

4. Sector-Specific Tools

The tools described in this section of the compendium are examples of tools that an analyst might consider employing within a given sector and tend to be applicable to only one sector. However, the tools described in each section here should by no means be considered a comprehensive listing of tools that are available. The following sectors are included: agriculture, water, coastal resources, and human health.

4.1 Agricultural Sector Tools

The agricultural sector tools described in this compendium, listed in Table 4.1, range from sector-wide economic analyses to farm-level crop models. The crop process models address the impact of various management and climate change scenarios on single crops (e.g., WOFOST, ICASA, ALFALFA, ORYZA), multiple crops (e.g., APSIM), and entire ecosystems (e.g., CENTURY). Other tools can be used to examine particular ecological factors or processes (e.g., ACRU) or support bigger picture strategic adaptation decisions (e.g., MAACV, RRI). The economic models (e.g., Ricardian analysis and input-output accounting) assist the user in evaluating the economic impacts of changing land values, supply and demand, and commodity production resulting from climate change. There are substantially more agricultural sector tools than there are tools in other sectors. This is because many agricultural models are crop specific or are applicable only to particular regions, whereas models in other sectors tend to be more generally applicable.

Table 4.1. Tools covered in agricultural sector

APSIM (Agricultural Production Systems sIMulator)

WOFOST

ACRU (Agricultural Catchments Research Unit)

Process Soil and Crop Models: CENTURY

ORYZA 2000

Information and Decision Support System for Climate Change Studies in South East South America (IDSS-SESA Climate Change)

Decision Support Systems Linking Agro-Climatic Indices with GCM-Originated Climate Change Scenarios

Model of Agricultural Adaptation to Climatic Variation (MAACV)

Relative Risk Index (RRI)

Government Support in Agriculture for Losses due to Climatic Variability

Process Crop Models: International Consortium for Application of Systems Approaches to Agriculture (ICASA) — International Benchmark Sites Network for Agrotechnology Transfer (IBSNAT) Family of Models

Process Crop Models: General-Purpose Atmospheric Plant Soil Simulator (GAPS 3.1)

Process Crop Models: Erosion Productivity Impact Calculator (EPIC)

Irrigation Model: CROPWAT

Process Crop Models: Alfalfa 1.4

Process Crop Models: AFRC-Wheat

Process Crop Models: RICEMOD

Process Crop Models: GOSSYM/COMAX

Process Crop Models: GLYCIM

Economic Models: Econometric (Ricardian-Based) Models

Economic Models: Input-Output Modeling (with IMPLAN)
