## Investment in Water Resource Development and Environmental Management Will Enhance Uganda's Economic Growth

Results of a national integrated bio-physical/economic modeling framework show that from 2015 to 2040 enhanced investment by the Ministry of Water and Environment (MWE) in Water Resource Development and Environmental Management can increase per capita GDP by 9% in 2040. Water resource development investments contribute 45% of this increase, while wetland protection and land management investments (especially efforts to switch away from firewood for cookstoves) yield 55% of the total benefit.

## **ECONOMIC GROWTH, 2015-2040** The lower line in the figure shows the

## modeled trajectory of per capita GDP growth under Vision 2040 conditions, but with Water and Environmental investments at lower, current growth rates. The upper line shows the same trajectory, but with MWE's Vision 2040 Water and Environmental investment scenario. The difference is 9% increase in per capita GDP by 2040. \$1,600 Enhanced Investment Current Investment \$1,400 GDP per capita (US\$ in 2010 prices) \$1,200 \$1,000 \$800 \$600 \$400 2015 2020 2025 2030 2035 2040



GDP per capita is 9% higher in 2040 under enhanced investment in rural and urban water supply and sanitation, sustainable wetlands, and forest and catchment management. That is equivalent to an extra \$111 per person in that year.

## CONTRIBUTION OF MWE INVESTMENTS TO GDP GROWTH



Water and Environmental Investments impact the economy via a complex interconnection of the economic production factors of labor, capital, and natural resources. Investments that enhance these factors of production ripple throughout all sectors of the economy. For example, investments in urban and rural water supply and sanitation increase the supply and quality of labor which is the major productive factor of the commercial and manufacturing sectors. Investments in environmental management improve ecosystem services such as reduced flooding, improved water quality and improved public health. These services reduce government expenditures for infrastructure repairs and health care, enhancing GDP.



This analysis employed a detailed-sector national macro model of Uganda's economy, called a computable general equilibrium (CGE) model. Biophysical models, irrigation water demand, crop yield, rainfall-runoff, along with municipal and industrial water demand models are used to produce inputs to a detailed 84 sub-basin water balance model of Uganda. Additional wetland, water quality, flood risk, and land-use models simulate the impacts of water development and environmental management investment on land, labor, and capital productivity in the economic model.