Introduction

The Nile - a transboundary river
• 11 riparian countries and home for about 250 million people
• Rapid population, economic and urbanization growth are projected
• Basin-wide planned development can result in regional cooperation or trigger conflicts
• The nexus approach is relevant for addressing broader interdependency and managing interlinked resources in a holistic manner

Modelling Methodology

Systems-based approach addresses the nexus interactions in the Nile basin
• The modelling framework considers the interlinkages among the water, food and energy sectors
• A system dynamics model was built for the entire Nile basin

Simulation Scenarios

Planned projects with completed feasibility studies are considered
• 5 plausible development scenarios (baseline, SC0, SC1, SC2 & SC3)
• 100 synthetic streamflow series 65 years long used for simulations

Modelling framework

Population
Water demands and water supply
Irrigation supply reliability
Water balance
Agricultural land
Food production, consumption and imports
Food balance
Energy demands and hydropower generation

Simulation Results

Net evaporation from reservoirs
Basin-wide food production
Annual river runoff
Basin-wide hydropower generation