INTERNATIONAL WORKSHOP OF ISPRS WORKING GROUP VII/2 ON APPLICATIONS OF REMOTE SENSING AND GIS FOR SUSTAINABLE DEVELOPMENT

NOVEMBER 24-25, 1997, HYDERABAD, INDIA

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1. SPONSORING ORGANISATION:

Indian Space Research Organisation

Department of Space, Government of India.

2. BACKGROUND TO THE WORKSHOP

The Rio Declaration 1992, emphasized amongst many important actions, that Remote Sensing and GIS have a prominent role in promoting efforts for sustainable development. The agricultural production in developing countries is presently not able to meet the needs of the growing population. This is because the advantages gained from Science and Technology are not fully exploited. There is an urgent need to evolve methods to improve production by making optimal use of available land and water resources through sustainable development. If the development of rural areas has to sustain a growing economy and ensure ecological balance, an integrated and holistic approach is required to make optimal use of land and water resources. The satellite remote sensing applications for agriculture, soil, water and land management have ample scope to prepare an integrated plan for action program for achieving the sustainable development of land and water resources.

Paying attention to the needs and aspirations of local communities, an operational exercise was carried out in India in a major mission project called Integrated Mission for Sustainable Development (IMSD) where resource information is generated using remote sensing and ancillary sources, including ground verification. The information layers are subsequently integrated through GIS to derive local specific activities in consultation with the people and their aspirations through participatory level appraisal.

This experiment has yielded very encouraging results. The data from Indian Remote Sensing Satellite series including the latest state-of-art technology satellites IRS 1C/1D which have 5.8 m resolution camera, 23.5 m multispectral camera and 188 km swath width, with a re-visit period of 5 days have provided valuable information at operational scale in this Project. This approach needs to be further refined taking into account the need to identify indicators for sustainability. The approach to improve the environmental conditions, monitoring of such improvements through remote sensing and the impact of the implementation activities on the social fabric at the grass root level will have a far reaching effect on the utility and acceptability of Remote Sensing and GIS techniques.

3. SCOPE OF THE WORKSHOP

- Development of concepts for Sustainable Development using Remote Sensing and GIS techniques.
- Development of concepts for Sustainability Indicators.
- Promotion of applications in environmental and natural resource management.
- Monitoring environmental changes including socio-economic factors.

4. SUBJECTS COVERED

a. Remote Sensing, GIS & Sustainable Development
b. Water Resources Management for Sustainable Development
c. Coastal Zone Management for Sustainable Development
d. Land Resources for Sustainable Development
e. Agricultural Management for Sustainable Development
f. Forestry, Environment and Rural Development in Sustainable Development

5. NUMBER OF PARTICIPANTS:

125 from 8 countries (including India)

6. TECHNICAL EVENTS

6 Technical Sessions were held during the two-day workshop.

7. SUBSTANTIAL OUTCOMES

a. There is a need for more training and awareness programmes for users to effectively take advantage of the remote sensing and GIS techniques.
b. Need to work towards activities aimed at making the Sustainable Development process more effective.
c. Dissemination of remote sensing and GIS technology to the end-user level is a critical need. Presently, it is not adequate. Algorithms and procedures / methodologies developed should be made available more openly to all the users.
d. Functional relationships between CO_2 concentrations, photosynthesis and productivity levels need to be understood more thoroughly ie., the studies related to the effect of green house gases on total biomass production need to be carried out.
e. Under IMSD substantial work has been done by Department of Space, Govt. of India with the utilisation of Remote Sensing & GIS in Natural Resources Management and dissemination of this information to the end users. This can serve as an example for other developing countries working in these areas.
f. Detailed scientific investigations in evolving procedures for estimating carrying capacity of the land need to be carried out.
g. Involvement of private entrepreneurs should be encouraged.

8. PROBLEM AREAS

a. Technology is available but the policy to use it effectively is a limitation.
b. It is a matter of concern that although the use of remote sensing and GIS in sustainable development has been demonstrated, the efforts are inadequate to make it a sustainable proposition.

c. While technology has been demonstrated for its use in perspective/regional planning, its utility for on-farm management has not been well appreciated. This is particularly necessary since the sustainable development can only be realised with the farmers' participation.
d. Development of integrated crop yield models using remote sensing as well as soil, water related parameters is necessary.
e. Synergy between Remote Sensing/GIS and socio-economic aspects have not been well understood. Mechanisms for integration of these two parameters has to be developed.
f. Dissemination of Remote Sensing Technology in the local language for better understanding and acceptability needs to be done on a large scale.
g. Duplicity in the efforts in the generation of Remote Sensing Information/Thematic Maps should be avoided.
h. Lack of proper career opportunitied for professionals of remote sensing and GIS is also an area of concern.

9. OUTLOOK ON FUTURE

Building up awareness about the benefits of technology needs to be strongly pursued.

a. With availability of higher spatial and spectral resolution data particularly from IRS-1C/1D, new avenues are opened now to work towards sustainability more effectively. Work on water management at farm level like irrigation scheduling can be attempted. For infrastructural planning the technology needs to be used for providing necessary vital information. This is particularly necessary since sustainable development can only be realised with the farmers' participation.
b. Evapo-transpiration modelling studies of crops may be undertaken.

10. INFORMATION ON CONTACT ADDRESS FOR ACQUIRING THE PROCEEDINGS:

Only the abstracts volume has been published. The proceedings of the full papers presented in the workshop will be published in due course of time.

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