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HOW FARMERS BENEFIT FROM INTEGRATION OF EO, METEOROLOGICAL, POSITIONING AND FIELD DATA IN AN ANALYTICS ENGINE – THE AGRI-GIS EXAMPLE OF S ODISHA, INDIA

Abstract

Today, space-based EO data, meteorological observations and positioning information, integrated with ground data and maps, plays an important role in bringing logical decision-making, intelligence and wisdom in society - even at grass-root level. World over, society is generating, referencing, archiving and using vast amount of time-stamped geographically referenced data sets – enabling the development of integrated solutions that benefits individual citizens, societies, nations and humanity, in general. Because of this large amounts of spatial data availability the science of Spatial Analytics is becoming highly prevalent and relevant.

The Centre for Spatial Analytics and Advanced GIS (C-SAG) is developing an Agri-GIS - a suite of Spatial Analytics solutions based on EO images, meteorological data, Positioning data, various maps and different field data sets. The focus of the Agri-GIS is to address Smallholder Farmers – farm level aggregation and dis-aggregation of crop and socio-economic parameters; assess crop suitability of beneficiary land; assess crop-water model; help farmers on nutrition management; provide information on available production technologies, financing options, insurance options, access to inputs and market access etc. The strength of the C-SAG Agri-GIS model stems on a "single, common, standardized, integrated robust and reliable" multi-layered (about 304 parameters), spatially referenced and geo-tagged database – modelling for individual farmer's social, economic and natural resources queries. Out of the 304 parameters, space based inputs provide the critical 25

This Agri-GIS is an end-to-end solution that combines ground-, space-based EO/meteorological/positioning data into a GIS model to address specific farmer requirements at bettering his crop production and yield and also his economic condition by increased income. The paper will address how assessment of farmer needs of information in the various farming communities in Odisha state was taken up, the chain of Spatial Analytics and the final deliverable of 5 Farmer Advisories in each crop season. The paper will also highlight the partnerships of C-SAG, Tata Trusts and the farming communities and how a good working relationships between various stakeholders have been developed for the project.