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Aid, environment, and climate change in Africa

The case of Senegal

Tidiane Ngaido*

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Abstract: The paper reviews the dynamics of the financing based its analysis on the rich dataset of AidData ranging over 1993-2010, with around 9,077 observations on projects funded in Senegal by various multilateral as well as bilateral donors. The study started in the same year as the establishment of the environment ministry, 1993, to assess the perspectives as well as the evolution of the financing of the environment. Such an approach has large benefits as it helps to (1) capture changes in financial commitments and disbursement within and across sectors; (2) show the composition and changes of the portfolio of donors and levels of funding in the sector; (3) document which subsectors of the environment are receiving more resources; and (4) demonstrate effects achieved to date.

Keywords: aid, biodiversity, climate change, environment, financing
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*independent consultant, tngaido@hotmail.com

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UNU-WIDER, Katajanokanlaituri 6 B, 00160 Helsinki, Finland, wider.unu.edu

1 Introduction

Senegal, located in the Sahel area between the equator and the Sahara is confronted with a tropical climate characterized by frequent droughts and galloping environmental degradation. Managing the environment in the Sahel countries has been a collective commitment since the droughts of the 1960s and 1970s, whereby the pressures on the socioeconomics of the rural communities prompted a general consensus for the need to better anticipate these processes. This led to the creation of the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS: Comité Inter-Etate pour la Lutte contre la Sécheresse au Sahel) in 1973 to address regional drought issues.

In addition, with its 700 kilometers of coastbordering the Atlantic Ocean and 275,000 square kilometer of water under its jurisdiction (CSE 2012), the country is confronted with rising water levels and periodical floods, especially during the rainy season following a poor management of the urbanization process and the lack of adequate drainage systems. Climate change, which is a reality in Senegal, swings between dry and very wet years, sometimes with extremes leading to droughts or floods. Hence the Government of Senegal (GoS) and its various development partners, neighbouring countries, and countries with much the same circumstances have been trying out various socioeconomic, financial, cultural and institutional approaches to prevent and help mitigate the effects of extreme climatic occurrences, droughts and floods. The implementation, through long-term as well short- terms projects, of numerous policy, institutional, technical and environmental options has been an on-going process with support from the donor community that has contributed to the building of the environmental sector. Today, the ministry responsible of the environmental sector is pivotal for the development strategy of Senegal.

The challenges, however, for Senegal and Sahel countries and countries along the Atlantic coast which are experiencing rapid erosion of their natural resources, are how to address such global issues in the context of their poor economies. Moreover, environmental issues (climatic change, forestry management, biodiversity conservation, preventing land degradation and reducing desertification rates, managing the erosion of coastal areas, etc.) are transversal issues that affect so many sectors, which make this study on financing very difficult. The diverse types of interventions, actors, and funding mechanisms make the issue of attribution very difficult. Furthermore, the variability in the funding mechanisms and reporting processes, make such evaluation a daunting task.

It is clear, when reviewing the accomplished progress in addressing these global issues, so far, that the GoS and its partners in the environmental sector have been working to first create enabling institutional and policy environments, conducive to efficient, sustainable and equitable management of natural resources. Presently, environmental policies and strategies as well some of the domestication policies of international conventions have been developed. In that process, the reliance on external financial resources at the national, regional and international to implement projects and programmes have been critical. Under such context, therefore, what roles and responsibilities should be tasked to various stakeholders involved in the management of natural resources? This study focuses at the macro level and tries to understand the on-going processes and their potential effects on the distribution of resources.

The environmental sector contribution is always undervalued given that the tendency is to consider mainly natural resources, which in 2006 contributed about CFA81 billion (US$145.8 million), 1.7 per cent of the gross national income (GNI) of Senegal (CSE 2006). When one

considers all the benefits derived by other sectors from natural resources (land, water, pastures, etc.), it is clear that this sector contributes to more than half of the GNI. The allocation of financial resources between sectors, therefore, must take into consideration such characteristics as the environmental sector crossover all the sectors. How to allocate resources between sectors, given that all sectors are priorities, especially when the trade-offs between US$1 invested in education or health to US$1 invested in the environment, agriculture, or water management are not well understood? The focus would likely be on the performance of the institutions that have higher potential to successfully implement various related environmental options.

Addressing environmental issues seems, therefore, to be overwhelming given that the human and financial resources required and the length of time needed for such investment to provide short-term gains, are critical for all stakeholders to report progress. The feature of investments in the environment sector is one of the major constraints as many donors are required by their taxpayers and contributors to show impact. How did GoS and its partners approach this issue? What are the subsectors and thematic issues that have been given investment priority and what have been their potential effects? Are there win-win investment options, those which could concomitantly address development and poverty reduction needs while ensuring that government and rural and urban communities act as real stewards of the environment? It is the promotion of such stewardship that will act as a vehicle for adding value to any investment made on the environment and also shortening the waiting periods for environmental effects and impacts.

The GoS understands the need to be an integral actor in the global processes on environment, marine costal management, and climatic change. GoS has ratified, since the Kyoto Protocol, all the international conventions relating to the efficient, equitable and sustainable access and use of the environment and natural resources. In addition, an environment ministry was established in 1993[1] to deal with environmental matters, and as part of the strategic development it has evolved from 'Ministry of Environment and Nature Protection' to a more dynamic titling, 'Ministry of Environment and Sustainable Development', to reflect the need to closely associate the management of the environment and its processes to development and poverty reduction strategies in Senegal. Such orientation also supports the principle that it is profitable to invest in the environmental sector.

In 2008, the Ministry of Environment and Nature Protection (MEPN) developed its Sectorial Policy Letter for the environment and natural resources for the years 2009-15.[2] The policy letter is based on 12 action plans objectives funded through the Medium-Term Sectoral Spending Framework (CDS-MT) piloted by the finance ministry. These action plans have three main strategic objectives:

1. Improving the knowledge base of the environment and natural resources.
2. Intensifying the fight against the current trend of environment and natural resource degradation to address international conventions.
3. Strengthening the institutional and technical capacities of actors in the implementation of related action plans for the conservation of the environment and natural resources (MENP 2012).

1 The environment ministry has had various names since its creation.

2 Lettre de Politique Sectorielle de l'Environnement et des Ressources Naturelles 2009 15 (LPSERN).

The expectations of the policy letter were an allocation of 2 per cent of the national budget to the environmental sector. The ministry received CFA83.082 billion (about US$166 million), of which 68 per cent was earmarked as investment and 32 per cent to support operations over 2009-11. The sector is, however, experiencing yearly decreases of its budget and is threatening the capacity of the ministry to implement some of its programmes or to receive funding for new projects. For example, in 2013 the ministry budget decreased by 14.99 per cent, corresponding to the reduction of loans by 41.88 per cent and grants by 14.53 per cent. Such trends will not help the ministry to strengthen its institutions and maintain capable staff to address emerging environmental issues. Even though ministry staff are floating ideas about new innovative funding mechanisms, such as the green fund, it remains that accessing such funds would not always be easy.

This paper essentially bases its analysis on the rich dataset of AidData ranging over 1993-2010, with around 9,077 observations on projects funded in Senegal by various donors—both multilateral as well as bilateral donors.[3] Some of the missing variables would have enhanced the analysis. That said, this is the first time that this author has used such a comprehensive dataset that provides various and pertinent development projects indicators for the environment. Moreover, the data from the finance ministry shows budgetary allocation to the sector since 2002.

The study started in the same year as the establishment of the environment ministry, in 1993, to assess the perspectives as well as the evolution of the financing of the environment. Such an approach has large benefits as it helps:

1. to capture changes in financial commitments and disbursement within and across sectors;
2. to show the composition and changes of the portfolio of donors and levels of funding in the sector;
3. to document which subsectors of the environment are receiving more resources; and
4. to demonstrate effects achieved to date.

The data was reviewed and classified into 19 sectors, which triangulates with the classifications made by AidData for the environment, biodiversity and climate change.

This paper is organized into six sections. The introductory section looks at the evolution of projects and programmes and their financing over 1993-2010. Next, the second section assesses the types and nature of funding. The third section looks at the relevance and synergic financing between the 19 sectors and environment, biodiversity, climate change and desertification. The fourth section focuses on the specific financing of the environmental sector; the fifth section looks at the financing of the environments and agriculture, infrastructure, water, industry, fisheries, rural development and urbanization; and finally the sixth section, the way forward serves as a preliminary conclusion.

1.1 Evolution of project financing characteristics since 1993 in 19 sectors

Assessing the financing of the environment is not only to look at the funding that is directly controlled by the environment ministry but also the funding of projects located in the other sectors, which may have higher comparative advantage in terms of technical knowhow, and capacity to mobilize resources, which in the past for environmental issues was overseen by the ministries for agriculture, livestock, water and infrastructure, etc. Moreover, many environmental projects have national, regional and international scopes, and as such different institutions

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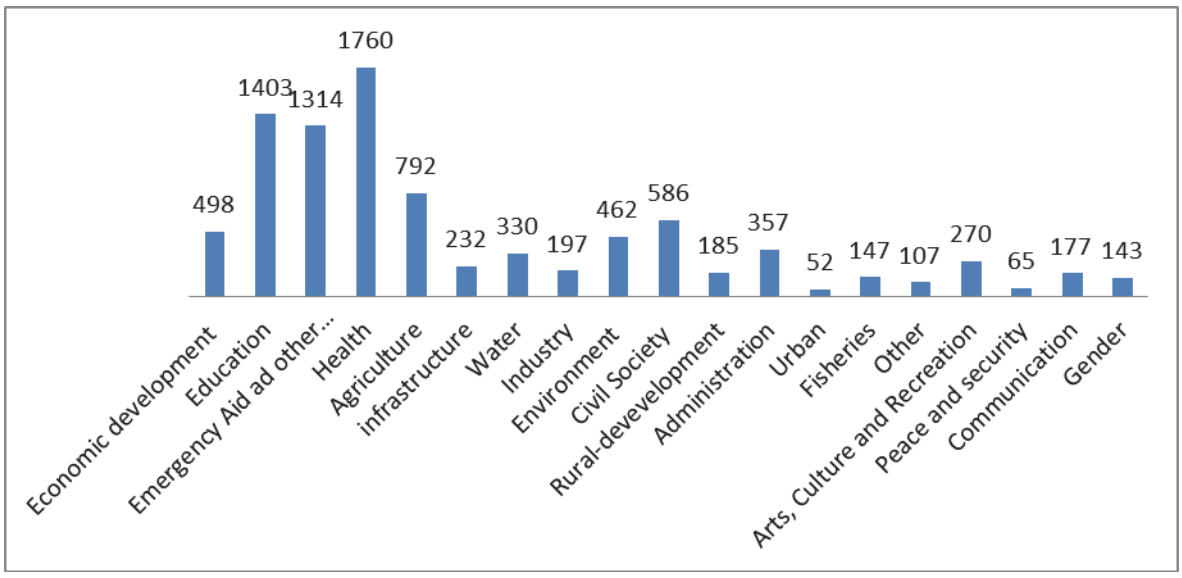
(government, NGOs, private sector, community/producer associations, etc.) may be in charge of their implementation. Consequently, unless the implementation of project activities is devolved to national institutions they are not always captured. In this paper, we have not made such distinctions due to the fact that it was quite cumbersome to obtain the status of all the institutions' funding beneficiaries since 1993.

1.2 Evolution of interventions across sectors

Looking at the level of funding without exploring the number of types of projects would limit the understanding of the likelihood effects of such funding. A sector may have a large total level of funding commitments and disbursements but the distribution of such financial resources into small projects could also prevent the sector from purchasing some of the expensive equipment that would be needed to carry out the required interventions. Managing small projects also increases the transaction costs and would tend to more support labour than real investment and research. The contrary effects would also favour large expenses and pay less attention to activities of lower costs—such as policies, involvement of stakeholders in decision-making—which are critical for the success of any interventions. Finding the appropriate balance of expenditure is always very challenging for government institutions. The AidData dataset offers a great opportunity to assess projects and funding distribution between sectors. For this study, the 9,077 projects were reviewed and classified into the 19 sectors according to title, purpose, and description (Figure 1).

Figure 1: Number of projects financed in Senegal, 1993-2010



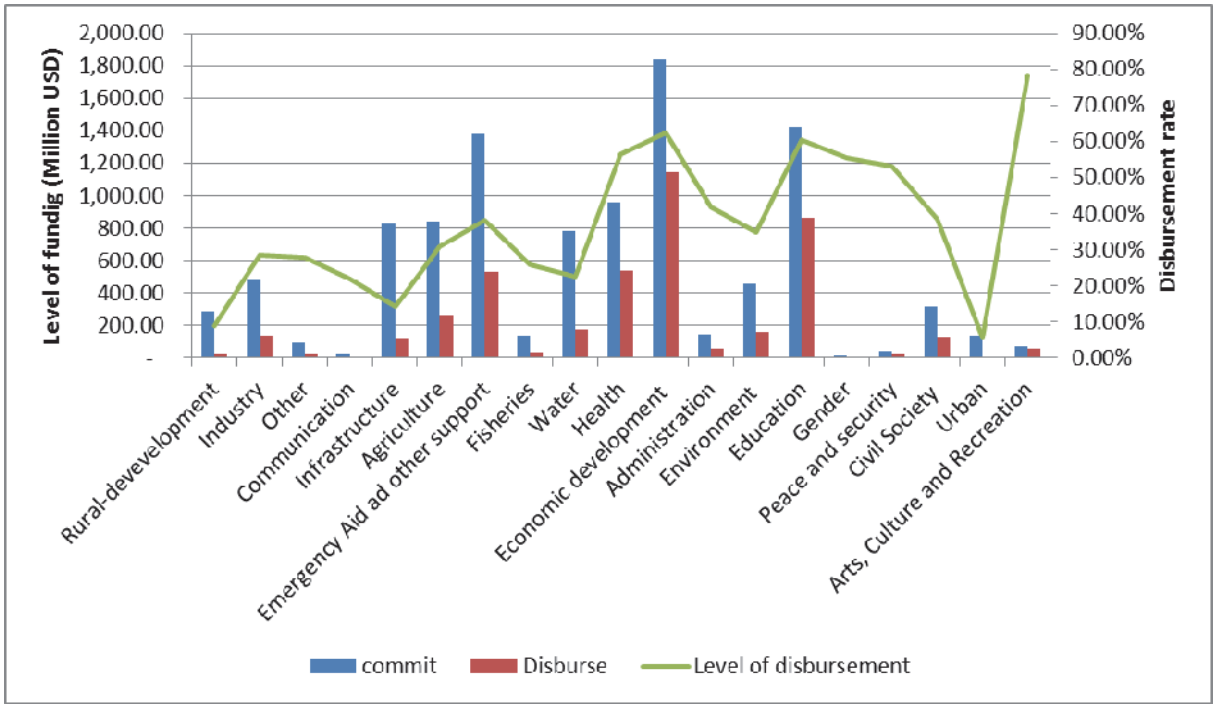
Source: Author's illustration based on AidData data.

Such classification is also very important when later on the outcomes are triangulated with the classification done by AidData. The results from the 19 sectors are classified into three main groups to ease analysis and assess outcomes between various sectors. The first group includes all the sectors that received more than 700 projects since 1993: health, education, emergency aid, and agriculture. The total number of projects was 5,269 projects and accounted for 58.05 per cent of all projects. The second group, composed of civil society, economic development, environment, administration, and water, totaled 2,233 projects and represented 24.60 per cent of the projects. The third group includes all the other sectors that received all together 1,575 projects (17.35 per cent).

It is clear that this unbalanced distribution of projects between sectors also had a bearing on the distribution of financial resources (Figure 2). The sectors with strong environmental links— such as agriculture, water, environment, rural development and fisheries—accounted for 1,916 projects or 21.10 per cent of the total. Moreover, being a cross-cutting issue, it is expected that environmental issues would be reflected in other sectors as a significant or principal objective but that given the comparative advantage and the capacity of the sector, such environmental issues would be addressed there. It might not be easy to untangle the share of environmental vis-à-vis other issues, and the effects would be synergic rather than sectorial.

Figure 2 shows the level of funding in Senegal since 1993. However, it is important to note that because of the diversity of institutions and stakeholder groups intervening in all these sectors it is difficult to pin-point how much has been invested in each sector. The following analysis sheds light on the trends, strategies, and emerging issues, and guides us to the likely potential outcomes of the financing strategies.

Figure 2: Level of funding in Senegal, 1993-2010



Note: Millions US$ nominal.

Source: Author's illustration based on AidData data.

The first point of interest is the evolution of the level of commitments and disbursements and the share of the disbursement. The most noticeable change concerns the shift of the economic development sector, which was classified in the second group because it had 498 projects, but received the highest funding commitment (US$1839.17 million) as well as the highest disbursement (US$1,146.09 million). This sector also had the second highest disbursement rate of 62.32 per cent on average. These results are consistent as economic development is a cross-cutting objective and a high priority for the GoS. Education, emergencies/support, and health rank respectively second, third, and fourth. The environment sector comes at ninth place with a funding commitment of US$455.613 million and disbursement of US$158.864 million. This disbursement rate was about 34.87 per cent. However, if we consider the resources that were disbursed through direct budgetary support, the disbursement rates may have reached more than 60 per cent.

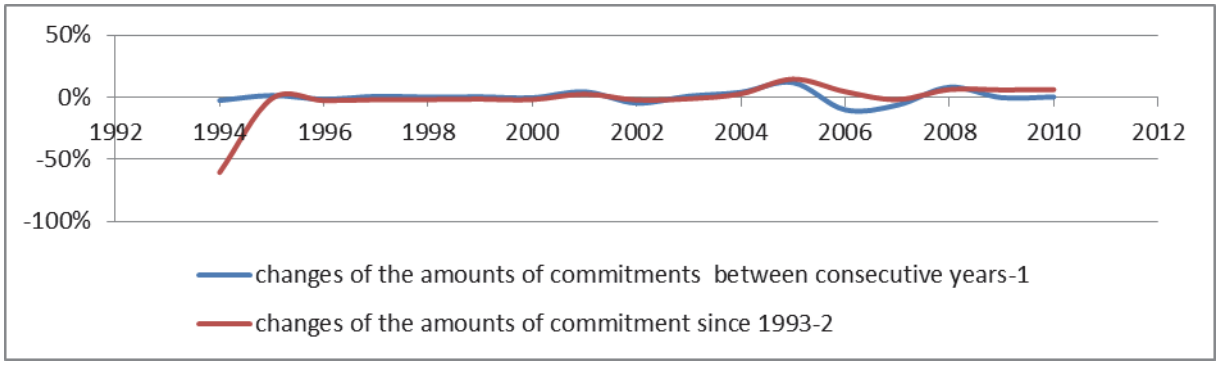
Overall, Figure 2 highlights also the gaps between commitments and disbursements. What are the reasons for such gaps? Are they resulting from the requirements associated with grant and loans? Are they reflecting the ministry's lack of capacity to meet the requirements as well as successfully implementing project activities? It is important to note that the level of disbursement does not include the budgetary support funds; at least this was the case for the support provided by the Netherlands. The contribution of the Netherlands into the development of the environmental sector is very interesting and will be discussed later. Updating the AidDada database to reflect these budgetary support programmes in all sectors since 2002, will provide very interesting data and better target recommendations to donors and countries.

Furthermore, the classification of the 19 sectors according to the average disbursement rates suggests further groupings into three. The average disbursement rate for all the sectors was 34.62 per cent. The first group—composed of urban, rural development, infrastructure, and water sectors—received about 20.10 per cent of the overall commitment during this period, but only 7.7 per cent of the commitments were disbursed. The second group—including fisheries, industry, agriculture, environment, aid, civil society, administration, and others—received about 37.40 per cent of the commitment but only got 30.86 per cent of the disbursement funds, which is very close to the average disbursement rate. The third group—composed of security, gender, health, economic development, art, recreation—received the highest commitments (42.93 per cent) and also the highest disbursements (61.87 per cent). The highest disbursement rates were recorded in the art, culture and recreation sector (78.55 per cent), economic development (62.32 per cent), and education (60.37 per cent). The rate of disbursement for the environmental sector was 34.87 per cent. Such low disbursements are linked to the lack of reports on the disbursement of various donors of the budgetary support funds. This is an area where improvement could be made in the AidData database to improve accuracy.

1.3 Dynamic changes of committed and disbursed funds

Understanding the evolution of the funding in Senegal is also a critical indicator for assessing the dynamics of commitments and disbursement. The two indicators that were developed using the Aiddata are the changes in commitments (Figure 3) or disbursements since 1993 (Figure 4) and changes between consecutive years.

Figure 3: Dynamic of change in commitments in Senegal, 1993–2010



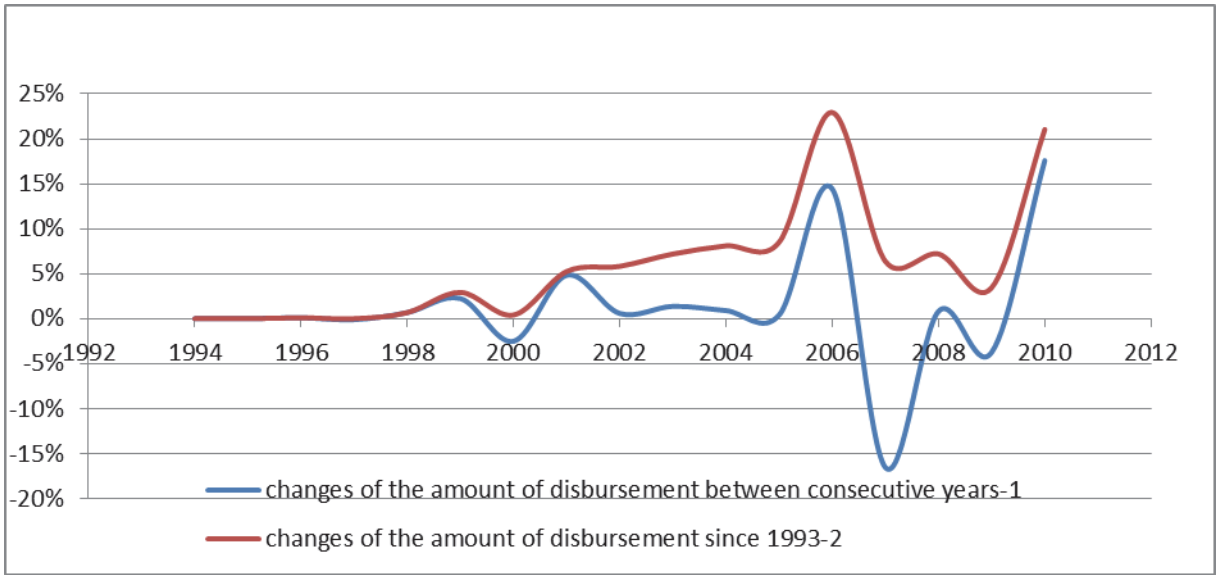
Note: Millions US$ nominal.

Source: Author's illustration based on AidData data.

The first indicator assesses the long-term trend of financing changes between 1993-2010, whereas the second indicator looks at how the trend of disbursement changes between consecutive years during the same period. The commitments figure shows, as expected, similar

trends between these two indicators confirming the strong commitment of partners to the development process of Senegal. However, the disbursements trends suggest some variability that could be classified into two periods. The first period, 1993-2001, illustrates the same trend of disbursement except in 2000 where a small difference was noted. Since 2001, however, the figure shows lot of variability.

Figure 4: Dynamic of change in the disbursements in Senegal, 1993–2010



Note: Millions US$ nominal.

Source: Author's illustration based on AidData data.

The tendency of the long-term trend for changes in disbursements since 1993 has been increasing, while the year-to-year trend shows ups and downs due to the crisis management strategy, with more disbursements during periods of environmental crisis (drought, floods) and less disbursements in subsequent years. In 2007, disbursements decreased by 17 per cent. The noted decreases since 2004 in the disbursement rates are due to the non-reporting of the budgetary support funds. We have ascertained in this study that the financial support of the Netherlands, which has been the major donor for the environment sector, has not been updated in the AidData database. If this is true for all countries, then it is an issue that needs to be revisited and resolved.

When we analysed the AidData data we linked these trends to the increase in demands for funding (aid) during periods of environmental stress, such as drought or flooding, to the limited institutional capacity of the ministry to absorb all the committed funding. It could be expected under such conditions that disbursement rates will decreases and may also affects the ministry's attempts to build its institutional capacity. Moreover, the trend that we observed whereby the number of projects was increasing while the average committed and disbursed amounts were decreasing. Such a situation could create much disfunctionality and constrain the effectiveness of the ministry to implement its programmes. The growing involvement of NGOs and other private institutions in the implementation of project activities increases the capacity of the ministry during the life of the project. But such capacity may not be readily available once the project funding is finished. Could such efforts be solely built on external funding?

2 Nature and types of funding

One may consider that some of the disbursement constraints may be related to the difficulties of the ministry to meet the requirements or implement project objectives. As such the composition of the funding portfolio may provide some answers to the problem (Table 1). Table 1 shows types of grants and the share of grants by sector. Three sectors (emergency aid/other support, education, and economic development) received about 50 per cent of committed grants. Agriculture and environment received respectively, 6.861 per cent and 5.241 per cent.

Table 1: Level of funding grants by sector in Senegal from 1993–2010

Row Labels	Grant levels 26-50% (millions US$ nominal)	Grant levels 50-70% (millions US$ nominal)	Grant levels above 70% (millions US$ nominal)	Total grant	Share of grant by sector (%)
Gender	0.000	0.000	11.692	11.692	0.158
Communication	0.000	0.000	12.928	12.928	0.175
Peace and security	0.000	0.000	37.239	37.239	0.503
Other	0.000	0.000	38.077	38.077	0.514
Arts, Culture and Recreation	0.000	0.000	68.987	68.987	0.931
Rural-development	0.000	0.000	82.854	82.854	1.118
Fisheries	0.000	0.000	90.983	90.983	1.228
Administration	0.000	0.000	119.914	119.914	1.619
Civil Society	0.000	0.000	306.501	306.501	4.137
Health	0.000	0.000	707.952	707.952	9.556
Emergency Aid/other support	0.000	0.000	898.006	898.006	12.122
Education	0.000	0.000	1287.863	1287.863	17.385
Urban	0.000	56.201	79.471	135.672	1.831
Industry	0.000	82.207	86.595	168.802	2.279
Agriculture	13.926	40.436	453.900	508.263	6.861
Economic development	17.372	24.511	1449.356	1491.238	20.130
Infrastructure	18.100	164.216	308.792	491.109	6.629
Environment	21.636	0.000	366.633	388.269	5.241
Water	102.855	49.345	409.550	561.750	7.583
	173.889	416.915	6817.295	7408.099	100.000
%	2.35	5.63	92.02		

Note: Millions US$ nominal.

Source: Author's illustration based on AidData data.

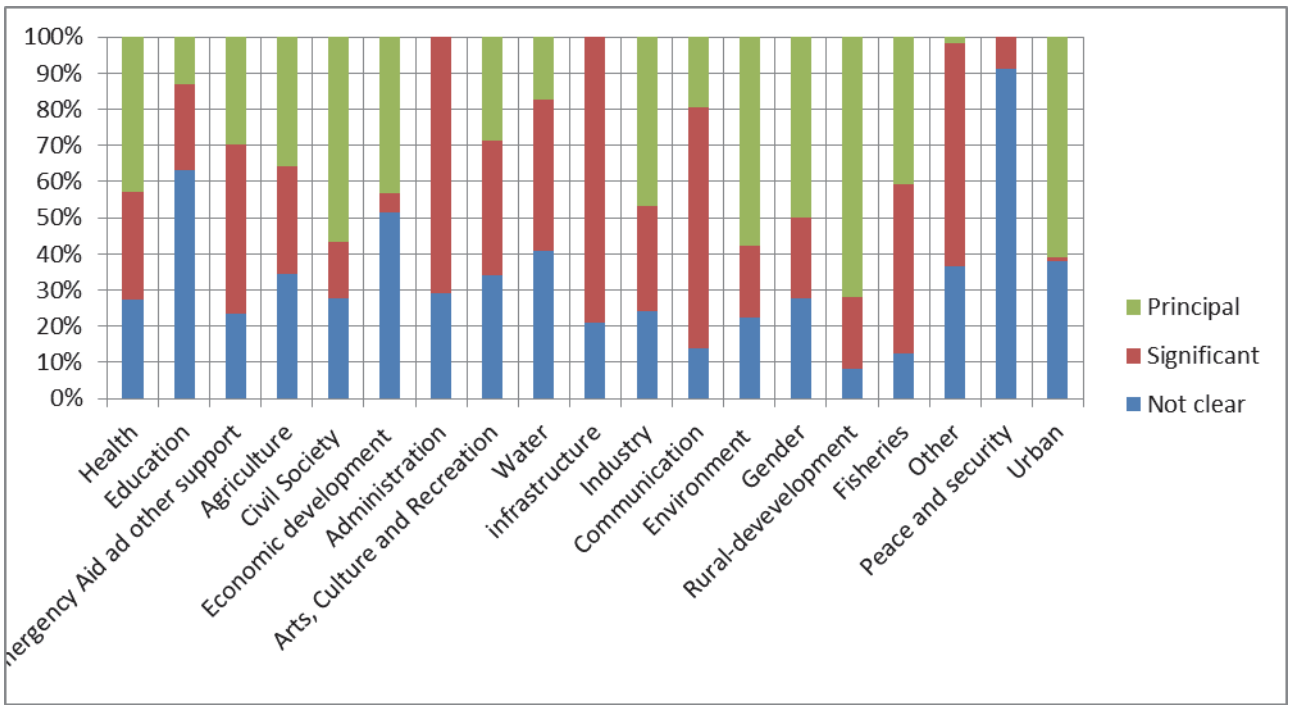
In addition, all grants were either full grants or co-shared. The grants were classified into three categories. The first category was the high-level grants, where the donor provided between 70 per cent and 100 per cent of the financial resources and the beneficiaries were expected to provide 30 per cent or less. The second category included all mixed portfolio whereby donors provided between 26 per cent and 50 per cent and the beneficiary contributed between 74 per cent and 50 per cent of the costs. The third category was grants between 50 per cent and 70 per cent. The majority of the grants (92 per cent) are more than 70 per cent. The grants where the GoS provided a higher share of the funding accounted for 8 per cent. The economic

development and education sectors received the highest committed grants, US$1449.356 and US$1287.863 million, respectively. Moreover, the sectors, which received all types of grants (agriculture, economic development, infrastructure, environment, water, industry, and urban), totalled 50.55 per cent, with the remaining sectors received 49.45 per cent. This suggests that most of the projects are grants and should not be affected by constraining requirements.

3 Relevance and synergic financing between projects, environment, biodiversity, climate change, and desertification

Environmental issues are cross-cutting and as such are relevant to all the various sectors of the economy, directly or indirectly. Since the 1990s, all the sectors have been mobilising new projects and integrating environmental issues on those projects to better mobilize funding. The AidData has a very interesting variable called environment. This variable classifies sets whether or not environment is significant or principal (Figure 5). That variable was used to compare in each of the 19 sectors, the rating of the importance of environmental issues.

Figure 5: Relevance of the environment to 19 sectors



Source: Author's illustration based on AidData data.

Across all the sectors, the environment was reported as an important issue except in administration, infrastructure and peace and security projects. The highest rating was on rural development where 94 per cent of all projects considered environmental issues to be significant (14 per cent) or principal (80 per cent). The environment variable was quite interesting as it allowed us to compare our classification of environmental issues amongst the 19 sector with those of the AidData. Sixteen per cent of the unclear projects are those that we classified as environmental projects while they were not by the AidData. On the remaining data (84 per cent) we had a convergence of which 15 per cent were significant, and 69 per cent were principal.

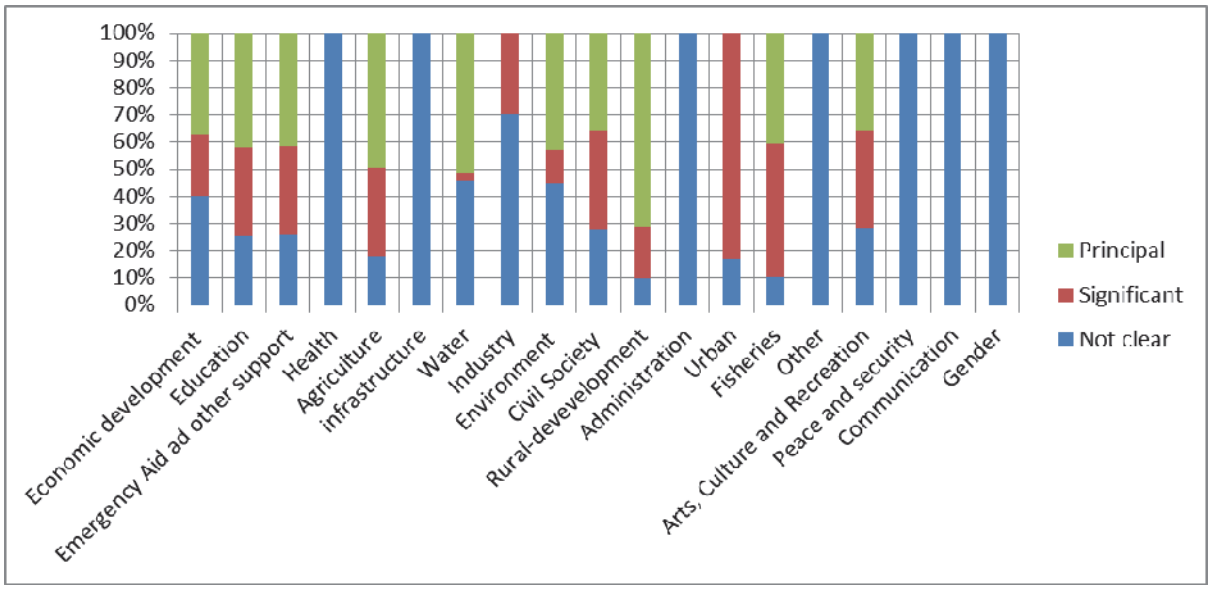
The environment was significant in all of the sectors, but the largest significance was amongst administration and other sectors. Therefore this distribution highlights the difficulty to state that this is the amount of resources made available to the environment since there are other relevant

environmental issues being tackled by other services. This is a very interesting approach because if every sector addresses environmental issues directly within their sector and integrate environmental objectives within their own strategies it would have a direct benefit to the environmental sector. This is also a clear indication of the cross-cutting nature of the environment and the difficulties on trying to single out the level of funding that was devoted to environmental issues. Access to funding is generally tagged to various interests of the bilateral and multilateral donors.

3.1 Biodiversity management and conservation

The conservation of biodiversity and natural resources in general has been growing, especially with increasing degradation, deforestation, desertification, and climatic change. Many governments are committed to making sure that biodiversity is conserved. Moreover it is an important element in the fight against poverty as proper conservation of biodiversity would help sustain livelihoods in rural communities and better fight against the biotic and abiotic stresses. Figure 6 shows the distribution of relevance in all the 19 sectors.

Figure 6: Relevance of biodiversity to 19 sectors in Senegal, 1993–2010



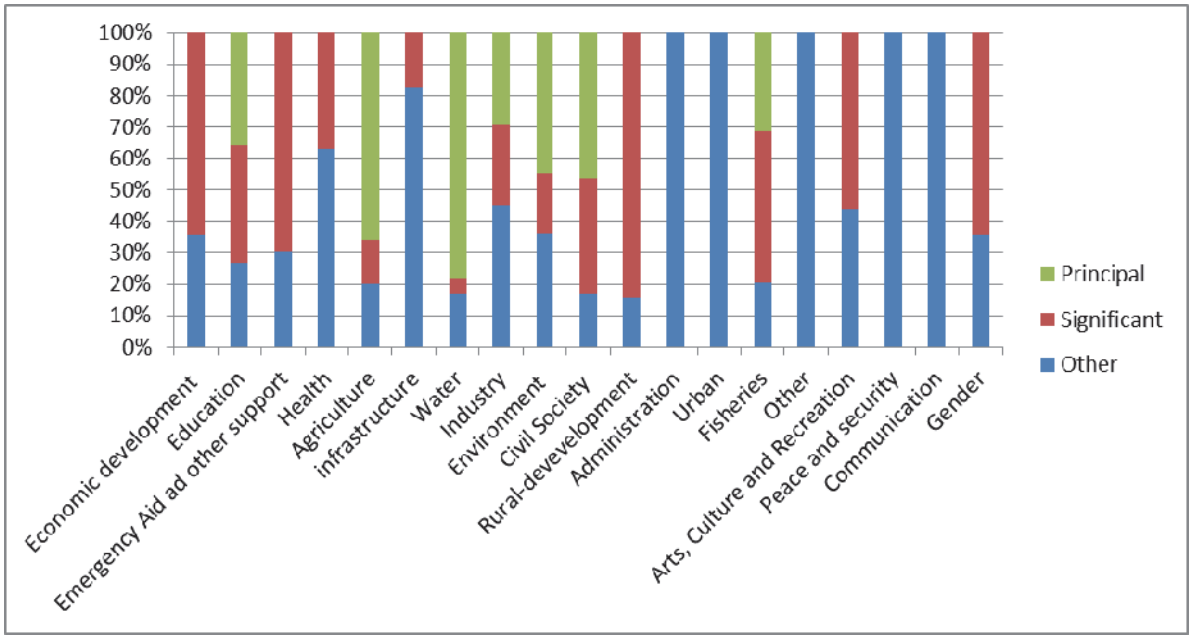
Source: Author's illustration based on AidData data.

Contrary to the environment itself, some sectors consider biodiversity as insignificant. The groups that do not have anything to do with biodiversity are health, infrastructure, other, gender, peace and security. Biodiversity, however, is the significant and principle objective in all remaining sectors. The highest level of biodiversity of more than 70 per cent was in rural development. The results show very interesting patterns. Across all the 19 sectors, except for the peace and security sector, the findings suggest that the biodiversity is either a principal, or significant, or both. However, such significance is at varying degrees of importance. The highest one was rural development, which recorded more than 70 per cent. The environment, civil society, urban, were considered as principal with more than 50 per cent. This is an interesting indication and confirms the increasing trend of NGO involvement in natural resources management following the various devolution and decentralization processes that require communities to take over or directly contribute in the management of their forests and pasture resources.

3.2 The relevance of climate change vis-à-vis the 19 sectors

The analysis of the climate change variable suggests the classification of the sectors into three main groups (Figure 7). The first group, which included the sectors where climate change was not considered significant or principal, was peace and security, communication, other, administration.

Figure 7: Relevance of climatic change to other sectors in Senegal, 1993–2010



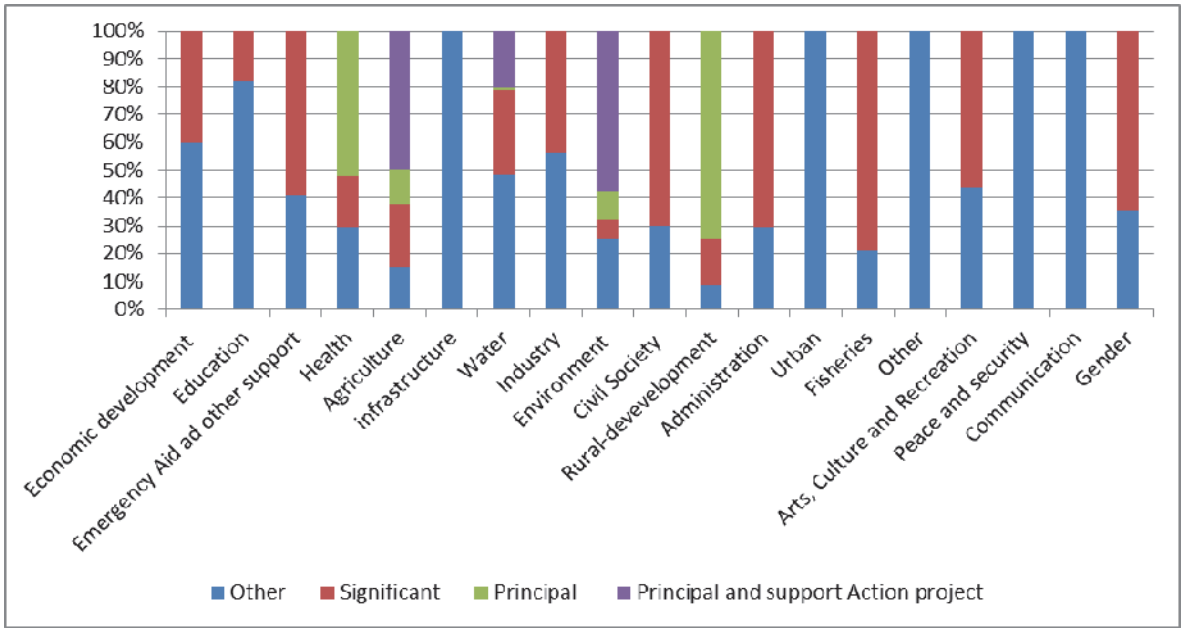
Source: Author's illustration based on AidData data.

The second group was composed of the health, aid, emergency aid, rural development, arts, culture, recreation, and gender sectors. The findings show that, at varying degrees, that climate change was significant in the projects. But the economic development, rural development and gender sectors had the highest rates showing that climate change is principal. The remaining group, composed of the education, agriculture, water, industry, environment, civil society, and fisheries sectors considered, for more than 50 per cent, that climate change was both principal and significant. However, the figure shows that across the agriculture and water projects have the highest ratings where climate change was reported as principal, with respectively 49 per cent and 63 per cent. This reflects two important issues that are affecting the strategies for agricultural development and water management. As a Sahelian country, the Senegal government have prioritized water management and the development of irrigation for rice cropping. AquaStat (FAO) reported that in 2002, irrigated areas were 119,680 ha of which 10,218 ha were irrigated with ground water and 109,462 with surface water. FAO also reported that the rice production increased from 146.405 metric tons in 1988 to 408.219 metric tons in 2008 (int. US$84.876 million). Senegal remains a large importer of rice.

3.3 Combating desertification

In a Sahel country, combating desertification is a priority issue. In Senegal the implementation of the 'green wall' in the Ferlo has been a priority for stopping the desertification of that area and also improving the pastures and livelihood strategies of the local communities. Similarly to the previous issues, this component looks also at another indicator of whether the project was principal and also supported an action programme (Figure 8).

Figure 8 : Relevance of desertification to other sectors in Senegal, 1993–2010



Source: Author's illustration based on AidData data.

This was the case for agriculture, environment, and water. None of the projects from the infrastructure, urban, others, peace and security, and communication, were considered as significant of principal or supporting action programs. Rural development and health projects had the highest level of having desertification as a principal issue. Nonetheless, in other sectors reported the significance of desertification like fisheries, administration, civil society, and gender.

3.4 Dynamics of biodiversity, climatic change and desertification projects

The analysis of relevance between the sectors and ongoing issues such as the environment, climate change, biodiversity, and desertification, showed various disparities. All of these are global issues and may reflect also donor interests as they also set the areas of funding showing their commitment of addressing some of the global issues. This shows the worth of having the AidData database, which enables researchers to look not solely at the level of funding but also the importance of that funding with regard to global issues (Table 2).

It is interesting to find that since 2000, the environment sector has received US$401.113 million from development partners to support implementation. Table 2 shows that about 46.505 per cent of the funding was devoted to projects where the three themes (desertification, climate change, biodiversity) were considered as principal issues, 6.966 per cent where the issues were significant, and about 0.189 per cent where the committed funding was to add value to other development projects by addressing environment-related issues. The latter case was mainly reported in the case of desertification. The total of the percentages suggests that the three themes received, during this period, similar levels of funding.

Moreover, to assess the how these global issues are reflected into concrete projects and the evolution of the average level of funding would be interesting indicators (Figures 9, 10, and 11). The three graphs show clear differences between the three themes in term of projects as well as in funding. The biodiversity, climate change and desertification projects accounted for 34.74 per cent, 32.18 per cent and 33.08 per cent of the selected projects, respectively. Over 2000-10, 740 (8.16 per cent of all projects) reported that the one of the theme was either principal, significant or as a support to development project. Regarding biodiversity, 314 projects were funded

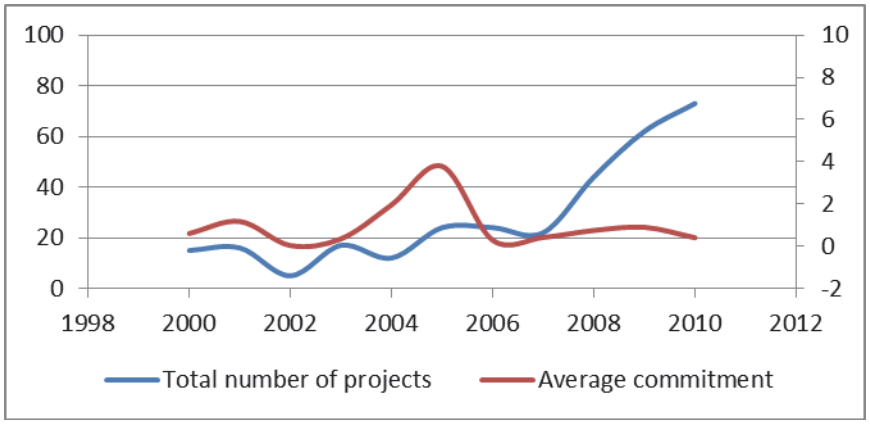
between 2000-01 of which 213 projects reported that the biodiversity was the principal objective and 101 projects reported that the biodiversity objective was significant (Figure 9). During the period, the biodiversity theme received about US$282.374 million in commitments. However, the comparison between evolution of the number of the projects and the average project funding shows that since 2008, the number of projects are increasing while the average level of funding have dropped to about US$0.403 million in 2010. The minimum was reported in 2002 with an average of US$0.033 million and a maximum of US$3.787 in 2005.

Table 2: Duration of selected projects environmental projects

	Principal	Significant	Support development project	Total fund projects since 2000
Desertification	109.784	21.438	1.411	747.514
Climate Change	125.724	2.897	0.000	
Biodiversity	112.126	27.733	0.000	
Subtotal (US$)	347.634	52.068	1.411	401.113
	Principal	Significant	Support development project	Total
Desertification %	14.687	2.868	0.189	17.743
Climate Change %	16.819	0.388		17.207
Biodiversity %	15.000	3.710		18.710
Subtotal %	46.505	6.966	0.189	53.660

Source: Author's illustration based on AidData data.

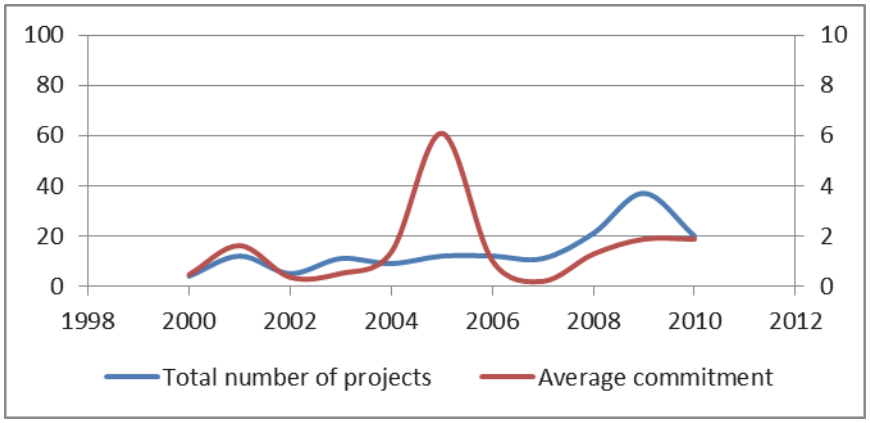
Figure 9: Evolution of biodiversity projects in Senegal, 2000–10



Source: Author's illustration based on AidData data.

For climate change, 154 reported that this theme was either principal (122) or significant (32), (Figure 10). The total level of commitment for these projects was US$261.549 million. The same trends are reported in Figure 9. The average minimum funding for the project was US$0.191 million in 2007, and the maximum of US$6.093 million in 2005.

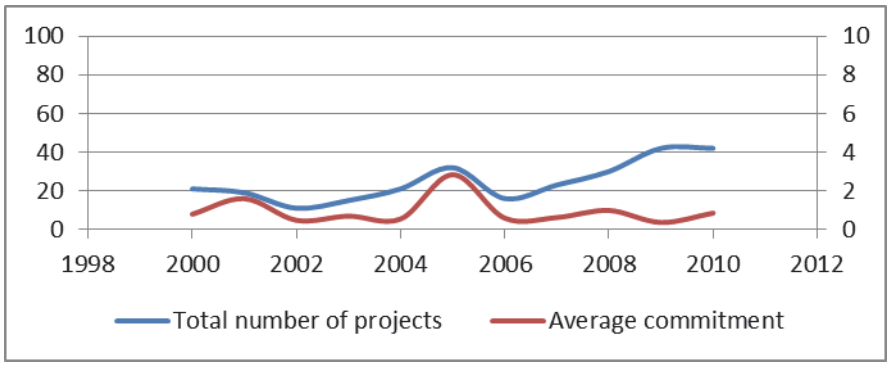
Figure 10 : Evolution of climate change projects in Senegal, 2000–10



Source: Author's illustration based on AidData data.

The desertification theme benefitted similar level of funding, US$268.915 for the same period (Figure 11). In total, 272 projects reported having this issue as a principal objective (224 projects), significant (43) and as a support to development projects (5). Similarly to biodiversity projects, the number of projects is increasing while the average level was fairly stable.

Figure 11 : Evolution of desertification projects in Senegal from 2000–10



Source: Author's illustration based on AidData data.

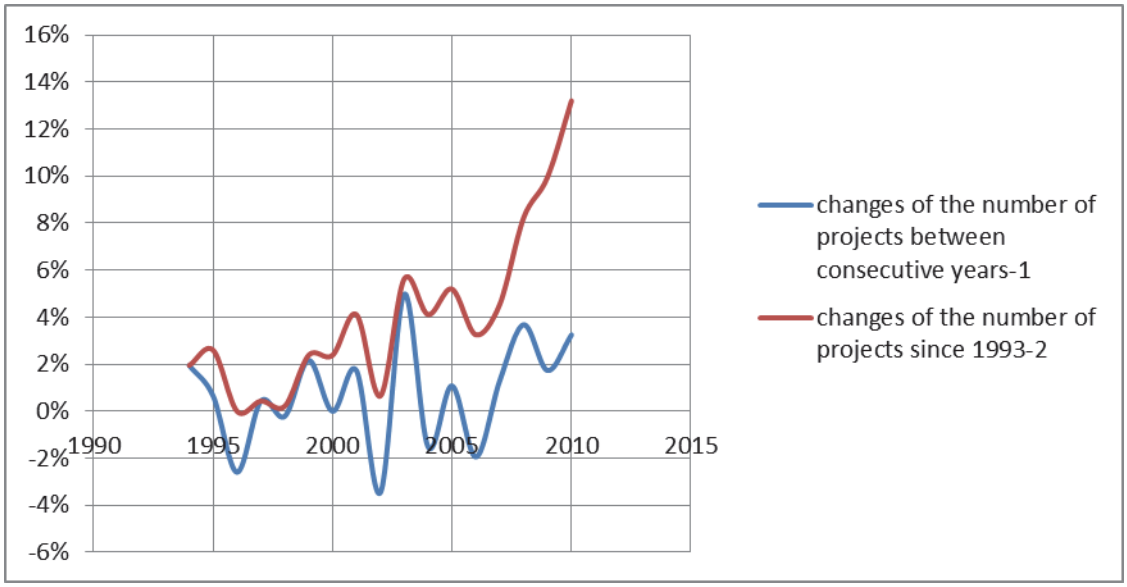
Figures 9, 10 and 11 show the trends of the number of projects and average commitment per project. They exhibited different trends, with biodiversity and climate change showing greater differences. Moreover, 2005 was a very characteristic year as the average level of funding increased for the all the themes. This reflects the crisis management during the inundations.

4 Financing the environment sector

Using the AidData database, we focused directly on the 462 projects and programmes (Figures 1 and 9) that were classified as environment. The overall commitments for those projects were about US$455.613 million (nominal) which accounted for 4.36 per cent of the overall projects. Moreover, US$388.269 million of the commitments were grants (Table 1), representing 85.22 per cent of the overall commitment to the sector and 5.241 per cent of all the grants. The total disbursement in the sector was about US$158.864 million, which accounted for 34.87 per cent of the commitments (Figures 2 and 10). This rate of disbursement was ranked tenth. The agriculture rate was 38.7 per cent, water 22.44 per cent, and fisheries 25.82 per cent. It was surprising to find such rate of disbursement compared to education which accounted for 60.37 per cent, health 50.38 per cent, and economic development 62.32 per cent.

However, we found numerous discrepancies, especially in those sectors related to environment where all of them were below 50 per cent disbursement. The major cause of these discrepancies was mainly due to the non-reporting of disbursement for the budget support programme in the AidData database. These results are worrisome as one does not expect that with such levels of committed grants and disbursements, the sector would have enough financial resources to implement its programme. This situation raised questions. What are the constraints that are preventing these commitments to be fully disbursed? Have the donors put the requirement levels so high that it became difficult for the GoS to access these resources? Does the institutional incapacity of the ministry to absorb of committed funds causing these low disbursement rates? Under such case, what has been done to address such constraints? To better unveil some of the constraints that may affect the sector, a trend analysis looking at two indicators were developed to assess whether the changes from year-to-year are similar to the long-term trend since 1993 (Figure 12).

Figure 12: Dynamic evolutions of the number of environmental projects financed in Senegal, 1993–2010



Source: Author's illustration based on AidData data.

The first indicator shows the evolution of committed projects between two calendar years to capture the potential effects of environmental issues, such as droughts and floods. The second indicator explores the long-term changes of the number of projects since 1993. The results were quite interesting and suggest the classification of the trends into four main periods. The first period, 1993-99, shows a quite stable situation and the number of projects increased only by 2 per cent. The second period, 1999-2003, the projects increased by an additional 2 per cent and also some fluctuation was noticed. From 2003-06, we see a peculiar situation; whereby the overall trend of projects went up, but the changes of project from consecutive years went down. Since 2006, the number of projects increased quickly from a 3 per cent to a 13 per cent change in 2010 but the changes in the number of projects between consecutive years remains below 4 per cent.

The variability in the number of projects from consecutive years is quite interesting, especially on those years (1996, 2002, 2004, 2006) where the number of projects decreased. What are the factors that have contributed to this rapid change in the number? The rapid changes in the number of projects have many implications. Obviously, it would be considered favourable if the increase in the number of projects is associated with additional financial resources made available

to the environment ministry, but the contrary with less financial resources would lead to more transaction costs, which could turn out to be a real constraint to sector development.

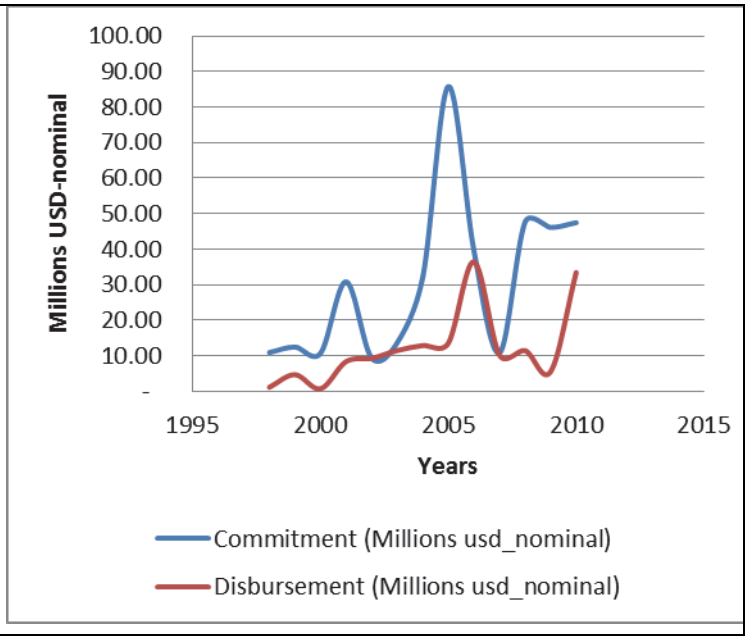
We cannot discuss the issues of financing the environmental sector without exploring what the data tells us with regard to the sustainable optimum level of disbursement. The data suggests that the 2003 levels of commitment and disbursement were the best, even when funding increased in 2004 and in 2005, come 2007 it dropped back to the 2003 level of US$11.44 million. This issue will be discussed later under government funding and the implications of the budgetary support programme.

4.1 Evolution of commitments and disbursements in the environment sector

The same approach was used to assess the level of funding in the environment. We started the analysis in 1998 because although in 1993, 1994, 1995, and 1997 the sector received commitments, no money was disbursed. This may be due to missing projects. The results display the same trends as those discussed for the overall funding dynamics (Figure 13).

Figure 13: Evolution of funding in the environmental sector in Senegal, 1998–2010

	Commitment (millions US$ nominal)	Disbursement (millions US$ nominal)
1998	10.88	1.08
1999	12.43	4.65
2000	10.68	0.65
2001	30.83	8.33
2002	9.32	9.26
2003	13.63	11.44
2004	32.08	12.87
2005	85.80	13.51
2006	39.52	36.43
2007	10.78	10.13
2008	47.60	11.44
2009	46.08	5.49
2010	47.44	33.44

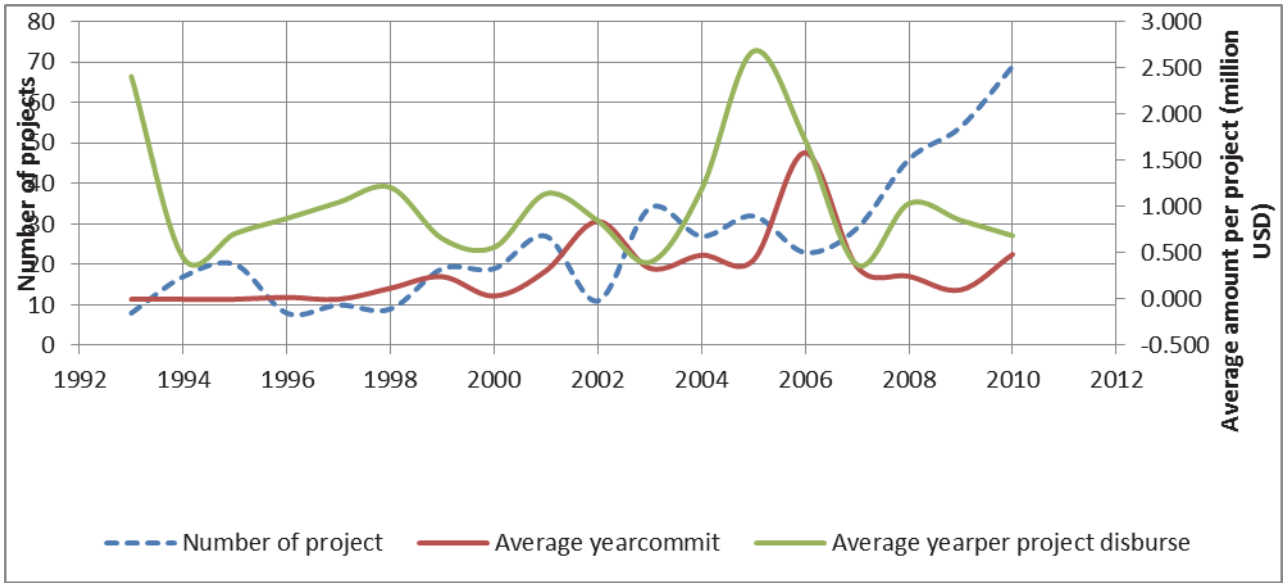


Source: Author's illustration based on AidData data.

This reflects the crisis management approach that was discussed in earlier sections. Further discussions with the ministry staff and the donors elucidated that the disbursement of most of the budget support programmes were not adequately reported. As earlier stated, it would be critical to update these data in order to have more accurate analysis of the disbursement part. These trends would have implications on the capacities of the ministry to address environmental issues (Figure 14). Indeed, Figure 14 reveals very interesting trends. First is that the quotas protocol, with an average size of US$2.5 million, went down to US$0.500 million. The commitments have remained within US$0.500-1.25 million, except in 2005 where the average jumped back to more than US$2.5 million. The disbursements were even lower because in 2003, we moved from 0 disbursement to US$0.245 in 1999, US$1 million in 2002, and then US$1.58 million in 2006. In 2007 it decreased to US$0.372 million. These decreases of the average level of disbursement rates are the results of the concurrent effects of the implementation of the new

purchasing code[4] to regulate expenditure of public funds and the non-reporting to the AidData database of disbursements made since 2004 on the budgetary support funds.

Figure 14: Evolution of average commitments and disbursements in environment sector in Senegal, 1993-2010



Source: Author's illustration based on AidData data.

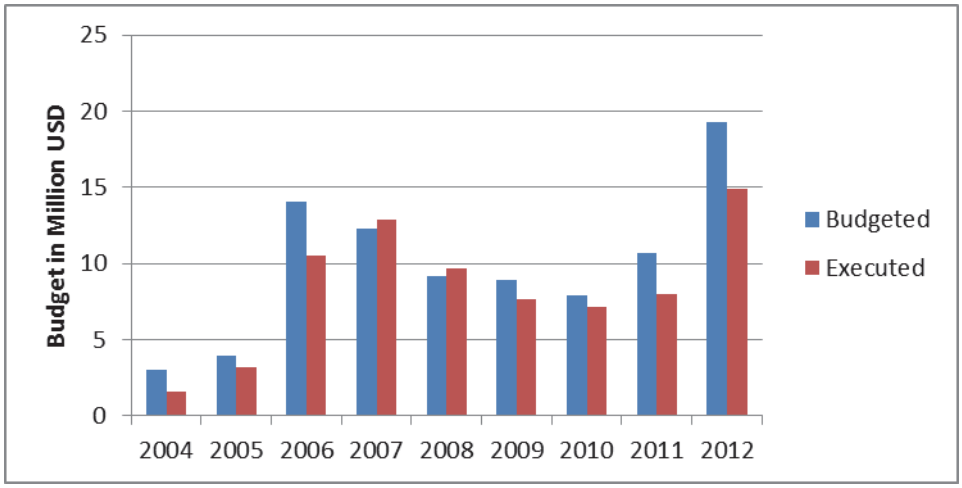
The increases in the number of projects reflect the new trend whereby stakeholders are organizing into NGOs, producer groups, and other types of associations, to take over some of project activities, especially when it comes to community development. If such a change increases the efficiency of project implementation that would be favourable. However these trends may also have negative effects on the ministry's capacity to implement its programmes in the longer term. In addition when comparing the average funding by project, it is found that for the environment the average commitment was US$0.98 million and the disbursement was about US$0.344 million, about one-third. In the later sections, we discuss the contribution of the Senegal government to the budget of the ministry of environment and example of the strategy This indeed will have a direct effect on the environment.

4.2 The budget of the Ministry of Environment

The support of the Senegal government to the functioning of the environment ministry of has been variable and increasing since 2004 (Figure 15). From 2004, the beginning of the budgetary support programme, the ministry's budget increased from US$3.015 million in 2004 to US$14.060 million to 2006. This large jump was associated with a change of strategy in the allocation of the budgetary support programme. Over 2003-05 the major approach was to target the beneficiary sector through the objectives of a poverty reduction strategy (PRS), but from 2006 donors allocated funds under non-targeted support which provided more flexibility to the allocation of public funds. Subsequently the budget has been fluctuating, reaching US$7.923 in 2010, and US$19.31 million in 2012.

4 SenegaCode des Marchés Publics (CMP) instigated Decree No. 2007-545 of 25 April 2007. This was later modified by Decree No. 2010-1188 of 13 September 2010, which sets the rules for recruiting the agents of the ARMP, membership of the council and public expenditure. The decree was repealed by Decree No. 2011-04, of 20 January 2011.

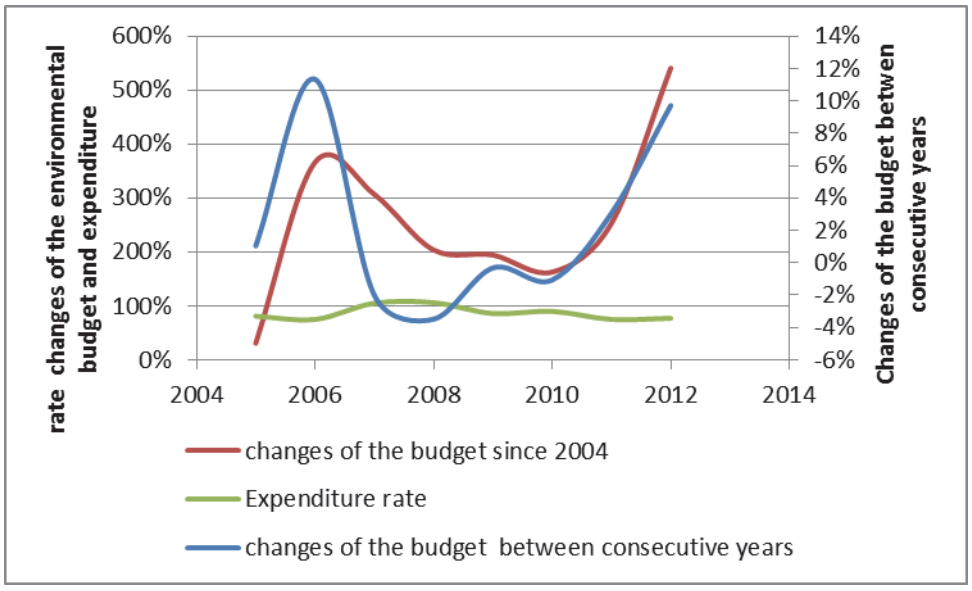
Figure 15: Dynamic of change in the disbursements (millions US$ nominal) in Senegal,1993-2010



Source: Author's illustration using data from the Ministry of Economics and Finance (2013).

Moreover, the evolution of the national budget for the environment and its expenditures (Figure 16) shows two periods. The period between 2004-09 is characterized by a large variability between the dynamics of the long-term (changes of budget since 2004) and short-term (changes of the consecutive years) trends. The second period is since 2009, where we see the expected convergence between long-term and short-term changes.

Figure 16: Dynamic of change in the budgets and expenditures (millions US$ nominal) in Senegal, 2004-12



Source: Author's illustration based on AidData data and Minsitry of Economics and Finance.

These indicators show that the demand for additional budget reflects needs that have been expressed and effectively utilized. In the previous period, it was quite clear that in 2008 the ministry exceeded its budget. This situation also reveals the difficult infancy of the budgetary support programme, in that it did not have all the mechanisms, controls, and indicators needed to enable donors to monitor the effects of their contributions. Many problems have been reported and the data confirm some of the improvements in the financial management since 2009. The issues of financial governance are of importance and will be discussed later.

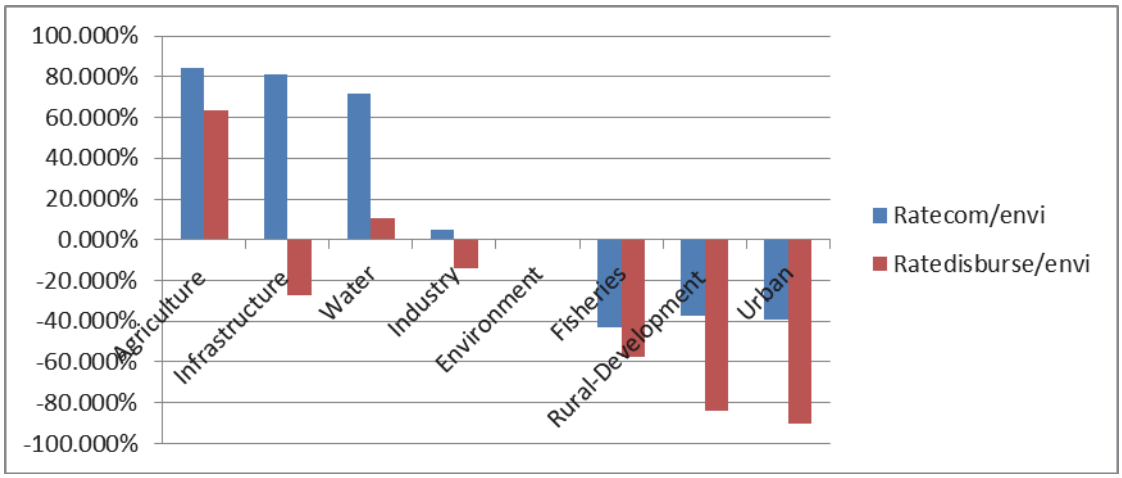
5 Relationships between the environment and related sectors

The previous sections have highlighted the cross-cutting features of the environment sector as it shares collective interests with other sectors with regards to global issues, such as biodiversity, climate change, and desertification. These issues affect all sectors. The efficiency of the environment sector depends very much also on other related sectors that use natural resources as their main input in the functioning of their projects and programmes: agriculture, infrastructure, water, industries, fisheries, rural development, and urban development. All these sectors share natural resources and any activity they conduct may have negative effects on the people but also on the sustainability of the natural resources.

The agricultural sector is the domain of paradigms within the Senegalese economy. Indeed, this sector employs more than 70 per cent of the labour force. Production is based on peanut, rice, sugar cane and traditional food crops such millet, sorghum and maize. In recent years, the production of fruits and vegetables is increasing for export to Europe. Peanut, which is a main cash crop, was introduced during the colonial period and remains the mainstay of the agro-industrial base in Senegal. The problems with peanut oil started with the increased production of other alternative oils which contributed to the closing down of some of industries. The GoS intervention in the pricing of peanut contributed to the difficulties of the sector and maintained low incomes in the peanut basin. In recent years, the increasing demand from Chinese private entrepreneurs has increased the market price and many farmers are selling directly and generating higher incomes.

Rice, which is a main staple food, is being produced in the north and until recently the different attempts to increase areas under productions have not been successful. The private sector with the support of many NGOs is making some headway and is increasingly taking a larger share of the rice market. But Senegal remains largely dependent on rice import. The traditional food crops are the main staple crops in the rural areas and are characterized by low productivity. This is a sector that remains a big challenge for the government. The difference in importance between the environment and the other closely related sectors could be understood through the level and dynamics of commitment and disbursement (Figure 17).

Figure 17: Comparative rates of commitments and disbursement between the environment and selected sectors (millions US$ nominal) in Senegal, 1993-2010



Source: Author's illustration based on AidData data.

Figure 12 shows the rate differences between commitments and disbursement. Two groups have emerged: the first group included water and infrastructure agriculture. This situation was

expected as biodiversity, climate change and desertification (Figures 6, 7, and 8) are important issues in both sectors. Each has received more funding commitments where agriculture and infrastructure received more than 89 per cent, whereas water received about 72 per cent. The second group is the rural development, fisheries, and urban development. This group received less resources and even less disbursements. Except rural development, fisheries and urban development are only considering these environmental issues with the growing problems of climate change. For the fisheries sector more emphasis, at the national and regional levels, is being put on rising seawater levels and coastal dynamics. With regard to urbanization, the extension of sub-urban towns, without adequate public sewage systems, has resulted in chaos during flood years. Many households have been forced to move home.

Table 3: Duration of selected projects environmental projects

	Number of years							
Areas of intervention	1	2	3	4	5	6	9	Total
Forestry services	0	1						1
Sanitation - large systems	0		1					1
Sectors not specified	1				1	1		2
Food crop production	1							1
Flood prevention/control	2							2
Forestry education/training	2							2
Fuel-wood/charcoal	2							2
Agricultural development	3	1						4
Environmental education/training	3		1					4
Reconstruction relief	3							3
River development	3							3
Forestry research	4				1			5
Biosphere protection	6	3						9
Disaster prevention and preparedness	6							6
Site preservation	7							7
	43	5	2	0	2	1	0	52
%	65.15	7.58	3.03	0.00	3.03	1.52	0.00	
Waste management/disposal	4	1	1	3	3			12
Forestry development	11	3	1	2		1		18
Biodiversity	20	1	2	1	1			25
Environmental research	21	1	1					23
Environmental policy and admin. mgmt.	56	5	9	4	2		1	77
	112	11	14	10	6	1	1	155
%	78.32	7.69	9.79	6.99	4.20	0.70	0.70	
Total	**155**	**16**	**16**	**10**	**8**	**2**	**1**	**207**
%	74.16	7.66	7.66	4.78	3.83	0.96	0.48	

Source: Author's illustration based on AidData data.

These results confirm the importance of agriculture, infrastructure and water in the economic strategy of Senegal. However, if we consider that all the other sectors are also benefiting from budget support, which are not entirely reported in this database, the disbursement, except for the case of the agricultural sector, is problematic. Indeed, these findings show a quite problematic situation as each of the sectors are having disbursement issues. To further analyse the activities financed within the sectors and where we also have data on the length of the programmes, a sub-set of the projects (207 projects) were selected (Table 3).

The duration of projects ranged from one to nine years. The majority of the projects, about 155 (4.88 per cent), were mainly short-term, one-year projects. Moreover, the same projects were reorganised to identify target activities of the funding and draw some lessons on the potential effects of funding. Target activities were classified into three groups (Table 4).

Table 4: Level of funding by activity for selected projects

	Number of projects	Commitment (millions US$ nominal)	Disbursement (millions US$ nominal)	Level of disbursement (%)
Environmental policy and administration management	47	64.398	20.247	31.44
Environmental research	21	1.457	1.431	98.22
Forestry policy & admin. management	9	7.273	3.414	46.93
Forestry research	4	2.072	0.241	11.65
Environmental education/training	3	0.623	0.026	4.25
Forestry education/training	2	0.044	0.044	100.00
	86	75.86705215	25.40328102	33.48
Site preservation	7	23.510	1.868	7.95
Forestry development	11	1.162	0.220	18.97
Food crop production	1	0.094	0.012	12.73
Agricultural development	3	0.162	0.154	94.70
Biodiversity	20	13.339	4.199	31.48
Fuelwood/charcoal	2	2.498	0.000	0.00
	44	40.76611693	6.45342331	15.83
Waste management/disposal	4	1.125	0.183	16.30
Biosphere protection	6	0.835	0.601	71.96
Disaster prevention and preparedness	6	0.450	0.414	92.07
River development	3	0.192	0.083	43.17
Flood prevention/control	2	8.638	8.638	100.00
Reconstruction relief	3	0.888	0.888	100.00
Sectors not specified	1	0.064	0.064	100.00
Sanitation - large systems	25	12.193	10.872	89.17
	50	24.38682753	21.74477908	89.17
Total	**180**	**52.960**	**17.326**	**32.72**

Source: Author's illustration based on AidData data.

The first group concerns knowledge-base, policy, administration, and management. The second group focuses on production and development. The remaining activities cover larger and global issues such as river development. The first group had about 86 projects, about 54.11 per cent of the total project commitment of US$75.867 million, and received about US$25.403 million which equals to 33.48 per cent of disbursement rate. The second group had 44 projects with US$40.766 million project commitment. The disbursement rate was about 15.83 per cent. The third group had about 50 projects and received US$24.387 million. This group received US$21.745 million, equal to about 89.17 per cent of the disbursement rate.

These results show a very peculiar situation where there are very few resources for development. Most resources are going to environmental policies. Looking at this we see three areas where there is higher funding: forestry policy (US$18.259 million), forestry development (US$21.995 million), side preservation (US$23.51 million), and biodiversity (US$15.623 million). This clearly shows that the focus of the environment sector is on forestry. The thematic focus of funding is also of great importance given the increasing strategy by bilateral and multilateral donors to show their contributions to poverty reduction and global environmental problems.

5.1 Governance for financing environmental sector

Since 1996, the establishment of the Heavily-Indebted Poor Countries (HIPC) initiative by the the World Bank (WB) and the International Monetary Fund (IMF) had direct effects on financial governance in developing countries. This initiative aimed at enhancing the gains from structural adjustment programmes, which introduced numerous macro-level reforms to improve economic and administrative efficiency, by reducing the excessive debt burdens faced by the world's poorest nations. Following its review in September 1999, a new extended initiative was developed and numerous modifications were introduced to provide faster, deeper and broader debt relief and strengthen the links between debt relief, poverty reduction and social policies. Eligible countries were required to prepare a PRS paper (PRSP), which was perceived as a framework for addressing rural poverty and developing pro-poor rural growth strategies (Cord 2001). Senegal receives about US$635 million per year in financial aid, of which 13 per cent is received as budget support, representing about fifty donors and 500 projects (Gesrter and Faye 2009).

The PRS process has been accompanied with the implementation of new financial strategies to enhance the achievements of the PRSP approach and the effectiveness of foreign aid. Numerous mechanisms are being used to cater for various sector funding demands. The most important ones in recent years have been the Medium-Term Sectorial Expenditure Framework (CDS-MT, Cadre de Depenses sectorial a Moyen Term), PRSPs, and other thematic and regional support. The CDS-MT, which is an important instrument for fostering aid effectiveness, remains the main funding mechanism used by GoS to both mobilize and allocate resources between the various sectors of the economy. The CDS-MT benefits from the budgetary support, as does the environment sector, which received direct financial support from the Netherlands, EU, and UN institutions.

The co-ordination and dialogue on the budget support programme are conducted under the Agreed Framework for Budget Support (ACAB), which aims at strengthening the implementation of PRS-related activities, and promoting targeted financial reforms for better macro-economic and sector performances. Moreover, the donor community in Senegal perceives the ACAB as sustainable and dynamic instrument for co-ordinating their operations, monitoring the required sector reforms, using a common evolutionary matrix. Furthermore, ACAB contributes to the improvement of technical and financial partners (TPF) co-ordination, the

determination of the level of the budget support programme, offers a permanent framework for dialogue between GoS and partners, and ensures the harmonized definition of disbursement criteria for budget support. This framework also fosters synergies between TPFs in terms of joint missions, studies, audits or simply the opportunity to share best practices (African Development Bank 2013).

Table 5: Donors for the financing of the environmental sector in Senegal, 1993–2010

	Commitment	Disbursement	Level of disbursement (%)
Group I (did not disburse)			
International Fund for Agricultural Development (IFAD)	8.200	0.000	0.00
Global Environment Facility (GEF)	5.417	0.000	0.00
European Communities (EC)	1.229	0.000	0.00
Czech Republic	0.326	0.000	0.00
Brazil	0.120	0.000	0.00
Norway	0.109	0.000	0.00
	15.400	0.000	0.00
%	3.38	0	
Group II (disbursed more than between 1–49%)			
Finland	1.444	0.007	0.48
United States	23.218	0.366	1.57
Germany	2.873	0.046	1.61
World Bank, International Development Association (IDA)	25.000	1.340	5.36
Sweden	0.402	0.051	12.61
Netherlands	202.275	29.483	14.58
Canada	9.298	1.406	15.13
Switzerland	0.751	0.225	30.02
Austria	0.451	0.218	48.37
	265.710	33.143	12.47
%	58.32	20.86	
Group III (disbursed more than 50%)			
France	112.423	77.103	68.58
Japan	37.806	26.188	69.27
Belgium	6.686	5.074	75.89
Italy	0.534	0.503	94.13
Spain	10.452	10.041	96.07
United Nations Development Programme (UNDP)	5.153	5.153	100.00
United Nations Childrens Fund (UNICEF)	1.001	1.001	100.00
Luxembourg	0.236	0.236	100.00
Korea	0.127	0.127	100.00
United Kingdom	0.081	0.081	100.00
Ireland	0.003	0.003	100.00
WFP	0.000	0.211	100.00
	174.502	125.722	0.720457
%	38.30	79.14	

Source: Author's illustration based on AidData data.

The process of synergic co-ordination between the government and the TFPs also required the implementation of a participatory stakeholder process both in terms of funding, as we shall see in the case of the Netherlands, as well as the organization of stakeholders—including the GoS, development partners, politicians, civil society, and the Senegalese private sector to discuss programmes, approaches and to identify areas of intervention that could enhance the implementation of the framework (World Bank 2009).

The CDS-MT also required a transparent process to improve the governance of public expenditure. The GoS created the Regulatory Authority for Public Expenditure (Autorite de regulation des marches publics, ARMP). The purchasing code is one of the financial governance instruments to monitor the spending of public funds. These are very interesting structural changes that will contribute to aid effectiveness and better use of public funds.

Finally, more synergies were developed between bilateral and multilateral donors to support the environment sector. In the previous sections, we discussed that more than 85 per cent of resources committed to the environment, were in the form of grants. Overall, only 34.87 per cent were reported as disbursed for project implementation. Therefore, it becomes critical to understand who are those donors, their level of commitments and disbursements, and the level of constraints as to why the government did not effectively use the funds. These donors can be classified into three main groups (Table 5).

The first group was composed of the International Fund for Agricultural Development (IFAD), Global Environment Facility (GEF), European Communities (EC), Czech Republic, and Brazil. They committed about US$15.4 million (3.38 per cent of committed funding) but in the AidData database there was no report of disbursement. All these multilateral and bilateral partners are very much involved in the funding of the environmental sector. This is an area where the dataset needs to be updated to reflect the true disbursement rates. The EC[5] is a major donor in Senegal, for instance financing environmental projects and contributing to the improvement of the sewage system.

The second group is the most interesting one as it has the highest level of commitment US$265.71 million (58.32 per cent of commitment), but only US$20.86 million in disbursements on average.

The third group was composed of the countries that that had the highest reported disbursement rates (more than 50 per cent of their commitments). The total commitment of this group was about US$174.02 million (38.30 per cent of commitments), but disbursements were 79.14 per cent of commitments. The highest donors were France, Japan, and Spain. The same caution must be observed on the various disbursement rates due to the non-full reporting of the budget supports.

5.2 Synergic evolution of the national budget and donor disbursement, 2004-12

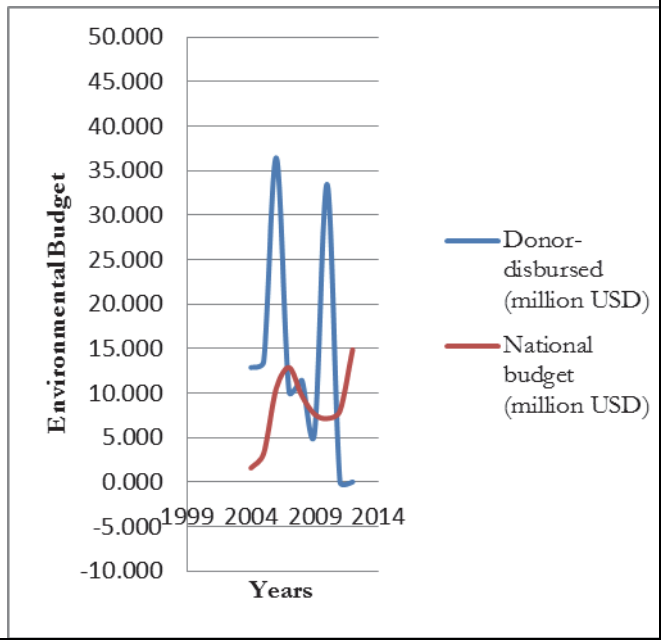
The comparison between government and donor funding of the environment is an important indicator for accessing the overall budget in this sector. The data shows clearly that the donor

5 The EC funding support increased but also of better quality by the reduction of the transaction costs associated by having third party implementers. Now, EC provides a lot of budget support that helps the government in the implementation of their development programmes.

community has supported the implementation of environment-related activities over 2000-10 (Table 6). The donors disbursed about double the government budget devoted to the sector.

Table 6: Donor financing for the environment sector in Senegal, 2000–10

	Donor-disbursed (million US$)	National budget (million US$)
2004	12.869	1.568
2005	13.509	3.196
2006	36.428	10.545
2007	10.132	12.881
2008	11.439	9.704
2009	5.487	7.630
2010	33.435	7.131
2011	0.000[6]	7.988
2012	0.000[7]	14.873
Total 2000–10	123.300	52.655



Source: Author's illustration based on AidData data and Ministry of Economics and Finance.

The main concern was the drop in budget both from the government and the donor community between 2006-08. This was at the core of the shift for donor strategies moving from targeted budget support to non-targeted support. Some of these problems may have been due to difficulties implementing budget support without the proper governance process to monitor and evaluate the gains from the new approaches of aid efficiency. The completion of AidData to include the recent years and update the disbursement will further enhance the accuracy of this analysis.

5.3 Comprehensive approach to the financing of the environment: the case of the Netherlands

In Senegal, the Netherlands are perceived as one the major champions of the environment sector. The analysis of the AidData database revealed a quite surprising situation whereby the Netherlands committed about US$202.275 million for the environment sector but only disbursed US$29.483 million. Further investigation of the financing of the environmental unveiled that the major cause for such discrepancy was the non-reporting of the targeted and non-targeted budget support to the government. The funding strategy of the Netherlands has been quite interesting and in this section we explain the strategy, but will focus on how the Netherlands shifted from funding third-party projects implemented by the FAO and World Bank between 2000-04 to targeted and non-targeted budget support programmes; Table 7 shows three important areas of intervention: co-implementation, capacity strengthening, and budget support.

6 Not available.

7 Not available.

Table 7: Netherlands funding to the environment sector in Senegal, 2000-10

	Co-implementation			Capacity Strengthening			Budgetary support	
Years	Rural Forestry 2 (FAO)	Support programme for the Forestry Development (PADF),[8] (FAO)	Sustainable and Participatory Management of traditional and Alternative energies (PROGEDE)[9] World Bank	Support Funds for environmental initiative (FASIE)[10]	Institutional Strengthening for the Environment in Senegal (FRIES)[11]	Center for Environmental Monitoring (Centre de suivi écologiques, CSE)	Targeted	Non-Targeted
2000	0.410		0.685					
2001	0.372	4.109	2.210	0.068				
2002	0.038	3.612	0.858	0.076				
2003		1.757	2.618	0.400				
2004			0.287	0.295			2.391	
2005				0.358	0.250	0.100		7.500
2006				0.100	0.581	0.150	0.499	9.375
2007				0.150	0.512	0.150		11.710
2008					0.103	0.150		11.557
2009					0.018	0.150		12.250
2010					0.219	0.150		12.000
Total	0.821	9.477	6.658	1.447	1.682	0.850	2.890	64.392
	16.955	19.220%		3.979	4.511%		67.282	76.269%

Note: in US$ million.

Source: Embassy of the Netherlands, in Senegal: 28. Tableau des Déboursements réalisés par l'Ambassade de Pays Bas, en Euro

The co-implementation reflects a common modus operandi for numerous bilateral and multilateral donors to add value and reduce transaction costs. This would consist of co-financing projects that are conceived and implemented by a third agency, mainly in the UN group. In this case, FAO received funding in the case of the Forestry 2 project over three years (2000-02) for about €0.821million, and the PADF project for three years (2001-03) with a total funding of about €9.477 million. Concomitantly, the Netherlands are co-financing the PRODEGE project along with the World Bank for about €6.658 million for five years (2000 04).

The Netherlands also contributed €3.979 million (4.511 per cent of funding during that period) to support two institutional strengthening programmes and the Center for Environmental Monitoring. Both the FASIE and the FRIES were interesting. The first fund allowed the ministry

8 Financed solely by the Netherlands for about US$8.953061 million for 33 moths (April 2001-December 2003).

9 This project started in 1998 with a global funding of US$19.9 million (1998-2004), US$4.1 million to (2005-07), US$2.7 million (July 2007-December 2008).

10 Fonds d'Appui t de Soutiens aux initiatives environnementales (FASIE)

11 Renforcement Institutionnel pour l'Environnement au Sénégal.

to provide grants to environmental related initiatives while FRIES contributed to the strengthening the capacity of the ministry to conduct environmental studies, monitoring and evaluation, planning and management. The Centre de Suivi Ecologique(CSE) is playing an important role in the monitoring of environmental processes in Senegal.

The targeted and non-targeted support programmes received the majority of the funds, €2.890 million and €64.392 million respectively. In total, the support programme received during 2000-10, about €67.282 million (76.269 per cent of their allocation to support GoS activities). Table 7 also shows that since 2006 the Netherlands are granting non-targeted budget support, which allows the government to decide on where would the aid their received be more effective. Such flexibility is critical and was requested by the government to improve its capacity to implement its PRSP. However, without adequate control, the environment may lose some of this funding.

Table 8: Other funds allocated to stakeholders by the Netherlands in Senegal

Years	NGOs[12]	Elected official	Media	Regional Activities[13]	Capacity building	Fisheries	Total
2000	0.755						0.755
2001	0.382	1.480					1.861
2002	0.313						0.313
2003	0.828				0.086	0.150	1.064
2004	0.425		0.019	1.145	0.101	0.150	1.840
2005	1.354		0.009	3.514	0.389	0.304	5.570
2006	1.312	0.046	0.045	3.791	0.389	0.100	5.683
2007	1.200	0.150	0.017	1.612	0.200	0.100	3.279
2008	1.199	0.335		4.222	0.304		6.060
2009	0.965	0.119	0.062	7.584	0.138		8.868
2010	1.025	0.078	0.008	6.531	0.090		7.732
Total	9.757	2.208	0.160	28.399	1.697	0.804	43.024146
%	22.677	5.131	0.371	66.007	3.944	1.869	100.000

Note: In € million.

Source: Embassy of the Netherlands, Senegal. Appuis néerlandais au secteur de l'environnement entre 2002 et 2010, autres appuis (hors gouvernement du Sénégal).

Finally, environmental issues are cross-cutting through all the sectors of the economy and their impacts affect all the various segments of the population. Therefore, a comprehensive financing strategy must be based on understanding stakeholders' financial demands and supporting their activities to add value to the funds provided to government institutions. In addition, to funds granted to the government, the Netherlands also invested about €43.024 million between 2000-10 to support complementary activities at the national and regional levels in six sectors: (1) NGOs; (2) elected officials; (3) media; (4) regional activities; (5) capacity-building; and (6) fisheries (see Table 8).

12 UICN, WWF, ENDA Tiers Monde, Wetlands International, and Support funds to the NGOs in Senegal (Fonds appui ONGs).

13 Organisation pour la Mise en Valeur du fleuve Sénégal (OMVS) and the Programme Régional de Conservation de la zone Cotière et Marine de l'Afrique de l'Ouest.

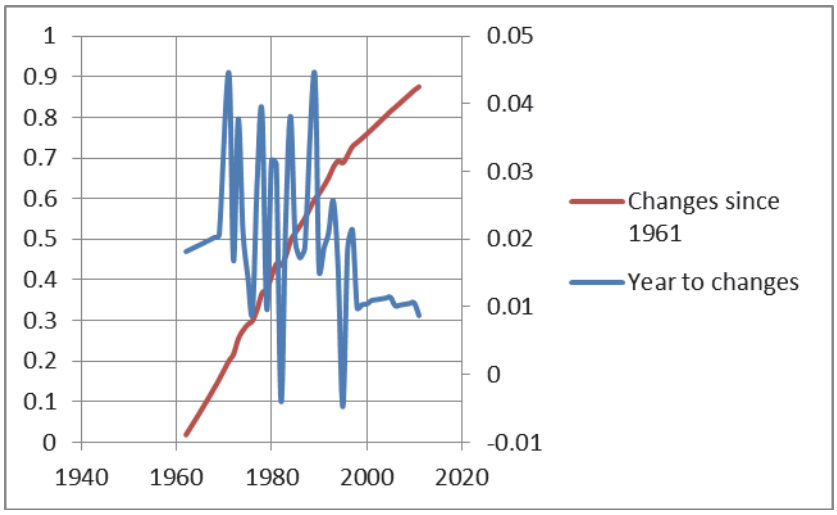
The distribution of the funds shows two main groups. The first group includes NGOs and regional activities, which received respectively €9.757 million and €28.399 million for the last ten years. In total, these two sectors received €38.156 million (88.684 per cent of the funds). The other stakeholders received about €4.868 million (11.316 per cent). It is important to note that this type of funding is instrumental for bringing alternative approaches and options for the conservation and management of natural resources. The funding of the media and elected officials helps in the communication and information of environment-related issues. The increasing awareness of these sectors will contribute to enhancing policies and institutions and making the public more sensitive to environmental issues and concerns.

The funding trend shows that since 2006 funding allocated to support other stakeholders for the implementation of diverse environmental related activities has doubled, and even tripled in 2009. This type of commitment to the sector is critical for the conservation and management of natural resources. The extent to which such synergic approaches contribute to the efficiency of the aid is not well understood. There are many anecdotes related to successes but hard data is missing in most of the cases.

6 Conclusion: the way forward

In the previous sections we have tried to understand the evolution of the financing in the environmental sector and its governance. Now we are confronted by the issue of so what now? What have been the outcomes of all these various efforts in the sector? It would be misleading to draw grandiose developmental effects of all this investment that is made in the environmental sector. For sure, the financing of the environment has contributed in the development of appropriate institutions, reinforcing their capacity to manage the resources and dialogue with the other stakeholders. Under these conditions, the overall effects of these efforts must be translated into concrete effects in the forestry sector that has been a focus for conservation and management since the colonial period.

Figure 18 : Evolution of fuelwood production in Senegal



Source: Data from FaoStat (2013), calculations by author.

We carried various trend analyses on land changes, irrigation cropping, forests and pastures but we could only find some interesting trends on the fuel wood sector. In total, the forestry sector has produced 213.479 million cubic meters since 1961. The growth of production has been quite controlled as during the past five decades the production level moved from 2.907505 million

cubic meters in 1961, to currently 5.452552 million cubic meters. This growth is equivalent to almost the doubling of production (Figure 18). This production, however, does not take into account the charcoal that is produced locally. But what it is certain is that the GoS has taken very strong measures to protect the environment, and over these years many efforts have been devoted to implement policies to manage the forests and community development plans in forested areas.

Figure 18 displays two important trends for fuel wood production. The long-term trends explore the changes in production since 1961 while the short-term trends assesses changes that occurring between consecutive years. The figure suggests four periods. The first period (1961-76) is the benchmark because 1976 recorded the lowest rate of change and that is also when the two rates met. The second period covers 1977-89 and reflects the efforts to manage forests. The year-to-year changes attained their lowest level in 1982. The third period, over 1990-99, shows a situation where the short-term changes are below the long-term trend. With the final trend, since 2000, we are witnessing a more stable situation where the level of production has remained almost the same. This situation is quite interesting compared to the high variability that was recorded between 1961-98. These trends are very encouraging as they confirm that the funding and efforts devoted to better managing forest resources are showing interesting payoffs.

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