Gael Sola

Forest monitoring expert

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At the interface between countries technical experts and decision makers to improve forest management and protection

Experience

FAO - Food and Agriculture Organization of the United Nations

2014–present **Forestry and REDD+ technical expert**, *UN-REDD Programme*, Viet Nam and South-Southeast Asia.

- **Viet Nam**:
  - Provide technical support to the forest department and its technical bodies, in collaboration with international organizations (UNDP, JICA) to develop and improve **forest monitoring** systems.
  - **Supervise technical activities** with **local institutions**: pilot updated methods for (1) forest cover and cover change maps, (2) national forest inventory field manual and quality assessment/quality control.
  - Organize **participatory workshops** on monitoring systems for forest activities in six provinces.
- **South and Southeast Asia**:
  - Provide **training** and technical backstopping on forest monitoring to government bodies and research institutions (Bangladesh, Cambodia, the Philippines, Thailand).
  - Support the design, implementation and update of **National Forest Inventories** (Bangladesh, Cambodia, Thailand).

2012–2014 **Forest inventory and biomass assessment expert**, *UN-REDD programme*, FAO HQ, Italy.

- **Conduct training**, **develop guidelines** and training materials for field work, data exploration and data analysis on developing tree biomass allometric equations (Vietnam, Cambodia, Zambia, Tanzania, Congo, DRC).

Research Institutes / NGOs

2011–2012 **Research assistant**, *Centre de coopération internationale en recherche agronomique pour le développement (CIRAD)*, Republic of the Congo.
Installation and monitoring of experimental sites, contribution to data analysis and scientific production.

2009 **Technical assistant**, *Groupe energies renouvelables, environnement et solidarités (GERES)*, Cambodia, 6 months.
Wood supply and demand analysis on Phnom Chumriey area.

2008 **Research assistant**, *(CIRAD)*, Republic of the Congo, 6 months.
Study of the nutrient losses by erosion and run off intensity on eucalyptus plantations.

Education

2006–2010 **Master of forest science**, *AgroParisTech-ENGREF*, France.

- **Sustainable** management of **tropical** and temperate **forests**.
- Forest and **climate change** mitigation (MDP, REDD).
- **International policy**, **economy** and **sociology** applied to **natural resources** management.

Masters Thesis

Title Formal and informal wood supply chains in two forest areas of Madagascar East Coast (CIFOR-HELVETAS)

Supervisors	Professor Jean-Laurent Pfund
Description	A deep dive into the harsh reality of the illegal wood commodity chains in and around forest protected areas, revealing the importance of timber logging for local communities around protected areas and quantifying the distribution of revenues from the forest to the main markets.

Languages

French ★★★★★ English ★★★★☆ Vietnamese ★★☆☆☆

Computer skills

Basic	SQL, html, SAS
Intermediate	Geographic Information Systmes (QGIS, ArcGIS), Python, LaTeX, OpenOffice, Linux, Microsoft Windows
Advanced	**R software** for data analysis, statistics, modeling, geospatial analysis and reporting (reports, dashboards), MS Office

Interests

- Nature, Hiking, Photography
- Music & Music festivals
- Cooking
- Sport

Major data analysis

2019-2020 **Vietnam: Piloting automatic monitoring of REDD+ provincial actions using Vietnam Forest Resource Monitoring System spatial data**, *UNDP/VAFS*, FRMS spatial data.

2019-2020 **Thailand: Analysis of historical National Forest Inventories**, *DNP/RFD*, 3 NFI cycles - 10,521 forest plots.

2019-2020 **Cambodia: Developing nationwide allometric equations and updating project based carbon stock estimates**, *FA/GDANCP/FiA/RUA*, 14 projects - 2,100 forest plots.

2018 **Vietnam: Identifying target locations for GCF proposal based on Vietnam Forest Resource Monitoring System spatial data**, FRMS spatial data.

2017 **Vietnam: Testing updated forest cover detection methods in the Central Highlands**, *FIPI*, Landsat7, Sentinel2 remote sensing images.

2016 **Bangladesh: Analysis of nationwide and project forest inventories**, *BFD*, 7 projects - 12,118 forest plots.

2015 **Cambodia: Flooded forest biomass**, *RUA/FiA/FA/GDANCP*, 18 forest plots - 28 trees.

2014 **Vietnam: Updating tree biomass allometric equations at national level**, *FIPI/VFU/VAFS/FREM*, 1,500 trees.

2014 **Cambodia: analysis of project forest inventories**, *FA/GDANCP/FiA/RUA*, 17 projects nationwide - 1,755 forest plots.

2013 **Vietnam: Develop tree biomass allometric equations at regional level**, *FIPI/VFU/VAFS/FREM*, 1,500 trees.

Publications

Author, co-author

Baldasso, M. et al. (2012). *Tutorial for Tree Allometric Equation Database Development*. Tech. rep. Rome, Italy: Food, Agriculture Organisation of the United Nations, Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Department for Innovation in Biological, Agro-food, and Forest systems of the University of Tuscia.

Birigazzi, Luca et al. (2015). "Toward a transparent and consistent quality control procedure for tree biomass allometric equations". In: *XIV WORLD FORESTRY CONGRESS, Durban, South Africa, 7-11 September 2015*.

Costello, L. et al. (2016). *Forest Biomass in Bangladesh: An historical review of forest inventories to assist national estimates*. Tech. rep. Dhaka, Bangladesh: Bangladesh Forest Department, Food, and Agricultural Organization of the United Nations.

Donegan, E. et al. (2014). *GlobAllomeTree's wood density database*. Tech. rep. Rome, Italy: Food, Agriculture Organisation of the United Nations, Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Department for Innovation in Biological, Agro-food, and Forest systems of the University of Tuscia.

Epron, D. et al. (2012). "Partitioning of net primary production in Eucalyptus and Acacia stands and in mixed-species plantations: Two case-studies in contrasting tropical environments". In: *Forest Ecology and Management*.

FAO (2018). *Achieving emission reductions in the Central Highlands of Viet Nam to support National REDD+ Action Programme goals - Feasibility Study*. Tech. rep. Food and Agriculture Organization of the United Nations.

– (2020b). *From reference levels to results reporting: REDD+ under the United Nations Framework Convention on Climate Change - 2020 update*. Forestry Working Paper. Food and Agriculture Organization of the United Nations.

Henry, Matieu et al. (2013). "GlobAllomeTree: international platform for tree allometric equations to support volume, biomass and carbon assessment". In: *iForest: Biogeosciences and Forestry* 6, E1–E5. DOI: 10.3832/ifor0901-006. URL: https://hal.archives-ouvertes.fr/hal-01195066.

Henry, Matieu et al. (2015). "Assessment of national biomass in complex forests and technical capacity scenarios". In: *In: Stanton, Sharon M.; Christensen, Glenn A., comps. 2015. Pushing boundaries: new directions in inventory techniques and applications: Forest Inventory and Analysis (FIA) symposium 2015. 2015 December 8–10; Portland, Oregon. Gen. Tech. Rep. PNW-GTR-931. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. p 64.* 931.

Hoang, V. A., T. G. Phan, and Gael Sola (2015). *Developing Monitoring indicators for activities and intervention packages of Provincial REDD+ Action Plans developed under the UNREDD Viet Nam Phase II Programme*. Tech. rep. Hanoi, Viet Nam: UN-REDD Viet Nam Phase II Programme.

Inoguchi, A. et al. (2013). *Tree allometric equation development for estimation of forest above-ground biomass in Viet Nam*. Tech. rep. Hanoi, Viet Nam: UN-REDD Programme.

Mugasha, Wilson et al. (2016). "Allometric Models for Estimating Tree Volume and Aboveground Biomass in Lowland Forests of Tanzania". In: *International Journal of Forestry Research* 2016, pp. 1–13. DOI: 10.1155/2016/8076271.

Picard, Nicolas et al. (2015). "Error in the estimation of emission factors for forest degradation in central Africa". In: *Journal of Forest Research* 21. DOI: 10.1007/s10310-015-0510-5.

Sola, G., T. So, and M. Van Rijn (2019). *Updated Forest carbon stocks for REDD+ Emission and Removal Factors in Cambodia*. Tech. rep. Phnom Penh, Cambodia: FCPF project.

Sola, G. et al. (2012). *Summary of the manual for building tree volume and biomass allometric equations: from field measurement to prediction*. Rome, Montpellier: Food, Agriculture Organization of the United Nations, and Centre de Coopération Internationale en Recherche Agronomique pour le Développement, p. 20.

Sola, G. et al. (2015). "Wood density for forest conservation: towards improvement of biomass and carbon stocks in tropical regions". In: *Proceedings of the 27th International Congress for Conservation Biology and 4th European Congress for Conservation Biology "Mission biodiversity: choosing new paths for conservation"*. Ed. by P. Visconti et al. Vol. International Congress for Conservation Biology. 27. Washington DC: Society for conservation biology.

Sola, G. et al. (2020). *Developing Forest carbon stocks estimates for REDD+ Emission and Removal Factors in Thailand*. Tech. rep. Bangkok, Thailand: Food, Agriculture Organization of the United Nations, Thailand Department of National Park, Wildlife, and Plant Conservation, FCPF project.

Contributed

FAO (2017). *Voluntary guidelines on national forest monitoring*. Rome: Food and Agriculture Organization of the United Nations.

– (2019). *From reference levels to results reporting: REDD+ under the United Nations Framework Convention on Climate Change - 2019 update*. Forestry Working Paper 09. Food and Agriculture Organization of the United Nations. DOI: 10.13140/RG.2.2.31062.60486.

– (2020a). *Better data, better decisions: Towards impactful forest monitoring*. Forestry Working Paper 16. Food and Agriculture Organization of the United Nations. DOI: 10.13140/RG.2.2.34030.02888.

Huy, Bao et al. (2016a). "Allometric equations for estimating tree aboveground biomass in evergreen broadleaf forests of Viet Nam". In: *Forest Ecology and Management* 382, pp. 193 –205. ISSN: 0378-1127. DOI: https://doi.org/10.1016/j.foreco.2016.10.021. URL: http://www.sciencedirect.com/science/article/pii/S0378112716307757.

Huy, Bao et al. (2016b). "Allometric Equations for Estimating Tree Aboveground Biomass in Tropical Dipterocarp Forests of Vietnam". In: *Forests* 7.12, p. 180. ISSN: 1999-4907. DOI: 10.3390/f7080180. URL: http://dx.doi.org/10.3390/f7080180.

Picard, N., L. Saint-André, and M. Henry (2012). *Manual for building tree volume and biomass allometric equations: from field measurement to prediction*. Rome, Montpellier: Food, Agriculture Organization of the United Nations, and Centre de Coopération Internationale en Recherche Agronomique pour le Développement, p. 215. ISBN: E-ISBN 978-92-5-107347-6. URL: http://www.fao.org/3/i3058e/i3058e.pdf.