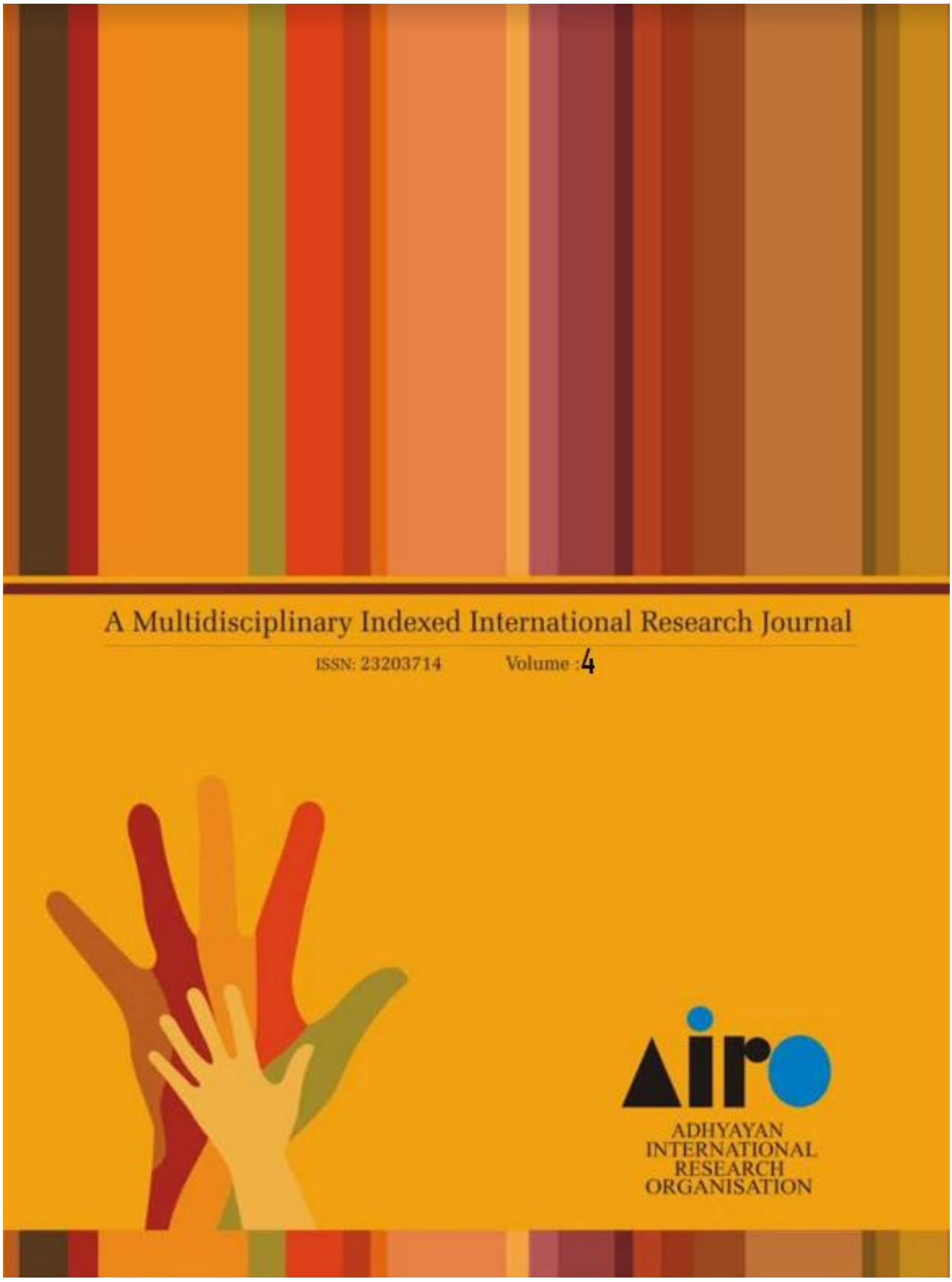
A Multidisciplinary Indexed International Research Journal
ISSN: 23203714 Volume :4
Airo
ADHYAYAN
INTERNATIONAL
RESEARCH
ORGANISATION

REMOTE SENSING AND IMPACT ASSESSMENT

Huny Sharma
Research Scholar Mahatma Gandhi Kashi Vidyapith,Varanai

ABSTRACT

There are many situations in which a better data base would improve our ability to audit changes that occur in our environment as a result of human interference. This is important especially when changes is extensive and numerous that their cumulative efforts can produce unforeseen results. The result show that agricultural land witnesses a reduction of size while water bodies witness a considerable increase of size

Other areas that witness increase are the built-up land, rangeland, wetland and barren land while forestland in addition to the agricultural land witnesses a decrease in size. It is obvious from the result that remote sensing technique is capable of monitoring land use changes that occur over time within a dam catchment's basin, especially when complimented with adequate ground-truth observation.

KEYWORDS:

Water, Remote, Sensing

INTRODUCTION

Water is the most vital resource for life. In our planet, approximately 97.2% water lies in oceans as salt water, while 2.15% in frozen ice form and the remaining 0.65% remains as fresh water either on surface or as a ground water. The demand for fresh water has increased day by day and will increase with the rapid growth of population, agriculture and industry.

As a result the fresh water reserve depletes day by day too. The requirement of clean water per person is about 2.7 liters per day, thus the global requirement is about 16.5 billion liters per day only for drinking purpose. Agriculture and industries are also major consumers of fresh water resources. Resulting from the shortage of fresh water, therefore, the call for water management science

Water management projects have a long history as their desirability was recognized even in the early civilization especially in regions of insufficient rainfall. It is possible by such means as "Advanced water management system "for many to ensure adequate supply of water in time and in space which will result in meaningful improvement of the quality life for community hitherto trapped in poverty and misery brought about by lack of water.

However, the nature of Dams and their impact depends on both natural and human made conditions in the project area. Socio-economic development and the installation of Dam protection measures have political, economic and social dimensions as well as engineering aspects.

Empirical analysis of Dam must be of great concern and a thing to embrace as this will provide a sound technical basis for facilities design as well as for management decision making that must weight numerous other factors.

Meanwhile, there are many situations in which a better data base would improve our ability to audit our resources, make use of them, and understand our environment, and so on. Again, when changes are so rapid, so extensive, and so numerous that their cumulative effort can produce unforeseen results, the kind of monitoring which have served in the past will no longer surface.

Therefore qualities and types of information here are unimagined. To have adequate appraisal of our resources in which to base plans for more ordered use, to be able to foresee incipient problems soon enough to make remedied action worthwhile and to understand the natural environment well enough to be able to prepare for or modify its diverse moods, our ability to collect information need to be involved. However, remote sensing offers the way out.

Remote sensing is a set of techniques (aerial photography and satellite imagery) used for obtaining information about the environment

(earth surface and atmosphere) at some distance from them, usually by means of sensors which detect and record through electromagnetic of a place without necessarily having contact with such place. This implies collecting (e.g images with sensors from airborne or satellite platform, processing and analyzing the data and converting the data to useful information.

DISCUSSION

The aim of remote sensing is to produce information which can be applied in decision making or problem solving. The primary objective, therefore, is to obtain environmental resources data relate to the earth in order to enhance our knowledge of the earth surface made up of lithosphere, biosphere, hydrosphere and atmosphere, the utilization of the acquired knowledge for the benefit of humanity as well as sustainable development, the recognition and identification of varied developmental and comprehensive information for feasibility studies and project planning.

The data for the study were obtained mainly through secondary sources. Ground-truth of the area to determine the land use types was carried out to confirm observed ones on the satellite imageries of the study area. Personal discussion with government functionaries and prominent leaders of thought in the eight selected communities within the study area was conducted for on the spot assessment of the physical changes caused by the dam construction.

The secondary data involved are written and printed materials that have already been in existence which were produced for other purposes other than the use of the investigation for the study, some of the relevant information acquired include.

Remote Sensing and Impact Assessment

There is extensive literature on the potentials of utilization satellite remote sensing on impact assessment, but there are few examples where satellite data have actually been used to detect different parameters at an operational scale for practical application.

In this study, however, effort is geared towards the review of several ‘precision’ studies in which remote sensing data have been used. The focus is on possibilities and limitation in the identification for agricultural development and fish farming.

Lillesand and Kiefer (2014) emphasized it's shortcomings to the physical aspect of water resources monitoring and potentials assessment and maintained that the remote sensing applications are limited to those characteristics that can be detected in the visible and near infrared region of the spectrum. Water quality indicators such as color, turbidity, chlorophyll and suspended solids have been successfully detected in many applications.

These have provided useful data for the assessment and management of the water in their basin on real time basin. Different spectral values which water in some basin have exhibited most especially in the lake systems have suggested the calibration of spectral categories on the false colours composite for monitoring and assessing water quality.

Research assessed the capability of hands at MSS for identifying, classifying and monitoring the impact of dam construction. Land use and land cover types were identified, classified using maximum likelihood procedure and the standard visual interpretation techniques to investigate the changes in dam site areas. He found that Landsat MSS was suitable for rapid classification, assessment and monitoring of the agricultural resources of the combined use of digital and visual analysis of a higher resolution data such as SPOT image would provide a baseline data for detailed agricultural resources planning and management.

The post-dam period witnessed a total of 7596.2 ha (23.5%) changes in the land use and cover classes with evidence of large-scale conversion of agricultural lands to semi-arid environment. Land degradation resulting from land use/land cover changes of the area was equally mapped. A total of 1042.7 ha (3.2%) of the study area was identified as areas with erosion and over grazing problem; 118.6 ha of land was under land exposure /desiccation while 791.9 ha constitute area with loss of prime (flood plain) agriculture.

The possibility to separate vegetation communities in semi-arid area from satellite data (SPOT) has been shown to depend mainly on the difference in plant morphology and seasonal changes. They asserted that, if a plant is subjected to some form of stress that interrupts its normal growth; it may decrease or cease chlorophyll production. The result will be less chlorophyll absorption in the blue and red wavelengths. In case of soil, high organic

content or iron oxide in soils decrease reflectance and the soil appears darker.

CONCLUSION

This study has demonstrated that remote sensing data in good for carrying out land use auditing in dam catchments basin environment. It has equally provided a mapping scheme that could served as a springboard for generating data for subsequent land use monitoring in the study area. This study equally established that no remote sensing studies can be successfully and effectively carried out without thorough ground-truth exercise. This is necessary to avoid confusion.

REFERENCES

[1.] Adams, W.M. (2014) The Downstream Impacts of Dams Construction, Nigeria Transactions. Institute of British Geographers New Series. No 10 Pg. 290 – 307.

[2.] Adeniyi, P.O. (2008) Using Remote Sensing to Evaluate the Impact of Dam Construction in North Western Nigeria: A paper presented at the 22nd International Symposium on Remote Sensing Coted'vaire.

[3.] Adeniyi, P.O. and A. Omojola (2009) Land use/ Land cover Change Evaluation I Sokoto-Rima Basin of Northwest Nigeria Based on Archival Remote Sensing and GIS Techniques. in Adeniyi, P.O. (ed) Geoinformation Technology Applications for Resource and Environment in Africa. African Association of Remote Sensing of the Environment. Wura-Kay Prints, pp 143-172.

[4.] Charles, N. and I. I. Y. Mallo (2007) Application of Remote Sensing and GIS Technics in Mapping Oil Spill Affected Areas in Ogoni Land, Nigeria, Niger Delta. In Mamman, A. B, Chup C. D. and S. A. Mashi. (ed). Urbanization Resource

Exploitation and Environmental Stability in Nigeria. Pgs. 51 – 61.

[5.] Downman, I. J., (2011) Topographic Mapping using space Imagery. Mission Requirement Reports Prepared for European space Agency.

[6.] Epp, H. Cane, M.A. and C.E. Bussing (2013) Application of Remote Sensing in Earth Resources Monitoring in Kenya. T C Journal. 18/982 – 2, 148 – 153.

[7.] Estees, J. E. Jensen, J. R. and D. S. Simoneth (2010) Impacts of Remote Sensing on US. Geography. Remote Sensing of Environment. 10, 43 – 50.

[8.] Franklin. S. and P.H.T. Hienaux (2013) Reflectance of Vegetation and Soil in Chihuahuan Desert Plant Communities from Ground Radiometry using SPOT Wavebands. Remote Sensing Environment. 46, 291 – 304.

[9.] Garbrecht, C. J. (2013) An Environmental Evaluation System for Water Resource Planning. Water Resource Research. 9, 523-535.

[10.] Igbokwe, J.Z. (2006) Mapping from Satellite Remote Sensing. Enugu, EL' Demark Publishers.