



IMPETUS Benin

Food security in Benin: Development of decision support systems at different spatial scales – (1) Spatial decision support systems at the national scale

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Introduction

In sub-humid West Africa the fast demographic growth puts high pressure on the natural resources. On the other hand, food production has to satisfy the growing population. Thus, national and local authorities are concerned with the issue of food security and economic development without compromising the natural resource base. The IMPETUS project has developed spatial decision support systems (SDSS) at different spatial scales which may assist decision makers to identify strategies for sustaining food production and food security.

	Spatial scale	Decision Support System	Output
Large-scale		PRÉSAPLUS	Seasonal forecast
		BENIMPACT-CROP/ANIMAL	Crop /Livestock production, Gross margin, Income generation, water demand
		AGROLAND	Identification of marginal sites; natural constraints for agricultural land use
Medium scale		PEDRO	River discharge, soil erosion, crop yields/production, Energy value
		BENIVIS	Runoff/ GW recharge, Crop yield/ production
		SYMBA	Water storage, irrigated crop production, economic return



Conclusions

Through the development of scientifically based information and decision support systems and the provision of capacity building opportunities including academic and technical training as well as user manuals and administrator guidelines, the IMPETUS subproject „Food security“ has contributed to the strengthening and improvement of planning capacities in the area of sustainable land and water management in the Republic of Benin

Decision Support Systems at the national scale

PRÉSAPLUS

The objective of the SDSS PRÉSAPLUS (Prévision Saisonnière de la Pluie Sous-saharienne) is a seasonal forecast of the monsoon behavior in Benin Republic based on calculations with the regional climate model REMO (Fig. 1). Calculation period is from March to October with monthly updates during the monsoon season according to the monitored changes of the boundary conditions like sea surface temperatures.

Figure 1: Results of the REMO model for changes in precipitation under IPCC climate scenarios A1B and B1

AGROLAND

AGROLAND enables user to evaluate interactively current and future biophysical land resources. The SDSS helps to identify marginal areas, which means vulnerable sites within the agrarian system. Their knowledge is important for a sustainable land use planning and for the set up of precautionary and conservation measures to maintain natural resources for food production.

BenIMPACT

The results of BenIMPACT scenarios are visualised in a scenario viewer that allows the user to produce tables, graphs, and geographical maps.

Scenario	2000	2005	2010	2015	2020
Wheat/maize	0.20	0.20	0.20	0.20	0.20
Cassava	2.00	3.00	3.00	3.00	3.00
Maize	12.30	15.00	15.00	15.00	15.00
Yam	7.00	8.00	8.00	8.00	8.00
Sorghum	5.00	5.00	5.00	5.00	5.00

