

EFFECT OF IRRIGATION, ENERGY AND ENVIRONMENTAL FACTORS ON AGRICULTURAL PRODUCTIVITY IN NIGERIA

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ABSTRACT

The success of agricultural production is measured by the amount of solar energy, water consumption that is captured and converted into food per unit land area as a result of manipulating plant, land, water and other resources. Irrigation schemes in developing countries especially in Sub-Sahara Africa (SSA) including Nigeria suffer from very low water use efficiency, resulting in water logging and salinity problems. Therefore, this study investigated the problem of how urban and irrigation interests can work together and to work on how to meet future water needs of Nigeria. The objectives are to develop and use available renewable energy technology such as biomass, hydropower, photovoltaic's, wind power and other technologies to make intensive agricultural production more sustainable. Both primary and secondary data were used for the study. Well structured questionnaire and interview schedule were used as approach to collect data from 80 respondents and six-stage modeling approach was used for assessing regional or landscape scale environmental impacts was adopted to analyze the impact of water irrigation, energy and environmental factors on agricultural productivity. The results showed that irrigation users are small-scale farmers, cultivating small hectare of land using simple farm tools, practices pump irrigation or calabash system. Regression analysis revealed that land, labour purchase inputs had a positive relationship with the output of the enterprises, while the linear programming analysis revealed that opportunities exist for increasing profit through resources re-organization, budgetary analysis was used to show that irrigation is profitable.

KEYWORDS: Effect, Water, Irrigation, Energy, Environment, Agriculture, Productivity, Photovoltaic's, Hydropower, Biomass