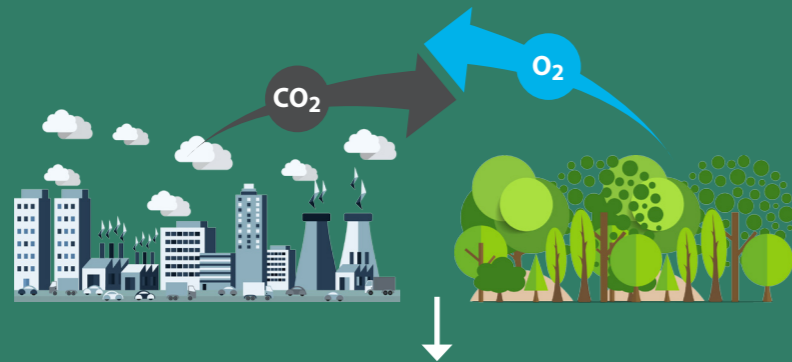


# FOREST INFORMATION SOLUTIONS

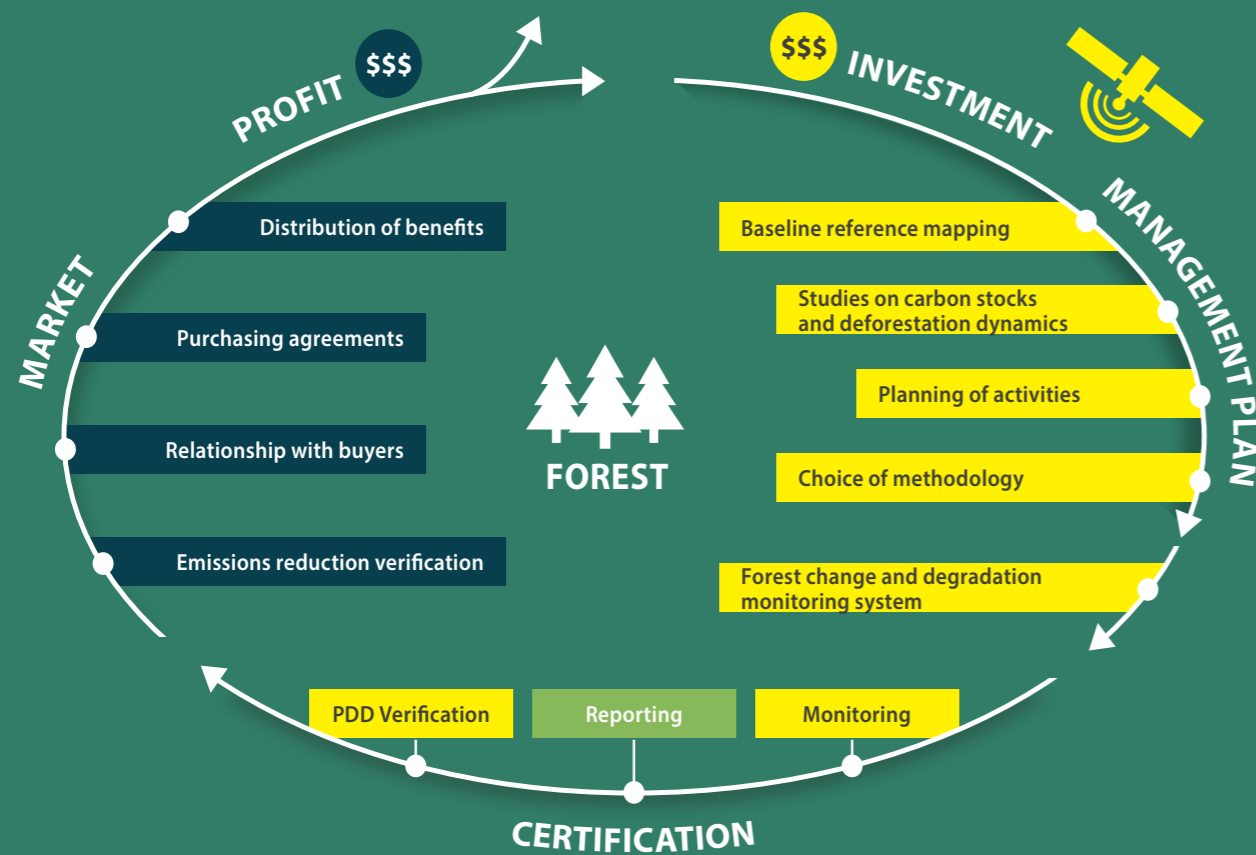




## FOREST CARBON CYCLE



## THE REDD+ CYCLE and the contribution of Earth Observation



# FIS FOREST INFORMATION SOLUTIONS

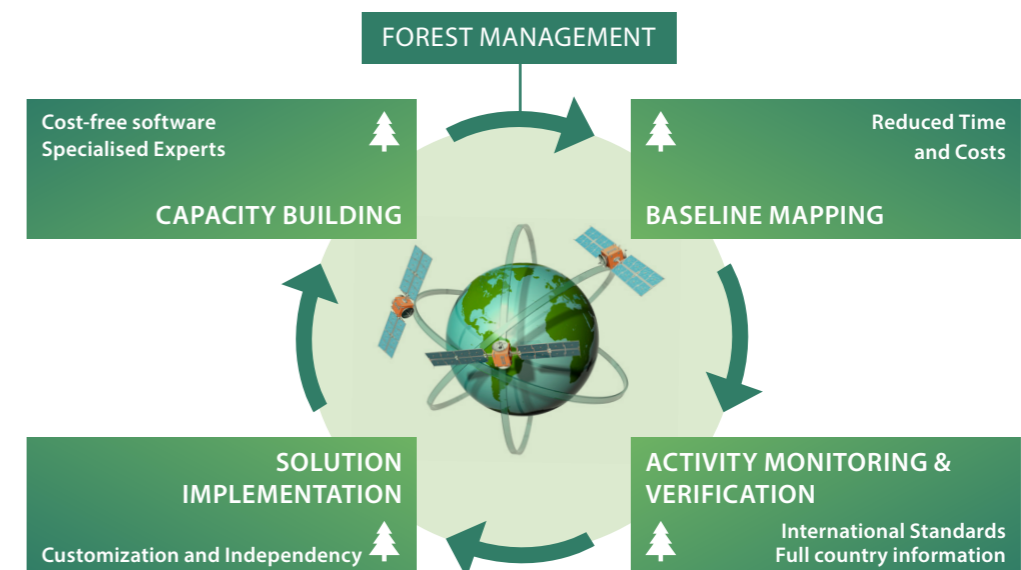
FIS integrate satellite and field information to establish baseline reference information, monitor and quantify deforestation and forest degradation.  
FIS provide the capacity to forest managers and REDD+ experts for reporting and verification schemes.

## ENGAGEMENT

- ▲ Establishment of historical forest reference and associated land use inventories to build information baseline.
- ▲ Forest change mapping, biomass estimation, land classification, etc. to international standards of choice.
- ▲ Accounting methods for planned forest degradation activities, like selective logging, plantations, agricultural practices etc.
- ▲ Implementation of Monitoring Systems based on new or existing infrastructures / softwares.
- ▲ Capacity building for deforestation and degradation monitoring and reporting.
- ▲ Independent verification of evaluated stocks and changes.

## BENEFITS

Our fit for purpose services provide the right support for dedicated project phases.

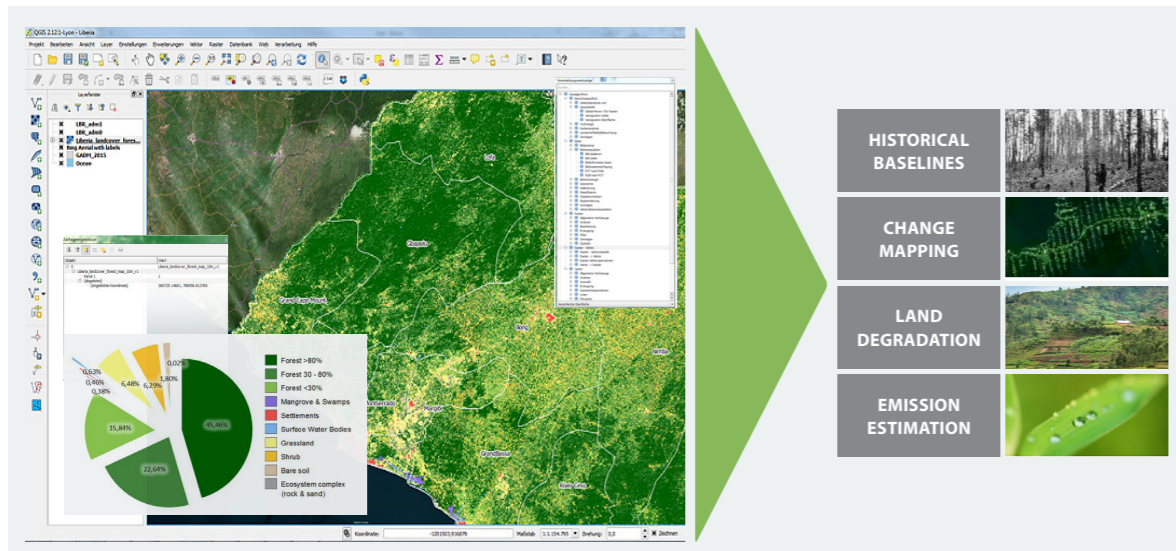




# SERVICES

DATA | ANALYSIS | TOOLS | CAPACITY

FIS has been assisting forest managers to establish inventories, provide monitoring capacities on national scales for improved forest management practices as well as facilitate REDD+ reporting. FIS clients have easy access to up to date and more accurate information, allowing them to make evidence based decisions and facilitate standardized information products.



- HISTORICAL BASELINES 
- CHANGE MAPPING 
- LAND DEGRADATION 
- EMISSION ESTIMATION 

## FOREST OBSERVATION AND INFORMATION SYSTEM

The Forest Information Solutions are implemented and available within an open-source software platform to provide an independent capacity to trained forest managers.



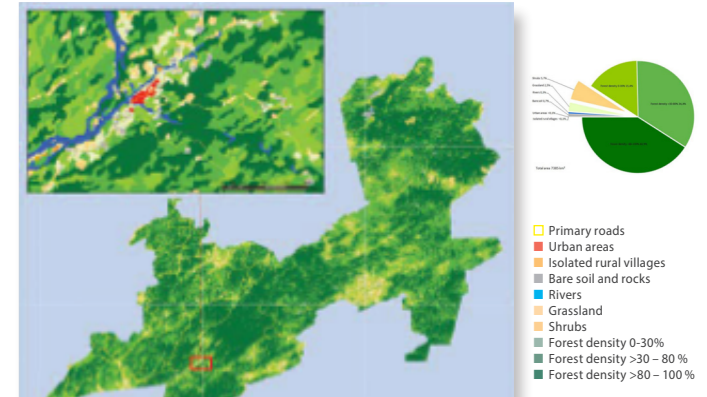
- ▲ MULTI-SOURCE SATELLITE DATA ACCESS
- ▲ PRE-PROCESSED SENTINEL 1/2 DATA STREAMS
- ▲ STANDARDIZED METHODS
- ▲ FLEXIBLE CUSTOMIZATION
- ▲ EASY TO OPERATE - NOVICE TO EXPERT
- ▲ ONLINE BASED VERIFICATION VIA GEOVILLE'S LACOVAL ([www.geo-wiki.org/branches/lacoval](http://www.geo-wiki.org/branches/lacoval))

## ▲ FOREST CONCESSION REVIEW

### LAND USE CHANGE, LIBERIA

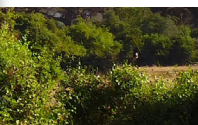
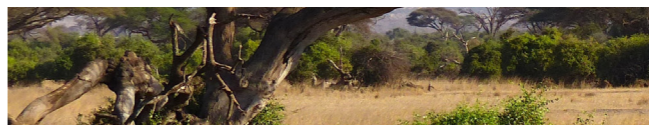
After the logging in Liberia was banned in 2003 there was a big gap in knowledge about the available forest resources. To bridge that gap, FIS provided forest and land cover maps, digital elevation models and forest change analyses for the Forest Management Concessions in North-western Liberia.

FIS delivered crucial information on changes between the years 2000, 2007 and 2010, which was used as decision support for the management of tenders of forest concessions and to examine the occurrence of conflicting land use- and resource extraction concessions.



Liberia Land Cover Status Map of Concession D and M – Area Distribution

© GeoVille/Metria

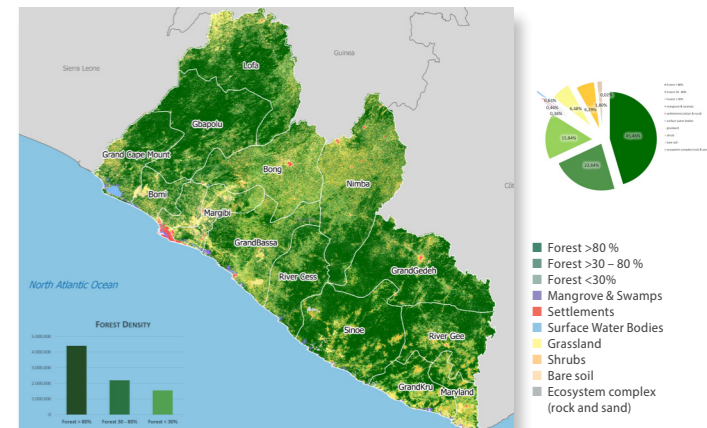


## ▲ FOREST REFERENCE BASELINE

### FOREST RESOURCES MAPPING, LIBERIA

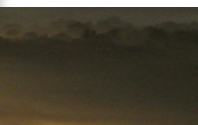
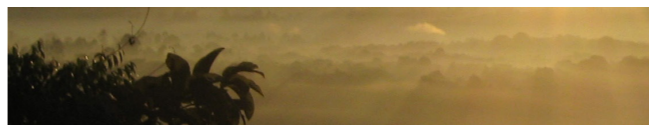
For developing the national REDD strategy and a Monitoring Reporting and Verification (MRV) system for sustainable management of Liberia's forests, FIS was engaged to assist the Forest Development Authority in establishing a national forest inventory and/or baseline of existing forest, as well as historic and cultural changes in land use and land cover-change (LULCC).

FIS thereby provides the baseline for REDD readiness and may further assist Liberia in monitoring and reporting GHG emissions and removals associated with deforestation and land degradation.



Satellite-based forest and land cover map 2014 for entire Liberia.

© GeoVille/Metria

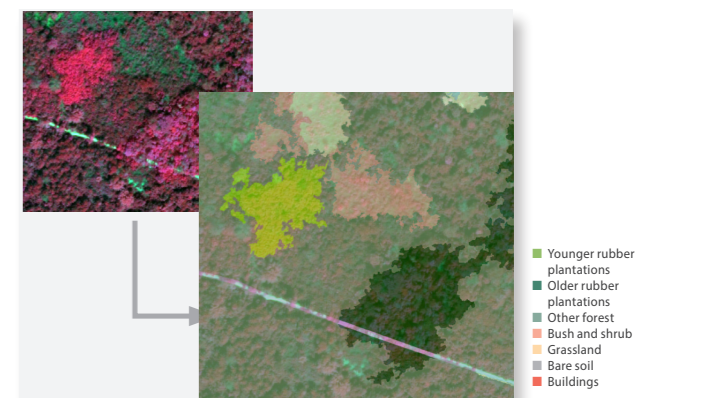


## ▲ BIOMASS IDENTIFICATION

### IDENTIFICATION OF SUSTAINABLE BIOMASS, LIBERIA

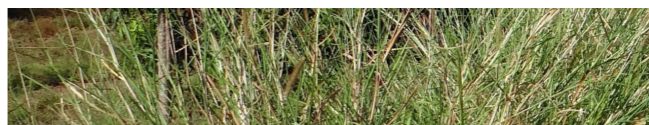
Liberia's agricultural and forestry production systems offer the opportunity to deliver sustainable rural electrification by utilising residues such as old rubber trees for small-scale electricity generation.

FIS allowed for the detection of rubber tree plantations as well as information regarding their health and age. Further analyses allowed to estimate the amount of available biomass and the travel time to the next village, which is crucial for identification and monitoring of sustainable biomass resources for rural electrification in Liberia.



Detailed mapping of rubber trees and their relative age for the year 2012. Based on this biomass estimates can be calculated.

© GeoVille



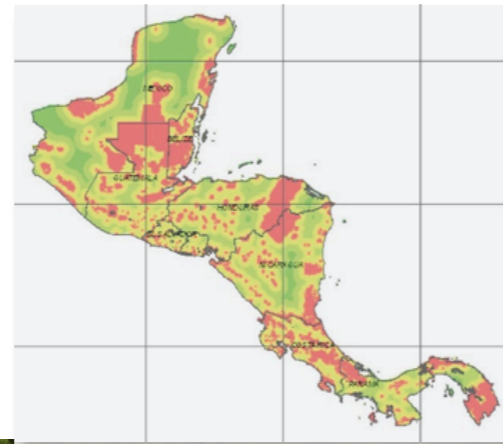


## ▲ FOREST MONITORING SYSTEM

### ASSESSING FOREST FRAGMENTATION, CENTRAL AMERICAS

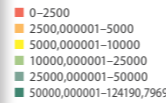
Forest fragmentation is a significant issue for maintenance of the Mesoamerican Biological Corridor and the biodiversity of its protected areas.

FIS implemented a monitoring system based on medium and high resolution satellite data for the Centro American Commission for Environment and Development (CCAD) to detect and measure impacts of new forest fragmentations. For hot spots, a detailed monitoring delivers information on forest extent, species and density.



Forest fragmentation status by forest patch distances in protected areas, euclidian distance (m).

© GeoVille

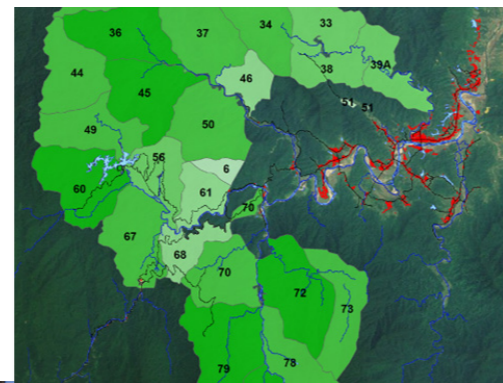


## ▲ TIMBER EXTRACTION MONITORING

### ASSESSING THE IMPACT OF TIMBER EXTRACTION, VIETNAM

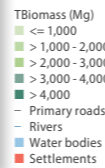
FIS helped to identify and map indicators for watershed protection, biodiversity and carbon sequestration in Houg Son and Vinh Tu. The aim was to account for them in the national payment for ecosystem services scheme.

The FIS was used to identify baselines for the ecosystem services of interest and to provide key information for making estimates on the payment potential of the area.



Map summarizing the total biomass foreseen to be extracted by the forest operations within each numbered parcel.

© GeoVille

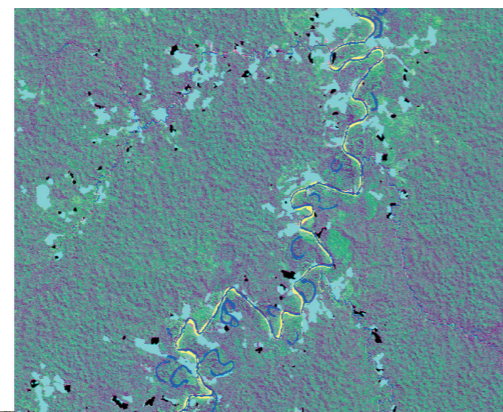


## ▲ RAINFOREST PROTECTION

### Monitoring deforestation, BRAZIL

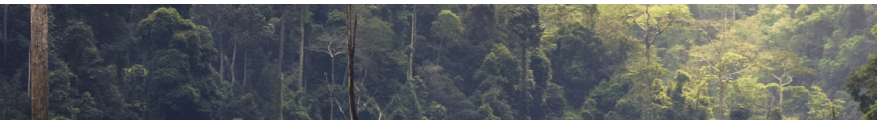
Sky Rainforest Rescue aims to help protect one billion trees in the Amazon rainforest. A voluntary land certification scheme that provides technical support, inputs and incentives for better soil management was set up. This will help to reduce the need for slash and burn agriculture by improving productivity on existing cleared land.

FIS supports the monitoring and assessment of deforestation rates and the extent to which fires are controlled.



A false color composite satellite image over a portion of the study area in Brazil. The clear cuts are very evident (shown here in aquamarine) and spread out from the meandering rivers (blue). Burnt areas are colored black.

© Metria



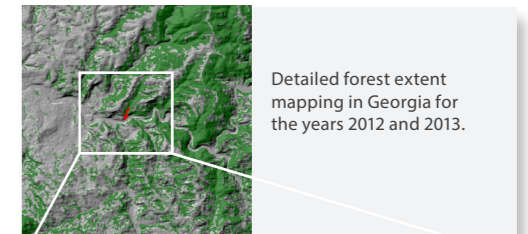
## ▲ FOREST CHANGE

### DETAILED, LARGE SCALE FOREST CHANGE MAPPING, GEORGIA

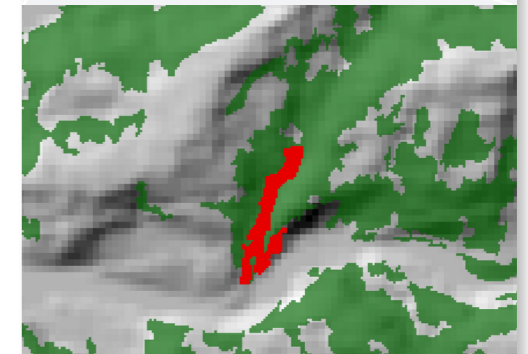
FIS helped to improve the governance of forest management and their ecosystem services by providing detailed maps of forest extent and change at high spatial and temporal resolution.

*“The use of FIS provided the means for IUCN to identify forest change and to help add another layer of information to our ‘basket’ regarding forest use and resource depletion. This information is especially critical in remote, difficult-to-reach geographies, found in many places in rural Georgia.”*

Richard Aishton, IUCN – ENPI FLEG



Detailed forest extent mapping in Georgia for the years 2012 and 2013.



Forest change (red) can be mapped and quantified. The change in this location between 2012 and 2013 amounts to 4,4 ha.

© GeoVille



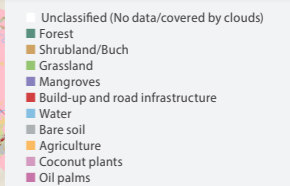
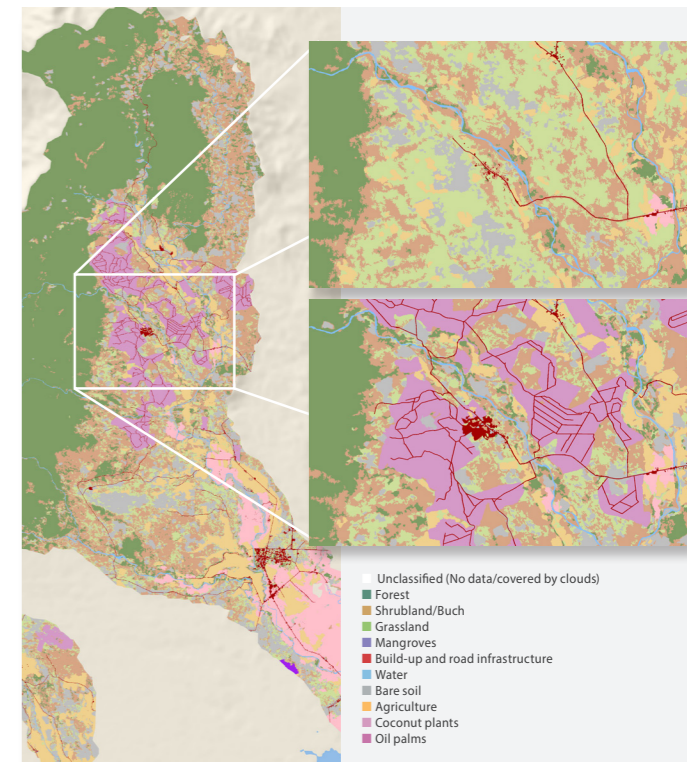
## ▲ FOREST ECOSYSTEM ACCOUNTING

### DEVELOPING ECOSYSTEM ACCOUNTS, PHILIPPINES

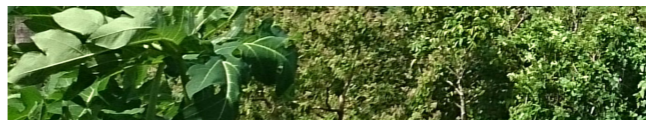
For every country, wealth is what underpins the income that a country generates, which includes buildings, manufactured assets, infrastructure, natural assets and human and social capital. Wealth Accounting measures these assets and capital goods that are inputs to our economic well-being. Earth observation is essential for this task to provide not only detailed spatial information, but also to fill quality and information gaps in existing data.

*„FIS provided critical support to the development of ecosystem accounts under the Philippines Wealth Accounting and Valuation of Ecosystem Services (WAVES) project. The Earth Observation-based maps have filled information gaps needed to model key ecosystem services as well as validate and improve upon existing data.”*

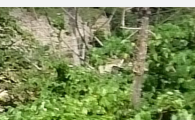
Stefanie Sieber, World Bank - WAVES



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# COMPANY PROFILE

We enable geographic accounting of human and natural dynamics through a satellite's eye, adding the spatial dimension to information gathering, analysis and monitoring.

**19 years of experience. More than 400 projects.  
Successfully implemented in > 120 countries**

GeoVille



**GeoVille Information Systems GmbH**

Sparkassenplatz 2 / 315 - 325  
A-6020 Innsbruck  
Austria  
Tel: +43 (0)512 562021 0



**GeoVille US Representation**

818 18th Street, N.W., Suite 950  
Washington, DC 20006  
USA  
Tel: +1 202 785 0052

**E-mail: [info@geoville.com](mailto:info@geoville.com) | Internet: [www.geoville.com](http://www.geoville.com)**

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The mark of  
responsible forestry