- Managing the present impacts of the intra-seasonal and inter-annual variability of the Basin's climate has the potential to better prepare water managers for dealing with long-term climate change impacts.
- Global climate models project only modest changes in precipitation over the Basin (mostly between -6% and +7%, on average +2%) and all climate models project significant increases in temperature, mostly between 1.50C and 30C for 2050 (on average 2.10C or 8%). The average projected decline in runoff is only about 2%; most models project an average change in runoff between -18% and +10% with a maximum projected decline of 20%; 25% of GCM runs project a decline of at least 10%.

- Current water allocation rules in the Niger Basin according to the Niger Basin Water Charter prioritize irrigated agriculture in order to secure food production and alleviate poverty, making it insensitive to projected climate changes. Mild agricultural production decreases may occur during the dry season, but would generally be less than 3% of the output projected for SDAP.
- Climate change impacts on hydro-energy, navigation and Inner Delta Flooding are projected to be mild (< 10% decrease) to moderate (< 20% decrease). These impacts can be reduced by reducing rainy season irrigated agriculture and/or by the construction of additional storage reservoirs along with hydro-energy generation facilities in the water producing parts of the basin, i.e. in the Upper Niger Basin and in Nigeria, particularly in the Benue basin.
- Climate change impacts on minimum flows are potentially severe; adaptations are required for enhancing minimum flows in the Inner Delta and Middle Niger, for example by (i) modestly increasing the dry season irrigation efficiency at Office du Niger (by 2 to 3%), or by (ii) reducing the dry season irrigated area under SDAP by at least 6%, or by (iii) changing cropping patterns to less water demanding crops.
- SDAP and particularly the construction of Fomi and Kandadji dams constitute an effective adaptation to climate change impacts on SDAP itself, due to the abundance of water resources in the rainy season and the creation of large water storages for dry season water supply for irrigation and the sustenance of minimum flows.
- Rainfed agriculture is vulnerable to climate change; yields of typical dry land crops may reduce with 15% due to an increase in temperature with 20C. Impacts of possible decreases in precipitation could be more severe.
- Potential climate change impacts on the economic performance of SDAP are modest. In the 'worst case scenario' (20% reduction in average runoff), one can expect a 1.5% reduction in the EIRR, mainly due to decreased hydro-energy production. The development of Run-of-River hydropower plants can significantly improve the EIRR of SDAP, without affecting the energy generation at downstream hydropower plants.

analysis of SDAP
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