



## *Dialogue on Satellite data and monitoring systems for REDD+*

### Summary

On **October 5th 2012**, the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Space Agency (DLR) convened a dialogue on satellite data and monitoring systems for REDD+ in Bonn, Germany. More than 80 participants, including representatives from 10 partner countries with REDD+ programmes supported by BMZ, joined the event. The event was complemented by a remote sensing technology workshop and preceded visits at a German remote sensing technology provider. The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH Sector Program on International Forest Policy supported the organization and moderated the event.

The objective of the dialogue was to provide an overview of available remote sensing data and existing monitoring platforms in selected partner countries, and in particular to discuss the related uncertainty and costs.

#### Opening remarks

In his opening remarks **Heiko Warnken**, head of the Environment and Sustainable Use of Natural Resources division at BMZ, emphasized Germany's commitment to climate and biodiversity protection. He mentioned that from 2013 onwards, Germany will invest € 500 million per year for forestry and biodiversity. Mr. Warnken presented the new "REDD Early Movers" program, which will support REDD+ front-runner countries by providing, among others, performance payments for quantified emission reductions. Furthermore, he highlighted that Germany is a key investor in the Forest Carbon Partnership Facility (FCPF). Germany expects tangible results from FCPF, not only related to successfully piloting emission reduction payments for reduced deforestation and forest degradation, but also from monitoring, capacity development and biodiversity protection.

**Gerd Gruppe**, Board Member of the German Space Center (DLR), in his opening remarks described his agency's forest-related activities, both at the national and European level. Although as an agency, DLR mainly focuses on technological development, societal benefits like climate change mitigation and natural resource management play a major role in DLR's strategy, and earth observation is clearly a priority. Mr. Gruppe presented DLR's global forest monitoring-related activities, in particular the public-private partnerships that results in the TerraSAR-X and RapidEye missions. Beyond that, DLR is also funding research on applying such data for global forest monitoring.

#### Presentations

**Frank Martin Seifert** from the European Space Agency presented the Global Forest Observation Initiative, which aims at optimizing the availability of satellite data through coordination between satellite data providers/operators, and at providing coordinated guidance on related methods and capacity building. He particularly expressed the initiative's interest in supporting research that seeks to better understand uncertainty and costs related to REDD+ monitoring. Mr. Seifert also provided an overview of the radar and optical sensor currently available and planned, warning participants to "mind the gap" between the situation today - where only a few sensors are available and still operational - and, the next generation of sensors such as the European GMES Sentinels, is still a few years away. He also mentioned that the Sentinel optical and radar sensors will be available free of charge, but higher

resolution commercial systems will continue to play a role for forest monitoring, though it remains unclear how to close the financing gap with the existing business model.

**Christoph Kleinn** from Göttingen University provided insights on uncertainty and costs related to REDD+ and biodiversity monitoring. Based on a number of case studies, he demonstrated that carbon and biodiversity are “variable variables” that cannot be measured directly, but need to be modeled based on indicator variables. With regards to the cost-uncertainty challenge, he reminded the audience that the term uncertainty is not defined in sampling statistics, but that the simple standard error is often used as a proxy. The general relationship between uncertainty and costs is relatively simple, i.e. higher precision costs more. But beyond case studies from individual forest inventories, there is very limited systematic research about this relationship. Therefore, he is doubtful that a significance level of 95%, which was apparently selected by IPCC without any scientific ratio, might not fit all circumstances and may result in superfluous REDD+ monitoring costs. Prof. Kleinn concluded that it is important to design monitoring systems that are politically acceptable and credible in a given context. Currently, REDD+ monitoring science and implementation capacity is lacking behind the political and financial ambition to implement REDD+. While he believes implementation action and learning should be carried out in parallel, he cautioned against pretending there are simple, readily-available and cost-effective solutions because this ignores the fact that research and capacity requires long-term investments.

Based on four presentations from **Indonesia**, the national REDD+ monitoring approach and the sub-national implementation activities have been illustrated. Country leadership was considered the key success factor in Indonesia’s ability to coordinate roughly 50 on-going sub-national REDD+ implementation activities. The experience from Indonesia also stressed the importance of considering international best practice within a REDD+ monitoring system while keeping it tailored to national circumstances. A case study from the Indonesian Forest and Climate Change Program illustrated the sub-national REDD+ monitoring system implementation challenges. In this program, **Rapid Eye** technology in combination with LIDAR was successfully used in order to establish a carbon baseline and inform the development of reference emission levels.

Two presentations from **Ghana** demonstrated the importance of integrating REDD+ monitoring systems into existing multi-purpose inventory systems as well as building on local on-the-job monitoring capacities. In this public-private partnership project between GIZ and Astrium, **TerraSAR-X** was successfully adopted and a long-term REDD+ monitoring training modules are currently developed together with the Forestry Commission in Ghana.

**Mexico** presented a nearly complete state-of-the-art MRV system for REDD+. The key for successes to date has been the high levels of capacity of the institutions involved, as well as the broad support from different Ministries based on the mutual understanding that REDD+ is part of the low emission and high carbon national development strategy.

**Karen Colin de Verdiere** from the French Development Agency (AFD) presented a public-private partnership between AFD and Astrium to provide SPOT images for 6 countries of the **Congo Basin**. The provision of images was embedded in a number of research and capacity building projects.

**Alexander Lotsch** from the World Bank-led FCPF presented the REDD+ Readiness Fund as well as the Carbon Fund. The former mechanism supports strategy development while the latter is dedicated to piloting result based payments in the context of REDD+. Currently, most FCPF partner countries have focused primarily on consultations and strategy development during the REDD+ Readiness process while work on reference levels and MRV is ongoing. From the FCPF’s perspective, a country must be consistent in explaining deforestation and forest degradation drivers, how the REDD+ strategy plans tackle these drivers, followed by the national reference emission level and MRV development. This sequencing is crucial to focus the planning process and to define clear milestones that are achievable.

His reflections from working with numerous governments are that REDD+ monitoring needs to start with the existing national forest monitoring system, identifying and addressing possible gaps. Forest stratification is highly important to prioritize REDD+ implementation activities in areas with high deforestation and forest degradation.

### **Working groups**

In the afternoon, three working groups convened to discuss specific issues.

The group on **“REDD+ best monitoring practices and uncertainty management”** mainly reviewed the experiences from Mexico. Frank-Martin Seifert from ESA and Michael Schmidt from CONABIO gave a comprehensive introduction to the Mexican Monitoring System as a best practice example. They presented both the institutional set-up and technical procedures in Mexico. The Mexican REDD+ Monitoring System was conceived as an integrated multipurpose monitoring system from the start, where data is acquired and used by many users from outside the forestry sector. During the discussion, participants agreed that the system is well advanced and serves its purpose. Besides technical considerations and available capacities, the regulating legislation in place in Mexico was also seen as an important factor. A number of countries provided reflection from their own REDD+ monitoring system development process and appreciated the orientation provided by Mexico.

The group on **“Costs of REDD+ monitoring and multiple benefits”** started with an overview presentation from Thomas Häusler and Sharon Gomez, both working for GAF AG. The team presented monitoring costs, depending on the technology and the area to be covered by different project examples. In the discussion, participants stressed that REDD monitoring projects often lack a thorough preparation phase, which leads to misunderstandings regarding the different information needs as well as the crucial information gaps that have to be addressed regardless of cost implications. Participants agreed that costs are often not discussed in relation to uncertainty, but rather in relation to the technology. Some participants argued nothing less than the best technology should be used while others underlined that countries should only adopt technology that they can technically and financially maintain. Finally, the group underlined the need to better understand the relationship between REDD+ monitoring uncertainty and costs in order to define the most appropriate REDD+ monitoring system for the given circumstances.

The group on **“Satellite data for IPCC reporting in the land-use sector”** was moderated by Thomas Baldauf from vTI, who provided an overview of existing technologies and data availability in order to meet the bi-annual reporting requirements stipulated by the Intergovernmental Panel on Climate Change (IPCC) and the UN Framework Convention on Climate Change (UNFCCC). The group agreed that using remote sensing data as an essential requirement for IPCC reporting for REDD+ the availability of the data is crucial and formulated a clear request for data availability by end users. A harmonization process leading to a common approved document for guidance for REDD+ would be useful to avoid confusion, caused by the current heterogeneity of guidelines. Furthermore, initial South-South capacity building experiences was reviewed and participants agreed that such initiatives are fruitful and can safeguard the sustainability of capacity in the respective countries. Finally, there was a strong consensus that without long-term capacity building and institutional support, it is unrealistic to operate a bi-annual reporting system as stipulated in the Durban agreement.

In his final remarks, **Daniel Haas** from BMZ thanked the workshop participants for the valuable insights and for sharing their experiences in a detailed manner. In his view the workshop made it obvious that there is a need to continue dialogue and networking between partner countries, national and multi-lateral specialized agencies, research institutes, and private satellite and service providers. Bringing together these different perspectives in relation to the realities and needs in forest rich countries, technical solutions, and the emerging global framework defining MRV requirements in REDD+.