

Water Resources Potentials of Hadejia River Sub-Catchment of Komadugu Yobe River Basin in Nigeria

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ABSTRACT

A water audit of the Hadejia river sub-catchment of Komadugu Yobe River basin of Nigeria (KYB) has been carried out. The available water in this sub-catchment was compared with existing and potential water demand; results shows that about 2,619 million cubic meters (MCM) of surface water is available annually upstream of Wudil (HS 1), 658 MCM is available between Wudil and Hadejia (HS 2), while 905 MCM is available between Hadejia and Gashua (HS 3). Analysis of direct ground water recharge revealed that 86mm, 94mm and 8mm of water is recharged to groundwater annually in the three hydrological sections HS 1, HS 2 and HS 3 respectively. It is obvious that the least ground water recharge takes place in the Hadejia - Nguru Wetlands. Presently, no water stress was observed in the sub catchment, the potential water balance of the area shows that about 75% of the available water between Wudil and Hadejia section (HS 2) would be used up by 2010 going by the current development rate. Projections show that the water use rate will reach 100% by 2018. At this time, water scarcity will be experienced in this sub catchment if urgent steps are not taken to address the situation. Integrated water resources management (IWRM) strategies were advanced for the sub catchment in order to avert the crisis.

Key words: Water resources potentials, water budget, river catchment system, soil moisture deficit, runoff, recharge, Nigeria.