

# Role of Non-State Actor in Enforcing Environmental Laws *vis-a-vis* Remote Sensing Technology and International Obligations

*Kumar Abhijeet\**

## Abstract

The general problem faced in enforcing environmental laws is access to necessary information and lack of sufficient evidence. Satellite images can be effectively used for ensuring compliance with environmental laws, maintaining national data base, as evidences in courts of laws etc. The effectiveness of remote sensing technology lies in the capability to acquire data, process them and timely dissemination of processed data. Today private sector has repeatedly demonstrated their capability in this area both financially and technologically. The non-state actors need to be encouraged more and more as they can meaningfully play a vital role in defending the mother earth against human activities via space based technology. India is a Country where environment crimes are rampant and much vulnerable to climate change. The participation of private sectors via space based technology shall be an asset in complying with the Environment Protection Laws strengthening the National Green Tribunal.

But the participation of non-state space acotrs is dependent on the respective State policy/laws under whose jurisdiction they excel. The Outer Space Treaty considers governmental and non-governmental space activities as their national activities imposing an obligation upon the State parties to continuously authorize and supervise the activity of non-governmental activities. Authorization and supervision being procedural aspects creates a basis to legislate, enabling the participation of non-governmental actors.

## I. Introduction

Adverse human activities are the primary cause for climate change and non-implementation or poor implementation of law compliments as an aggravating

---

\* Assistant Professor of Law, National Law School of India University, Bangalore. Doctoral Candidate Institute of Air and Space Law, University of Cologne, Germany, kumarabhijeet@nls.ac.in. This paper was presented at the International Conference on Climate Change and Disaster Management, February 26-28, 2015 Thiruvananthapuram. The paper was awarded the best paper among young researchers in session on legal aspects of climate change and data exchange.

factor. The traditional methods of supervision and inspection have their inherent limitations and are not so effective for various reasons. Effective implementation of law requires action to take measures to ensure that international legal obligations are complied with and obtain appropriate orders from the courts or other appropriate bodies in case of violation of these obligations (Sands). Remote-sensing technology is an emerging method to ensure effective implementation of laws via satellite based evidence wherein the non-state actors have to play a lead role. 1980s was an era of Public Interest Litigation (PIL) wherein the non-state actors contributed in a humongous way in laying strong foundation of environmental jurisprudence in India. The establishment of National Green Tribunal (NGT) in 2010 provided them a specialized platform equipped with necessary expertise to handle environmental disputes. The next phase reform is to grant direct access to non-state actors to outer space increasing accessibility of satellite based evidences. Current international legal regime of remote sensing has lot of uncertainty especially the issues of data policy and liabilities (Ito, 2008). Keeping in mind the environmental concerns, there is an urgent need of comprehensive domestic legislation enabling direct access to space to non-state actors prescribing their liabilities and limitations. The aim of the paper is to highlight the role of non-state actors in environment protection, examine how satellite remote sensing is a tool for environment protection, identify increased strength of the National Green Tribunal via space based evidences and then propose the legal landscape needed to facilitate the non-state actor's vis-à-vis remote sensing technology.

## II. Role of Non-State Actors in Enforcing Environment Laws

The increased *locus standi* of non-state actor by way of PIL enabled them to significantly contribute in the rapid development of environmental jurisprudence in India. From *A. P. Pollution Control Board v. Prof. M.V. Nayud* (1999 2 SCC 718) wherein the 'precautionary principle' was explained to the *Shriram Gas Leak case* (M. C. Mehta V. UOI 1987 SCR (1) 819) wherein the 'Polluter pays principle' was laid on 'absolute liability principle'; *the Span Motel case* (M. C. Mehta v. Kamal Nath 1997 1 SCC 388.) laying the 'Public trust doctrine' and many other cases<sup>1</sup> have notably contributed in protection and enforcement of environmental laws. These milestone developments would not have been possible but for the non-state actors who took painstaking efforts to bring the matter before the courts.

With operationalization of NGT many more non-state actors have enthusiastically participated and environmental cases have been disposed off much

---

1 See *Dehradun Quarrying Case (Rural Litigation Entitlement Kendra v. UOI AIR 1987 SC 359)*; *Shrimp Culture Case (S. Jagannath v. UOI 1997 2 SCC 87)*; *Goa foundation v. Diksha Holdings (P) Ltd. AIR 2001 SC 184*; *Tehri bandh Virodhi sangarsh Samiti v State of UP JT 1990 (4) SC 519* *Narmada Case (2000 10 SCC 664)*.

more diligently. Now it is high time to armor them with space based evidences. Satellite based evidence is the third phase development needed to ensure effective compliance of laws and their enforceability. Currently remote sensing activity is limited to governmental organization but realizing the immense potential of non-state actors it is desirable to open the doors of space to non-state actors as well within the defined boundaries.

The Non-state actor has had a robust history in protection of environment and has a promising task with satellite based evidences. If properly facilitated they can play subservient role of environmental watch dogs orbiting in space.

### **III. Satellite Remote Sensing a Tool for Environment Protection**

Astyo Ito has expressed in her book 'Legal Aspects of Satellite Remote Sensing' (2011, Martinus Nijhoff Publishers) that satellite remote sensing is suited for environmental protection from several technical standpoints:

1. It enables to make enviro maps and assessments of different regions including atmosphere, land and oceans. Monitoring land includes the assessment of land and forest cover change, which can identify urbanization, desertification and deforestation. Coastal features can be studied by satellite mapping of water lines, coral reefs and wetlands (Rao, 1997). Satellite monitoring of oceans includes studies of climate, surface biology, ice conditions and pollution and fish population.
2. It can provide information on otherwise inaccessible areas such as islands, deep forests and mountainous areas at high altitude. Besides this satellite remote sensing also offers assessment of the timing and frequency of a particular operation that adversely affect the environment, such as illegal landfill (Purdy, 2006). Remote sensing also permits the assessment and analysis of changes in local, regional, and global environment over long periods of time through the comparison of data from the past with that of present which shall improve understanding of the environment enabling predictions to be made for the future about such phenomena like climate change.
3. Remote sensed data from satellites can be easily integrated with other sources of information such as statistical information, population density, geographic information systems, and aerial photography to provide useful knowledge in the form of detailed environment assessments ready for immediate use by decision makers (George, 1998).

Remote sensing is a highly effective tool for Earth's environment observation which can supplement the existing information generating more comprehensive and reliable information facilitating effecting assessment and analysis.

#### IV. Strengthening the National Green Tribunal

Generally it is the duty of governmental agencies to take all such measures necessary for protecting and improving the quality of environment and preventing, controlling and abating environment pollution.<sup>2</sup> Failure to comply with the Governmental orders makes it inevitable to invoke the jurisdiction of domestic courts which are important agencies for enforcement of environmental obligations.

For effective and expeditious disposal of cases relating to environmental matters, the National Green Tribunal has been established<sup>3</sup> which is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues. Though the tribunal is not bound by the rules of Civil Procedure Code, 1908 (See Section 19(1) of the NGT Act) and Rules of evidences as laid under the Indian Evidence Act, 1872 (See Section 19(2) of the NGT Act) but justice demands credible evidences. Gathering evidences in environmental matters is a herculean task for obvious reason that such evidences are most mostly within the domain of perpetrators itself. Therefore the efficacy of NGT is dependent upon availability of concrete evidences.

It is to be noted that statutorily, powers of entry and inspection is limited to persons empowered by the Government.<sup>4</sup> Access to such sites with prior permission has generally resulted in destruction of evidences and probability of corrupt practices within the Governmental agencies cannot be negated. In either case it is the environment and the people who are suffering. Traditional methods of ensuring compliance with the requirements of environmental regulation based on licensing and bureaucratic physical inspection regimes can be resource intensive and may be ill suited to contemporary challenges (Purdy, 2006).

Remote sensing technology is a potent tool to overcome these procedural hurdles. Meticulous Earth environment observation through satellites can generate sufficient evidences which shall serve as powerful machinery for the National Green Tribunal to effectively enforce the environmental protection laws.

---

2 M. C. Mehta V. Union of India, AIR 1988 SC 1037; Vellore Citizens Welfare Forum v. Union of India, AIR 1966 SC 2715.

3 The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for “effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto”

4 Power of entry and inspection: Section 10 – of the Environment (Protection) Act, 1986; Section 24 of the Air (Prevention and Control of Pollution) Act, 1981; Section 23 of the Water (Prevention and Control of Pollution) Act, 1974; Section 50 of the Wild Life (Protection) Act, 1972.

## V. Shaping Legal Landscape for Space Watch Dogs

Satellite evidences have been increasingly used by courts all over the world (Purdy & Leung, 2013). Even in India usage of satellite based evidences has been encouraged and its demand is likely to increase in near future. Though facilitation of non-state actors via satellite technology is laudable but it has to be exercised with due care and caution. With regard to space activities unlike other international instruments Article VI of the Outer Space Treaty (OST) removes the distinction between the governmental and non-governmental activities making the respective state responsible for all its space activities. It further imposes an obligation upon the states to authorize and continuously supervise the activities of non-governmental activities which is the primary basis for enacting domestic legislation. In compliance with Article VI of the Outer space Treaty, the Remote Sensing Principles (Principle III r/w Principle XIV) imposes international responsibility upon states operating remote sensing satellites for their activities and assure that such activities are conducted in accordance with these principles and norms of international law, irrespective of whether such activities are carried by governmental or non-governmental entities. In accordance with Article IV of the Registration Convention and article XI of the OST a state carrying out a programme of remote sensing shall inform the Secretary-General of the United Nations (Principle IX).

The general concern of a state while granting authorization to non-state participant shall be compliance with international obligation, national security and safety. Authorization and supervision being a procedural aspect, it is in the interest of nation to lay down the rule of law enabling non-governmental participation, ensuring transparency and good governance in space application technology. As an authorization condition concerns for state shall be recovery of cost of damages paid if any on their behalf, conditions of transfer of space objects, environmental safe-guards and others. Besides these data accuracy and authenticity shall also be of prime concern for courts to accept it as reliable evidence.

Article VII of the OST together with liability Convention, establishes the international liability of a launching state for damage caused by a space object or component part incurred on the Earth; however they do not provide an adequate answer to the question of whether damage arising from remotely-sensed data is covered. Whereas the Liability Convention measures damage in terms of identifiable physical damage caused by space objects,<sup>5</sup> the UN Remote Sensing Principles do not offer any adequate answer. Whether liability extends to damage of indirect nature such as misinterpretation of data and/or misuse of data has been a subject matter of discourse. Till the time international community resolves this discourse domestic legislation can fill the void

---

5 Article 1(a) of the Liability Convention defines damage as loss of life, personal injury or other impairment of health or loss of or damage to property.

enabling full exploitation of the remote sensed data and reducing the risk of damage arising from the use of remote sensed data.

Assessing the various sources of remote data, selecting and operating the most appropriate software, and producing final images that are fit to purpose and presenting them, when necessary, to judges in language they can trust shall be the major task (Lowes). Currently the Indian Remote Sensing Policy 2011 has granted limited access to private participants. The issues of liability and credibility of satellite based evidences has not been reflected upon. It is advisable to substitute the policy by hard law as Aristotle long back said rule of law is always better than rule of men.

## **VI. Way Forward**

The degradation of the earth's environment is a serious problem which has aggravated due to ineffective enforcement of environment laws. The general problem faced in enforcing environmental laws is access to necessary information and lack of sufficient evidence. Satellite images generated through remote sensing technology can be effectively used for ensuring compliance with environmental laws, maintaining national data base, as evidences in courts of laws etc. Effective protection of environment hinges on action taken at domestic level and how state adopts measures implements them and enforces them.

The effectiveness of satellite based evidence lies in capability to acquire data, process them and timely dissemination of processed data. Today non-state actors have repeatedly demonstrated their capability in this area both financially and technologically and can play a vital role via space based technology in defending the mother Earth against adverse human activities.

India is a Country where environment crimes are rampant and is much vulnerable to climate change. The participation of non-state actors via space based technology shall be an asset in complying with the Environment Protection Laws strengthening the National Green Tribunal. The enactment of domestic legislation in consonance with international obligations is the need of the hour.

## **References**

- George, Remote Sensing for Earth Resources: Emerging Opportunities for Developing Countries, H.; 14 *Space Policy* p. 27-37 1998.
- Ito, Atsyo; Improvement to the Legal Regime for the Effective Use of Satellite Remote Sensing Data for Disaster Management and Protection of the Environment in 34 *Journal of Space Law* Vol.1 p. 45-66 2008.
- Lowes, Tony; Remote Sensing a Tool for Enforcing EU Environmental Law, *Irish Environment*, May 1, 2010 available at <http://www.irishenvironment.com/commentary/remote-sensing-a-tool-for-enforcing-eu-environmental-law/> last accessed on 22 February, 2015.

- Nieuwenhuis, G.J.A, and R.A. Vaughan, and M. Molennar, *Operating Remote Sensing for Sustainable Development*, Balkema, Rotterdam, 1999.
- Purdy, Ray & Leung, Denise (Eds.) *Evidence from Earth Observation Satellites Emerging Legal Issues*, Martinus Nijhoff Publishers 2013.
- Purdy, Ray; Satellites: A New Era for Environmental Compliance? *Journal for European Environmental & Planning Law*, Volume 3, Issue 5, p. 406-413, 2006.
- Rao, U.R.; *Space for Sustainable Development, Recent Trends in International Space Law and Policy*, Lancer Books, New Delhi, 1997.
- Sands, Philip; *Principles of International Environmental Law*, Cambridge University Press, Cambridge, p. 182, 2003.
- Staelin, D. H. & Kerkes, J.; Remote Sensing Capabilities, *Heaven and Earth: Civilian Use of New Earth Space*, Martinus Nijhoff Publishers, The Hague, p. 174, 1997.

