



WWF

FACTSHEET

2014

## WWF FOREST AND CLIMATE PROGRAMME

### REDD+ Inspiring Practices

# EMPOWERING COMMUNITIES THROUGH PARTICIPATORY CARBON MEASUREMENT IN INDONESIA

#### SNAPSHOT

##### What

- » Participatory carbon measurement in Indonesia's Kutai Barat and Mahakam Ulu districts is empowering local and indigenous communities to monitor their own lands and accurately assess their forests' carbon stocks.

##### Who

- » Kutai Barat district forestry agency
- » Indigenous peoples and local communities (IPLCs)
- » WWF
- » Academic and research institutions (CIFOR, ICRAF, University of Copenhagen, and the Centre for Social - Forestry (CSF) at Mulawarman University)
- » Norwegian Agency for Development and Cooperation (NORAD)
- » Forest Investment Programme (FIP)
- » Forest Carbon Partnership Facility (FCPF)

##### Where

Kutai Barat and Mahakam Ulu districts, Indonesia

##### When

2011–ongoing

##### Project Team

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Villagers and WWF staff meet to discuss maps and traditional community conservation areas.

#### SUMMARY

This REDD+ Inspiring Practice focuses on participatory carbon measurement carried out with local and indigenous communities in Indonesia's Kutai Barat and Mahakam Ulu districts. This process aimed to test the feasibility of community involvement in measuring and monitoring the forest's carbon. It also sought to recognize and call on community members' long-standing knowledge of their forests, while building the new knowledge and technical skills they needed to effectively measure carbon stored in the forest ecosystem. Through this work, local communities became empowered to monitor their own lands and were able to produce accurate, valuable information about the forests' carbon stocks.

#### CONTEXT

In Indonesia's Kutai Barat and Mahakam Ulu districts, rich biodiversity exists alongside rapid deforestation. Here, 2.4 million hectares of contiguous tropical forest remain intact, but nearly half the land has been allocated for development through government-granted concessions, and development pressures—from a number of activities, including unsustainable logging, coal mining, and the spread of oil palm and paper fiber plantations—continue to drive forest loss.

To stem the tide of that loss and design REDD+ strategies that meet the ecological and economic needs of the region, it is important to measure and monitor the health of the forest, including changes in the

WWF SET OUT TO BUILD ON THE EXISTING KNOWLEDGE WITHIN LOCAL AND INDIGENOUS COMMUNITIES BY INCREASING THEIR TECHNICAL SKILLS AND CAPACITIES TO GATHER DATA FROM THEIR FORESTS, WHILE EMPOWERING THEM TO ASSERT AND SHARE THEIR EXPERTISE ON THE LANDS THEY KNOW SO WELL.

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amount of carbon stored within the ecosystem. When WWF began working on REDD+ in Kutai Barat and what is now Mahakam Ulu, it partnered with the World Agroforestry Centre (ICRAF), the Center for International Forestry Research (CIFOR), and the University of Copenhagen to determine the best methods for measuring and monitoring carbon stocks in the region. Then, in order to implement those methods, it turned to those who know the region's forests best: its local and indigenous communities.

Approximately 167,000 people live in the region's remote, sparsely scattered villages, including indigenous peoples known as the Dayak. The region's forest-dwelling people depend on the forest's resources for their lives and livelihoods, and some maintain traditional practices, such as hunting, water catchment and gathering of wild foods and medicinal plants, that are tied to the land. This close relationship with the forest means that local communities know the land well. Many local community members also work with the logging companies that operate in their forests, and are well-versed in techniques to measure the volume of timber available for harvesting—techniques that are similar to those needed for carbon measurement.

WWF set out to build on the existing knowledge within local and indigenous communities by increasing their technical skills and capacities to gather data from their forests, while empowering them to assert and share their expertise on the lands they know so well.

#### EXPECTED CHANGES

- Improve technical skills and capacities among Kutai Barat's and Mahakam Ulu's indigenous peoples and local communities so they can measure and monitor carbon in their forests
- Develop accurate carbon inventories and systems for measuring and reporting on carbon stocks
- Foster local engagement with forest conservation through community-based forest monitoring and management
- Empower local and indigenous communities by recognizing, respecting and drawing on their understanding of the region's forests





## STAKEHOLDERS

### DIRECT STAKEHOLDERS

INVOLVED IN PROJECT DESIGN, MAKE DECISIONS, AND RECEIVE BENEFITS

- Kutai Barat district forestry agency
- Indigenous peoples and local communities (IPLCs)
- WWF

### STRATEGIC STAKEHOLDERS

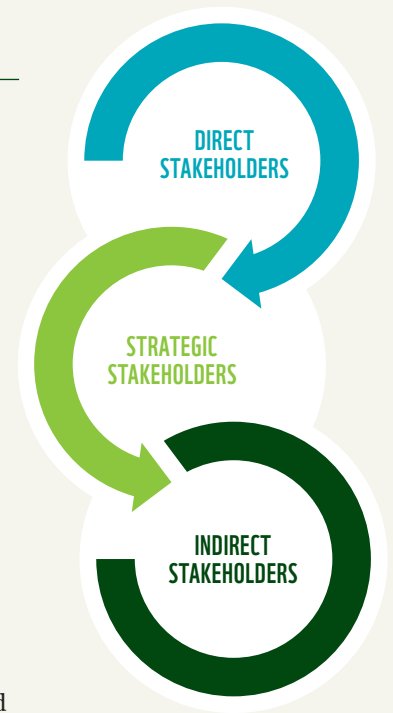
PROVIDE MATERIAL, HUMAN, AND OTHER RESOURCES

- Academic and research institutions (CIFOR, ICRAF, University of Copenhagen, and the Centre for Social Forestry (CSF) at Mulawarman University)
- Norwegian Agency for Development and Cooperation (NORAD)
- Forest Investment Programme (FIP)
- Forest Carbon Partnership Facility (FCPF)

### INDIRECT STAKEHOLDERS

INFLUENCE PRACTICE WITHOUT BEING DIRECTLY INVOLVED

- Civil society organizations



VILLAGERS IN TWO COMMUNITIES WERE ABLE TO QUICKLY LEARN NEW TECHNIQUES AND DEVELOP ACCURATE CARBON MEASUREMENTS, PROVING THAT COMMUNITY-BASED CARBON MONITORING CAN BE EFFECTIVE, EFFICIENT AND RELIABLE.

## PROJECT DEVELOPMENT TIMELINE

**2009:** Indonesia develops a National Action Plan to Address Climate Change, engaging the nation in REDD+ and establishing the Heart of Borneo—and, with it, Kutai Barat—as a national strategic area.

**2010:** Community capacity-building, mapping and forest inventory begin with the establishment of a Kutai Barat WWF office.

**2011:** Indonesian and U.S. governments sign debt-for-nature swap agreement resulting in US\$28.5 million investment to help protect Borneo's forests, with Kutai Barat as one of the three priority districts.

**2011:** Three-year I-REDD+ project launches to target REDD-related problems in Southeast Asia; the project, which involves a consortium of academic and research institutions that includes the World Agroforestry Centre (ICRAF), the Center for International Forestry Research (CIFOR), and the University of Copenhagen, aims to create community-based monitoring of land use changes (among other objectives) and selects Kutai Barat as one of its field sites.

**2011:** In September, WWF and its I-REDD+ partners conduct trainings in participatory carbon measurement in the village of Batu Majang. Fifteen to 20 participants select circular sampling plots as their form of choice, and work within an area of 450 hectares inside the village, measuring carbon content in 45 sampling plots with diameters of 30 meters.

**2012:** WWF and its I-REDD+ partners conduct trainings in participatory carbon measurement in the village of Linggang Melapeh.

**2012:** In December, the Indonesian government approves a proposal to split the Kutai Barat district, creating the new district of Mahakam Ulu, which includes the village of Batu Majang.

**2013:** I-REDD+ analysis reveals community carbon monitors matched expert measurements in accuracy and quality; findings appear in journal *Ecology and Society* and receive international media attention.

## ACHIEVEMENTS

- In two communities, Batu Majang and Linggang Melapeh, villagers came together to take part in community carbon accounting training conducted through a collaboration between WWF, the University of Copenhagen, Mulawarman University and ICRAF. Through the trainings, community members acquired new technical skills and capacities, as well as a greater understanding of the forest's carbon cycle and its relationship to forest health.
- Villagers in two communities were able to quickly learn new techniques and develop accurate carbon measurements, proving that community-based carbon monitoring can be effective, efficient and reliable. Follow-up measurements of forest carbon by some of the forest professionals who provided community training confirmed that community carbon measurements nearly matched those obtained by experts, and were significantly less costly. The training process and the implementation of a community-based carbon measurement and monitoring system empowered villagers by establishing them as experts on their own lands. Community members became more engaged and invested in forest management and protection, and gained a better understanding of the forest's growth and life cycle.
- Appropriate technologies that draw on materials and tools easily found in rural areas, including a new girth band developed by Mulawarman University, enabled community members to closely monitor tree growth and carbon storage even with limited resources.



## CHALLENGES

- **Community members still struggle to report their results in a consistent way.** As this process is replicated in more villages, it will be necessary to include more training in reporting methods, or to design and implement a data-gathering system that ensures consistent reporting.
- **It remains difficult to communicate about carbon accounting, forest health and REDD+, and to create incentives for community participation in the accounting process.** This is, in large part, because the direct benefits of carbon measurement are hard to see. To address this problem, WWF is working to develop better communication tools and training approaches, and is focusing on involving trained community members in translating and delivering key information in local dialects.
- **Regular carbon monitoring and measurement challenge community perceptions of the forest.** Community members express strong beliefs that the forest is resilient by nature and should be allowed to grow and develop without intervention. These beliefs make it difficult to implement community-based carbon measurement and forest management, because these are viewed as unwarranted interventions.
- **Community-based carbon accounting is not yet adequately acknowledged by relevant authorities, such as government and research institutions.**



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## OUR VISION

WWF's Forest and Climate Programme works to ensure that the conservation of tropical forests as carbon stores is secured by green economic development that benefits people, the climate and biodiversity in transformational ways.

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**Why we are here**  
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.  
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## LESSONS LEARNED

- **Local community members are the experts on their forests.** Once villagers learned the necessary techniques to measure and monitor carbon stored in their forests, the professional foresters who trained them had a hard time keeping up. The region's local and indigenous peoples know their forests best, and were able to produce carbon measurements quickly and accurately. Acknowledging this expertise empowered the villagers and encouraged greater engagement in and enthusiasm for local forest monitoring, management and protection.
- **Community-based carbon accounting can be feasible, cost-effective, accurate and reliable.** Accurate carbon accounting is critical for REDD+ implementation. Trained villagers in Batu Majang and Linggang Melapeh were able to measure carbon levels just as accurately and reliably as professional foresters, in less time and with lower costs. Their work proved that calling on local knowledge and skills is an effective, efficient way of measuring and monitoring carbon levels, without the time and expense involved in sending experts into remote forests—and with greater benefits for local communities. The methodologies and participatory processes tested and proven through this work can now benefit other communities, particularly in the newly-split Mahakam Ulu district, which will soon see additional REDD+ projects of its own.

- **Local knowledge strengthens REDD+ engagement and sustainability.** Indonesian universities, such as the University of Mulawarman, took an active role in training communities to monitor their own carbon stocks and in developing appropriate tools to help them do so. This transfer of knowledge and direct involvement of local academic institutions can lend REDD+ projects greater legitimacy and sustainability.
- **Community participation in efforts to measure and monitor carbon stocks is essential for REDD+.** Community-based carbon accounting strengthens REDD+ governance, effectiveness and community buy-in in many different ways. It builds technical skills and capacities among local communities that can improve their livelihoods and ability to manage their own lands. It also empowers and engages communities, by recognizing their deep understanding of their forests and calling on that knowledge for forest monitoring and protection. Equipping communities to assume a more active and critical role in forest management and the decisions that surround it brings needed checks and balances into REDD+ governance, and helps ensure that local and indigenous peoples will have a say in the fate of their forests.