

STUDY AND DESIGN OF LIFT CANAL IRRIGATION SCHEME AT NERLA PROJECT

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Abstract - As global population increasing, the gap between demand and supply of water also widening. Leads to threat for human existence. Many scientists finding way to water conservation. While municipal waste water and industrial effluents cause major environmental engineers. Recycling waste water for irrigation is seems to be solution. The paper mill effluent for irrigation offers many benefits such as conservation of water resources, conversion of barren land into irrigated area. Addition of nutrition to the soil. All this reduce the pollution of inland water bodies. The extent to which effluent irrigation responsible for problem such as water logging. Salting of soil, deterioration of surface and ground water are not estimated in holistic manner. The fact effluent irrigation become necessity in arid and semi arid region demonstrate to need the impact assessment. The evaluation of effluent irrigation system for long term sustainability and monitoring major to sustain effluent irrigation is of prime importance to effluent user and public. The impact of the period of irrigation can also be assessed more precisely as the four schemes have been introduced at different periods of time viz. Odapalli Papanpalayam Lift irrigation Scheme (OPLIS) in 1983, Odapalli Mukuparai Lift irrigation Scheme (OMLIS) in 1986, Kattur Lift Irrigation Scheme (KLIS) in 1989 and Gravity irrigation (GI) which is more than 25 years old. The various aspects considered for the evaluation of effluent irrigation are the characteristics of the effluents and its suitability for irrigation, the long term effect of effluent irrigation on soil physical and chemical properties, nutrient availability, heavy metal accumulation in the soil, the changes in land use, the ground water quality in the effluent irrigated field, river water quality adjacent to the paper mill and above all the socio-economic condition and perception of the beneficiary farmers.

Key Words: Canal, Irrigation, Pumping House, Lift Irrigation, Cropping, Discharge, Line Canal

1. INTRODUCTION

Irrigation is the Science of applying water to soil by artificial means for growth of plant. While lift irrigation would simply mean lifting of water for irrigation, the term lift irrigation scheme means a scheme in which an appreciable quantity of water would be raised by means of pump (Lifting Device) from a source of water to an appropriate height for irrigation of an area located at level higher than of the water source. In conventional lift irrigation practice water is released at an

elevated location so that water flow under gravity and irrigation of desired area is performed through open canal or buried pipe lines. Both the surface and ground water reservoirs are used as the dependable source of water for irrigation. While common surface water sources are river, streams, canals and tanks, ground water resources through open dug well, the tube well and dug cum bore well can be used as a dependable source under favourable hydro geological condition. LIS can be classified by a number of criteria based on its source of water, source of power, size of command area, type of energy consumed, type of installation and management.

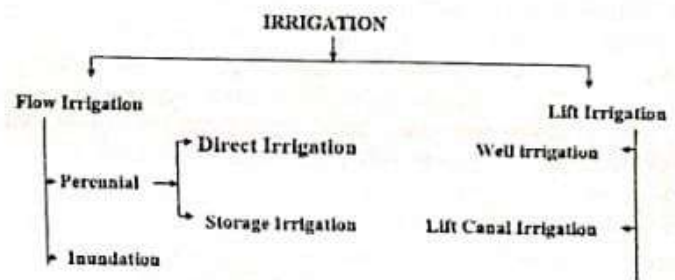


Fig -1: Types of Irrigation

FEATURES OF LIFT IRRIGATION SCHEME (LIS)

- (i) LIS allow irrigation of a specified area as per as availability of water.
- (ii) Irrigation can be provided in any given area as per as choice of user.
- (iii) Irrigation of an elevated area is made possible which cannot be served otherwise by any normal flow irrigation.
- (iv) Scheme based on dependable ground water as source is effective during the period drought.
- (v) LIS depends entirely upon a timely supply of energy necessary for operating pump.
- (vi) Proper management of LIS is utmost importance, lack of which would lead to financial losses and eventually failure of the scheme.
- (vii) Decision relating to investment, gestation period, extends of command area, water sharing, cropping pattern, operation and maintenance of scheme etc. can