



ADVOCATING FOR WATER - FOOD - ENERGY AND CLIMATE NEXUS FOR EFFICIENT AND EFFECTIVE USE OF AVAILABLE WATER RESOURCES FOR THE SOCIO - ECONOMIC DEVELOPMENT OF THE NILE BASIN COMMUNITIES

Population pressure, intensifying living standards and the rapidly increased industrial world are increasing the demand on water, food and energy, necessitating a holistic action called the nexus. The inter-linkage of this nexus has emerged as a popular concept and is now a key feature of policy making. This is because it takes huge sums of water to create food and energy and also takes huge energy to move food from place to place, generate heat, treat water, and produce food. Food crops are sometimes used as a source of energy. The complex triangular -pillar relationship, referred to as the water-food-energy nexus, is an intricate puzzle, in which the increased demand for each limited resource can significantly affect the security of all three. The water, energy and food (WEF) nexus means that the three sectors (water security, energy security and food security) are inextricably linked and those actions in one area more often than not have impacts in one or both of the others.

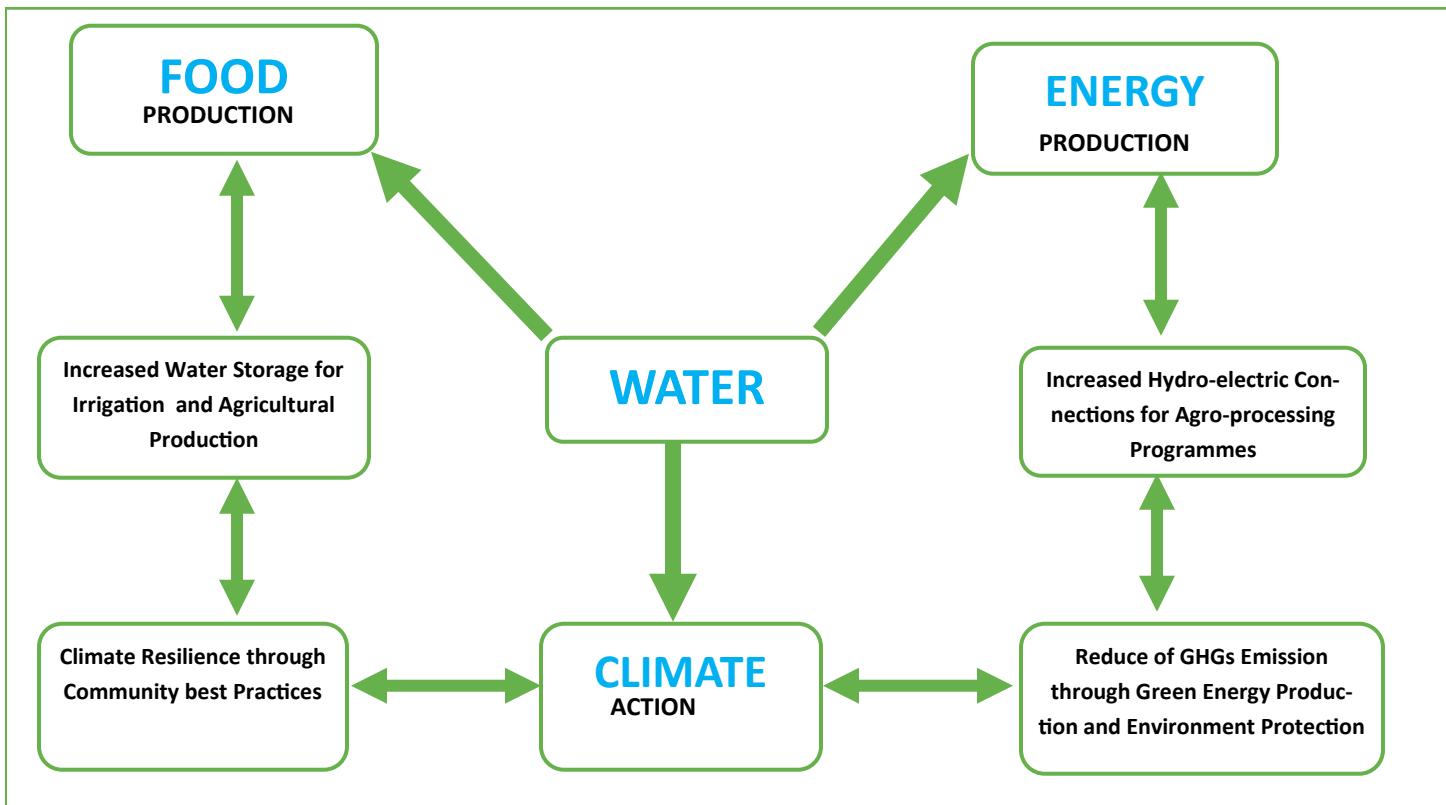
According to the International Renewable Energy Agency, global growth in population, economic development and urbanization are expected to raise demands for water and food by 50 per cent and to double the demand for energy over the next few decades. It is expected that, by 2050, the population living within the Nile Basin will increase by 50%. The population currently living within the Nile Basin is estimated at 257 million which is 53% of the total population (Currently estimated at 487.3 million) of Nile Basin countries (Nile Basin Water Resources Atlas, 2015). The population growth is expected to put water resources under pressure.

Water, energy and food are all fundamental to growing economies, alleviating poverty, and improving health and educational opportunities worldwide. Without enough water resources, food security will not be achieved. Without efficient water resources management, there would be inadequate hydroelectric power generation which will affect agro processing and process of agricultural production.

With water being so central to food security and energy security, the potential impacts of climate change on water resources are of increasing concern. Climate change is likely to raise average temperatures in many locations, change the patterns of rainfall and inflows, and affect the frequency and severity of extreme weather events such as drought or floods – all of which increase vulnerabilities for water, food, and energy resources already under strain.

Although the concept of a water–energy–food nexus is gaining currency, and adaptation to climate change has become an urgent need, little effort has been made so far to understand the linkages between the nexus perspective and adaptation to climate change. The food, water and energy resources are already experiencing significant stress or shortfalls and yet demand for these resources is projected to increase significantly as population, economies and consumption rates grow. The highly interlinked nature of these issues is particularly challenging as it requires comprehensive solutions coordinated among diverse stakeholders who often lack the incentives or institutional structures that are required for effective action.

The fact is that the three are driven by the current climate change which also affects water availability due to change in weather patterns. Basin-wide and sub-basin investment programs, Biodiversity degradation and population growth are among key drivers affecting water use in the Nile Basin. Hence, the four pillar nexus (Water, Food Security, Energy Production and Climate) must be well managed to ensure that livelihoods of Nile Basin communities are attained. Stated differently, to create a sustainable future, we must seek holistic and integrated solutions for water, energy and food challenges, as well as the appropriate balances among them.



The water-food-energy-climate nexus is an important and comprehensive piece of work that seeks to deepen the awareness and understanding of the nexus spanning across the issue of water and to explore solutions to the water scarcity challenge ahead.

Therefore, the water-food-energy nexus is central to sustainable development. Demand for all three is increasing, driven by a rising global population, rapid urbanization, changing diets and economic growth. Agriculture is the largest consumer of the world's freshwater resources, and more than one-quarter of the energy used globally is expended on food production and supply.

The inextricable linkages between these critical domains require a suitably integrated approach to ensuring water and food security, and sustainable agriculture and energy production worldwide, more importantly in the Nile Basin where water is scarce against growing demands. Water is a finite resource having to serve exponentially more people and usages, and so ensuring everyone has access to a reliable supply is crucial to human survival and sustainable progress. As water resources become more stretched, the energy and food sectors' dependence on water, and the fact that all three underpin several of the Sustainable Development Goals, means that decision-makers in all three domains are expected to increasingly focus on water resource management, ecosystem protection and water supply and sanitation as part of their policy and practice.

KEY RECOMMENDED ACTIONS

There is need to take strategic measures that will help to manage the above nexus efficiently. Hence, the following recommendations are of importance to address the nexus issue:

- ◆ Trans-boundary Cooperation based on the principles of Integrated Water Resources Management;
- ◆ Raising awareness at all levels on the efficient use of water resources;
- ◆ Creation of innovative ways of water demand management, conservation and efficiency use;
- ◆ Joint coordination, interaction and experience sharing among Partner States and communities across basins;
- ◆ Capacity development to stakeholders on water and energy efficiency, water integrity, and climate change adaptation.
- ◆ Creation of effective policy frameworks that is much more interlinked
- ◆ Taking note of the highly interlinked issues and readily addressing them in tandem with not only Water, Food, Energy and Climate but also the factors that affect water like Trade, Industrialization, etc.