



THE HAGUE ENVIRONMENTAL LAW FACILITY

Workshop on satellite monitoring for legal
compliance and enforcement

20 April 2010
The Hague



Summary report

Introduction

IES President **Wouter Veening** introduced the main objective of the programme of the day: to discuss the desirability of establishing a functionality in The Hague for satellite monitoring of the compliance and enforcement of international environmental law, given the position of The Hague as “Legal Capital of the World” and assuming that this position would also be extended to the field of international environmental law.

For the latter, the organisers of the day, the T.M.C. Asser Institute (Asser) and IES have developed the proposal for a The Hague Environmental Law Facility (HELFF, see www.envirosecurity.org/helf). Based upon an overview and comparative analysis of the relevant legal institutions in The Hague and centres for international environmental law elsewhere (Bonn, Geneva, Nairobi, Washington DC) HELFF would focus on assisting parties, both public and private, with disputes concerning the (non)implementation of international environmental law and organise training courses to prepare these parties or their representatives for the various dispute settlement procedures.

Especially in the field of the environment satellite-based information can constitute important evidence material and Asser and IES thought it useful to illustrate this using two case situations, the illegal international shipments and dumping of hazardous waste and the compliance of parties under the UN Framework Convention on Climate Change (UNFCCC).

The case-studies were to be preceded by a general introduction on the role of satellite information for compliance and enforcement of international environmental law.

It was highly fortunate that earlier in April the European Space Policy Institute (ESPI) had organised a conference in Vienna on *Current Legal Issues for Satellite Earth Observation*, in which IES participated and which provided many useful insights and contacts for the workshop in The Hague –see www.espi.or.at

Participants and speakers

Invited were participants and speakers from the field of international environmental and criminal law, especially the compliance and enforcement elements; space agencies, policies and law; international and European judicial institutions. An uninvited participant was Professor Eyafjallajökull from Iceland, who managed to prevent several of the speakers coming from other parts of Europe to fly in to The Hague.

Programme

Ray Purdy from University College London was assigned to deliver the key note speech on the pioneering UCL research on satellite imagery and environmental law. Due to the international airspace problems caused by the ash cloud, he was unable to attend the meeting. Fortunately **Frans von der Dunk**, renowned Professor of Space Law at Nebraska University and former Leiden lecturer, gave a highly qualified and much appreciated prompt replacement. He introduced a list of his pioneering work on satellite information and environmental law and the power point presentations of the speakers at the workshop, including those from Juliette Kohler from the Secretariat of the Basel Convention and from Christian Fischer from the European Environment Agency who also could not make it to The Hague, please see www.envirosecurity.org/events.

Prof. von der Dunk, former Director of the International Institute of Air and Space Law of the Leiden University and currently Professor of Space Law at the University of Nebraska first gave an overview of applicable international space law. Then he touched upon the relevant characteristics of international environmental treaties to ensure reliable data provision, and the requirement to establish general parameters of pollution in these treaties, given that the monitoring function could be used in the liability regime as well as in dispute settlement provision.

The need for standardisation of data sets and the creation of an audit trail for data validation was pointed out. Also, lessons can be learned from the use of remote sensing in arms control treaties, like the OPCW (Organisation for the Prohibition of Chemical Weapons, The Hague).

Of great importance is the European context:

- the Directives of the EU (INSPIRE of 2007: Infrastructure for Spatial Information in the European Community to promote the use of spatial data,
- the Directive on the Legal Protection of Databases of 1996,
- on Privacy Issues of 1995),
- the European Convention of Human Rights of 1950, which also binds the EU, and
- the importance of the EU's programme Global Monitoring of Environment and Security (GMES), to assist decision-making in the EU, which also uses non-satellite data and is operated jointly with ESA, the European Space Agency.

He concluded by saying that while they are not "show-stoppers", there are still obstacles to overcome in order to fully realise the potential of applying satellite information to the implementation of international environmental law.

These obstacles have to do with the following:

- there are varying sources of law, creating legal uncertainties,
- there is still lack of trust in the evidentiary value of satellite information
- it is difficult to translate environmental values in legal parameters, requiring an interdisciplinary approach
- a balance has to be found with other (economic/political) interests.

Finally: in Europe there are complications arising from the fact that there is a multi-institutional "spacescape", but EU law is still the best positioned to achieve a measure of harmonization internally and coherence externally.

GMES has a high potential to boost both monitoring activities as well as space law development inside the EU, as it is widely created for public use of open source data.

Prof. von der Dunk's presentation gave Wouter Veening reason to remark that one of the envisaged training courses by HELF should focus on the legal intricacies that are obviously

associated with using satellite monitoring information in environmental law compliance and enforcement procedures.

The introduction was followed by a panel on the first HELF pilot project *The Constraints and Needs of the Implementation and Compliance with Environmental Law Regarding the Shipments of Hazardous Waste*.

Initially and as mentioned above, the panel included Mrs Juliette Kohler from the Secretariat of the Basel Convention and Mr Christian Fischer from the European Environment Agency, but they were unable to fly to The Hague.

Dr. Wybe Douma from the Asser Institute introduced the problematique of the shipments of hazardous waste, also summarising the power point presentations, sent by Mrs Kohler and Mr Fischer. –see www.envirosecurity.org/events .

This provided an overview of the international legal framework and of the development of the EU Waste Shipment Regulation.

Mr **Huib van Westen**, Information specialist at the EU Network for the Implementation and Enforcement of Environmental Law (IMPEL) and based at the Inspectorate of the Dutch Ministry of the Environment (VROM), provided insight on how these regulations are implemented in practice on ground level. His description of the impact of hazardous waste shipments and dumpings on communities and especially children in West Africa highlighted the need to more strictly police the movements of these wastes. (See the pictures on his power point presentation on www.envirosecurity.org/events)

The Dutch approach to criminal investigations, firstly administrative enforcement and secondly criminal law enforcement, differs from other jurisdictions, complicating solutions to the same problems.

Other contentious areas concern the failure of the U.S. to ratify the Basel Convention, the lack of internationally agreed guidelines on waste and the unenforceable definition contained within the Basel Convention. For example: huge amounts of computers are shipped to be dumped in Ghana. As they are technically still working, they do not fall within the scope of Basel.

After Mr van Westen, Mr **Rob Beck**, Director of NEO Observations (Netherlands Geomatics & Earth Observation BV), who had gracefully accepted to join the panel the night before (!), illustrated how remote sensing can identify waste dumps and how the use of satellite imagery can be used to track the illegal transfer of waste. Having worked in this field for a number of years he was able to draw on his own experience to describe the possibilities and limitations of satellite imagery. In doing so he made reference to the NEO software signal eyes, reported especially for that purposes.

In the discussion session afterwards actual examples of remote sensing in criminal investigations were discussed as well as open source data problematique. It crystallized that one of the main pillars of the Hague Environmental Law Facility could be to make remote sensing data applicable to the various actors working on law enforcement and compliance. These could include judges, prosecutors, investigation agencies, but also civil society organizations reaching out to victims of environmental crime. The Hague offers those tribunals, courts and organizations and the related technical community, not forgetting the Organisation for the Prohibition of Chemical Weapons (OPCW), which has the richest experience in the legal application of remote sensing data.

As a result of the varied and in depth discussion that took place a list of suggestions were made as to the future role of The Hague Environmental Law Facility with regards to ensuring compliance and enforcement of the Basel Convention via the help of satellite imagery. A number of the organisations present pledged their support of these initiatives.

The second area of discussion concerned the potential to make use of satellite monitoring to ensure compliance under a new climate change treaty. This discussion was also conducted by a panel and was moderated by **Dr. Réne Lefeber** Professor of International Environmental Law at Amsterdam University and working for the ministry of Foreign Affairs.

The first presentation was made by **Leonardo Massai**, United Nations framework convention on climate change (UNFCCC) consultant and senior research fellow at the T.M.C. Asser Institute. He delivered an analysis of the current climate change regime and the recent failure to update the law at the Copenhagen summit. Having been involved in the negotiations at Copenhagen he was able to offer a close view on the ongoing dead lock in talks. The failure to reach a legally binding agreement at Copenhagen was qualified slightly by the successful agreement on the Reduction of Emissions from Deforestation and Forest Degradation. Despite this Mr Massai concluded by stating that compliance with climate change obligations was unlikely to be based on the creation of an ad hoc compliance system, and that overall it proved difficult to address non-compliance and responsibility for environmental harm under international law.

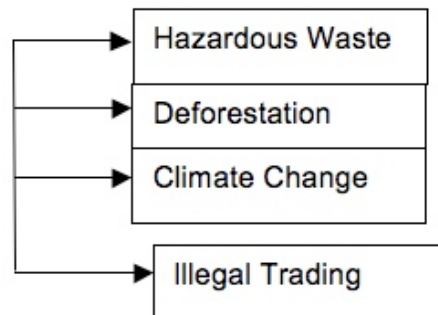
This analysis of the current regime was built upon by **Niels Wielaard**, project manager of operational satellite monitoring for carbon storage and sequestration at SarVision, an earth observation spin-off company from Wageningen University Netherlands. He focused directly upon how satellite monitoring can be used to generally establish the causes of climate change and more specifically can assist in the tracking of deforestation to a very specific degree. It was stressed by the speaker and also in the subsequent discussion that the evidence garnered by such satellite monitoring must be reliable, especially considering the recent problems encountered by the Intergovernmental Panel on Climate Change. The need for interaction of different approaches was referred to as a viable tool, especially with wide range of powerful technology freely available. Such an approach would involve: certain satellites identifying general environmental damage, others can thereafter provide more in-depth closer scrutiny and therefore also detect individual operation on ground level for monitoring the physical impacts. These can be traced through the use of smart phones and then instantly transferred across the globe. In tackling climate change the use of satellites provide an attractive tool but they can only be used as a part of a multifaceted approach.

Additionally it was mentioned that the European Space Agency is currently conducting a project on developing essential climate variables to improve the knowledge of climate and climate change impacts. The HELF could contribute by mapping the causes of climate change and consequences of an absent climate change regime and deliver it to the respective policy makers and civil society.

Niels Wielaard stressed that a monitoring system for forestry can be organized by linking the imagery, the processing system, the technology and indigenous communities for effective forest tracking. On the question what role HELF could take inside the WU climate regime, it was pointed out that a contribution could be made by assisting parties to get justice by pointing out the evidence and settlement mechanisms that are credible and reliable to the parties. One function could be to link parties at a very initial stage by assembling, providing and regulating the sources of information, which could help mitigating climate change.

IES Director Ron Kingham concluded the discussion by drawing an outline for the further steps in the development of the facility:

HELF Cases:



He concluded that the Environmental Law situation and to which environmental law is

relevant forces from the Hague organisations. One function that was already mentioned would be to collect and analyze satellite data in addition to facilitate justice for injured parties. The sharing of the information would be in a usable format and stimulate the cooperation between IMPEL and other organisations. The trainings of the Hague academic community can be aggregated with international environmental organisations to coordinate a coherent approach of capacity building in compliance and enforcement. Further it can determine the link between the Institute for Global Justice, of the combined Hague academic actors, and environment and security. As the legal capital of the world more needs to be done in international environmental law.

scope of the Hague Facility is open to the case degree international involved to integrate the

Conclusions

Legal aspects:

- Measurable Parameters/Variables in Treaties have to be established for monitoring for liability regimes and dispute settlement provisions
- Standardisation of data sets and a creation of an expert audit trail is needed to validate data for evidentiary use
- Use lessons learned from arms control treaties (contact to OPCW)
- Coordination of fragmented space law bodies addressing legal aspects of environmental monitoring
- Enhance trust in satellite derived data through workshops, i.a. for judges and prosecutors, and independent expert witnesses
- Coordinate the European multi-institutional 'space-scape' for environmental monitoring

Technical application:

- Satellite data can not remedy incoherent legislation but has a high potential for waste tracking (GPS) and landfill monitoring – use depends on case and country to start investigations
- Satellites could support Interpol E-waste crime group for positioning, tracing and tracking

- Satellite data is not very useful to monitor moving bodies like ships; GPS, GLONASS or Galileo could be used
- Work jointly with ESA to move the initiative to tracking position, direction and speed of the shipments, where legal privacy issues have to be made clear as it depends on the purpose of the use of the data
- Forestry and soil degradation is a high potential area to deploy satellite monitoring also to ensure better quality of the forests
- Monitoring, Reporting and Verification (MRV) is very likely to become an established key part of the new climate regime and the REDD Initiative that implies recognition of indigenous peoples' rights

Implications for the facility:

- Build contacts with the environmental convention secretariats to enhance the environmental agreements for coordinated approaches to enforcement and compliance through the use of satellite data to improve their monitoring, reporting, verification. HELF could provide that as a neutral third party for objective verification.
- Offer workshops on the use of satellite data for judges, prosecutors and investigators
- Connect the enforcement organisations with the respective satellite data agencies, NGOs and communities to improve the compliance on local level; improve environmental justice
- Connect those networks with the Institute for Global Justice for latest scientific research on the respective topic

