented; building capacity for the production of improved seeds, knowledge and planting materials; building capacity for irrigation, drainage, water harvesting, soil and water conservation; and providing agricultural advisory services.

Investments in the sector have been geared toward developing new crop breeds with higher yields and disseminating scientific knowledge to farmers; pests and diseases; developing

drought resistant crops to respond to climatic changes; building valley dams and water reservoirs for livestock and irrigation.

The environmentally related concerns for the sector include:

- expansion of land for agriculture through the clearing of natural vegetation, and deforestation adversely affecting the micro climates;
- draining for wetlands for farm use which leads to their degradation and decline in total size;
- a high degree of uncertainty in production planning due to erratic changes in seasonal weather patterns; i.e., unreliable (erratic) rains, extended periods of drought/rain, etc.;
- low crop yield due to declining soil fertility and the limited use of fertilizers by farmers;
- clearing of natural vegetation from hilly terrain that leads to massive soil erosion, water quality deterioration, land-slides, siltation of water points and soil fertility loss;
- floods and land-slides in the eastern part of the country (Bududa, Teso and Bukedea) dislocating farms;
- excessive use and misuse of pesticides that damages the stability of the ecosystems;
- invasive weed species affecting crops; and
- new types of pests (causing banana wilt, coffee wilt, cassava mosaic) that have led to total destruction of plantations.

Invasive species and the emergence of new types of pests have been blamed on both the overuse/misuse of certain types of pesticides and the creation of suitable environments for these organisms to proliferate with the changes in climate.

The responses/interventions put in place to address these problems include:

- extension services to train farmers in soil erosion control, correct fertilizer use;
- introduction of new crops; and
- increased research in better farming methods and methods of weed control (NAADS).

Focus in the recent past has shifted to climate change mitigation and adaptation. Thus activities currently underway include:

- research on improved seeds and farming methods;
- introduction of drought resistant crop varieties;
- introduction of agro-forestry; and
- extension of irrigation infrastructure.

Livestock sector

This is a sub-sector under the jurisdiction of the ministry of agriculture, animal industry and fisheries. The sector ensures the sustainable use of rangelands; strengthens the supportive infrastructure that includes fish landing sites, livestock markets and slaughter facilities; controls epidemic diseases of livestock; and ensures that high-yield livestock is safely introduced into the country.

The environmentally related problems for the sector include:

- climate change related problems: Climate change has led to a decline in pasture land. This is mainly due to the erratic span of the seasons. The result has been increased animal movements, leading to aggregation of animals in areas with relatively abundant pastures and water. Often this has led to: (i) scarce water points; (ii) over-grazing of specific micro environments; (iii) spread of animal diseases and diseases of public health concern (typhoid, diarrhoea) as cattle are moved in search of water and pasture; and an adverse impact on milk infrastructure development (milk collection and processing centres).
- over-grazing in rangelands as cattle herders increase their stocks beyond the carrying capacity of the land. This has led to: (i) soil erosion and degradation; and (ii) weed proliferation as a result of selective feeding habits of cattle.
- excessive methane emissions. This is because there is no usage of methane and the development towards its conversion into energy is still very basic.
- pollution of water bodies/streams and watering points as the animal waste is released directly into these reservoirs or indirectly by the rains.

The responses have been:

- Advocacy: (i) Farmers have been advised to embrace bio gasification. Demonstration units have been set up at district level to introduce farmers to the process of making bio gas; (ii) Information on the different agro-ecological zones and the respective carrying capacities has been provided to farmers and used to advise farmers in various zones on the optimal stocking rates; and (iii) Farmers have been encouraged to abandon the high-cost, low return breeds of livestock in favour of high-yield varieties (such as rearing goats, cattle, pigs).
- construction of valley tanks and dams;
- implementation of strategic disease control programmes: Disease out-breaks are usually expected during the dry season as livestock is moved into or near game parks. To minimize spread of disease, animals are vaccinated against the common known varieties (foot and mouth disease, and Rift valley fever) before the onset of droughts.

The focus now is on extending water-harvesting infrastructure and provision of extension services to farmers on how to grow pasture so as to reduce nomadic lifestyle.

Water resources

The water and sanitation subsector is composed of four divisions: rural water and sanitation; urban water and sewerage; water for production, and water resources management. The regular supply of clean and safe water for domestic, agricultural and industrial use remains a key development challenge in Uganda. Water supply and quality deterioration is a big problem in the country, mainly due to the degradation of water catchment areas. For instance, the degradation of wetlands has exacerbated the water supply problem, first by undermining the water filtering function of wetlands, but also by reducing their water storage capacity (NEMA 2011).

The subsector is responsible for the provision and maintenance of adequate supplies of water for human consumption and other uses, such as crop irrigation; livestock farming; fish

rearing; industrial processing and wild life conservation. The sector's major environmental concerns can be summarized as:

- weak policy, legal and regulatory framework in the use of water resources
- deterioration in water quality due to increased pollution loads from urban centres, industries and agriculture fields into water catchment areas;
- declining water levels in all water bodies due to increased abstraction and high evaporation rates;
- dried up wells and boreholes;
- wetland degradation generates higher production costs for water for human consumption;
- siltation of lakes and rivers due to soil erosion, landslides, floods;
- invasive species like water hyacinth invading water bodies; and
- rapidly rising water demand that cannot be easily satisfied by the existing supply infrastructure.

The responses to these problems have been:

- developing policies that improve water shed management;
- strengthening the governance of water resources management in all districts;
- working with partner states to develop common abstraction policies (Lake Victoria and Lake Albert);
- controlling land use management and practices in zones in the proximity of water bodies;
- expanding piped water systems to larger areas; provision of boreholes and protected wells for rural households; and
- encouraging rural households to harvest and store rain water.

In the recent past, much emphasis has been geared towards pollution control; provision of knowledge and infrastructure for alternative water sources, and ecological sanitation.

Wildlife and protected biodiversity

Uganda is rich in biodiversity and wildlife and these have a critical role for the country's welfare, particularly for communities located near protected areas. The role of the Uganda Wildlife Authority is to conserve and manage the country's wildlife and biodiversity. The continued loss and degradation of Uganda's biodiversity have been widely acknowledged as a serious challenge to livelihoods, economic growth and human wellbeing.

The challenges facing the management and conservation of wildlife and biodiversity include:

- rampant clearance of natural vegetation, catchment and water sources disturbances;
- invasive species;
- overuse of inorganic fertilizers;
- poaching;

- competition in the regional tourism market;
- conflict between people and wildlife that results in crop raids, killing of animals and loss of human life (wildlife crimes); and
- the discovery of oil and gas in the protected area (national parks and reserves);

Thus, efforts have been directed towards increased protection of forest habitats to reduce deforestation induced biodiversity loss; further implementation of the national land use policy to address issues of encroachment on forests, wetlands and other fragile but biodiversity rich ecosystems; and better management of invasive alien species (NEMA 2010).

Land resources

Land is a key strategic resource for Uganda. Land supports agriculture, human settlements, industrialization and important infrastructure. It is central to higher agricultural productivity, ecosystem stability, climate resilience and the sustained supply of both national and global environmental benefits (NEMA 2010). It constitutes over 50 per cent of the value of the ‘asset basket’ of poor Ugandans (MFPED 2004). However, current farming practices threaten soil fertility and prevent a significant share of the agricultural potential from being realized. It is acknowledged that soil loses considerable fertility through poor nutrient management. High population growth rates and environmental degradation pose a growing challenge to the continued productivity of the country’s land resources (NEMA 2010).

The authority of the land resources management sector extends to the implementation of the 1998 Land Act; it reviews, formulates and implements national land management related policies; supervises and provides technical advice on land use; maintains standards and controls quality of Geodesy surveys and mapping infrastructure, physical planning, land tilting, administration and valuation; manages national registers, geo-information (including maps), Geodesy and surveying databases. The overall goal of the sector is to promote sustainable economic development and livelihood security for all through effective tenure, use and management of the land. The emphasis here is placed on promoting security of land ownership so as to create conditions for improved land management and modernized agriculture.

The recognized concerns within land resources include:

- lack of capacity to inventory government (public) land and the continuing encroachment, with little success of control;
- land degradation due to deforestation and the rapid conversion of natural vegetation into arable lands which exposes large areas to sheet erosion and reduces productivity, a problem partly attributed to the poorly defined land ownership rights;
- high rate of conversion of natural vegetation into arable lands, increasing the risk of landslides;
- declining soil fertility due to overcultivation of plots particularly in smallholder agriculture, and the spread of invasive alien weed species that further reduces agricultural productivity;
- increased pollution loads resulting from the use of pesticides and fertilizers on plantations, which leads to changes in landcover;
- excessive livestock pressure as a result of overstocking in public rangelands;

- fraudulent land transactions in the land registry;
- escalating land ownership conflicts (communities versus land owners);
- escalating district and international border disputes; and
- extraction of oil and gas in the protected areas.

The responses to these problems include:

- increasing enforcement of laws protecting public (government) land;
- encouraging farmers to adopt appropriate technologies to reduce the rate of natural vegetation conversion;
- identifying possible resettlement sites for people in land-slide prone areas;
- computerizing the land registry to control fraudulent land transactions;
- mapping and surveying to demarcate district and international borders; and
- formulating development plans for selected border towns in the Albertine Graben region.

Atmospheric resources/air quality

The key challenges to the quality of atmospheric resources are climate change and pollution. The impacts of climate change are already being felt in Uganda, especially in sectors that are vital for the economy and livelihood of the people. These include agriculture, water supply, health, transport, housing and personal safety and security. Though accurate data are not available, there is an increasing concern over the impact of the forthcoming oil and gas sector on current pollution situation in the country.

Various measures to climate-proof Uganda's economy have been proposed, particularly with regard to research and forecasting, water storage and disaster risk reduction. These include:

- implementing better systems for weather forecasting;
- increasing the monitoring of known pollution sources; and
- setting up guidelines on emission standards (with support of NORAD)

Thus a number of measures and action plans have been undertaken by the government to address these concerns. But donors have also played a significant role in addressing specific environmental issues. For example, donors have been involved in biodiversity conservation in sensitive areas (Albertine areas, wetlands and Lake Victoria, among others).

This paper seeks to determine where aid flows have been going and which areas of Uganda's environmental sectors have received significant allocations. The methodology followed included interviews with officials in the environmental sectors, desk reviews of the aid literature on Uganda and the use of the Aiddata.org database to establish the percentage of distributions of donor aid across various environmental sectors.

In the next section we present an examination of government expenditure in the environmental sectors, donor aid inflows and distribution across these sectors during the period 2005–11, and a review of the identified successful projects according to the recipient sectors.

2 Government sectoral expenditures, donor aid inflows, aid distribution across sectors, project priorities and success

In this section, we examine the total expenditures that have been allocated to the agriculture, livestock and fisheries, water supply and sanitation, transport, forestry sectors and environmental protection and climate during the period 2005–11. Furthermore, disbursements and the percentage distribution of donor funds committed to various projects are given. It is important to note that Uganda is country that is heavily dependent on aid. Recent statistics show that over the period 2004/5-2011/2 aid, on average, constituted over 10 per cent of GDP and 50 per cent of public expenditures (MFPED 2012). The majority of aid is provided as grants, and loans, on average, contributed approximately 40 per cent of aid budget during the period under review. Over 40 donors operate in Uganda (Williamson 2008), with the World Bank as the largest, followed by the European Union. The US is the largest bilateral donor followed by the UK. But the Nordic countries, the Netherlands and Ireland play a significant role in this area (Williamson 2008). According to MFPED (2012), the major ten donors are the US, African Development Bank, Norway, Denmark, Germany, Ireland, the United Kingdom, UN (UNDP, UNICEF, UNFPA), the European Union, and Sweden.

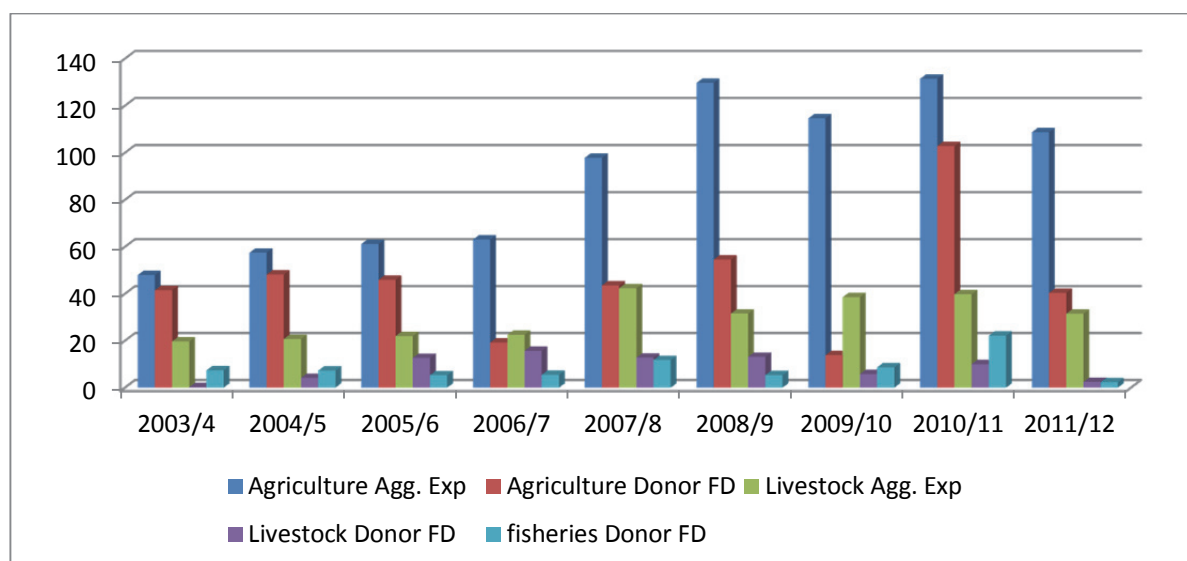
Next, we present the trend in government expenditure, total commitments and disbursements by the major donors, and the distribution of aid across the environmental sectors.

2.1 Government expenditure and aggregate donor funding

Data on budgetary allocations to the various sectors were derived from various issues of the government's background to the budget document, ministerial policy statements, and national budget framework papers. There were challenges in obtaining a continuous, unbroken flow of expenditure figures, as some sectors had been transferred from one ministry to another. Furthermore, funds allocated to livestock and fisheries are coded as animal resources. Therefore, with the exception of donor funding, it was not easy to decompose the sum to determine how much was spent on the livestock sector or fisheries. The other obstacle is the fact that coding of expenditure votes has changed over time. For example, funds spent on the wetland sector during a certain period were reported separately but later lumped together with expenditure on wildlife, and other natural resources. We examine the trends in spending on the sectors below.

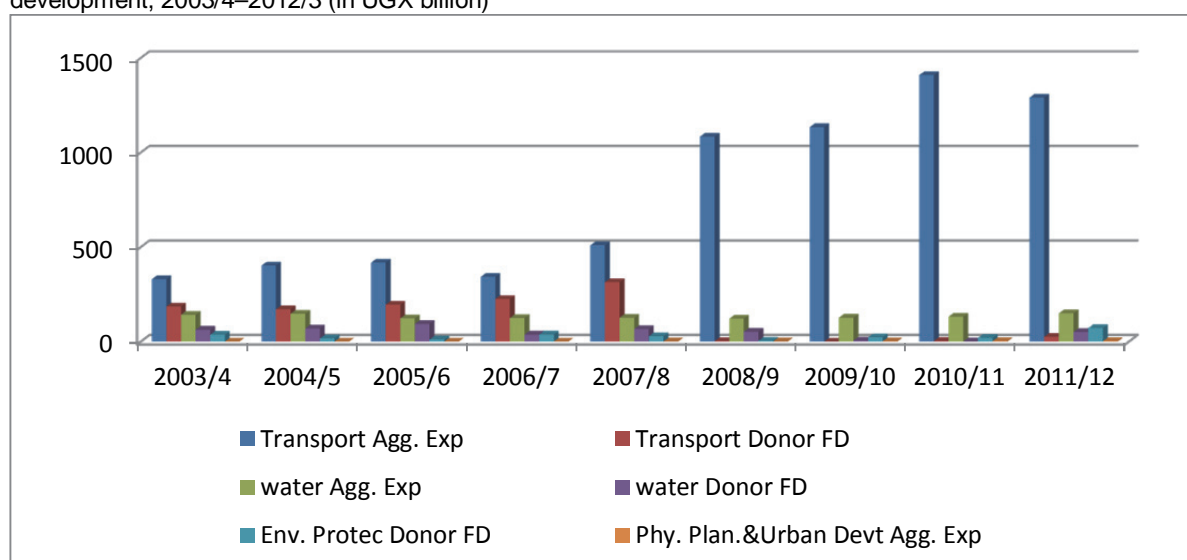
The expenditure figures for the agriculture sector include: crops; agricultural advisory services; and funds spent on Uganda Cotton Development Organization and Uganda Coffee Development Authority. Expenditures on the livestock and fisheries sectors are lumped together as an item to animal resources. However, donor funds are reported separately. Thus it is not possible to decompose the amounts spent on livestock from the allocations to fisheries. The trends in expenditure on the agriculture and animal resources are given in Figure 1. Agricultural sector expenditure increased steadily between 2004 and 2008; thereafter it fluctuated but remained above UGX 110 billion. A similar trend is exhibited by aggregate expenditure on animal resources. However, funds allocated to the livestock and fisheries sectors steadily declined after 2010. Donor funding to the agriculture sector exhibits fluctuations during the period 2003–12 and was at its lowest in 2009/10. Donor funding for the livestock sector peaked in 2010/1, dropping drastically therefore to UGX 2.5 billion.

Figure 1: Aggregate expenditure and donor funding on agriculture, livestock and fisheries, 2003/4–2012/3 (in UGX billion)



Source: MFPED (2012).

Figure 2: Aggregate expenditure and donor funding for transport, water, environmental protection and urban development, 2003/4–2012/3 (in UGX billion)



Source: MFPED (2012).

Transport infrastructure sector is under jurisdiction of the ministry of works and transport. The expenditure for the ministry is allocated to five key items: finance, administration and planning; transport regulation; transport development; district, urban, and community access roads; and national roads. Aggregate expenditure for this sector has steadily risen during the period. Donor funding reached a peak in 2007/8, declining thereafter.

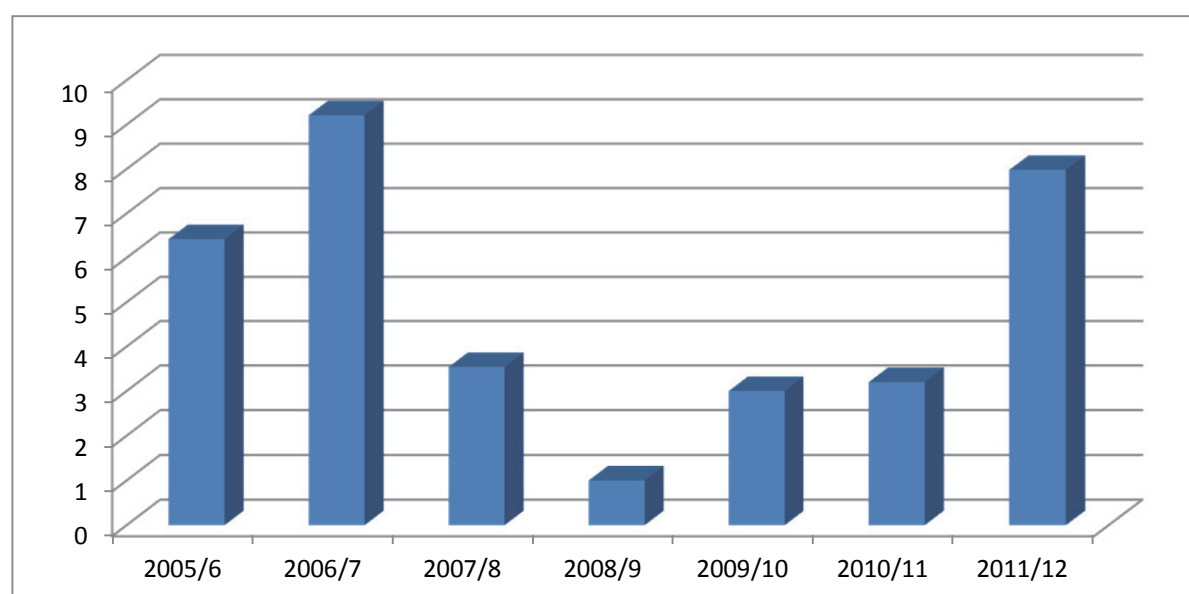
The water and sanitation sector expenditure has five components: administration; rural water supply and sanitation; urban water supply and sanitation; water for production; and water resources management. The expenditure components comprise funds spent on construction and protection of shallow wells, boreholes, gravity flow schemes, community underground tanks, valley tanks, new pipe water systems and the construction of ecological sanitation infrastructure. The aggregate expenditure allocations for the water sector have increased

steadily after 2009. After a peak in 2005/6, donor funding for the sector declined from 2006/7 until 2010/1. It increased in 2011/2.

Donor funds for environmental protection are channelled mainly through the National Environmental Management Authority (NEMA). These are resources spent on the protection of wetlands, wildlife and biodiversity conservation, among others. But no decomposition has been reported in published data. Aggregate donor funding for environmental protection increased between 2010/1 and 2011/2.

Aggregate spending for physical and urban planning has been quite low albeit increasing, and ranged from UGX 0.2 billion in 2003/4 to 2.93 billion in 2012/3. Before 2004/5, expenditure was lumped together with other items in the environmental sector, and it was not possible to decompose this expenditure. Therefore we report on forestry sector after the formation of the National Forestry Authority (NFA). Likewise expenditure allocated to the wildlife sector is captured under the spending for the ministry of tourism, trade and industry, making it impossible to establish spending on this item. However, we show donor funding for environmental protection for the last 10 years. The formation of the NFA was supported by an IDA grant of US\$6.42 million. Over the period 2006/7–2008/9, spending on this sector declined, but increased steadily thereafter.

Figure 3: Aggregate expenditure for the forestry sector, 2003/4–2012/3 (in UGX billion)



Source: MFPED (2012).

2.2 Total commitments and disbursements of the major donors, 2005–11

The total donor commitments for the period 2004/5–2008/9 appear in Table 1. On average, new donor commitments per year were US\$722.52. Loans contributed 40 per cent to aggregate donor commitments during the period.

Figure 4 shows total commitments from major donors during the period 2005–11. The data used are from the Aiddata.org database. The EU, IDA, US and UK had the biggest commitments over the period, while the GEF and UNDP had the lowest. In general, total commitments from multilateral donors decreased after 2009. Total commitments from the UK increased from 2008 to 2009, declining thereafter. Likewise, there was a decline in 2009

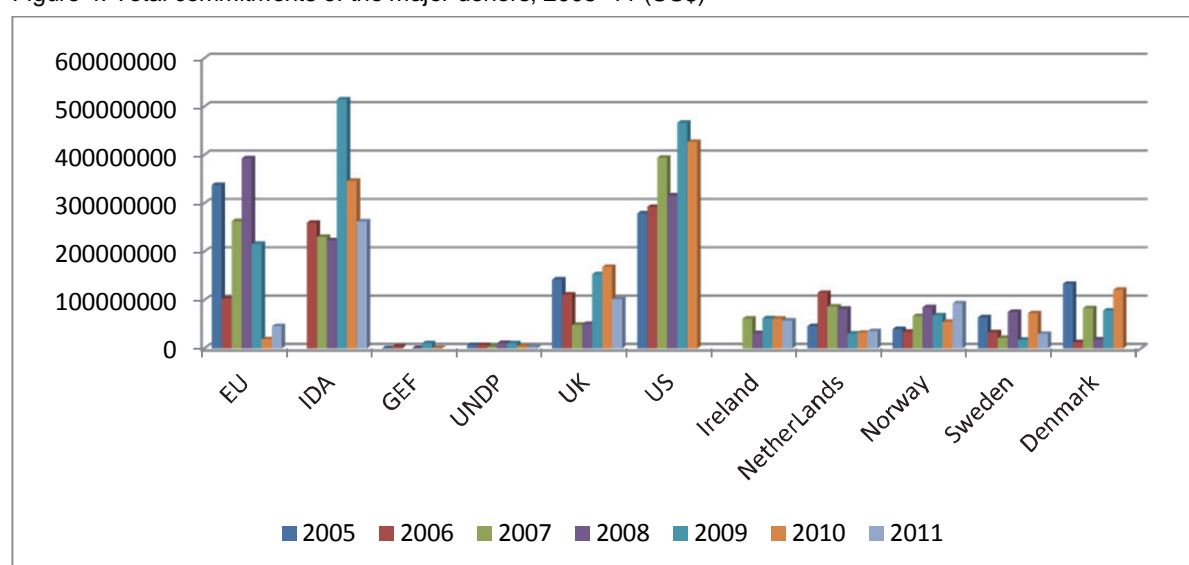
in US commitments. Table 2 lists the major focus areas of aid by donor, and the total funds allocated to these areas represented over 50 per cent of all donor commitments for the period considered. One major observation is the substantial percentage of bilateral aid targeted to poverty alleviation projects, humanitarian aid and budget support.

Table 1: Total donor commitments, 2004/5–2008/9 (in US\$ millions)

Year	Loans	Grants	Total
2004/5	294.9	974.9	1269.8
2005/6	64.4	445.4	509.8
2006/7	585.1	156.5	741.6
2007/8	223.0	296.5	519.5
2008/9	510.6	200.3	710.9
Total	1747.7	2587.4	4335.1

Source: MFPED (2009).

Figure 4: Total commitments of the major donors, 2005–11 (US\$)



Source: Author's computation based on the Aiddata.org database.

Table 2: Major aid commitment priorities areas, by donor

Donor	Major aid focus areas
EU	Humanitarian aid, budget support
IDA	Energy (electricity projects), health, and agriculture sectors, and the recovery of northern Uganda
GEF	Pollution control and biodiversity conservation
UNDP	Poverty reduction; and democratic and accountable governance
US	Food aid and health support, budget support, governance peace and reconciliation efforts
UK	Health sector, recovery of northern Uganda, food aid and social protection, and budget support
Denmark	Capacity-building support in the private and public sectors, health management and poverty alleviation, budget support
Ireland	Non-government organizations, social care and mitigation of HIV/AIDS, peace recovery and development programmes
Norway	Rural electrification, development and management of the oil and gas sector, capacity building, human rights and governance, gender and child rights, budget support
Sweden	Poverty reduction and strengthening civil society organizations, budget support ,women and child rights

Source: Aiddata.org database.

2.3 Distribution of aid commitments across sectors by major donors

In this section we use data from the aiddata.org database to show how commitments were distributed across environmental sectors during the period 2005–11 by major donors. Figure 6 gives the percentage commitments of the multilateral donors, while Figures 7 and 8 indicate those of the bilateral donors.

The EU has committed funds to the agriculture and water sectors only, with less than 10 per cent of the total. A major portion of commitments from the EU were allocated for transport infrastructure development. IDA's percentage of commitments to the agriculture sector was 33 per cent in 2010 and that to the livestock sector 84 per cent in 2008.

With the exception of Sweden, the UK and the Netherlands, all the bilateral donors considered here committed funds to the agriculture sector, albeit with quite small percentages. The largest share of commitments was from Denmark in 2009. The water sector has also received attention from all bilateral donors, although with rather small commitment percentages.

Figure 6: Percentage share of multilateral donor commitments across environmental sectors, 2005–11

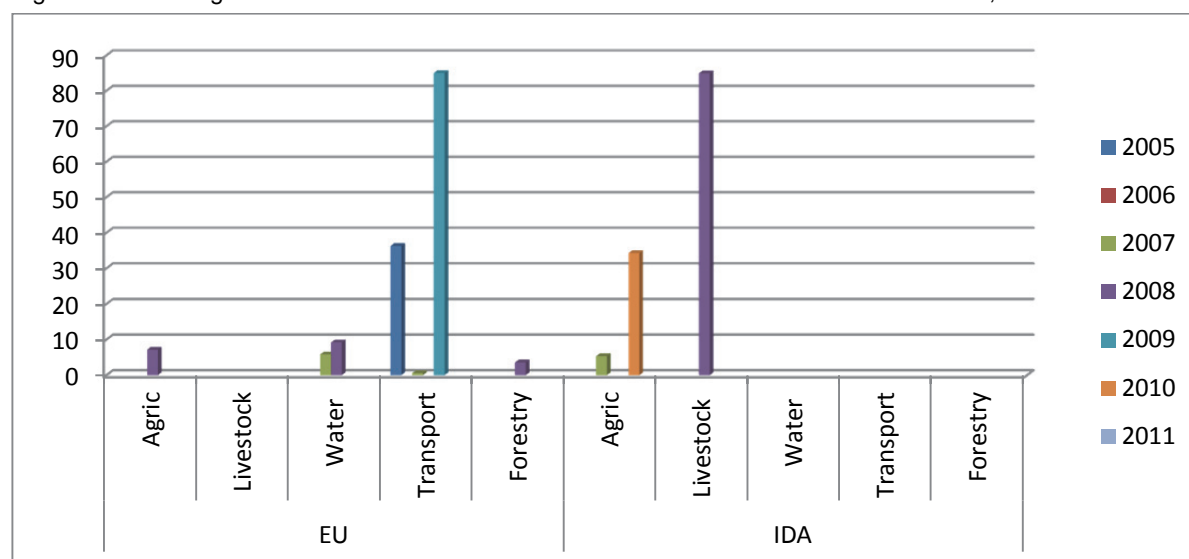


Figure 7: Percentage share of bilateral donor commitments across environmental sectors, 2005–11

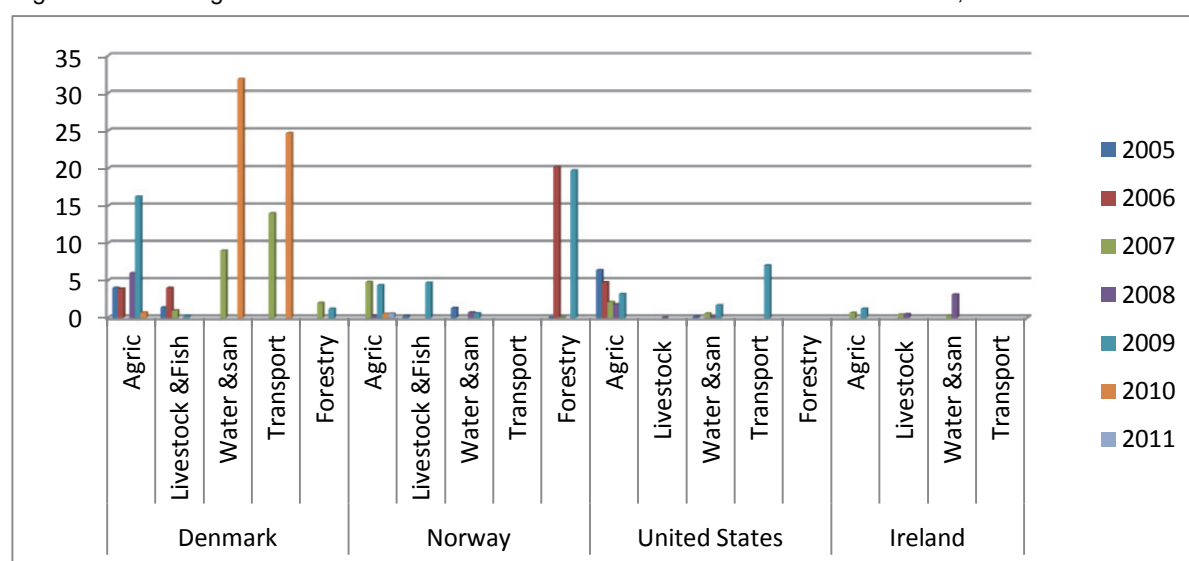
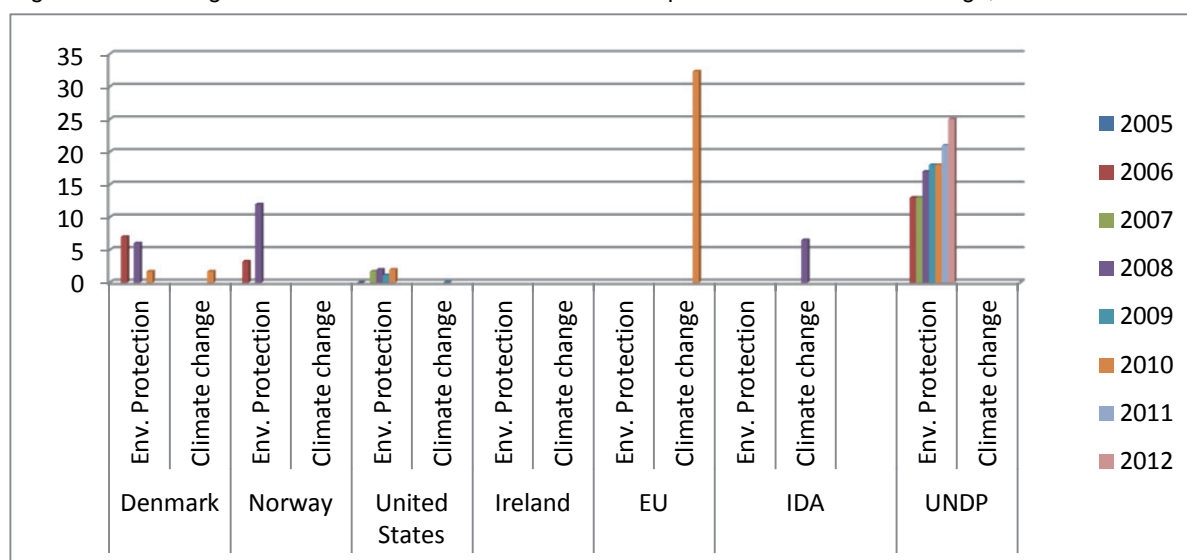


Figure 8: Percentage share of commitments to environmental protection and climate change, 2005–12



Source for Figures 6, 7, and 8: AidData.org database.

Ireland and the Netherlands did not commit funds to transport infrastructure development during the period in question. During the same period the World Bank is the only multilateral donor that allocated funds to projects aimed at addressing climate change.

During the period under review, commitments to environmental protection were received from Denmark, Norway, the US, IDA and UNDP. However, apart from the UNDP the percentages were below 15 per cent. The ranking of donors according to the size of committed funds during the review period is given in Table 3.

Table 3: Ranking of donors according to commitments to the environmental sectors

Rank according to % of committed funds	Agriculture	Water	Fisheries & livestock	Forestry	Natural resource & biodiversity conservation
1	US	EU	Denmark	Norway	US
2	Denmark	Denmark	Norway	Denmark	UNDP
3	Norway	Sweden	Ireland	EU	Denmark
4	World Bank	US	US		Norway
5	UK	UK			World Bank
6	Ireland	Norway			

Source: Author's computation based on the AidData.org database.

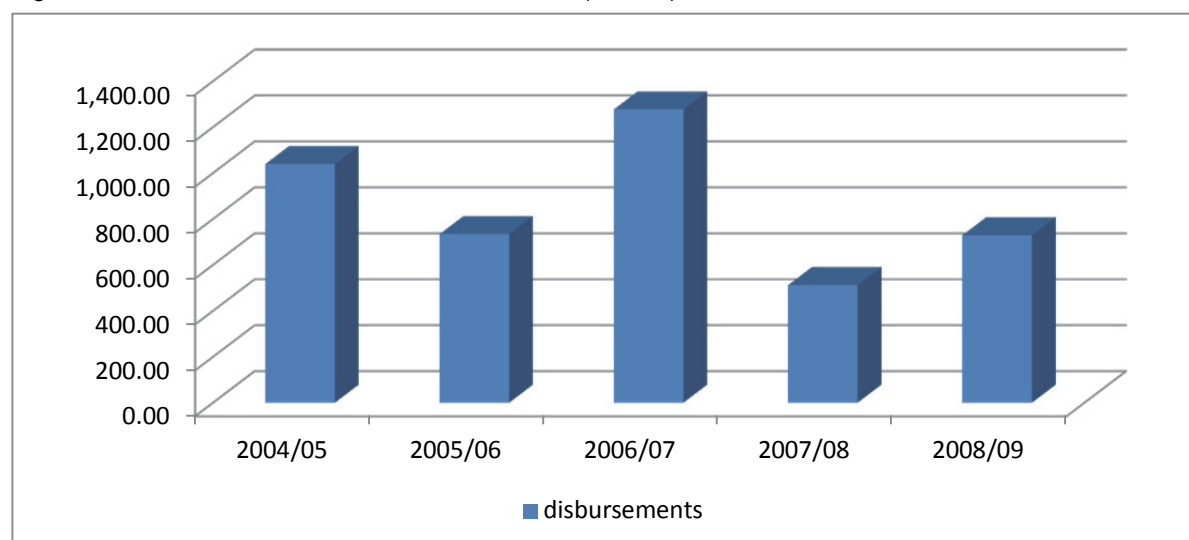
2.4 Disbursements

Data on disbursements were derived from the MFPED. Total disbursements for 2004/5–2008/9 are given in Figure 9, while Table 4 summarizes the disbursements by sector. Disbursement was the highest in 2006/7.

Budget support was the most common type of assistance Uganda received during the period in question. The donors actively involved in budget support include the World Bank, the EU,

the UK, the Netherlands, Sweden, Norway, Germany, Denmark and Germany. The transport and agriculture sectors have also received significant funding during the period 2004/5–2008/9. The water and environmental sector's share at 7.4 per cent was highest in 2006/7.

Figure 9: Donor disbursements 2004/5–2008/9, US\$ (millions)



Source: MFPED (Aid Liaison Department) (2010).

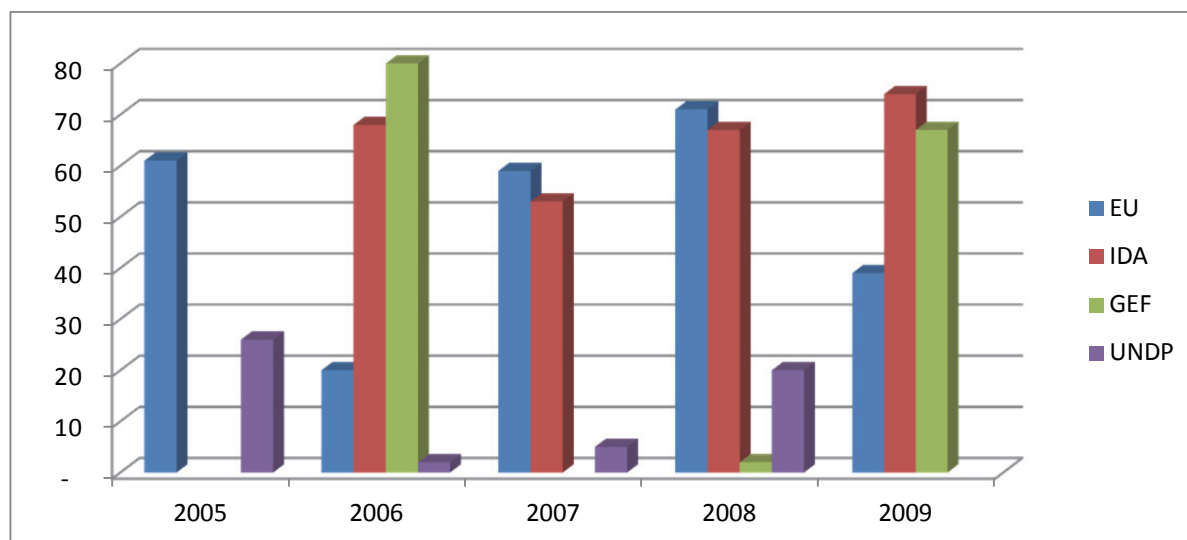
Table 4: Summary of donor disbursements by sector shares, 2006/7–2008/9

Sector	2006/7	2007/8	2008/9
Works and transport	8.5	10.1	23.1
Agriculture	5.0	8.2	11.9
Education	2.0	4.0	6.4
Health	12.7	3.7	1.1
Water and Environment	2.0	7.4	3.0
Justice, law and order	0.3	2.3	1.1
Accountability	3.7	2.6	4.1
Tourism trade and industry	1.0	1.0	1.3
Information, communication and technology	-	-	0.0
Energy and mineral development	15.2	2.6	5.5
Lands, housing & urban development	4.0	10.5	4.4
Social development	-	-	0.0
Public administration	1.1	0.1	0.2
Public sector management	3.3	5.3	4.7
Legislature	-	-	-
Security	-	-	-
Budget support	41.2	42.1	33.2

Source: MFPED (Aid Liaison Department) (2010).

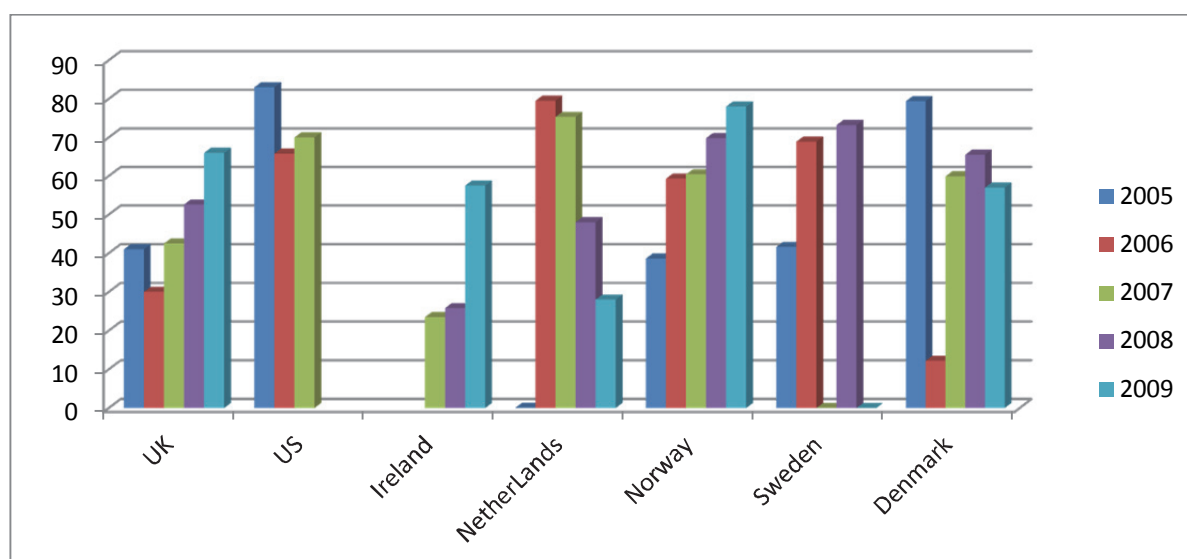
But there have also been high non-disbursement rates among both the multilateral and bilateral donors. These are given Figures 10 and 11.

Figure 10: Percentage non-disbursements for multilateral donors, 2005–09



Source: MFPED (Aid Liaison Department) (2010).

Figure 11: Percentage non-disbursements for bilateral donors, 2005–09



Source: MFPED (Aid Liaison Department) (2010).

3 Responses from interviews

Only two donors responded to our request for interviews: the World Bank (WB) and United Nations Development Programme (UNDP). The key priority areas of these donors are shown in Table 5. As can be seen, building human capital, economic growth, and poverty reduction are common goals of both donors.

Funding to the environmental sectors by the UNDP has ranged between 13–22 per cent over the last six years and UNPD's priority areas have focused on:

- *Sustainable land management*: This area is the foremost priority because the country faces massive decline in land productivity, and agriculture is still the backbone for industries and the livelihood source of many households. Enhancing land productivity

will increase the availability of raw materials for agro-based industries as well as improve household earnings and ensure food security. There is an on-going sustainable land management project in operation in the country's cattle corridor, with the objective to introduce farmers to conservation agriculture with minimum tillage on dry land.

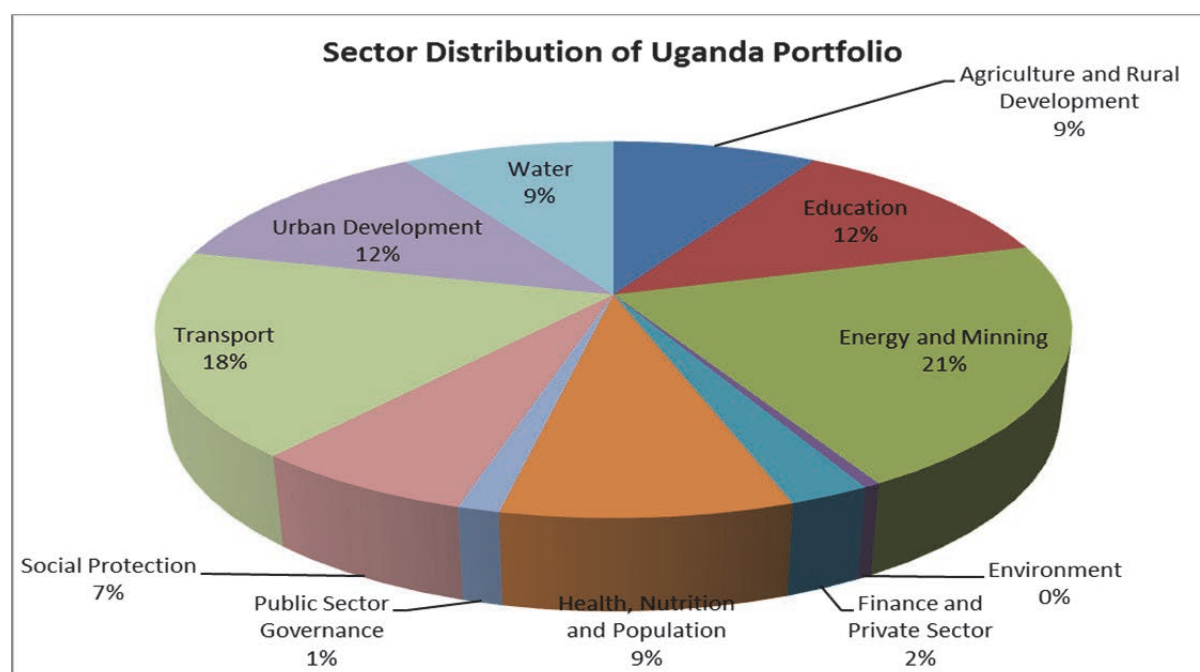
- *Forests*: This is the second area of importance for UNDP. Its forest management projects are aimed at increasing forest coverage in eastern Uganda to curb landslides. Tree planting projects have been implemented to support biodiversity and ecosystem management, increase energy sources, and to ensure that the eco-functions of forests are sustained. The link between forests, energy supply, water purification functions, climate change and eco-tourism is the main factor contributing to the weight that this area commands.
- *Wetlands*: this due to their linkage to the quality and quantity of water.
- *Climate change adaptation and mitigation*.

Table 5: Funding priorities for two donors in Uganda

UNDP	The World Bank
<ul style="list-style-type: none"> – Democratic and accountable governance – Economic growth and poverty reduction – Energy and environment – Crisis prevention and recovery 	<ul style="list-style-type: none"> – Promoting sustainable economic growth (private sector growth, interconnectivity for regional integration, agriculture, natural resource management) – Public infrastructure (electricity, roads, water and sanitation services, delivery of urban services) – Human capital development (primary and post primary education, healthcare delivery) – Good governance and value for money

Source: Collated by the author.

Figure 12: World Bank: sector distribution of Uganda portfolio



Source: World Bank (2013).

The World Bank's sector distribution of the Uganda portfolio for the last five years is given Figure 12. Dominant sectors with respect to funding were energy and mining, transport and urban development sectors. The funding for each the water and agriculture sectors accounts for 9 per cent per section. In comparison, environmental protection accounted for only 0.5 per cent of the World Bank's total funding during the period.

Both donors revealed that they aim to give support to Uganda to address the country's most pressing needs with regard to the alleviation of poverty and inequality, and to foster economic growth. Thus, to a great extent, aid from the World Bank and UNDP is demand-driven.

Respondents were asked to give a weight (on a scale of 1-to-10) to the importance of the environmental sector's need for aid. UNDP ranked environmental protection in 4th place, while according to the WB, environmental protection was ranked 8th. This is in line with the percentage of the Bank's portfolio in the sector, as shown in Figure 12. The reason advanced for the Bank's low funding in the environmental protection sector was that the Ugandan government receives environmentally-related aid from various other donors. Thus the WB endeavours only to ensure that environmental and social protection safeguards are addressed in every operation/project. This support is technical in nature and is provided by WB staff.

3.1 Proposed priority environmental areas and reasons for success

Both donors agreed that non-environmental aid has environmental impacts and that these are actively considered in decisions to extend aid. The responses to the question 'where aid targeted to the environmental areas should be prioritized' are summarized in Table 6.

Table 6: Proposed priority areas of funding in order of importance, UNDP and World Bank

Rank	UNDP	World Bank
1	– Land management	– Water resource management
2	– Energy	– Environment policy and institutions
3	– Water	– Climate change
4	– Forests and wetlands	– Pollution management
5	– Climate change	– Land administration and management

Source: Based on author's survey.

UNDP's ranking is based on the fact that their main goal is poverty reduction, and farming is a main activity in which the poor are engaged. Energy and water are prioritized as second and third because they are vital resources for the rural poor.

The World Bank based its prioritization of water (quality and quantity) on the fact that water resources are declining in many areas. Increasing demand and the drying up of traditional wells in rural areas have caused resource-sharing conflicts over the past five years. Enhancing environment policy and institutions was mentioned as the 2nd priority area because of the need to enhance the efficiency and effectiveness of environmental governance and institutions; and to mainstream environmental sustainability into the development agenda of key sectors.

With regard to measuring project success, the UNDP conducts mid-term and end-of-project evaluations. According WB, measurement of project success is essentially guided by ratings of project development objectives, project implementation progress, implementation

completion reports and independent evaluations carried out by the WB's Independent Evaluation Group (IEG). Both donors indicated that in many projects the eventual impacts of environmental aid have been in line with the objectives for which the aid was intended. The most successful projects have those geared towards poverty alleviation. As a result, Uganda has already achieved the MDG target of reducing the proportion of people living below the national poverty line.

Both donors identified the key factors needed to secure a good impact from environmental and non-environmental aid in Botswana. These are summarized in Table 7. Thus both organizations recognize the importance of involving the local communities in project planning, implementation as key factor behind success.

Table 7: Key drivers of project success

UNDP	World Bank
– Strong involvement of local communities in projects	– Civil society participation
– Strong commitment by the government	– Smart and effective management of programmes
– Involvement of donors in monitoring/supervision of implementation process	– Governance support in implementation of projects and creating enabling policies
– Sensitization of the aid recipients of the project goals	

Source: Based on author's survey.

4 Conclusions

The review of Botswana's developmental aid and its impact on the environmental sectors can be summarized as follows:

- A large percentage of aid commitment from multilateral donors (IDA and EU) during the period 2007–12 was directed to the development of transport infrastructure.
- The agriculture, and water supply and provision sectors have received continued funding during the period 2005–11 from the major bilateral donors considered here. The UK and the Netherlands are an exception in this regard.
- Aid allocated to the livestock and fisheries sector has been less than 1 per cent from the US, Ireland, and Denmark during the period 2005–11.
- Bilateral donors have been involved in biodiversity conservation through their action to support natural resource management policy reforms, re-afforestation and wildlife protection support.
- Significant proportions of aid from Denmark and Norway were committed to the health sector, governance, peace and recovery in the northern region, budget support and poverty alleviation during the period 2005–11.
- The UK committed considerable amounts of funds to medical research during the years 2005–11.
- Approximately 50 per cent of US aid was committed to humanitarian needs between 2005 and 2010.

- 78.6 per cent of the funding from GEF during the period 2007–10 was committed to biodiversity conservation in the Albertine Rift Forest Areas and Energy for Rural Transformation Project II while 4.8 per cent was allocated to extending wetland protected areas through community-based conservation initiatives.
- Direct climate change support was received from Denmark, the US and EU during the years 2009–11.
- Non-disbursement rates of both multilateral and bilateral donors were considerably high during the period 2005–11.
- The UNDP and WB recognize the importance of involving local communities in project planning, implementation as being among the key factors behind success

Appendix

Table A1: Success ratings of projects and reasons for success/failure by recipient sectors

	Projects rated as:		Reasons for:	
	Most successful	Worst failure	Success	Failure
Wet-lands	National wetland project		Monitoring efforts of both the project implementers and donors	
Transport Infrastructure	Road sector development programme funded by DANIDA		Conducting environmental impact assessment, screening, scoping, and approval of NEMA; Effective management by DANIDA auditors and monitors on ground	Weak enforcement of the project implementation guidelines Political intervention.
Livestock	Livestock project funded by ADB	Agricultural extension project	Project encompassed all the key areas of livestock production: animal health, restocking, animal nutrition, water and infrastructure. It targeted all the districts.	Poor governance because the project was implemented during the period when the country was decentralizing, and scaling down public sector staff. Districts lacked specialized officers to carry out the project assignments.
Forestry	Trees for global benefits project		Project was community-based. It conferred long-term returns to community involvement in terms of enhanced income sources and farm diversification. It also attracted loyalty and commitment to the project goal.	

Source: Collated by the author, based on information received during interviews with environmental specialists.

Table A2: Interviewed officials

Name	Organization	Designation
Peter Ogwang	Uganda Wild Life Authority	Community conservation officer
Barugahare Vincent	Wetland Division	Senior wetland officer
Sowed Sewagudde	Directorate of Water Resources	Senior water officer
Kasirye Martin	Livestock Division	Livestock specialist
David Muhoozi	Crop Division	Senior economist
Kaggwa	National Environmental & Management Authority	Senior economist
Andrew Aliyo	Fisheries Department	Fisheries officer
Fred Musiime	Aid Liaison Desk, Ministry of Finance Planning and Economic Development	Senior economist
Omara Joseph	Ministry of Works and Transport	Environmental officer
Okumu Gideon	Urban Planning, Kampala City Council authority	Urban planning officer
Walaga William	Ministry of Water, Lands and the Environment	Land management specialist
Onesmus Muhwezi	UNDP	Environmental economist
Dan Mwanje	WB	Senior economist

Source: Compiled by author.

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