

# SENEGAL ECONOMIC UPDATE

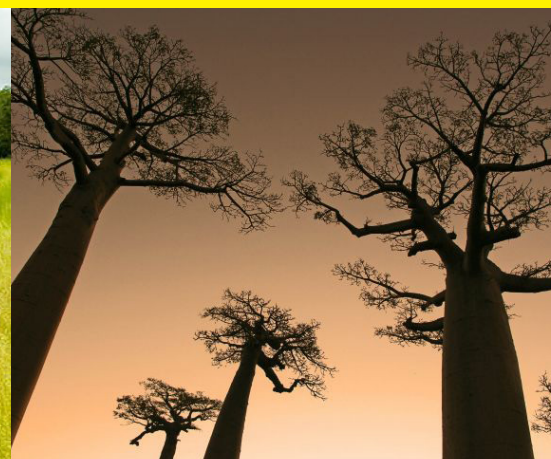
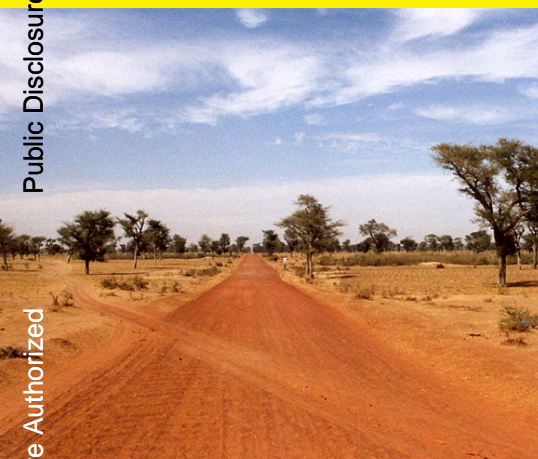


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## LEARNING FROM THE PAST FOR A BETTER FUTURE



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LEARNING  
FROM THE PAST FOR  
A BETTER FUTURE

DECEMBER 2014 | FIRST EDITION



# Contents

<b>FOREWORD</b> .....	vii
<b>SUMMARY</b> .....	ix
<b>INTRODUCTION</b> .....	1
<b>CURRENT SITUATION AND RECENT TRENDS IN SENEGAL</b> .....	3
Economic developments.....	3
Monetary policy and prices.....	5
Fiscal policy.....	6
External sector.....	10
Public debt.....	11
Labor, unemployment and poverty.....	13
<b>TIME FOR A NEW GROWTH STRATEGY</b> .....	15
The Plan Senegal Emergent.....	16
Sectoral sources of growth.....	17
The business and investment environment.....	18
Sources of growth by factors of production.....	19
Decomposing growth by expenditures.....	21
Conclusion.....	23
<b>CLIMATE CHANGE ADAPTATION IN SENEGAL</b> .....	25
Climate change, the environment and poverty reduction.....	26
Rising sea level and coastal erosion.....	28
Analysis and options.....	30
Tourism impacts.....	31
Conclusions and recommendations.....	33

# Figures

<b>FIGURE 1:</b>	SECTOR CONTRIBUTIONS TO REAL GDP GROWTH 2010–2014* (IN %)	4
<b>FIGURE 2:</b>	THE TERTIARY SECTOR DROVE GDP GROWTH IN 2013	4
<b>FIGURE 3:</b>	HORTICULTURE AND LIVESTOCK SUPPORTED GROWTH IN THE PRIMARY SECTOR IN 2013	5
<b>FIGURE 4:</b>	OUTPUT OF BASIC FOOD CROPS FELL IN 2013	5
<b>FIGURE 5:</b>	THE SECONDARY SECTOR RECORDED A NEGATIVE PERFORMANCE IN 2013	5
<b>FIGURE 6:</b>	MAIN PRODUCTS AND SERVICES DRIVING PRICES IN 2013	6
<b>FIGURE 7:</b>	PUBLIC SECTOR SALARIES COMPARED TO GDP PER CAPITA, 2009	7
<b>FIGURE 8:</b>	COMPOSITION OF PUBLIC SECTOR REMUNERATION, 2002–2012	8
<b>FIGURE 9:</b>	SENEGAL'S PUBLIC EXPENDITURES ARE HIGHER THAN IN OTHER WAEMU (% OF GDP, 2013)	9
<b>FIGURE 10:</b>	TOTAL EXPENDITURES HAVE RISEN FASTER THAN OTHER WAEMU COUNTRIES (INDEX, % OF GDP)	9
<b>FIGURE 11:</b>	THE 2014 BUDGET RAISES QUESTIONS ABOUT GOVERNMENT PRIORITIES SHARES OF BUDGET BY SECTOR MINISTRY	10
<b>FIGURE 12:</b>	SENEGAL'S MAIN IMPORTS (LEFT SIDE) AND EXPORTS (RIGHT SIDE): 2008–2012	11
<b>FIGURE 13:</b>	SENEGAL'S DEBT-TO-GDP INCREASED RAPIDLY RELATIVE TO OTHER WAEMU COUNTRIES	12
<b>FIGURE 14:</b>	ESTIMATES OF THE UNEMPLOYMENT RATE VARY WIDELY DEPENDING ON THE DEFINITION (% OF LABOR FORCE)	13
<b>FIGURE 15:</b>	THERE HAS BEEN LITTLE PROGRESS IN POVERTY REDUCTION SINCE 2005	14
<b>FIGURE 16:</b>	AS A RESULT, THE NUMBER OF POOR HAS INCREASED	14
<b>FIGURE 17:</b>	POVERTY TRENDS IN WEST AFRICAN COUNTRIES (PPP US\$1.25 PER DAY)	14
<b>FIGURE 18:</b>	GDP GROWTH IN SENEGAL HAS BEEN CONSISTENTLY BELOW THE AVERAGE FOR SUB-SAHARAN AFRICA	15
<b>FIGURE 19:</b>	SECTOR CONTRIBUTIONS TO GDP GROWTH IN PERCENTAGE	17
<b>FIGURE 20:</b>	DESPITE INCREASING CAPITAL ACCUMULATION, GDP GROWTH TRENDED INSTEAD WITH MOVEMENTS IN TFP GROWTH	20
<b>FIGURE 21:</b>	NET WORKERS' REMITTANCES IN % CHANGE	22
<b>FIGURE 22:</b>	CONTRIBUTION TO GDP GROWTH BY EXPENDITURE 1990–2012	23
<b>FIGURE 23:</b>	GROWTH WAS DRIVEN MOSTLY BY PRIVATE CONSUMPTION	23
<b>FIGURE 24:</b>	PERCENTAGE OF POPULATIONS AFFECTED BY ENVIRONMENTAL CHANGE BY SECTOR & INCOME SOURCE	27
<b>FIGURE 25:</b>	THE POOR ARE MUCH MORE AT RISK FROM CLIMATE SHOCKS	27
<b>FIGURE 26:</b>	LEVEL AND VARIABILITY OVER TIME OF COASTAL EROSION RISK IN SENEGAL	28
<b>FIGURE 27:</b>	MAJOR STEPS OF THE COST-BENEFIT ANALYSIS (CBA)	29
<b>FIGURE 28:</b>	BREAKDOWN OF NET PRESENT COST INDUCED BY A 50-YEAR FLOOD IN SAINT-LOUIS	30
<b>FIGURE 29:</b>	ASSESSING THE OPPORTUNITY COST OF DOING NOTHING	31
<b>FIGURE 30:</b>	DISTRIBUTION OF COSTS OF NATURAL HAZARDS	31
<b>FIGURE 31:</b>	TOURISM HAS BEEN DECREASING SINCE 2002	32

# Tables

<b>TABLE 1:</b>	SENEGAL MACROECONOMIC INDICATORS, 2011–2017 . . . . .	7
<b>TABLE 2:</b>	SPENDING ON MANY PRIORITY SECTORS AS A SHARE OF THE 2014 BUDGET DID NOT INCREASE . . . . .	10
<b>TABLE 3:</b>	SELECTED EXTERNAL ACCOUNT INDICATORS . . . . .	12
<b>TABLE 4:</b>	EMPLOYMENT DECREASED IN MODERN SECTORS IN 2013. . . . .	13
<b>TABLE 5:</b>	MACROECONOMIC FRAMEWORK UNDER BOTH PSE AND PSI . . . . .	16
<b>TABLE 6:</b>	ANNUAL GROWTH RATES AND DECOMPOSITION BY FACTORS . . . . .	20
<b>TABLE 7:</b>	GROWTH IN CONSUMPTION NEEDS TO SLOW IN ORDER TO PROVIDE MORE SAVINGS . . . . .	21
<b>TABLE 8:</b>	GROWTH DECOMPOSITION BY EXPENDITURE. . . . .	22
<b>TABLE 9:</b>	PERCENTAGE OF POPULATIONS AFFECTED BY PERCEIVED ENVIRONMENTAL CHANGE BY IMPACTS & AGRO ECOLOGICAL ZONE . . . . .	26

# Boxes

<b>BOX 1:</b>	HORTICULTURE: THE FUTURE OF AGRICULTURE IN SENEGAL? . . . . .	18
<b>BOX 2:</b>	THE ENERGY SECTOR: KEY REFORMS LONG POSTPONED . . . . .	19
<b>BOX 3:</b>	OVERVIEW OF NATURAL HAZARDS ON THE SENEGALESE COAST . . . . .	29
<b>BOX 4:</b>	ACCELERATION OF COASTAL EROSION . . . . .	30
<b>BOX 5:</b>	THE HEALTH COSTS OF CLIMATE CHANGE . . . . .	31



# Foreword

This report is the first in a new series aimed at monitoring economic developments in Senegal and analyzing key policy options. It presents a broad overview of macroeconomic and structural developments in the country over the course of 2013 and 2014. The second part provides a historical analysis of economic growth since 1990 in order to draw lessons for the future. The third part focuses on the emerging challenge of climate change. The authors are Matthias Cinyabuguma, Senior Economist, and Philip English, Lead Economist. The authors received valuable support from Djibril Ndoye, Poverty Economist, and Isabelle Kane, Disaster Risk Management Specialist.

We hope this report will stimulate debate within Senegal on the appropriate mix of policies needed to improve living standards and reduce poverty. Comments on the content of this report are welcome.

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## Summary

- GDP growth was a disappointing 3.5 percent in 2013. It remained largely unchanged compared to 2012, reflecting a decline in cereal production and stagnation in the industrial sector. Services continue to drive the economy.
- The total value of exports stagnated in 2013, as four of the five major export products suffered declines—phosphoric acid, gold, cement and fish. Tourism, which remains the largest foreign exchange earner, also struggled.
- Budget execution remained in line with the fiscal framework, with a decline of the fiscal deficit to 5.5 percent of GDP. However, poor revenue performance necessitated cuts in public spending.
- The economic outlook for 2014 was more positive, but poor rainfall and the Ebola outbreak have forced downward revisions in GDP growth projections, now expected to reach 4.5 percent.
- Fiscal consolidation continued in 2014 with a reduction in the budget deficit from 5.5 percent in 2013 to 5.2 percent in 2014. However, the wage bill, particularly benefits, became increasingly important, and the 2014 and 2015 Budgets did not always appear to fully reflect the priorities announced by the government.
- A longer-term analysis of the economy underlines the loss of dynamism since 2005, partly due to external shocks but also inefficient investment and a lack of reforms.
- The Plan Senegal Emergent aims to break with this trend, with a welcome focus on higher economic growth. However, its ambitions may exceed available resources and will likely depend on accelerated reforms and a strong private sector response.
- Climate change poses new challenges for the economy. Coastal erosion is already affecting the tourism industry, and rising sea levels pose a significant medium-term threat, particularly for Saint-Louis.

# SENEGAL ECONOMIC UPDATE

# Introduction

This first Economic Update begins with an overview of the macroeconomic situation in Senegal, starting with a review of 2013 before examining the initial results of 2014. After a brief look at the challenges posed by unemployment and poverty, the report turns to an assessment of the growth strategy. Since the growth targets of this strategy are very ambitious when compared with Senegal's economic track record, we then turn to an analysis of past performance since 1990 in order to understand better what needs to be done differently. We conclude this first section with a few recommendations.

The second part of this report focuses on the new challenges posed by climate change. It begins with some observations drawn from the 2011 poverty survey to underline the vulnerability of the poor to environmental shocks. We then turn to an innovative study recently supported by the World Bank on the impact of rising sea levels and coastal erosion in Senegal, and the policy choices to be made. Particular emphasis is placed on the implications for the tourism sector, correctly identified in the government's growth strategy as a key driver of economic growth and job creation. Finally, a few recommendations are made for adaptive strategies and additional studies.



## Current situation and recent trends in Senegal

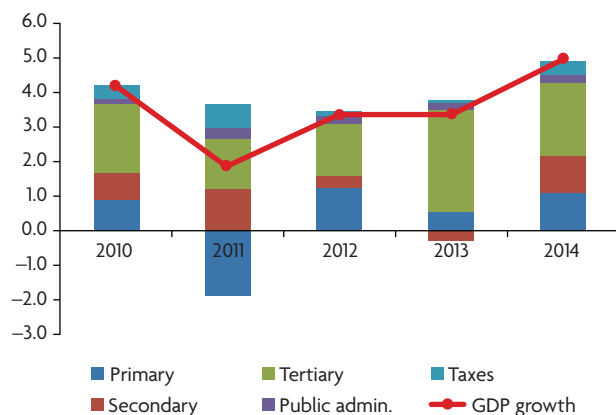
**A new government is formed to implement a new strategy.** President Macky Sall launched a new growth strategy, the *Plan Sénégal Emergent* (PSE), at a Consultative Group meeting in Paris in February 2014, first to the traditional donors and then to private investors. The response was very positive, with donor financing pledges and private sector participation both greatly exceeding targets. However, it also further raised the expectations of the population. With implementation of his program remaining too slow for the President, a new government was formed on July 7 with clear instructions to accelerate the pace.

### Economic developments

**Economic growth remained disappointing in 2013.** Real GDP growth for 2013 was 3.5 percent, not much different from 2012 (3.4 percent), and lower than the projected level of 4.0 percent. The services sector led the economy increasing by 6.4 percent. The slow rate of growth was attributable to decreases in both the secondary sector (-1.5 percent) and in crop production (-8.3 percent).<sup>1</sup>

<sup>1</sup> This number is provided by ANSD and does not include horticultural production. For more details, see Figure 1.

**Figure 1: Sector contributions to real GDP growth 2010–2014\* (in %)**



Source: DPEE, Notes de conjoncture, 2014; \* projected for 2014.

**There were positive developments in some major subsectors.**

Within the services sector, telecommunications, transport and financial services led the way recording annual increases of 17.1, 12.4 and 11.9 percent respectively (Figure 2). Increased competition in mobile phones and internet provision appears to have contributed to this dynamism. In the primary sector, the livestock (8.8 percent) and horticulture (8.9 percent) subsectors did well in 2013. In the secondary sector, the construction subsector posted a 10.3 percent increase driven by continued dynamism in office and residential construction in Dakar, the renewal of work on the Blaise Diagne International Airport (AIBD), the extension of the Highway AIBD-Mbour, and other road projects. The

energy subsector recorded a 3.4 percent gain over 2013, although this was achieved at the cost of continuing large subsidies by the government and unpaid taxes (Figure 3).

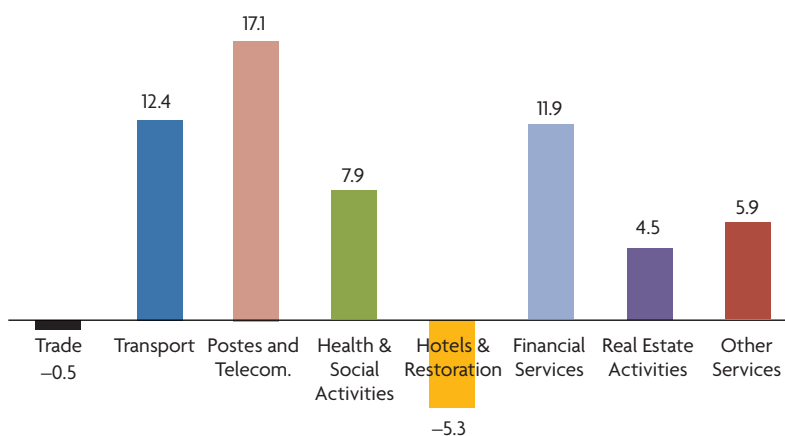
**The continued weakness of the agricultural sector is a cause for concern.**

For the second time in the last three years crop output decreased. Cereals production was estimated to be 12 percent lower than during 2012 and 17 percent below the average of the last five years (Figure 4). Groundnut production increased slightly (2 percent) but remained lower than the recent five year average. Reduction in cultivated areas, insufficient use of certified seeds, and erratic rainfall were the main drivers of these agriculture shortfalls. The important fisheries sector continued to suffer from the effects of over-fishing, recording virtually no growth (1.0 percent).

**The formal private sector also struggled.**

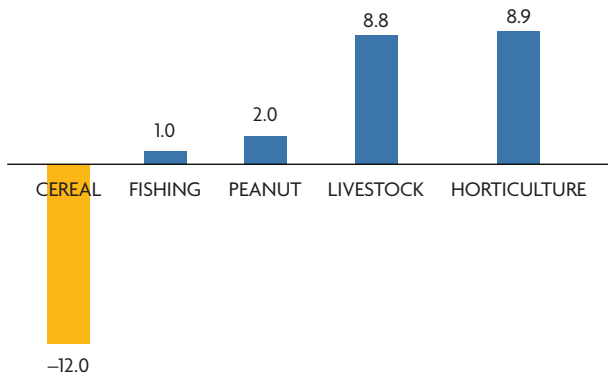
Extractive activities declined by 24.7 percent in 2013 due in particular to problems in the phosphate subsector (ICS), which now accounts for a large share of non-performing loans in the banking sector. Edible oil production decreased by 26.1 percent when groundnut oil output fell as local processors were unable to compete with prices offered by foreign buyers for raw groundnuts (Figure 5). The largest groundnut oil processor (SUNEOR) is now in financial difficulty, as is the petroleum refinery (SAR). The tourism sector was hampered by beach erosion in Saly and a difficult visa process. The hotel and restaurant segment posted a decrease of 5.3 percent over the year. By the end of 2013, public enterprises such as Senegal Airlines, the Dakar Dem Dikk bus company, and the King Fahd Palace hotel also faced serious problems. The government launched a commission to address the problems of such industries in distress in May, 2014.

**Figure 2: The tertiary sector drove GDP growth in 2013**



Source: DPEE, Notes de conjoncture, 2013

**Figure 3: Horticulture and livestock supported growth in the primary sector in 2013**



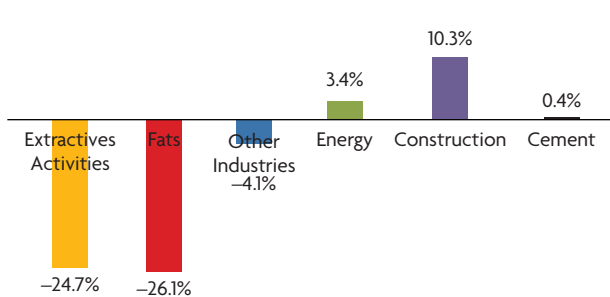
Source: DPEE, Notes de conjoncture, 2013

**Figure 4: Output of basic food crops fell in 2013**



Source: DPEE, Notes de conjoncture, 2013

**Figure 5: The secondary sector recorded a negative performance in 2013**



Source: DPEE, Notes de conjoncture, 2013

**On the demand side, 2013 witnessed a more balanced distribution of consumption and investment between the public and private sectors.** Private consumption growth increased from 1.5 percent in 2012 to an estimated 2.8 percent in 2013; while growth in public consumption dropped from a peak of 6.4 percent in 2012 to 2.6 percent in 2013. Private gross fixed capital formation increased significantly, by 4.8 percent in 2013 compared to 3.0 percent in 2012, whereas growth in public gross fixed capital formation slowed somewhat from 9.0 percent in 2012 to 5.0 percent in 2013. While the relatively stronger role of the private sector is encouraging, the fall in domestic savings is not. Savings are estimated to have fallen by 1.8 percentage points, as overall consumption rose from 90.1 percent of GDP in 2012, to 91.9 percent in 2013.

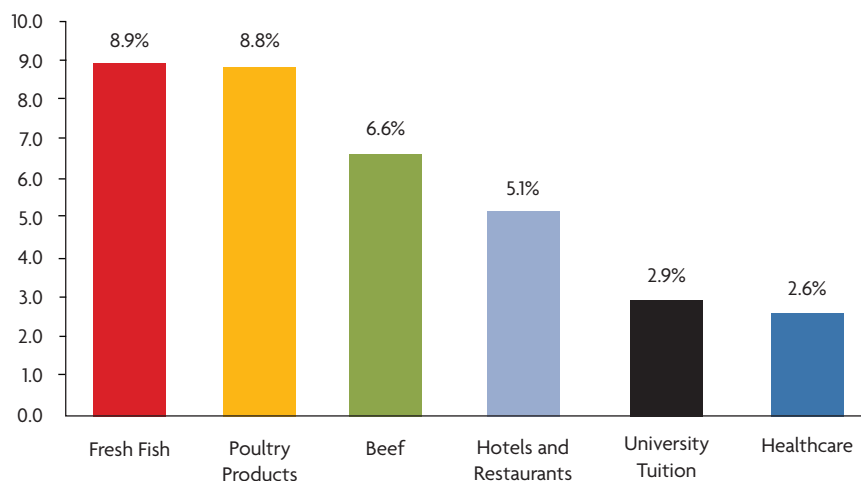
**The government now forecasts GDP growth in 2014 to improve to 4.5 percent.** The outlook was generally positive, given the signs of strength in the global economy, the likelihood of a rebound in agriculture, the efforts under way to improve the business climate, plans for increased public investment, and the continued dynamism in the services sector. A new zircon mine began operations in early 2014, and substantial government support has ensured a better groundnut oil output. However, the agricultural economy remains vulnerable to climatic conditions and the rains arrived very late in 2014. The Ebola outbreak has started to impact tourism and transport in the second half of the year. Also, Mali is Senegal's largest export market, and its renewed instability may affect sales of cement, petroleum products and transit trade. Fortunately, the recent trend in world prices is downward, which should reduce subsidies to Senelec and improve the balance of payments.

## Monetary policy and prices

**Monetary policy remains consistent with economic stability and growth targets.** Senegal's monetary policy is determined by the regional central bank, BCEAO, which prioritizes inflation reduction and maintaining the stable peg of the CFA franc to the Euro.

**With declining inflation, the BCEAO maintained its minimum interest rate for open market operations at 3.0 percent through 2013.** Money supply increased by 10.5 percent in 2013 (against 8.7 percent in 2012). This allowed an expansion in bank credit to the private sector, which now represents 33 percent of GDP (2013) as compared with 29.8 percent in 2012, and only 25.8 percent in 2010. This reflects changes in bank strategies to target new customers from the ranks of small and medium business, as well as individuals who might previously have turned to



**Figure 6: Main products and services driving prices in 2013**

Source: DPEE, *Notes de Conjoncture*, 2013

microfinance lenders. Commercial banks' capacity to establish and maintain reserves is broadly appropriate, and inflationary pressure from the increase in bank liquidity is low.

**The average inflation rate for 2013 declined to 0.7 percent, and by end-year it had disappeared.** This represents a substantial drop from 2011, and is well below the community threshold set by WAMEU at 3 percent. Import prices declined by 0.9 percent, including a substantial drop in rice prices, while domestic prices rose by 1.3 percent. However, the authorities also used administrative price controls to reduce the cost of sugar and vegetable oil, while maintaining tariffs on electricity, water, and petroleum prices (through subsidies in the first case and reduced taxes in the last one).

**Significant price increases were observed in some food products.** Fresh fish prices rose by 8.9 percent, reflecting the increased scarcity due to over-fishing. Livestock prices also rose, notably poultry products (8.8 percent) and beef (5.1 percent). These rising costs appear to have impacted on the hotel and restaurant sector as well (6.6 percent). Other categories experiencing increases included cigarettes, due to a new tax to discourage consumption, university tuition—which had not increased for several decades—and healthcare (Figure 6).

**Multiple signs suggest little or no demand-side inflationary pressure.** Modest growth domestically is not expected to have a major impact on household consumption, while slowing growth in China and other emerging markets suggests no

upward pressure on import prices. The introduction of rent reductions at the start of 2014 has brought down the cost of housing for many low and middle income people (though it is likely to impact negatively on maintenance and new investment in the housing sector). On the other hand, the poor harvest of 2013 has led to higher prices for domestically produced staples.

## Fiscal policy

**The fiscal deficit has slowly decreased, due to a gradual reduction in current spending.** The deficit has fallen from 6.7 percent of GDP in 2011 to 5.9 percent in 2012 and 5.5 percent in 2013 (Table 1). This is due, first of all, to a decline in energy subsidies by 0.8 percentage points, and second, to a rise in grants by 0.4 percentage points. However, the fall in energy subsidies has been partly offset by a rise in unpaid taxes by SENELEC. More generally, revenue collection has underperformed, which explains why the deficit in 2013 fell short of the original target of 4.9 percent of GDP. The authorities are now aiming for a deficit of 5.2 percent of GDP in 2014, but remain committed to further fiscal consolidation over the medium term. Table 1 presents the IMF projections going forward, which are slightly more conservative than those of the authorities.

**Public-sector wages and salaries appear to have been held constant as a share of GDP, but official data provides only a partial picture.** Official statistics only include civil servants, and thus omit contract teachers whose number is equivalent

Table 1: Senegal Macroeconomic Indicators, 2011–2017

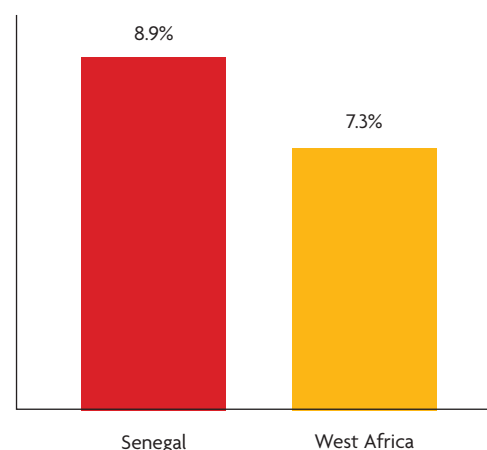
Senegal Macroeconomic Indicators							
(Percent of GDP)	2011	2012	2013	2014	2015	2016	2017
Real GDP growth	2.7	3.4	3.5	4.5	4.6	5.1	5.6
Total revenue and grants	22.4	23.3	22.7	24	23.9	23.9	24.0
Revenue	20.2	20.4	20.1	21.1	21	21.1	21.2
Income tax	5.1	5.7	5.3	5.3	5.5	5.6	5.7
Taxes on petroleum products	3.1	2.6	2.7	2.8	2.7	2.7	2.7
Grants	2.2	2.9	2.6	2.8	2.9	2.9	2.8
Total expenditure	29.1	29.2	28.2	28.3	28.2	27.4	27.3
Current expenditure	18.1	17.5	17.3	17.2	16.9	16.2	15.9
Wages and salaries	6.3	6.4	6.4	6.3	6.2	6.1	6.0
Other current expenditure	10.3	9.6	9.4	9.2	8.9	8.4	8.2
Transfers and subsidies	4.9	5	4.6	4.6	4.6	4.3	4.1
o/w: SENELEC/energy	1.8	1.5	1.1	1	0.5	0.2	0.0
Goods and services	5.4	4.6	4.8	4.6	4.3	4.1	4.1
Capital expenditure	10.5	11.4	11.0	11.8	11.2	11.2	11.4
<b>Overall balance, including grants</b>	<b>-6.7</b>	<b>-5.9</b>	<b>-5.5</b>	<b>-5.2</b>	<b>-4.3</b>	<b>-3.5</b>	<b>-3.3</b>
Financing	6.7	5.9	5.5	5.2	4.3	3.5	3.3
External financing	6.2	6.1	2.6	5.8	2.9	3.2	3.1
Domestic financing	0.2	-0.2	2.5	-0.2	1.4	0.3	0.2
Settlement of payment delays	0.0	0.0	0.2	-0.5	0.0	0.0	0.0

Source: IMF and Senegal authorities

to 40 percent of the total civil service. Employees in agencies, universities, hospitals and externally-financed development projects are also excluded, and they amount to another 10 percent. The 2011 World Bank public expenditure review for 2007–10 estimated the average wage bill at 7.2 percent of GDP, rather than 6.0 percent, correcting only for contract teachers. A more recent and more comprehensive review by the IMF estimated the wage bill at 9.3 percent of GDP and the average public salary at 8.9 times the average income, is above the regional average (Figure 7).

**While the official number suggests that Senegal's wage bill is under the WAEMU guideline of 35 percent of domestic revenues, after these corrections it is clearly above 40 percent.** An important first step in controlling the wage bill will be to follow-up on the civil service census, and explicitly link the education sector data base with those of payroll and the civil service. But reforms will also be necessary to the many benefits enjoyed by civil servants, which now exceed the total cost of base salaries (Figure 8). At the very least, these benefits should be taxed, as called for in the law.

Figure 7: Public sector salaries compared to GDP per capita, 2009



Source: IMF, Public Spending Rationalization, April 2014

**Figure 8: Composition of public sector remuneration, 2002–2012**

Source: IMF, *Senegal Public Spending Rationalization*, April 2014

**Revenue collection was the core problem behind the larger than expected deficit in 2013, but it appears to have been resolved in 2014.**

Revenues were projected to rise to 20.9 percent of GDP, but the final outcome was only 20.1 percent. Weakness in economic activity, a reduction in personal tax rates, cash flow problems at SENELEC, and transitional problems related to the new tax code contributed to the shortfall. To address this problem the government has introduced a number of changes to facilitate the identification of taxable assets, revenues sources and the collection of taxes. Given that half of civil servants no longer pay personal income tax, it may be necessary to revisit the generous provisions of the 2012 law. However, based on the most recent available data, it is apparent that revenue collection will reach a new record of 21.1 percent of GDP in 2014. At the same time, revenues already exceed the WAEMU threshold of 17 percent of GDP, and one needs to be sensitive to the potentially negative impact on economic growth if taxes rise too much, or tax collection becomes too onerous.

**The government plans to continue the pace of fiscal consolidation consistent with its commitment to preserving macro-economic stability and public debt sustainability.** Given the constraints of Senegal's monetary policy—which is beyond the direct control of the national authorities—and the challenges posed by revenue enhancement, the potential to increase fiscal

space for public investment depends on decreases in current expenditures. This does not appear unreasonable as this spending has grown dramatically over the last 10 years, from 13 percent of GDP in 2002 to 17.5 percent in 2012.

**A comparison of total public expenditures by WAEMU countries reveals that in 2013 Senegal had the highest spending/GDP ratio.**

Even after the spending contractions noted above, Senegal's ratio of public spending/GDP was estimated at 29.1 percent, the highest among this group of countries (See Figures 9 and 10). This stands in sharp contrast with 2000, when Senegal had one of the lowest levels of spending. The authorities now recognize that rationalization of current expenditures is necessary to redirect resources to promote growth, and a concerted effort is under way in order to help finance the PSE.

**The 2014 Initial Finance Law (IFL), or budget, did not seem to reflect stated government priorities.**

Government spending on most development sectors decreased in relative terms. Although spending in absolute terms increased in most sectors, as a percentage of the total budget, planned spending decreased for basic education (by 0.3 percentage points, or p.p.), agriculture (by 0.2 p.p.), health (by 0.5 p.p.), and infrastructure and transport (by 0.4 p.p.). Only higher education, professional training, and flood control enjoyed relative increases among development sectors.

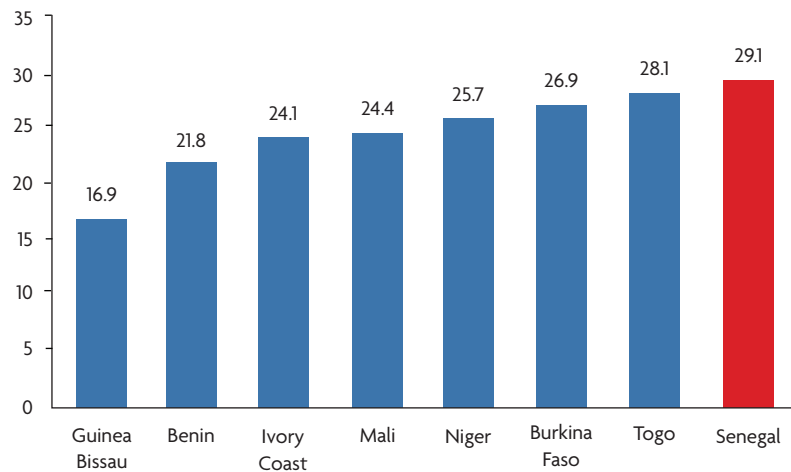
**On the other hand, common expenditures enjoyed a large increase in their share of the budget, as did foreign affairs.**

Common expenditures accounted for 14.5 percent of the 2014 IFL, or an increase of 5.5 percentage points over 2013; this represents an increase in its share of over 50 percent. This type of spending includes government expenditures not assigned to any sector ministry and represents a line of discretionary spending, which weakens accountability and transparency. Foreign affairs present another example of a spending increase (+0.5 p.p.) for a non-priority budget line (Table 2).

**With weak revenue collection in the first quarter, and pressure to increase funding for PSE projects, a revised budget was prepared in June.**

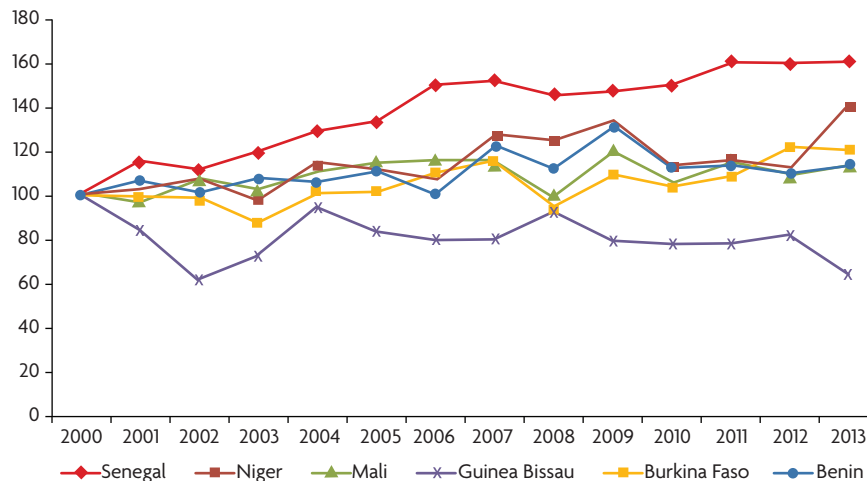
Revenues for 2014 were estimated to fall short of initial projections by some CFAF 84 billion. To maintain the gradual fiscal consolidation, a similar amount needed to be cut in expenditures. Current spending has been reduced by some CFAF 37 billion, and another CFAF 40 billion was trimmed from public investment. The latter cut was achieved largely by stopping transfers to agencies and public establishments until such time as they consume resources already held in their accounts.

**Figure 9: Senegal's public expenditures are higher than in other WAEMU countries (% of GDP, 2013)**



Source: IMF, *Public Spending Rationalization*, April 2014

**Figure 10: Total expenditures have risen faster than other WAEMU countries (Index, % of GDP)**



Source: Government authorities and Bank estimates

However, to free up fiscal room for PSE projects, another CFAF 57 billion has been reallocated from projects of lower priority or not ready for implementation. These funds have been reassigned to areas such as rural electrification, rice production, and flood control.

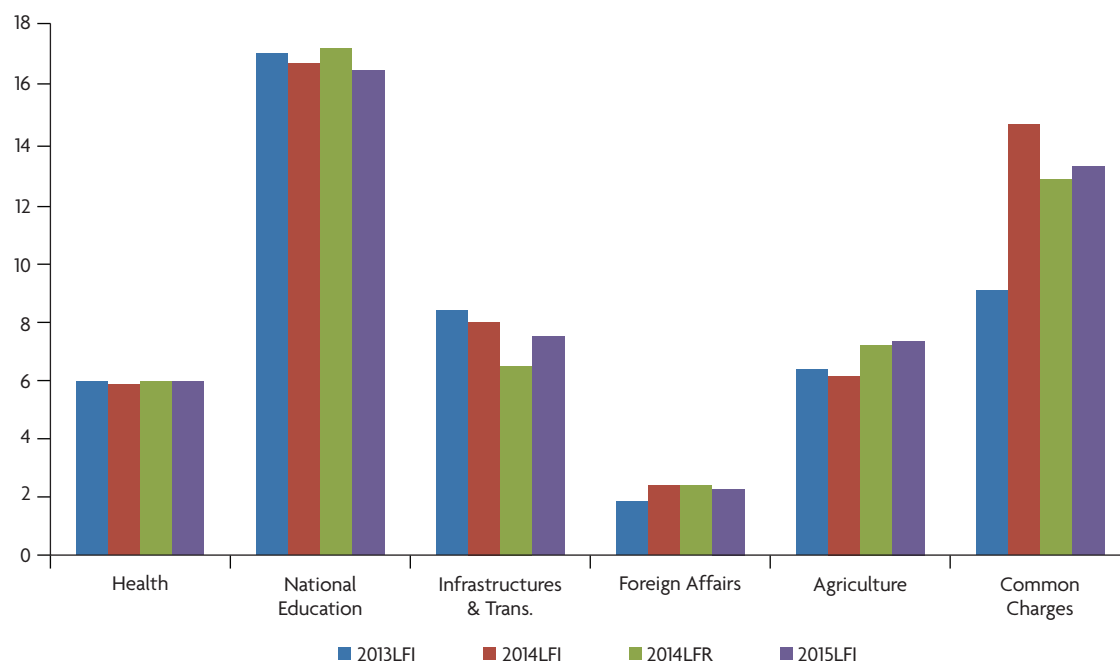
**The initial Finance Law for 2015 appears somewhat better aligned with priorities relative to that of 2014.** The

relative decline in agriculture spending was reversed with a substantial increase for rice production, and health spending has stabilized, since its share seems to be the same in all three years now. The increases in the foreign affairs budget and unallocated spending were moderated somewhat, although in both cases their shares remain well above 2013 levels. However, the shares of basic education and especially infrastructure fell further (Figure 11).

**Table 2: Spending on Many Priority Sectors as a Share of the 2014 Budget Did Not Increase**

Budget Allocation	Δ(2014 IFL & 2013 IFL)		
	(In Percent of 2013 Budget)	(In Percent of 2014 Budget)	In Percentage Points
National education	16.9	16.6	-0.3
High education	4.8	5.3	0.5
Infrastructures & transports	8.3	7.9	-0.4
Agriculture	6.3	6.1	-0.2
Health	5.9	5.4	-0.5
Professional training	0.8	1.4	0.6
Youth employment	1.5	0.4	-1.1
Foreign affairs	1.9	2.4	0.5
Common expenditures	9.0	14.5	5.5

Source: IFL, 2014

**Figure 11: The 2014 and 2015 budgets raise questions about government priorities: shares of budget by sector ministry**

Source: IFL 2013, IFL 2014, RFL 2014

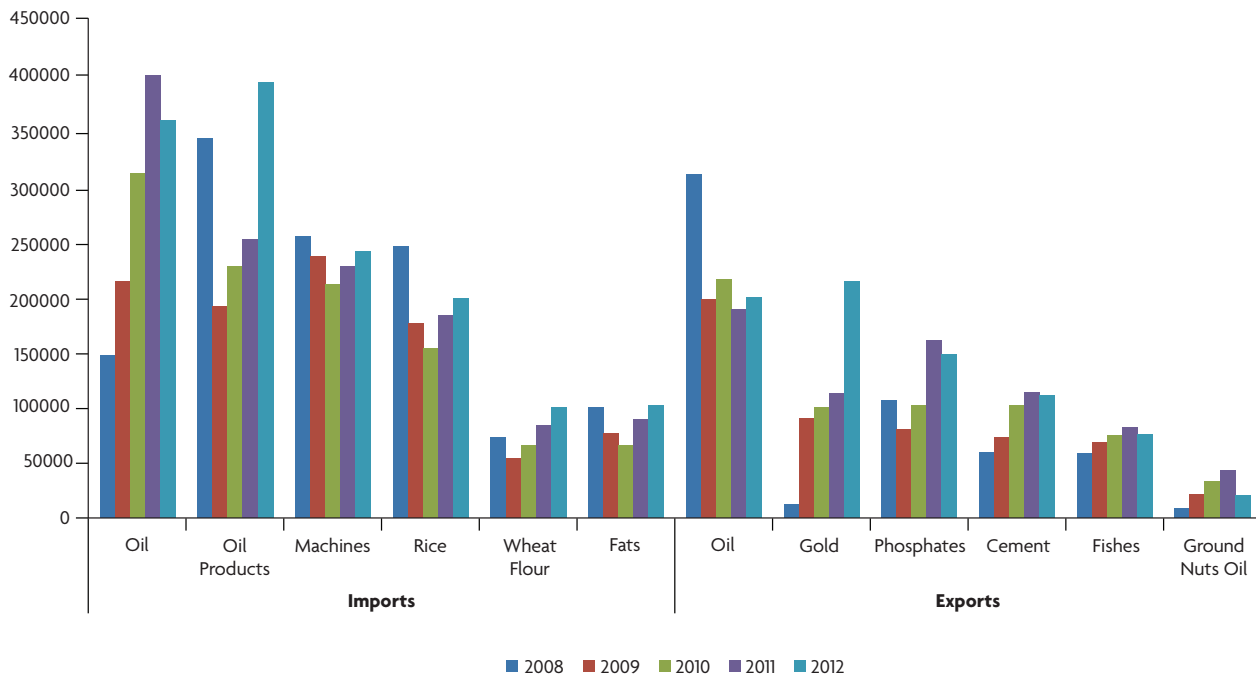
## External sector

**The current account deficit improved slightly in 2013, declining from 10.8 percent of GDP in 2012 to 10.4 percent in 2013.**

This reflects improvements in the net services and income (26 percent), and net private current transfers or remittances

(9.1 percent). However, these improvements were partially offset by an increase in the deficit of goods trade estimated at 4.2 percent. Better terms of trade were not sufficient to compensate for rising imports and stagnant exports. Net public grants also deteriorated, decreasing by more than two-thirds, from CFAF 75 billion in 2012 to CFAF 23 billion in 2013.

Figure 12: Senegal's main imports (left side) and exports (right side): 2008–2012



Source: DPEE, Notes de conjoncture, 2013

**Senegal's export performance remained disappointing in 2013.** Refined petroleum products remained the largest merchandise export, and enjoyed growth of 18% by value in 2013. However, these exports are entirely dependent on imported crude oil, so were largely offset by larger imports.<sup>2</sup> Meanwhile, the next four largest export products all suffered declines; gold (–22 percent), fish products (–3 percent), phosphoric acid (–36 percent), and cement (–27 percent). Gold and cement suffered from external shocks—falling prices for the former, lower demand in Mali for the latter, due to the opening of a new local cement factory (Figure 12). The problems in the other two sectors were more internal, supply related.

**The balance of payments position showed improvement in 2013.** The capital and financial account increased by CFAF 15 billion, due to a modest inflow of portfolio investment and a rise in project loans. On the other hand, foreign direct investment fell 10 percent from the 2012 level, contrary to expectations. FDI represented the equivalent of only 1.7 percent of GDP in 2013. Nonetheless, the overall balance of payments in 2013 showed a

smaller deficit of CFAF 21 billion, as against CFAF 53 billion in 2012 (Table 3). Fortunately, Senegal can rely on the stronger performance of other members of the regional central bank and their pooled foreign exchange reserves.

#### The exchange rate remains strong given its peg to the euro.

It has appreciated in real terms since 1998, and even more so since 2001, when the euro was weak relative to the dollar. However, in nominal terms it is back to the level which prevailed in 1995 immediately after the devaluation, and inflation has been subdued over most of this time period. In 2012, using several different methodologies the IMF concluded that the real exchange rate was broadly in line with Senegal's macroeconomic fundamentals. The real exchange rate appreciated by an estimated 2.2 percent in 2013, but this may have been completely offset in the third quarter of 2014, with the fall in the value of the euro with respect to the US dollar.

## Public debt

**Senegal's total public debt and external debt ratios have increased dramatically over the past five years.** The ratio

<sup>2</sup> Furthermore, the refining process is not efficient, so regular subsidies have been required; value-added is therefore very limited.

Table 3: Selected External Account Indicators

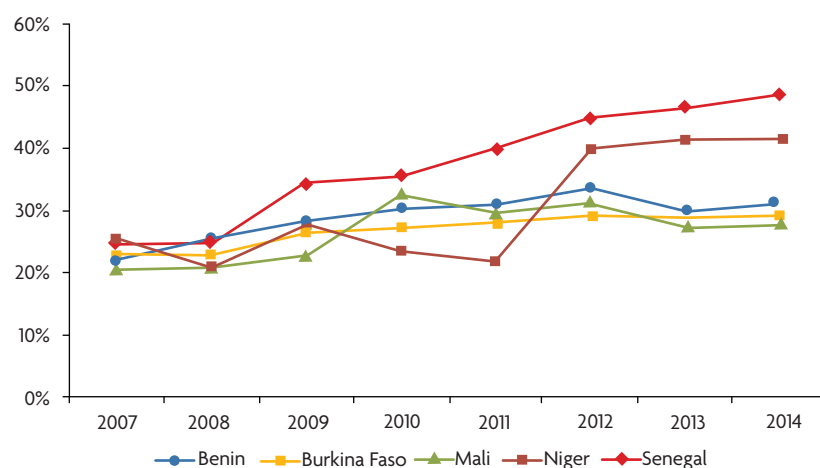
Senegal Selected Indicators— (External Account)	2008	2010	2011	2012	2013	Average
Export real growth (% yoy)	12.1	5.8	10.2	3.7	4.1	7.2
Import real growth (% yoy)	19.1	-6.5	8.9	13.3	4.2	7.8
Merchandise exports (current US\$ millions)	2193.3	2213.8	2626.3	2804	2770	2521.5
Merchandise imports (current US\$ millions)	5572.1	4205.7	5138	5742	5832	5298.0
Terms of trade ("—"=: deterioration)	12.2	4.7	-4	0.4	4.3	3.5
Real exchange rate index (1998=100)	59.2	60	60	57.8	57.8	59.0
Services net (current US\$ millions)	-182	-277	-405.5	-350.7	-376.5	-318.3
Workers' remittances, net (BoP, current US\$ millions)	1409	1411.4	1365.2	1440	1570.4	1439.2
<b>Current account balance before grants (as percent of GDP)</b>	<b>-15.1</b>	<b>-5.4</b>	<b>-8.8</b>	<b>-11.3</b>	<b>-10.1</b>	-10.1
<b>Current account balance after grants (as percent of GDP)</b>	<b>-14.1</b>	<b>-4.4</b>	<b>-7.9</b>	<b>-10.3</b>	<b>-9.4</b>	-9.2
Foreign direct investment (current US\$ millions)	270.8	258.7	290.9	290	328.2	287.7
External debt, total (% of GDP)	36.7	53.4	49.2	54.3	54.1	49.5
Multilateral debt (% of total external debt)	61.1	61.7	60	60	63.4	61.2
External public debt services (% of government revenue)			17.2	9.6	10.4	12.4

Sources: Government authorities and Bank estimates

of total public debt to GDP reached 47 percent in 2013, nearly double the 24.5 percent ratio of 2008. Within that ratio, the stock of total external public and publicly guaranteed debt has increased from around 20 percent of GDP in 2008 to about 32 percent at end 2013. Senegal debt to GDP ratio remained higher relative to most of WAEMU countries (Figure 13). These levels are close to those that prevailed before Senegal benefited

from debt relief under the Multilateral Debt Relief Initiative (MDRI) in 2006, though well below the pre-HIPC amounts of 2002. On the other hand, the debt service ratio is now similar to pre-HIPC levels, when compared to GDP (3.8 percent), though it remains somewhat smaller as a share of revenues. About 70 percent of total public debt is external, and most of this is concessional.

Figure 13: Senegal's debt-to-GDP increased rapidly relative to other WAEMU countries



Sources: IMF and Senegalese authorities

**Senegal is turning increasingly to the international capital market.** A US\$200 million Eurobond was issued in 2009, to be repurchased with a US\$500 million Eurobond in 2011 at 8.75 percent with a 10-year maturity. Another US\$500 million Eurobond was initially planned for 2013, but was delayed until 2014 due to rising interest rates. Instead, an equivalent amount was raised on the regional market, through a syndicated loan with the Moroccan *Banque Atlantique*. While 60 percent was in CFAF with a maturity of 7 years, some 40 percent was denominated in Euros with only a one-year maturity when it was realized that the regional market could not absorb the entire amount. The authorities were more successful in 2014, issuing a new US\$500 million Eurobond with a yield of 6.25 percent. The risk of debt distress, as defined by the World Bank-IMF debt sustainability framework, is classified as low, but could change if non-concessional borrowing increases substantially or economic growth falters.

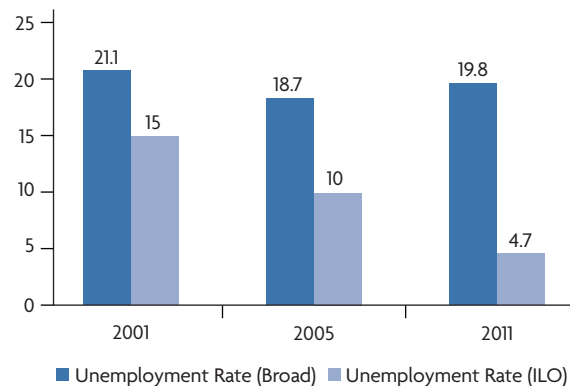
## Labor, unemployment and poverty

**After the relative progress of 1995–2005, Senegal’s economy has settled back into a low-growth equilibrium, with low job creation and little progress in poverty reduction.** Unemployment appears to have decreased in Senegal between 2001 and 2011, but only because many have given up looking for work. The 2011 household poverty survey reported a surprising drop in unemployment as defined by the ILO, which requires a person to be actively looking for work. The estimate for 2011 was only 4.7 percent, far below the official estimate of 10.2 percent. However, after correcting for those who seem to have withdrawn from the labor market due to the lack of opportunities, it has been estimated that roughly 20 percent of the labor force are unemployed according to this broader definition (Figure 14). This rate has not changed since 2001, and since the labor force is growing fast, the total number of unemployed has also grown substantially. Senegal has a young and growing population, and its labor force is expected to grow by 36 percent over the next decade.

**Underemployment is an even bigger problem.** It has been estimated that only one in five Senegalese works full time. Rain-fed crop production, which employs 40 percent of the population, is highly seasonal, being restricted to about six months of the year, and even then, it is not a full time job. In urban areas, many in the informal sector have very low productivity, such as the ubiquitous sidewalk traders of cell phone credit or food.

**Data on the labor market is limited.** Existing information indicates that modern sector enterprises reduced their labor force by 1.4 percent in 2013. However, the sharp decline in the construction industry seems at odds with the robust growth recorded in

**Figure 14: Estimates of the unemployment rate vary widely depending on the definition (% of labor force)**



Source: ANSD (ESAM II 2001, ESPS 2005, ESPS II 2011)

this sector (Table 4). ANSD<sup>3</sup> will soon launch a more comprehensive labor market survey, with support from the World Bank.

**The share of the population below the poverty line is estimated at 46.7% as of 2011.** Poverty remains high in Senegal. The poverty rate came down from 55.2 percent to 48.3 percent between 2001 and 2005, but little progress was made during the following five years through 2011. A series of shocks affected Senegal in 2006–2011—including poor rains in 2006 and 2007, global food and fuel price shocks in 2008, and floods in 2009—no doubt contributed to this slowing of momentum (Figure 15). Although rural poverty does appear to have decreased since 2001, two-thirds of the poor still live in rural areas (Figure 16). On a positive note, there appears to be some improvement in the depth and severity of the incidence of poverty almost throughout the country.

<sup>3</sup> Agence Nationale de la Statistique et de la Démographie.

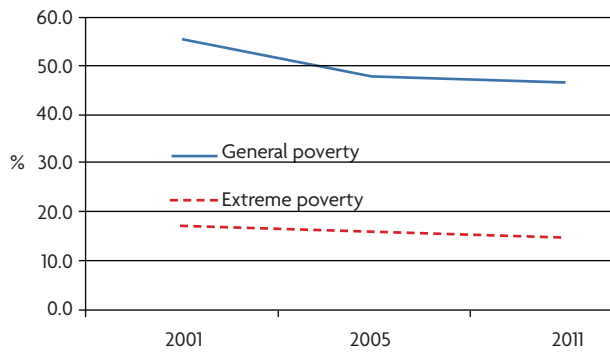
**Table 4: Employment Decreased in Modern Sectors in 2013**

Employment	Weight	2012		2013		Change	
		Q4	Q3	Q4	Quarterly	Cumul.	
<b>Secondary</b>	500	120	118	118	0.1	–1.6	
Industry	428	113	114	114	0.6	1.1	
Construction	73	160	142	139	–2.1	–13.1	
<b>Tertiary</b>	500	119	117	117	0.5	–1.2	
Services	407	118	115	116	0.6	–1.9	
Trade	93	121	123	123	0.3	2.2	
<b>Overall Index</b>	1000	119	117	118	0.3	–1.4	

Source: DPEE, Notes de conjoncture, 2013

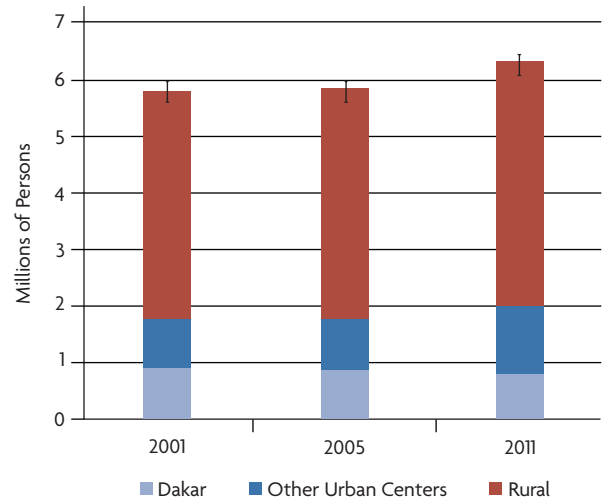


**Figure 15: There has been little progress in poverty reduction since 2005**



Source: ANSD (ESAM II 2001, ESPS 2005, ESPS II 2011)

**Figure 16: As a result, the number of poor has increased**

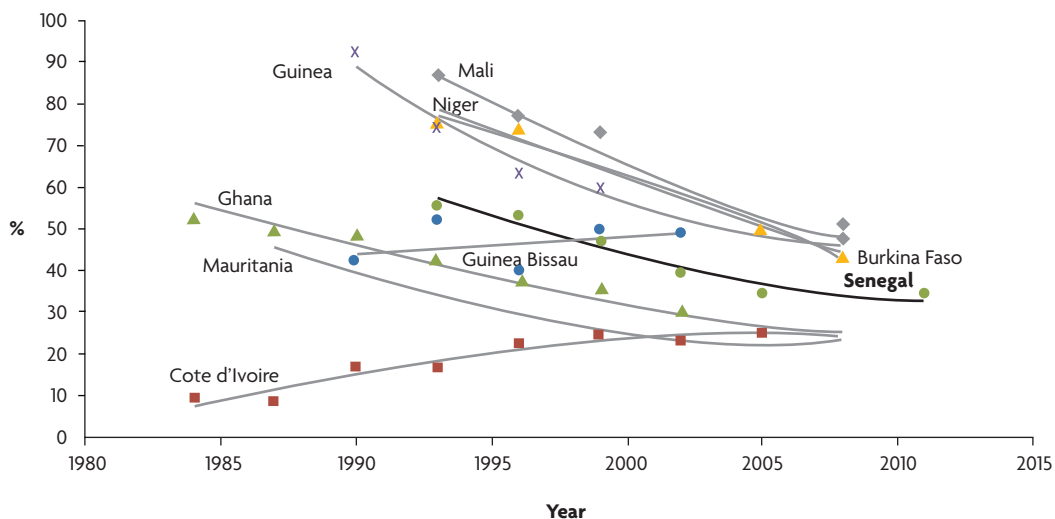


Source: ANSD (ESAM II 2001, ESPS 2005, ESPS II 2011)

**Poverty in Senegal is within the average by West African standards, but progress has slowed.** Using the international poverty line of US\$1.25 per capita per day, corrected for purchasing power parity, the poverty rate in Senegal is estimated at 33 percent. This lies below the rates of Mali, Guinea, Niger and Burkina Faso, on the one hand, but above those of Cote d'Ivoire, Ghana and Mauritania on the other. The trend of declining poverty is similar to most other countries with the

exception of Guinea Bissau and Côte d'Ivoire, which have suffered an increase in poverty. However, some countries appear to have maintained a linear downward trend while others, including Senegal, have experienced a slowdown of poverty reduction in the past five years (Figure 17).

**Figure 17: Poverty trends in West African countries (PPP US\$1.25 per day)**

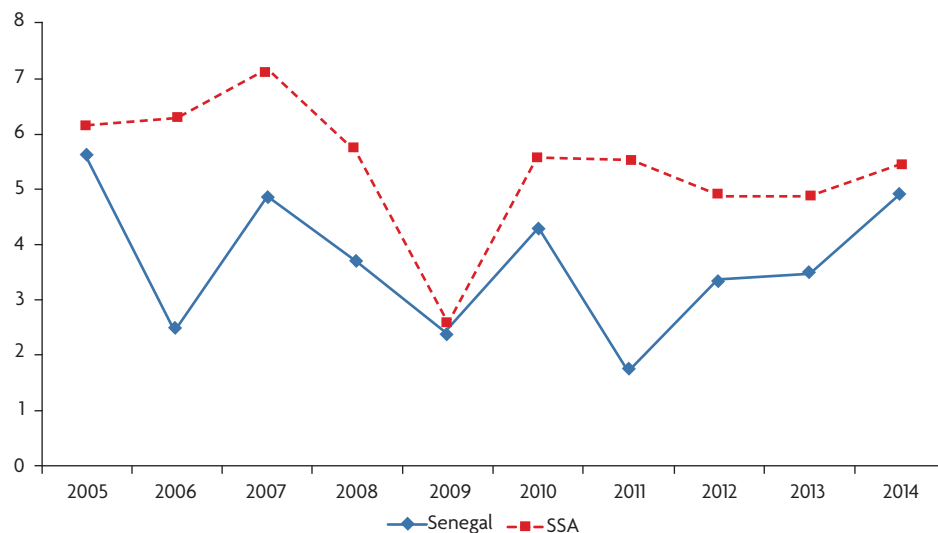


Source: World Development Indicators (<http://data.worldbank.org>)

## Time for a new growth strategy

**Senegal has stabilized in a low growth pattern and is struggling to move to higher, more sustainable and inclusive growth.** GDP growth has averaged 3.3 percent per annum over the years 2006–2013, which is not much above the rate of population growth of 2.6 percent. It is therefore not surprising that, between 2006 and 2011, the poverty rate fell by only 1.6 percentage points, from 48.3 percent to 46.7 percent, which is not a statistically significant decline. This contrasts with the ten-year post devaluation period of 1995–2005 when the economy benefited from the one-off improvement in competitiveness due to the exchange rate adjustment, followed by a brief period of reform. GDP growth during that period averaged 4.5 percent per annum and poverty dropped significantly from 68 percent to 48.3 percent. While the international context has become more difficult since 2008, many other African countries have prospered. Whereas Senegal was growing faster than the average for Sub-Saharan Africa during 1995–2005, it has fallen below the average in the more recent period (Figure 18). It is now the poorest performer in the WAEMU group of countries, with the exceptions of politically-troubled Guinea Bissau and Mali.

**Figure 18: GDP growth in Senegal has been consistently below the average for Sub-Saharan Africa**



Source: The World Bank

## The Plan Senegal Emergent

**Aware of the need to break out of this low growth cycle, the government has proposed a new development plan—Plan Senegal Emergent—or PSE.** PSE is an ambitious long-term, twenty-year master plan for economic and social development launched to fulfill the President's campaign promise of better living standards. The goal of the PSE is to enable Senegal to become an emerging economy by 2035. The PSE builds on the previous poverty reduction strategy, the National Strategy for Economic and Social Development, and retains the same three pillars: (i) growth and the structural transformation of the economy; (ii) the promotion of human capital, social protection and sustainable development; and, (iii) good governance, institutions, peace and security. However, the PSE provides a welcome strengthening of the first (growth) pillar. The PSE proposes an ambitious investment program, based on 27 sets of priority projects and 17 areas of reform, which are intended to boost annual GDP growth significantly.

**The vision is laudable, but the underlying assumptions of the PSE seem overly optimistic.** Under the new macroeconomic framework of the PSE, real GDP growth is projected to increase quickly and to reach an annual average of 7.6 percent over the years 2015–2018—more than double the average performance recorded in the past 10 years (see Table 5). Public investment is also projected to double between 2013 and 2018. At the same time, fiscal consolidation will continue, with only a slightly more gradual downward trend in the fiscal deficit, to reach 3.9 percent in 2018. The commitment to reduced deficits seems necessary,

but means limited potential for a rapid expansion in public investment. The authorities are promising a contraction in current spending in order to free up space for such investment, but few details are currently available and the options seem limited. Assuming high GDP growth rates to provide room for higher borrowing without jeopardizing debt sustainability is a best case scenario, but if economic growth falls short of the ambitious targets, then debt-to-GDP will rise. Tax revenues will suffer, deficits will be higher, and further borrowing will be required. Senegal's low risk of debt distress could be threatened, with implications for the cost of accessing international financial markets. A more prudent set of macroeconomic assumptions would seem warranted until concrete signs of economic take-off are observed.

**Public investment alone will not be able to lift the rate of economic growth to the desired level.** Such investment has been substantial for some time, exceeding 10 percent of GDP since 2007, yet GDP growth has declined. Indeed, Senegal has enjoyed the highest level of public investment in WAEMU, but one of the lowest rates of GDP growth. This suggests that the efficiency of such investment is very low. Indeed, it is well known that some 40 percent of public investment is not capital formation, but should rather be classified as current spending.<sup>4</sup> Reforms will be needed to enhance efficiency in public investment, including better selection of projects, greater reliance on

4 The ANSD has made this correction for many years as part of its estimation of the national accounts. More recently the IMF has started to make this adjustment in its reports. The WB Public Financial Review for 2007–10 made a similar point.

**Table 5: Macroeconomic Framework under Both PSE and PSI**

	2012	2013	2014*	2015**	2016**	2017**	2018**
	(percent of GDP, unless otherwise indicated)						
Real GDP growth: PSE	3.4	3.5	4.5	6.7	7.6	8	8.3
PSI (IMF)	3.4	3.5	4.5	4.6	5.1	5.6	6.2
Fiscal revenue: PSE	19.2	18.4	18.8	19.9	20.4	20.7	20.9
PSI (IMF)	19.2	18.4	18.8	19.2	19.7	19.8	19.9
Capital expenditure: PSE	11.4	11.0	11.8	13.8	14.7	15.3	15.6
PSI (IMF)	11.4	11.0	11.8	11.2	11.2	11.4	11.2
Overall balance: PSE	–5.9	–5.5	–5.2	–5.1	–4.9	–4.5	–3.9
PSI (IMF)	–5.9	–5.5	–5.2	–4.2	–3.5	–3.3	–3
Debt to GDP (IMF)	43.4	46.8	49.1	50.0	50.3	50.4	50.4

Source: IMF and Senegalese authorities

\* Notice that data for 2012–2013 are actual, while data for 2014 are based on estimates

\*\* Data for 2015–2018 are based on projections

competitive bidding, and stronger management of project execution. Yet pressure for a rapid rise in public investment could undermine attention to careful project preparation. The nomination of a new Minister for the Monitoring of the PSE promises to improve the pace of project implementation. However, proper cost-benefit analysis will be necessary and the broader challenge of implementing the full PSE will require a comprehensive monitoring and evaluation framework, with a clear division of roles and responsibilities, which is not yet in place.

**Ultimately the success of the PSE will depend on the response of the private sector.** The authorities have emphasized their commitment to public-private partnerships and a new law has been approved to provide a conducive regulatory framework. This will certainly help. But these imply a contribution from the state, and are therefore constrained by the limited available fiscal space. Most private investment is financed by the private sector alone, and it is here that an untapped, low cost source of growth resides. The PSE may need to pay more attention to the fundamental importance of private sector investment to achieve its goals.

**The PSE does identify a variety of reforms, and four important ones have been selected for priority attention.** First, a concerted effort to improve the business environment is now under way, with the objective of improving Senegal's position in various ranking exercises, including Doing Business (161 out of 189 countries).<sup>5</sup> Land reform is a second area of concentration, especially important if investors are to be attracted to agricultural projects. Improving the relevance of education for the job market is the third priority. Finally, the PSE focuses on the development of a special economic zone near the new airport. This could help attract new, export-oriented enterprises—but lessons from the past will need to be learnt. Previous zones in Senegal have not improved the operating environment sufficiently to make a big difference, while sometimes serving as a tax shelter for existing companies. The new zone will need to minimize fiscal incentives and focus instead on facilitating business operations.

**The ultimate goal of PSE is certainly desirable.** However, its ambition stands in sharp contrast to the experience of the last 10 years, or even the previous post-devaluation period when Senegal enjoyed its most sustained period of economic growth and poverty reduction. In order to understand better how the country might break with the past, the next section will examine this past in greater detail.

<sup>5</sup> The authorities' efforts were rewarded by an improvement of 10 places from 171 to 161 in the 2015 Doing Business report.

## Sectoral sources of growth

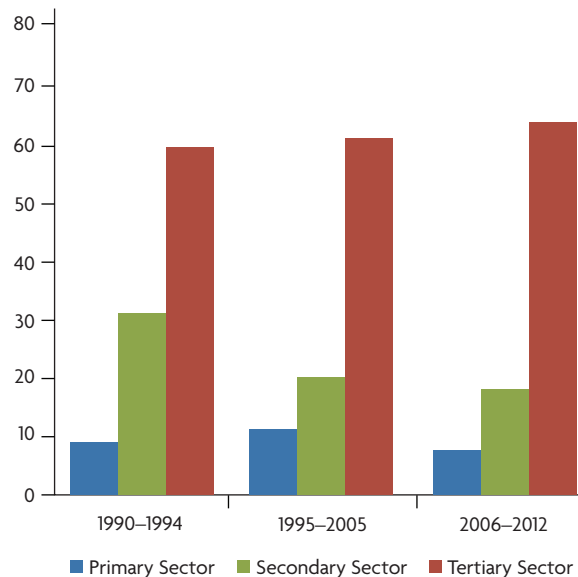
**The economy has long been driven by the services sector.**

The tertiary sector registered the largest share of Senegal's GDP in 2013, estimated at 59.3 percent. This performance continues a historical trend over the last 25 years. The estimated contribution to GDP growth of the tertiary sector has also been rising. Whereas services comprised 59 percent of total GDP growth between 1990 and 1994, the contribution of the services sector increased to 63 percent in the 1995–2005 period, and to 67 percent in the period 2006–2012 (Figure 19).

**On the other hand, the secondary sector has been characterized by a contraction of its contribution to GDP growth.** The sector's share of growth has gone from 32 percent in 1990–1994, to 23 percent in 1995–2005, and only 19 percent in the latest period, 2006–2012.

**The primary sector has remained a comparatively weak source of growth.** It contributed 7.1 percent of growth during the first period (1990–94), increasing slightly during the second period (1995–05) to 11.7 percent, then declining to 8.7 percent, during the last period, 2006–2012. It has also been the biggest source of instability, due to vulnerability to unreliable rainfall. Indeed, the crops sub-sector's contribution to growth was

Figure 19: Sector contributions to GDP growth in percentage



Source: The World Bank

negative in 2011 and 2013. This is the product not only of climate shocks, drought, flooding, and/or erratic rainfall, but also policy shortcomings, such as insufficient attention to the production and distribution of improved seeds, mismanagement of the groundnut sector, and continued problems in irrigation maintenance. Past experience raises doubts about the capacity of agriculture to drive economic growth. At the same time, it plays a critical role in poverty reduction given the concentration of the poor in rural Senegal. A more diversified, climate-resilient approach is clearly needed.

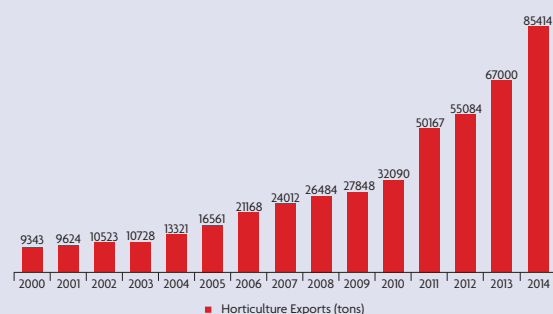
**Irrigated agriculture offers further opportunities for enhanced production and growth within the sector.** There is an estimated potential of more than 35 billion cubic meters of water, only 5.5 percent of which is currently being utilized. Large public investments have previously been made in irrigation infrastructure, mainly in the Senegal River valley, to promote the production of rice. Performance has not met expectations, and maintenance has been a long-standing problem. Senegal needs to establish a strong institutional, legal and regulatory framework for infrastructure maintenance. SAED, the organization responsible for irrigation infrastructure in the Senegal River valley, has begun contracting with private operators for maintenance, which should help. Irrigated horticulture has done better and shows substantial promise for the future (Box 1). The priority accorded to it in the PSE is welcome.

**Another government priority is the reconstitution of seed capital through the development of new high yield and drought resistant varieties of cereals and groundnuts.** Participation in the World Bank-supported West Africa Agricultural Productivity Program (WAAPP) has already led to the release of seven such varieties which have been diffused across the country. The government has confirmed its commitment to increasing food security with a secondary effect of decreasing food imports and improving the balance of payments for the country. However, no progress was made in rice production in 2013 and the promotion of certified seeds for the groundnut sector remains problematic.

**The now omnipresent cell phone can be exploited to address inefficiencies and leakages in the allocations of agriculture subsidies.** More selective criteria for targeting needy farmers have been developed and an e-platform which allows farmers, producers and distributors to communicate in a more effective way to achieve these ends is being put in place. The aim is to register 1,000,000 farmers and begin to channel subsidized inputs through this mechanism by the end of 2014.

### Box 1: Horticulture: The Future of Agriculture in Senegal?

Against a backdrop of declining agricultural productivity in recent years, horticulture has ranked as the best performing area of Senegalese agriculture, supported by a surge in foreign direct investment in its export-oriented component. In this case Senegal's climate is a blessing—the growing season for horticultural crops falls during the off-season in Europe, its major export market, and does not compete with local production during the *hivernage*, or rainy season. Between 2004 and 2014, horticultural exports increased from 13,321 tons to 85,414 tons, an average annual increase of 54.12 percent. Currently there are over 20 exporters, of which seven account for 75 per cent of the total. Meanwhile small scale producers supply the growing domestic market. The World Bank-supported PDMAS project has supported this promising sector and the new PDIDAS project hopes to take it to the next level. However, this will depend on innovations in land management which satisfy both local communities and investors, local and foreign.



## The business and investment environment

**Industrial manufacturers (61 percent), service providers (66 percent) and commercial operators (58 percent) all complained of an unfavorable business climate in a 2008 survey.** Specific complaints are related to unfair competition, followed by government bureaucracy and red tape, lack of legal recourse to collect debts/receivables, taxation and lack of access to financing. Another key constraint is the high cost and unreliable nature of electricity supply. The cost of electricity to consumers and producers in Senegal is among the highest in sub-Saharan Africa, and yet it remains heavily dependent on public subsidies. Near total dependence on imported petroleum products for power generation is the main problem, although better management of SENELEC and the investment program would also help (Box 2).

**Box 2: The Energy Sector: Key Reforms Long Postponed**

**The energy sector affects almost every facet of the Senegalese economy and is a major cause for concern.** It receives the largest amount of public expenditure subsidies, and it is also one of the largest beneficiaries of infrastructure expenditures, while accumulating substantial tax arrears. The sector has recovered from the extended supply disruptions of 2010 and 2011, with rehabilitation of existing generating units addressing the “generation gap” between current capacity and demand. However, continuing heavy reliance on oil-based fuels for power generation results in very high production costs, requiring continued compensation from the government to maintain tariffs (consumer prices) at their current levels. The sector received explicit and implicit subsidies of about CFAF 90 billion in 2013, but the national power company, SENELEC, was unable to pay some CFAF 50 billion in taxes on imported inputs, and required government-guaranteed commercial debt to finance its negative cash-flow. With projected negative cash-flows for 2014 and beyond, currently estimated at CFAF 90 billion per year through 2017, SENELEC will require further public subsidies and additional borrowing.

**Ultimately, the solution to this problem lies in accessing lower cost sources of energy.**

An immediate example is the recently-approved World Bank group-supported dual fuel (heavy fuel oil and gas) private power investment at Taiba Ndiaye (70 MW; investment of about CFAF 80 billion; with a CFAF 20 billion partial risk guarantee by the Bank), which will alleviate the need for some emergency rentals and thus meet expanding demand at somewhat lower cost when it comes on-line in 2016. A newly approved project, also with World Bank participation, to import electricity produced from gas in Mauritania, will have a larger effect, since the cost will be significantly lower. The third project is the African Development Bank (ADB)-financed coal-fired power plant at Sendou, now under construction.

**Nonetheless, reforms at SENELEC are also necessary.**

Efficiency can improve at several levels, including regarding technical and commercial losses, and combating fraud. A performance contract was signed with the Ministries of Energy and Economy and Finance and is being closely monitored. The first progress report has been completed. Eventually, it may be advisable to separate the production, transmission and distribution functions entirely. Current plans to rely exclusively on independent power providers for new production capacity are commendable. The PSE recognizes the need to ensure rapid implementation of projects which expand energy supply; however, it should also place more emphasis on energy sector reform.

**The importance of substantial improvement in the investment climate is now acknowledged, though follow-up implementation will remain a challenge.**

In December, 2012 the Presidential Investment Council (PIC), Senegal’s main forum for public-private dialogue, adopted the Reform Program on Business Environment and Competitiveness (RPBEC). It aims to provide Senegal with a high quality business environment; improving its ranking in various international ratings, including Doing Business, and pushing Senegal to the forefront of the most competitive countries in Africa. A program of 50 measures was adopted, to be implemented over three years. As a result, improvements have taken place in several areas, notably: (i) firm creation—registration time and costs at the APIX<sup>6</sup> single window have been reduced; (ii) construction permits—the time required to obtain the necessary documents has been reduced by approximately 25 percent from 210 days to the range of 150–170 days; (iii) property registration—transfer tax rates have been reduced from 15 to 10 percent, and simplification of the procedures has reduced the time involved from 122 days on average to around 80; (iv) business taxation—tax processing and rates for small enterprises have been simplified and reduced, and a specialized center has been created to provide taxpayer assistance; (v) improvements in commercial justice—reducing the time required to enforce contracts and better investor protection; and, (vi) improvement in trade processes—reducing the transit time involved in clearing customs for imports and exports. Senegal was recognized as one of the top five reformers in the 2015 Doing Business report, and its ranking improved from 171 to 161 out of 189 countries. However, it still has a long way to go.

## Sources of growth by factors of production

**Negative Total Factor Productivity (TFP) growth hinders the economic performance of Senegal.**

Although capital and labor accumulation are important components of growth in Senegal, both Table 6 and Figure 20 indicate that GDP growth has not responded to increases in the stock of physical capital, while labor supply is typically a neutral factor not readily amenable to policy change. The annual growth rate of capital stock rose from 4.3 percent between 1995 and 2005 to 5.3 percent during 2005–2012, yet GDP growth actually declined in the more recent period. Conversely, the data suggests GDP growth was very sensitive to changes in TFP.

<sup>6</sup> Agency for investment promotion and major projects.

**Table 6: Annual Growth Rates and Decomposition by Factors**

Table a—(Annual growth rates in percentage)				
Factor/Period	1990–2012	1990–1994	1995–2005	2006–2012
Capital	4.4	3.3	4.3	5.3
Labor	3.1	3.5	3.0	3.0
Total factor productivity	0.0	–2.2	1.1	–0.4
Total GDP growth	3.5	1.3	4.5	3.3

Table b—(Growth accounting in percentage points)				
Factor/Period	1990–1912	1990–1994	1995–2005	2006–2012
Capital stock	1.3	1.0	1.3	1.6
Labor	2.2	2.4	2.1	2.1
Total factor productivity	0.0	–2.2	1.1	–0.4
Total GDP growth	3.5	1.3	4.5	3.3

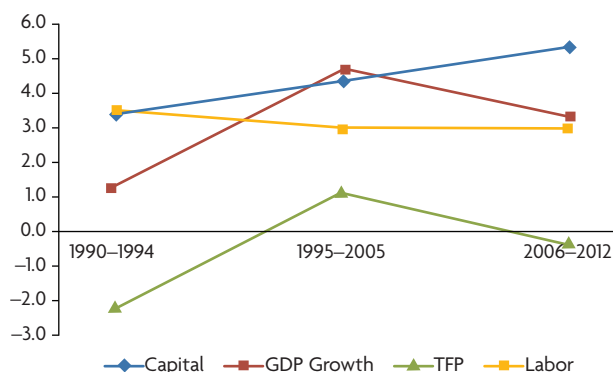
Table c—Contribution to growth in percentage (a = 30%)				
Factor/Period	1990–1912	1990–1994	1995–2005	2006–2012
Capital stock	38	78	29	48
Labor	61	192	47	63
Total factor productivity	1	–170	24	–11
Total GDP growth	100	100	100	100

Source: The World Bank

**The lowest GDP growth rates coincided with negative TFP growth.** Total GDP growth responded more to improvement in TFP in Senegal (Figure 20). Specifically TFP growth was positive (at 1.1 percent) only during the 1995–2005 period, and it was

during this same period when GDP growth achieved its peak rate of 4.5 percent. On the other hand, when TFP was negative, total growth tracked at lower, if still positive, levels.

**Figure 20: Despite increasing capital accumulation, GDP growth trended instead with movements in TFP growth**



Source: The World Bank

**Is TFP the key to higher growth in Senegal?** In the early 1990s, economic performance was poor. These were the last years before the devaluation, when it was becoming increasingly clear that the economy was simply not competitive with the existing exchange rate. The devaluation made exporters and import-competing industries more competitive overnight. Thus, firms which were running well below capacity were able to increase their output without additional investment. Total factor productivity could increase with no increase in capital. Today, it is estimated that industrial firms operate at only 70 percent of capacity. Many resort hotels are operating well below capacity, and a few are even closing. Improvements in the management of the tourism sector could lead to much higher inflows of tourists with no new hotel investment, and total factor productivity would rise. A similar result could be achieved by providing high-yielding seeds to farmers, which would raise yields without any need to buy more equipment. The same level of fish catch could actually be achieved with fewer fisherman

and boats, given the heavy competition for a depleting resource. Some reforms, such as freezing the total number of pirogues, could increase output—or prevent a further decline—with no increase in capital or labor.

**How can one get more out of recent investments?** One of the reasons why recent public investment has failed to deliver higher growth is that some major projects were only completed in 2013—such as the toll road—or have been delayed—such as the new airport. These will hopefully generate higher growth in the coming years. The toll road is clearly improving productivity, as travelers of all types, from truckers to school inspectors, take 20 minutes to exit Dakar instead of 1–2 hours. But given this investment, the authorities need to ask whether building a rail link to the airport will add sufficient value, or actually reduce the efficiency of the toll road investment. The new airport should be a boon to the tourism sector, but if that sector is not managed more effectively, will the investment in the airport pay off? It will also be a more profitable investment if the problems in the national airline are resolved. Keeping the old airport open would reduce the profitability of the new one, while preempting the opportunity for lucrative alternative investments.

## Decomposing growth by expenditures

**A shift can be observed from private investment to public investment.** During the high growth period of 1995–2005, private investment was growing at 14.8 percent per year, while public investment grew at a more modest 5.4 percent. In the more

recent slow-growth period (2006–2011), their roles have reversed. Private investment growth has slowed dramatically to average only 3.8 percent per annum while public investment expansion has accelerated to 6.8 percent. This may help explain the fall in the efficiency of overall investment, since private investors probably have more incentive to ensure that their resources are used profitably.

**Consumption now accounts for 94 percent of total demand in Senegal.** The average in middle income countries is 70 percent, and even lower in the high-growth economies of East Asia. Furthermore, both private and public consumption accelerated their rates of growth during the 2006–11 period of slow GDP growth. While public investment was supported by expanding tax collection and debt, it would appear that remittances help explain the rise in private consumption. They have grown consistently by 20 percent per annum between 1995 and 2005, and are now equivalent to 13 percent of GDP. They have also undoubtedly contributed to the growth of imports (Table 7).

**Remittances probably have helped to drive the economy, but are unlikely to continue to grow at past rates.** Indeed, between 2009 and 2011 they fell by 7 percent as a result of the global financial crisis. Since then they have only grown by an average of 7 percent per annum (Figure 21). While a substantial part of transfers from the Senegalese diaspora has probably been used to fund housing investment, it would be useful to explore ways to channel these resources into other forms of investment which increase the productive capacity of the economy, create permanent jobs and possibly boost exports.

**Table 7: Growth in Consumption Needs to Slow in Order to Provide More Savings**

	Growth Rate		Percent of GDP
	1995–2005	2006–2011	2013
Total consumption	3.1	4.4	93.9
Private	2.9	4.2	78.4
Public	5.4	6.2	15.5
Total investment	7.6	4.6	30.1
Private	14.8	3.8	18.3
Public	5.4	6.8	11.8
Domestic savings	—	—	6.1
Remittances	—	—	12.3

Source: *The World Bank*



Figure 21: Net workers' remittances in % change



Source: The World Bank

Table 8: Growth Decomposition by Expenditure

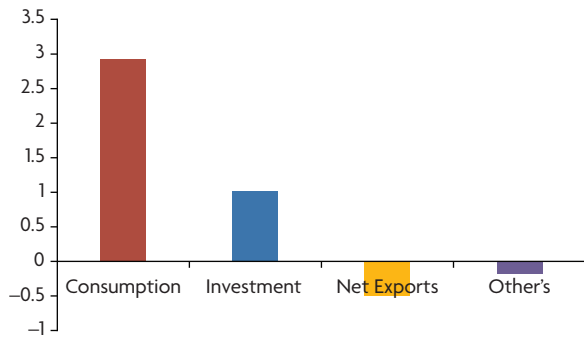
Growth Decomposition by Expenditure Expenditure Type/Year	Contribution to Total GDP Growth (in percentage points)				Contribution to Change in Total GDP Growth (in percentage)			
	1990–2012	1990–94	1995–05	2006–12	1990–2012	1990–94	1995–05	2006–12
Consumption (C+G)	2.9	1.2	3.8	2.7	81	56	91	78
Private consumption	2.5	1.4	3.4	2.1	70	64	80	62
Public consumption	0.4	-0.2	0.5	0.6	11	-8	11	17
Investment	1.1	-0.4	2	1	31	-19	47	28
Gross fixed capital formation (GFCF)	0.4	-2.2	1.3	0.5	11	-104	32	14
Changes in inventories	—	1.8	—	0.6	—	87	—	18
Exports	0.6	1.6	0.7	0.3	18	77	16	7
Imports	-1.1	-0.3	-2	-0.5	-30	-13	-48	-14
Others	-0.1	-0.8	0	-0.2	—	-1	0	—
Total GDP growth	3.5	1.3	4.5	3.3	100	100	100	100

Source: The World Bank

**Exports are typically a driver of growth, but their performance has been disappointing.** They have accounted for only 16 percent of growth during 1995–2005, and only 7 percent since then. Since imports have grown faster and are now double the level of exports, the contribution of net exports (exports minus imports) is negative. While there is some potential to reduce imports through efficient import substitution, the main problem

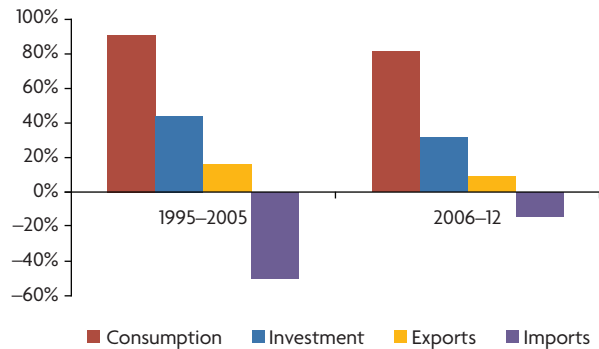
is poor export performance (Table 8 and Figures 22 & 23). Senegal is not importing too much but rather exporting too little. There are a number of factors which have contributed to this situation, including: high protection, which has encouraged a focus on the local market; aging plant and equipment, especially in the mining industry; and, uncertain and costly energy supplies. Senegal needs to revive—if not recreate—its export sector.

**Figure 22: Contribution to GDP growth by expenditure 1990–2012**



Source: The World Bank

**Figure 23: Growth was driven mostly by private consumption**



Source: The World Bank

## Conclusion

**Senegal needs to grow much faster in order to make progress on poverty reduction.** This is well understood by the authorities, as reflected in the new *Plan Sénégal Emergent* and its ambitious growth targets. However, the road map to achieve these goals is likely to require some tough decisions and radical changes. It cannot rely on more public spending, backstopped by growth in remittances to maintain private consumption. There is very little room for increased taxation without discouraging private sector investment, and public debt is approaching levels which could jeopardize Senegal’s credit risk rating. Some reallocation between current and capital spending is theoretically possible, but this will require addressing sensitive areas such as civil servant benefits. Within capital spending, improved efficiency in project selection and implementation will probably play a bigger role than increased levels of investment. But this will entail a more rigorous process, and a delicate balancing of technical and political objectives.

**Economic growth will ultimately depend on the private sector, effectively supported by the public sector.** The government has tended to interpret its role as one of infrastructure development, direct investment in parastatal enterprises, protection of key industrial champions, subsidies for agriculture, and import substitution. While infrastructure will continue to be important, notably in the energy sector, the performance of parastatals, major private companies, and agriculture has often been disappointing. The recent emphasis on public-private partnerships is welcome but perhaps overplayed, and runs the risk of preserving a public-sector driven model of development. There

is probably a need for greater focus on private sector development to mobilize its financial resources and know-how. This will mean a much improved investment climate, greater competition, more attention to exports, and a partnership which emphasizes the removal of bureaucratic obstacles and corruption.

**Exports and services are likely to be key drivers of growth.** Senegal’s market is very small, so it must do better at exploiting regional and global opportunities. Exports need to be stimulated by removing the constraints in key sectors such as horticulture and mining. The fishing and groundnut sectors require urgent attention in order to prevent a decline which would be a serious drag on the economy. But services dominate the economy and will need to play a central role in pulling the economy forward. Tourism remains the single largest foreign exchange earner, but has been neglected. ICT has major potential, while education, health and business services can and do contribute to exports, as recognized in the PSE.

**Agriculture, a fundamentally private sector activity, will have an important role to play.** Although its share of GDP is small and likely to decline, it remains the source of livelihoods for the majority of the poor, and there are significant areas of unexploited potential. Most notable are horticulture exports, which have already proven their competitiveness, and rice, which enjoys a large domestic market currently dominated by imports. Both of these sub-sectors will depend largely on greater use of irrigation. Rain-fed agriculture will remain important for other crops such as groundnuts, maize and upland rice, but this will be confronted by the challenge of unreliable rainfall, exacerbated by climate change.

**Improving competition and promoting a good business environment will have important positive effects in terms of GDP growth.** Both more competition and a sound business environment will encourage a shift from private consumption to private investment, which in turn can be expected to feed back into increased total GDP growth. Existing monopolies and dominant firms should be exposed to more domestic competition and/or imports. Mechanisms should be pursued to channel remittances into investments in addition to housing. A reversal of the corporate income tax hike introduced in the 2012 tax code (which increased the rate from 25 to 30 percent), as currently mooted, would seem advisable and consistent with regional and global practice.

**The government needs to put its own house in order.** The return to negative TFP growth and lower GDP growth in recent years, coupled with high public consumption, is threatening Senegal's economic future. It will need to check public consumption, and raise the quality of public investment. Given the relatively high level of total public spending, revenue collection and debt, increased investment will depend primarily on reallocation from current spending, relying primarily on the growth in the economy to increase the fiscal envelope.

## Climate change adaptation in Senegal

**C**limate is a factor affecting the daily lives of all Senegalese people. The country's location—adjacent to the Atlantic Ocean and the semi-arid land of the Sahel subject to sea-level-rise and increasing land degradation due to a combination of anthropogenic and climate factors—is subject to climate change induced effects. Droughts result in reduced harvests, lower revenues for the rural poor and higher food prices for urban consumers, as well as diverting foreign exchange toward food imports. Damage imposed on the country's beaches by rising sea levels and associated coastal erosion hurts the tourist industry. Beach erosion and particularly changing ocean temperatures could have a dramatic effect on the fishing sector. Thus policy makers need to understand better and assess in more detail the economic impacts of climate change for the different sectors and geographical zones in Senegal to adopt appropriate mitigating measures.

**We begin with a general examination of the relationship between the environment and poverty.** Two conclusions emerge. First, the majority of the population is aware of the negative impact of environmental shocks on their lives, suggesting that there may be an existing reservoir of public support for various climate change adaptation measures. Second, the negative impacts fall most heavily on the poorest, suggesting that adaptation measures must be a priority in a country where nearly half of the population lives in poverty.

**We then turn to a recent World Bank-financed study: “Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal.”** Led by the Ministry of Environment and Sustainable Development with support from the World Bank, this study was undertaken from 2011–2012. A first of its kind in Senegal, the study assessed three pilot sites under a number of scenarios up to 2080, predicted the costs of damage if no action will be taken and developed a cost-benefit analysis model for soft (policy) and hard (infrastructure) adaptation options. The study examined a number of climate-induced risks related to rising sea levels (mainly coastal erosion, coastal flooding, submersion, water shortages and groundwater salinization) and the interaction of those risks with other natural risks, for example, river flooding and run-off floods for the entire coast and for three pilot sites (Rufisque/Bargny, Saly and Saint-Louis). The damages expected from climate change induced hazards were compared with the costs of adaptation measures. Extrapolation from the economic analysis carried out for the three sites yielded estimates for the economic costs for the entire coast.

**The implications for the tourism sector are then explored in more detail.** This is one of the key sectors generating jobs outside of Dakar and one which has substantial growth potential if managed properly. Unfortunately, it is suffering from significant coastal erosion in the main tourism site of Saly-Portudal.

## Climate change, the environment and poverty reduction

The second survey for poverty monitoring in Senegal (*Deuxième Enquête de Suivi de la Pauvreté au Senegal, ESPS II, 2011*) asked respondents about various changes in their environment which may or may not be associated with climate change. The results suggest that 63 percent of the Senegalese people are aware of the negative effects environmental change has had over the past five years. Although this belief is shared throughout the country, it is most widely held in the pastoral regions of the country where as much as 90 percent of the population share this perception. Conversely, in the northern Groundnut Basin areas and in metropolitan Dakar, only one individual in two seemed to be concerned with the effects of environmental change. In describing the negative effects of environmental change on their lives, rural respondents emphasized increases in the incidence of animal diseases, more severe plant insect infestations, more and larger wild fires, sharp declines in fish production, and increasing soil infertility (Table 9).

These perceptions are also consistent with the view that the poorest are hardest hit by the adverse effects of environmental change (Figure 24). This is most dramatically borne out by the data concerning revenue loss. Three quarters of the income or the income generating activities of the first, or poorest, quintile is vulnerable to such shocks, while less than a third of that in the richest quintile is vulnerable. This is not surprising given that over half, 56 percent, of the poorest quintile are engaged in raising crops or livestock for their livelihood; those occupations which are most vulnerable to inadequate rainfall.

This conclusion is supported by econometric findings based on a multinomial logistic modeling which illustrates the poorest quintile of the population where people rely more on crops and livestock raising is much more at risk from climate shocks than the richest and that, except for the third quintile, the intensity of the impact decreases as the standard of living increases (Figure 25). Overall, compared to the 20 percent richest households, the 20 percent poorest households are more affected by the impact of climate shocks on crops and livestock than the second quintile which contains the next 20 percent

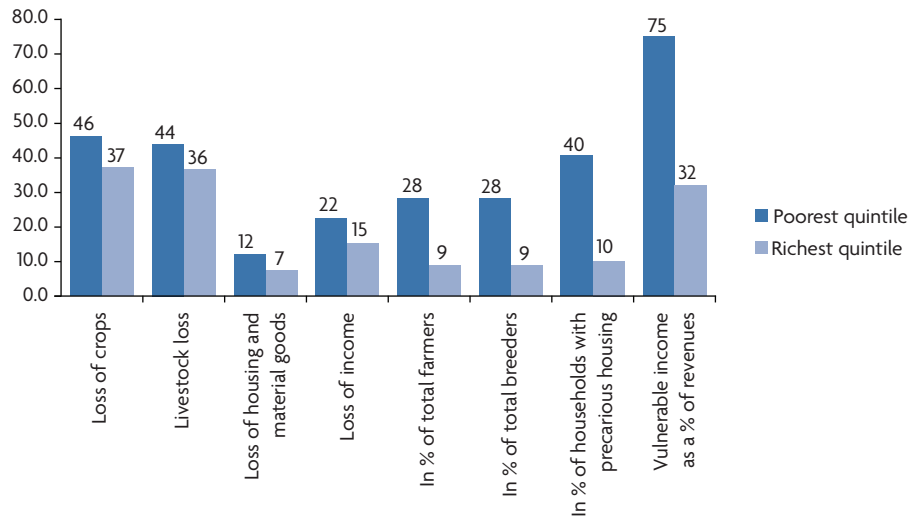
**Table 9: Percentage of Populations Affected by Perceived Environmental Change by Impacts & Agro Ecological Zone<sup>7</sup>**

	Lower Casamance	Niayes	North of the Groundnut Basin	Oriental Senegal & Higher Casamance	South of the Groundnut Basin	River Senegal Valley	Agro Forestry Pastoral Zone
More frequent wild fire	50.5	15.4	4.7	47.3	18.2	11.9	28.7
Deforestation	34.9	44.1	22.7	27.3	26.7	25.9	39.8
Erratic agricultural production	25.6	37.0	22.7	14.5	30.2	28.8	33.1
More polluted air	8.0	28.8	8.2	6.1	5.1	17.2	11.6
More polluted lakes and rivers	9.7	25.0	10.3	6.3	12.3	8.4	23.3
Decrease in water streams, rivers, and lakes	11.4	33.3	9.5	10.9	13.9	18.7	24.6
Drier soil	22.5	39.1	19.7	16.0	39.0	30.1	17.4
Nonfertile soil	40.8	46.9	32.0	24.7	58.5	22.9	23.5
More insects affecting animals and plants	35.1	38.7	21.4	14.2	35.2	18.3	26.8
More diseases affecting plants than in the past	66.4	46.4	30.4	34.6	34.7	64.2	48.1
More diseases that affect animals than in the past	70.4	45.1	39.4	48.2	50.2	41.6	51.0
Advance of the sea (avances de la mer)	10.1	20.0	6.2	3.7	11.2	2.9	33.2
Flooding of cultivated surfaces	11.6	19.3	7.1	9.8	12.0	6.3	11.0
Rains outside normal seasons	2.2	19.9	6.9	5.5	10.2	3.9	10.8

Source: ANSD (ESPS II, 2011)

<sup>7</sup> Numbers in this table refer to proportion of respondents who indicated that they have suffered various effects of climate change, though it would be more accurate to refer to environmental changes which may or may not be related to climate change.

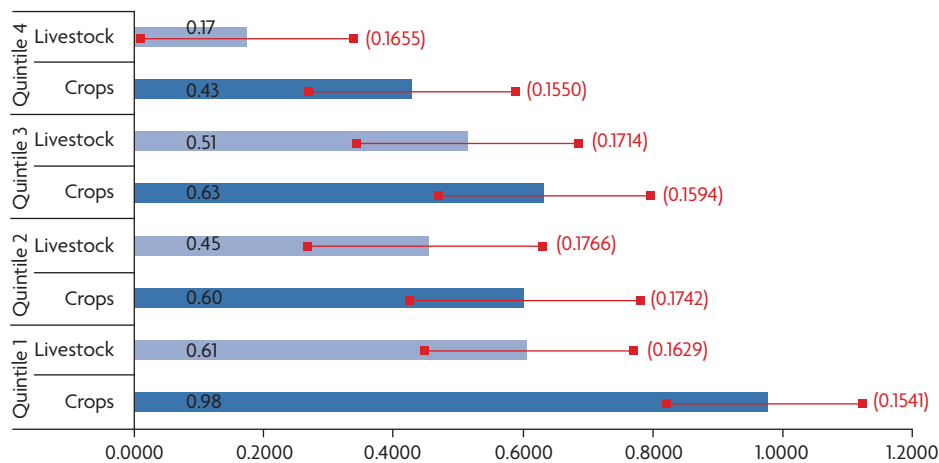
**Figure 24: Percentage of populations affected by environmental change by sector & income source**



Source: ANSD (ESPS II, 2011) and World bank estimates.

**Figure 25: The poor are much more at risk from climate shocks**

Coefficients of multinomial logistic model with standard errors (. . . crop, livestock, fishing, house. . .)



Source: ANSD (ESPS II, 2011)

poorest households, and crop production is more vulnerable than livestock-raising.

**The first quintile contains the poorest of the poor.** They are likely subsistence farmers and herders and their income is probably less than USD1.25 per capita per day. In such circumstances a

crop loss, or that of an animal, or both, will have severe implications. While those in the richest quintile may experience a marginal decrease in their standard of living as a result of a climate change shock, for those surviving on less than \$1.25 a day, there is no margin.

## Rising sea level and coastal erosion

**Study objectives.** The stated objectives of the study were, first, to conduct a spatial and economic analysis of coastal zone vulnerability in Senegal and, second, to conduct an economic analysis in three pilot sites of different adaptation options available. The resulting reports address the problems associated with rising sea levels and their economic effects, and provide broad based, long term recommendations as an input for the government's plans to finalize a Coastal Management Plan and a Coastal Law. One of the salient features of the study is its emphasis on long-term horizons. Based on global projections, it is projected that sea level will rise 20 cm by 2030 and 80 cm by 2080; this compares with a rise of only 3 cm between 1990 and 2010.

**Senegal's coastal zone is home to 60 percent of the population (around 7.8 out of an estimated 13.5 million), and accounts for 68 percent of GDP.** A rising sea level can lead to erosion which threatens housing, infrastructure and tourism (Figure 26). It can also result in saline intrusion, threatening water supplies and agriculture, while the risk of flooding, notably through storm surges is increased, both because of rising sea levels, and because urban development hinders the natural retention and absorption of rainwater. Particularly worrisome is the contribution to the risk of flooding by the Senegal River, and its impact on the city of Saint Louis. Current projections estimate urban population growth along the coast at 16 percent over the period 2005–2030 with the largest increase occurring along the Petite Côte where the increase is estimated at 49 percent in the same

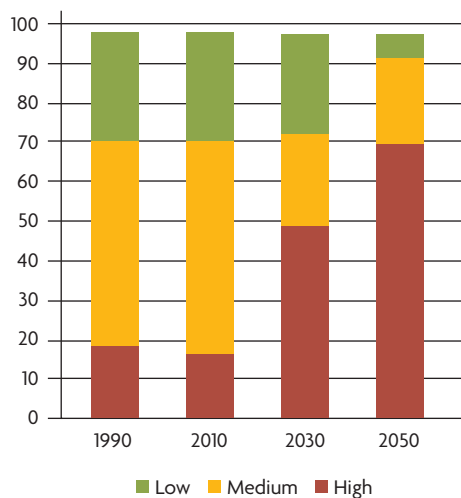
period. In the longer run, over the period 1990–2080, the overall urbanization of the coast is expected to increase by one-third.

**Three sites selected for in-depth study.** Because of varying conditions along the coast three representative pilot sites were selected for in-depth treatment over the two year period, 2011–2012. These sites are all to one degree or the other urban in nature as it is these areas which are deemed to be most vulnerable to and impacted by the various consequences of sea-level rise due to the increasing concentration of people and structures.

**The first selected site is Saint Louis,** the most urban and largest of the three, a city located on the Senegal River where it empties into the Atlantic Ocean. The original city is located on an island in the middle of the river, though the city has since spread to both banks. Besides marine submersion risk associated with sea level rise, Saint Louis' position is mostly affected by flooding from the Senegal river. The combination is hampering the discharge of floods and impacting the drainage and sewer runoff options.

**The second site, Rufisque-Bargny,** is a suburban district of greater Dakar, on the south side of the Cap Vert peninsula. It presents an example of the effects of shoreline erosion since the 1980s and of the expensive and generally unsuccessful attempts to control it.

Figure 26: Level and variability over time of coastal erosion risk in Senegal



Source: *Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal*, August, 2013, page 39.



**Lastly, Saly is a coastal town and the center of the tourism industry** located further south along the Petite Cote and exemplifies an area where sea level rise is already associated with loss of beaches, with concomitant impact on existing and potential tourist and resort beach activities. These choices provided a range of locations and associated risk factors, which can be used for economic analysis and extrapolation to the entire coastal zone.

**Economic analysis of climate change hazards was followed by cost-benefit analysis of adaptation measures for decision-making.** The study developed an economic analysis based on the evaluation of direct and indirect costs (damage and economic losses) induced by natural risks (Figure 27). It then carried out a cost-benefit analysis to determine the feasibility of profitable adaptation measures. Within that model the coastal zone was subjected to a spatial analysis based on current patterns of urbanization from which economic values were derived for various locations at various event horizons in the future. These valuations in turn were the basis for the calculation of expected damage from the various climate related risks as well as for the analysis of cost of selected adaptation measures.

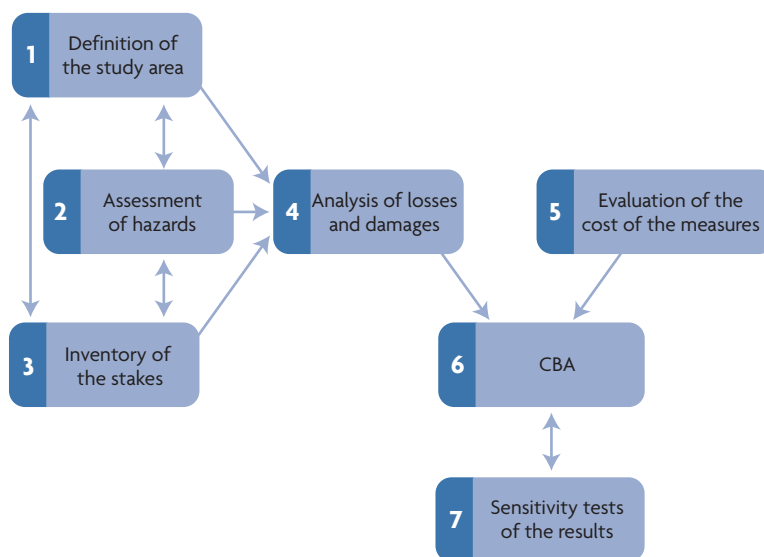
**Limitations of the study.** The study both established a methodology and collected all available data in order to apply it. However, given the data limitations, it was largely a hypothetical exercise awaiting the availability of better information. The evaluation of climate risks has been carried out on the basis of conservative assumptions. For some of the issues at stake, such

**Box 3: Overview of Natural Hazards on the Senegalese Coast**

In Senegal, global warming due to climate change is anticipated to result in coastal sea level rises of 20cm by 2030 and 80cm by 2080. In combination with a predicted decrease in rainfall, increasing urbanization and existing risks from river flooding, coastal erosion, marine submersion, run-off and poor drainage in low-lying and urban areas and increased salinity, Senegalese coastal vulnerability will be greatly exacerbated. Some examples, by 2080 three quarters of the Senegalese shoreline will be subject to a high risk of erosion as opposed to a current figure of 25 percent and the risk of flooding due to sea storms, which is already very high (more than 50 percent of the coastline is at high risk), is expected to expand to two-thirds of the coast by 2080. At the mouth of the Senegal River, the city of St. Louis represents the most extreme example of risk combination. This city is already subject to significant risk of river flooding, which would intensify with sea level rise, impeding the outflow of river water into the ocean such that by 2080, 80 percent of the city could be submerged annually. In the case of Dakar similar results can be seen in the neighborhoods of Pikine and Guédiawaye, as a consequence of poor drainage and low-level proximity to the sea. Increased aridity in combination with increased salinity of coastal water supplies because of sea level rise, poses an increased risk of water shortages in the near and medium term for all coastal regions, but especially urban areas.

*Source: Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal, August, 2013, pp 30–38.*

**Figure 27: Major steps of the Cost-Benefit Analysis (CBA)**



*Source: Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal, August, 2013, page 40 (phase 4).*



**Box 4: Acceleration of Coastal Erosion**

Currently 25 percent of Senegal's coast is at high risk of coastal erosion from rising sea levels; exacerbated by urbanization and sand extraction, that number is expected to rise to 75 percent by 2080. Recently the government closed down two sand extraction quarries to reduce coastal vulnerability to climate change.



Source: Photo: Adrien Coly

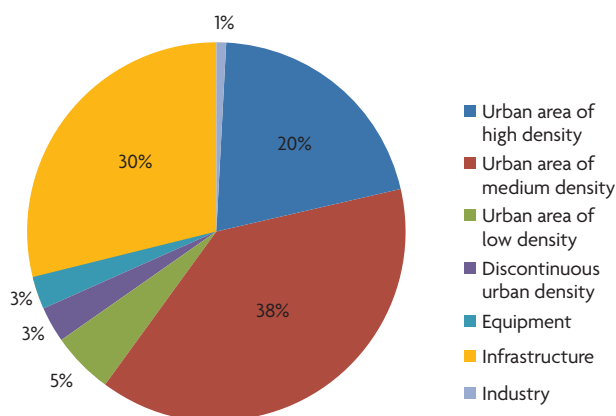
as loss of human lives, cultural heritage, or ecosystem services, it was not possible to make a monetary evaluation, although they are severely exposed. Taking into account all these elements, we must therefore consider that the results presented correspond to the low end of the range for the costs related to natural risks and climate change, and that such costs could be much higher.

## Analysis and options

**Saint Louis.** The net present cost (NPC) in 2080 due to marine submersion would amount to approximately CFAF 12.3 billion (USD 24.6 million).<sup>8</sup> The cost of the most favorable adaptation scenario with respect to the marine submersion risk would amount to CFAF 7.76 billion (USD 15.52 million), thus leading to a positive balance of CFAF 4.54 billion (USD 9.1 million), i.e. a cost-benefit ratio of 0.63. This suggests that the opportunity cost of inaction is roughly CFAF 4.54 billion. However, the far greater risk is that of river flooding. Its net present cost was estimated at CFAF 818 billion (USD 1.6 billion), which is almost 13% of the national GDP for 2010. However, it was too complex to assess possible adaptation measures in the context of this study.

<sup>8</sup> The discount rate used is the one advocated by Lebegue (4% the first 30 years and then digressive the following years).

**Figure 28: Breakdown of net present cost induced by a 50-year flood in Saint-Louis**



Source: See *Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal*, August, 2013, page 79.

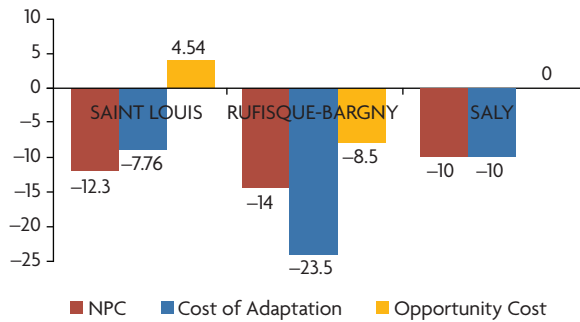
Figure 28 breaks down the Net Present Cost (NPC) induced by a 50-year flood in Saint-Louis.

**Rufisque-Bargny.** The net present cost in 2080 due to marine submersion and coastal erosion would amount to approximately CFAF 14.2 billion (USD 28.4 million). All the adaptation solutions proposed lead to an amount higher than the cost of material damage and economic losses. In this case, preventive measures do not appear warranted; instead, adaptation was recommended through warning systems, sensitization of the population, and the establishment of a fund for the relocation of victims of disasters. These are considered to be the most cost-effective solutions since the least expensive preventive solution would result in a loss of CFAF 8.5 billion (USD 17 million).

**Saly.** The NPC in 2080 caused by temporary or permanent marine submersion (due to either storm sea rise or to sea level rise) would amount to approximately CFAF 10 billion (USD 20 million). The creation of elevated artificial beaches would lead to a neutral economic balance (cost equal to the avoided damage). The study documented the serious problem of coastal erosion but noted that corrective short-term measures were already being taken by the authorities. Unfortunately, the proposed measures envisaged had not been pursued as of 2014 and the problem has been exacerbated.

**Investing in adaptation measures does not always leave one better off than doing nothing at all.** The opportunity cost of doing nothing is equal to the NPC of climate effects less adaptation costs. This opportunity cost is positive in the case of Saint Louis, negative for Rufisque, and zero for Saly (Figure 29).

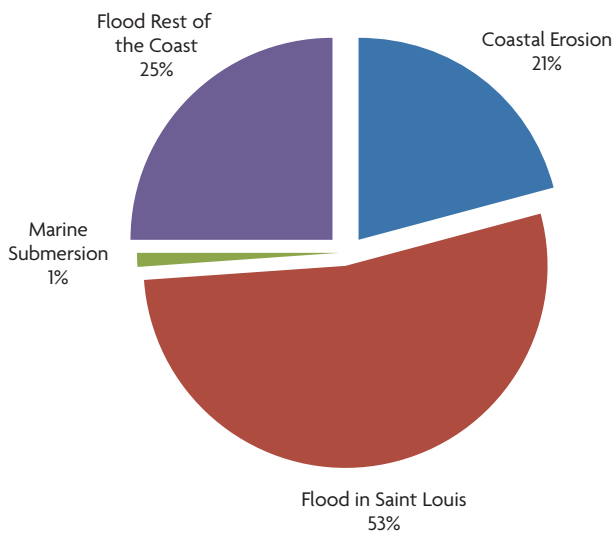
**Figure 29: Assessing the opportunity cost of doing nothing**



Source: *Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal, August, 2013, page 231 (phase 3).*

**Based on the economic analysis of the pilot sites, a simulation extrapolating the CBA to the entire Senegalese shoreline was carried out.** Utilizing a macro-economic approach and demographic data, and assuming a strong correlation between population and coastal vulnerabilities including human, material and economic risks, the net present value of all costs (NPC) was estimated at CFAF 1,500 billion (USD 3bil.) The cost for coastal erosion and marine submersion is estimated to amount to CFAF 344 billion (USD 688 million). The NPC of coastal flooding beyond Saint Louis, primarily due to river flooding, amounts to approximately CFAF 389 billion (USD 778 million). The NPC of floods at Saint-Louis, amounts to CFAF 818 billion (\$1.636 billion) and is more than half of the total estimated damage (Figure 30).

**Figure 30: Distribution of costs of natural hazards**



Source: Bank estimates

**Box 5: The Health Costs of Climate Change**

This study also addressed briefly the health impact of climate change in the coastal zone. The consequences of climate change on malnutrition and diseases such as malaria and diarrhea constitute a significant risk to future populations, particularly in low-income countries in the tropics and subtropics regions. Using a methodology of the World Health Organization (WHO) based on the Disease Adjusted Life Year (DALY) concept, the total discounted cost of the worsening state of health of the population in the coastal zone due to climate change is estimated at CFAF 1,200 billion (USD 2.4bil). One-third is the increase in health spending and two-thirds is the indirect economic costs.

Source: *Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal, August, 2013, page 20.*

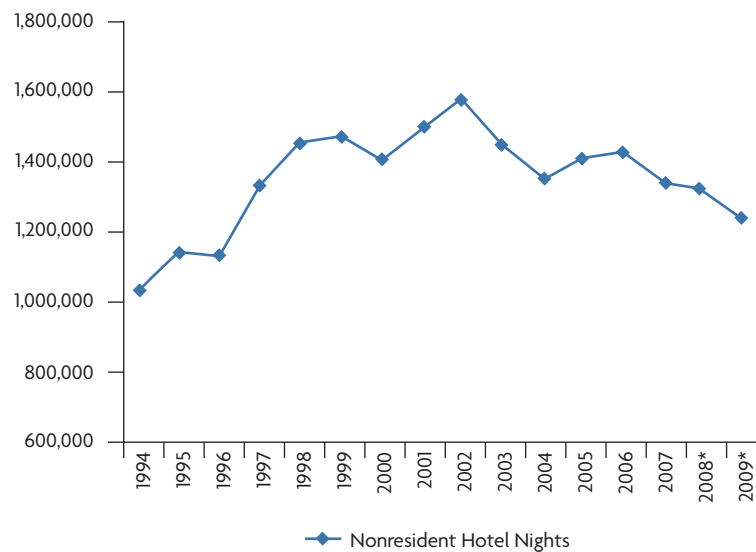
The NPC of all these economic losses represents almost 25 percent of the GDP for 2010, and approximately 35 percent of the GDP of the coastal area.

**No attempt was made in the study to place a value on the loss of natural environments such as wetlands and forest areas.** However, the analysis argues that climate change leads to an increased reliance on such ecosystems for indirect uses including erosion control which increases their economic value quite apart from their intrinsic worth. Thus, the preservation of such natural back-up systems is to be encouraged.

**Tourism impacts**

**Tourism is a key sector of the Senegalese economy that is threatened by climate change.** Senegal offers natural assets such as a sunny, subtropical climate along the coast, sandy beaches close to the Dakar airport, and relative proximity to the European tourist market. However, the tourism industry in Senegal is struggling. Over the past ten years the number of tourist arrivals has been steadily decreasing (Figure 31) and the per capita expenditure has remained low relative to other countries. Its problems are partly man-made—high taxes, lack of public investment, mismanagement—but disappearing beaches are a major blow.

**The main tourist attraction, the beaches, is now becoming a major cause of decline in the tourism industry.** The process started in the early 80s but was not really taken seriously. The main causes are the increased construction and human pressure on the coast as well as rising sea levels causing increased coastal erosion. This is aggravated by isolated and ad-hoc adaptation

**Figure 31: Tourism has been decreasing since 2002**

*\*Data based on estimates.  
Source: DPEE, data on tourism*

protection measures which remove the threat in one area but aggravate the erosion further down the coast. 25 percent of the coast of Senegal is today at high risk for coastal erosion which is estimated to increase to 75 percent by 2080 if sea levels continue to rise.

**Data about climate change impact on the tourism sector is scarce.** Although the loss of beach area is clearly visible to long-time residents and returning tourists, only rudimentary and localized data concerning the rate of loss of beach areas is available. Tourism-related data is often kept confidential and not shared easily for evaluation purposes. There seems to be no regular publicly available surveys on visitors regarding their satisfaction and reaction to the situation. While the relative importance of beach erosion in the decline in tourism cannot be determined, actors in the industry are clear that it is a contributing factor.

**Saly is a case in point.** The town has 15 hotels and 23 residential vacation complexes for lease. Its economy is totally dependent on beach vacation activities. As of this juncture, 30 percent of the accommodations have lost access to useable beaches. In 2011, a study commissioned by the Department of Environment and Conservation analyzed the vulnerability of the tourism sector in Saly and its socio-economic implications on the local economy. Not surprisingly, the study concluded that a decline in



tourism activity does harm not only the local economy but has a negative effect on the national economy. The study of rising sea levels understood that the authorities were already taking measures to deal with coastal erosion in Saly and so assumed that the short-term impacts were under control. Unfortunately, proper remedial action has not been taken. Given the high priority attached to tourism in the new national development strategy, this problem demands urgent attention.

## Conclusions and recommendations

**The study of rising sea levels admits that there are certain drawbacks inherent in the methodology and due to the unavailability or the lack of precision of some data sets.**

Also, the limits of the approach itself, which did not aim at providing precise technical and economic evaluations, but rather a first overview of the costs induced by natural risks and climate change, must be taken into consideration. These limitations point to the need to continue and improve data collection so as to verify, adjust and possibly expand the model as time goes on.

**The study does not make any recommendations as regards specific capital projects to be undertaken apart from the institutional and policy changes recommended below.**

It notes that infrastructure investments are capital intensive and not necessarily cost effective. That said, such projects are analyzed for each of the three sites and lay the groundwork for the design of capital investments in the future.<sup>9</sup>

**The main thrust of the recommendations is to promote a new mind-set on the part of the government** in which awareness of climate change is reflected in the actions of the government. From the diagnosis of natural risks and their foreseeable evolution in the wake of climate change, and in the light of the economic analysis' results, an intervention framework has been defined to guide the Senegalese authorities regarding the adaptation measures to be considered for the coastal areas, notably in the preparation of the Integrated Coastal Zone Management Plan. The actions deserving priority attention are mainly in areas such as urban planning and institutional reform. These actions cover all the natural risks (synergy effects), have a low cost, are of a 'no regret' nature in that they make economic sense regardless of likely impacts, and are flexible/reversible.

### In the institutional field

- Strengthen institutional coordination by improving the efficacy of the chain of command and of the knowledge-study-technical decision process throughout relevant government agencies;

<sup>9</sup> As to future projects the specific measures recommended with reference to each of the three intensively studied sites might be included among the medium term strategic projects to be funded by the PSE by 2023. An example of a current ongoing project which might be brought within the ambit of adaptation planning is the PROGEP which is dealing with storm water flooding problems in two Dakar neighborhoods.

- Readjustment and implementation of the reference texts, Coastal Law, National Coastal Erosion Prevention Program and National Action Plan for Climate Change Adaptation to achieve a coherent legal basis.

### In the field of operational preparation

- Accompaniment measures for the implementation of urban planning regulations including implementation of a dissuasive/repressive administrative police activity to prevent settling in low-lying areas in violation of land-use regulation; follow-up of land occupation using satellite images, combined with information/awareness-raising of citizens; and,
- Implementation of a budget policy for climate change adaptation, integrating new financing solutions, additional economic and financial analyses, and a production and operation account for each project.

### In the field of training

- Awareness-raising program focusing on climate-resilience actions, with a particular focus on communication methods and on the technological means to be implemented; and,
- Information regarding natural risks and climate change and adaptation measures, to be offered to the population, the economic stakeholders (industries, businesses, services) and the administration.

### In the field of urban planning and regulation

- Enforcement of the strict ban on sand collection along the coastline;
- Run-off management for new neighborhoods and/or urban rehabilitation operations (planning laws imposing a requirement that absorption be promoted and run-off rates be controlled so that downstream flow rates are not aggravated);
- Drafting of master plans for sanitation, taking into account the new rainfall and sea level assumptions with the implementation of waste collection practices designed to improve the efficiency of the storm water drainage network.

### More general recommendations

- There would appear to be urgent need of an in-depth study of possible adaptation measures to cope with river flooding of Saint-Louis.
- Attention to the effect of coastal erosion on the tourism industry in Saly is even more urgently needed, since it is already having a devastating impact on some hotels.
- A third area which merits analysis is the impact of climate change on the fishing industry, given its large social and economic importance in Senegal.

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