

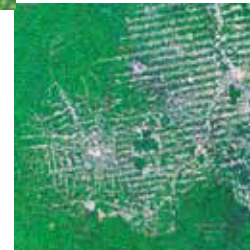


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From Independent to Transparent Monitoring for Climate and Development

*Building **Trust** and **Consensus** around Greenhouse Gas Data for Increased **Accountability** of Mitigation in the Land Use Sector*



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The project

- Funded by European Commission DG CLIMA, Dec 2014 – Mar 2017
- Independent Monitoring: Building trust and consensus around GHG data for increased accountability of mitigation in the land use sector
- Methods
 - Online stakeholder survey in 2015 (Romijn et al. submitted)
 - Analysis of strengths and weaknesses of existing data sets and portals
 - Case studies for illustrating use of independent monitoring information (e.g. Roman-Cuesta et al. 2016a,b; Gaveau et al 2016)
 - Recommendations to specific stakeholder groups
 - Data providers
 - Data users
 - Policy makers

Background

- Considerable number of activities to improve emission factors and area estimates at national and international levels
- Increased demand for independent monitoring information:
 - National decision makers seeking to implement REDD+/LULUCF
 - NGOs/local communities seeking to validate local activities
 - Practitioners developing or improving AFOLU monitoring systems
 - REDD+ donors and investors seeking to reduce their risk

-> Politics of numbers!

-> Users' perspective is often: more numbers = more uncertainty

Working hypothesis: Independent monitoring is not unambiguous

What is “independent monitoring”?

From data to information and decisions

Independent monitoring can be considered a system that

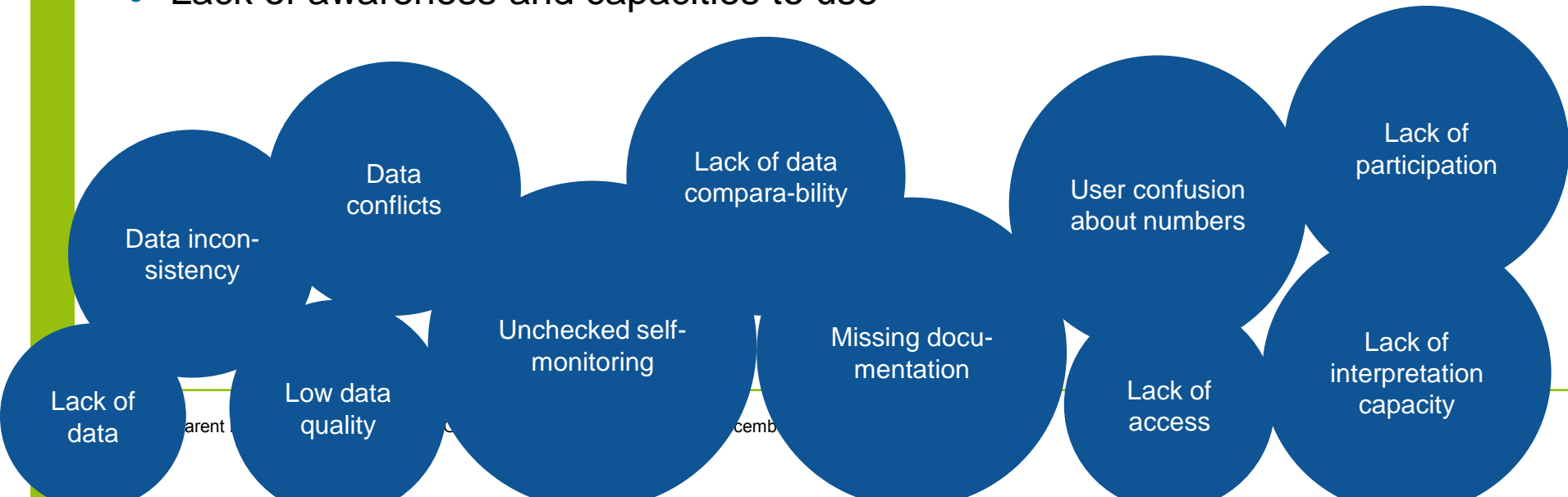
- unambiguously assesses areas, carbon densities, trends using a global consistent methodology,
- Is independent from specific country or industrial interests,
- provides sufficiently high spatial resolution to be of use for individual users
- provides sufficiently high time resolution to be able to detect short term changes for various uses
- allows assessments by geographical boundaries (countries, jurisdictions at large, projects)
- provides objective information to specific user groups for decision making

Definition of Independent Monitoring

And reported challenges

... approaches, i.e. authoritative, unbiased sources of information, that are free and open, can increase transparency and participation.

- Technical constraints
- Difficulties regarding data use and interpretation
- Issues of access and capacities
- Lack of awareness and capacities to use



Interest in data related to non GHG topics

	Governmental N=141	Local stakeholders N=10	NGO's N=91	Companies N=48	Research N=163	Other N=44
Ecosystem services	43.3%	50.0%	61.5%	52.1%	44.2%	63.6%
Natural disturbances	36.9%	30.0%	34.1%	29.2%	28.8%	36.4%
Livelihoods	29.8%	60.0%	45.1%	20.8%	28.8%	47.7%
Agricultural crop productivity	28.4%	30.0%	41.8%	29.2%	33.1%	34.1%
Land tenure	28.4%	40.0%	38.5%	41.7%	30.7%	47.7%
Economic data	24.8%	20.0%	48.4%	41.7%	20.9%	52.3%

Many tools are available...

Example Geo-Wiki - Visualization, Crowdsourcing, Validation



<http://www.geo-wiki.org>

GEO-Wiki

- » Home
- » News / Outreach
- » Instructions
- » Download Data
- » Mobile Apps
- » Supporting projects
- » Related projects
- » Data source

Games

- » Instructions + Videos
- » Cropland Capture
- » FAQ

Branches

- » Geo-Wiki branches
- » AusCover Geo-Wiki
- » Livestock Geo-Wiki
- » Risk Geo-Wiki
- » SIGMA Geo-Wiki
- » LACOVAL

The Geo-Wiki Platform

Geo-Wiki is a platform which provides citizens with the means to engage in environmental monitoring of the earth by providing feedback on existing spatial information overlaid on satellite imagery or by contributing entirely new data. Data can be input via the traditional desktop platform or mobile devices, with campaigns and games used to incentivize input. Resulting data are available without restriction.

[General overview](#)
[Competition](#)
[Geo-Wiki pictures](#)

Login

Email:

Password:

Remember me next time?

[I've lost my password](#)

[Register here!](#)

Try Geo-Wiki

Administration

» Smartphone Legends

Tweets

IIASA 18 Nov

@IIASAVienna

Congratulations to @GrowersNation, for winning the @GEOSEC2025 #GEOappathon! #foodsecurity #earthobservation bit.ly/1v44vaW

Retweeted by Cropland Capture

Tweet to @CropCapture

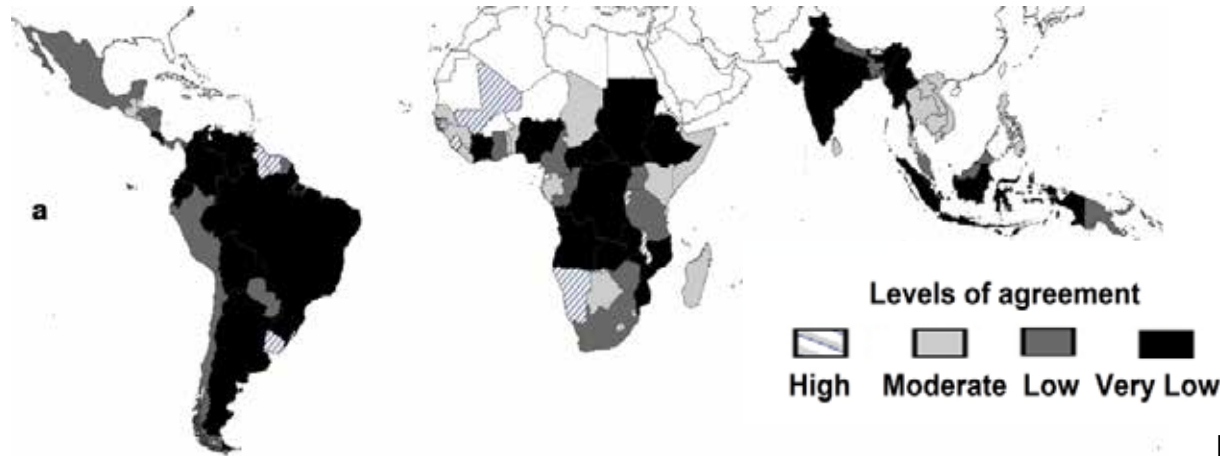
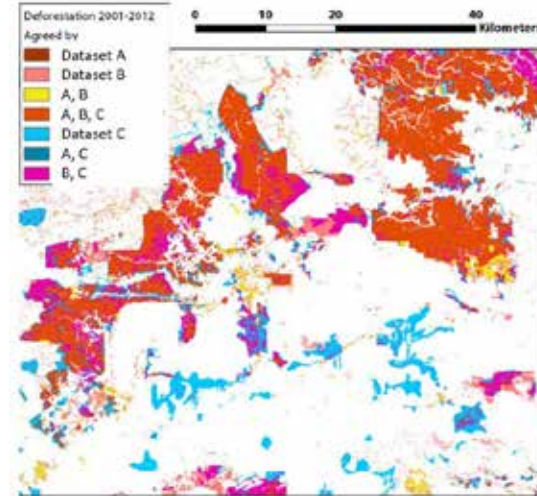
272



...but comparison and consolidation of numbers is a challenge to users!

Example 1: Areas of agreement and disagreement when comparing three subnational datasets

Courtesy: Christopher Martius, CIFOR



Example 2: Country level agreement for different sources of AFOLU emissions

“Hotspot analysis”

Roman-Cuesta et al. 2016

Online Atlas of deforestation

Company activities over fur decades



Key elements of independent monitoring

- 1: Transparency and clarity
- 2: Accuracy and uncertainty
- 3: Consistency and completeness
- 4: Comparability and interoperability
- 5: Complementarity and scale
- 6: Reproducibility and adaptability
- 7: Access and distribution
- 8: Participation and equity
- 9: Responsibility and accountability

à Derived from stakeholder survey, case studies and literature

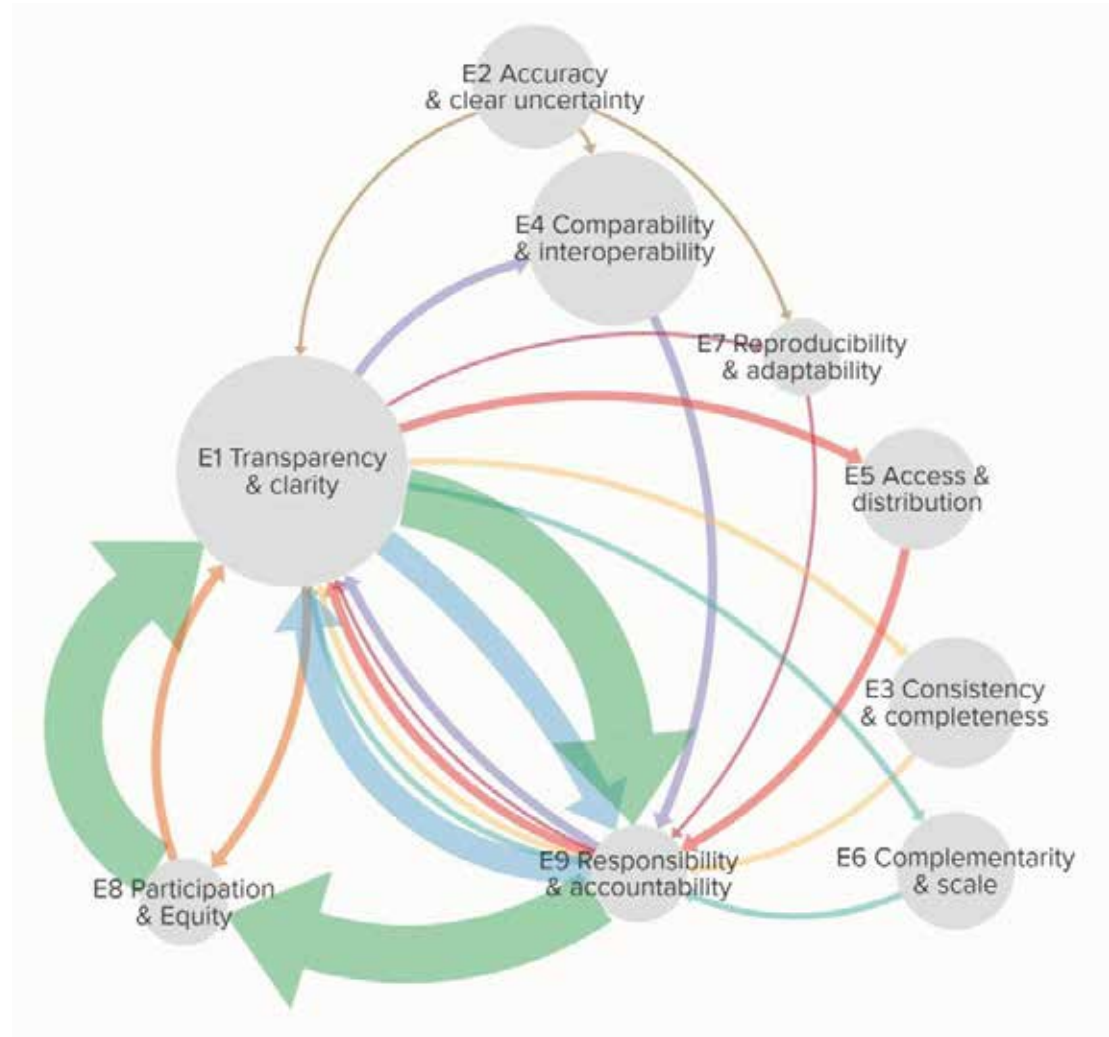
à Ideally there should be no negative effects on key elements (trade-offs are unavoidable, e.g. lower accuracy for increased comparability and interoperability)

From independent to transparent monitoring

Priorities for action

Bubbles: influence on monitoring

Arrows: positive feedbacks (size = impact of feedback)



Recommendations

To data and information providers

- Provide **transparent** data, incl. original data sources
- Definitions, methodologies and assumptions clearly described to **facilitate replication and assessment**
- Include **accuracy assessments** and uncertainties
- Methods for data production publicly **available** and preferably published in peer-reviewed papers
- Data systems require **regular update** of data and consistent estimates over time; including **long-term sustainability** of production
- **Institutional background** of data producer visible and understood by all stakeholders involved

Recommendations

To global modelling & carbon science community

- Consider reporting as application of models and make them **consistent** with current IPCC guidelines and country GHG reporting
- Establish **infrastructure** that allows models be independently parametrized, calibrated, run, and evaluated
- Advance IPCC guidance, contribute to **improved emission factors**
- **Reconcile** large **differences** between AFOLU databases, scientific studies (as reflected in IPCC) and country reported data and incorporate findings in methodological update of the IPCC GPG
- **Improve data** sources and approaches underpinning complete, comparative, timely, consistent and reproducible assessment of **AFOLU flux estimations**; including the use of Copernicus assets

Recommendations

To government agencies, national inventory experts and reviewers

- Countries need to be aware of **limitations of global datasets** to avoid misuse or misinterpretation, especially for open and ready-to-use data and tools for independent monitoring
- Countries should **build and maintain institutional capacity** capable of using independent monitoring approaches
- Data and tools and related documentation used in producing GHG inventory should become **open source** as much as possible

General conclusions from the project

- Independent information on GHG emissions from land use activities gets more and more important and user needs are diverse (despite some universal needs: e.g. open access and accuracy assessments)
- Independent monitoring can build trust. Trust can be built only slowly and by presenting practical examples and increasing transparency of processes how to get from data to information and decision making in general.
- Increasing transparency requires consideration of all identified key elements of independent monitoring, but priorities need be set for specific stakeholders
- Important co-benefits with other SDGs provide opportunities for decreasing costs and broaden participation

Thank you!

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- Study to be published as EC Report in early 2018
- Leaflets available at the door



The project was carried out for the European Commission. However, this presentation reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project references

- Sy, V. de; et al. (2016). Enhancing transparency in the land-use sector: Exploring the role of independent monitoring approaches: Center for International Forestry Research (CIFOR).
- Schepaschenko D.G. et al. (2015) Estimation of Forest Area and its Dynamics in Russia Based on Synthesis of Remote Sensing Products. *Contemporary Problems of Ecology*, 8(7): 811–817.
- Gaveau, D. et al. (2016). Rapid conversions and avoided deforestation: examining four decades of industrial plantation expansion in Borneo. *Scientific reports*, 6, p.32017. doi:10.1038/srep32017.
- Roman-Cuesta, R et al. (2016). Multi-gas and multi-source comparisons of six land use emission datasets and AFOLU estimates in the Fifth Assessment Report, for the tropics for 2000–2005. *Biogeosciences*, 13(20), pp. 5799–5819. doi:10.5194/bg-13-5799-2016.
- Roman-Cuesta, R. et al. (2016). Hotspots of gross emissions from the land use sector: Patterns, uncertainties, and leading emission sources for the period 2000–2005 in the tropics. *Biogeosciences*, 13(14), pp. 4253–4269. doi:10.5194/bg-13-4253-2016.
- Romijn, E.; et al. (in prep.) Independent monitoring of GHG emissions from the land use sector – What do stakeholders need and think? To be submitted to *Environmental Science and Policy*