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Organization of the  
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## Mind the gap: Addressing national forest inventory capacity needs to support climate action

17 November 2021

### Questions and Answers

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**1) Can we get access to the links of the MOOC online courses?**

The link to the FAO eLearning course page: "Sharing the experience of the multilingual MOOC on Forests and Transparency under the Paris Agreement" is available

<https://www.fao.org/national-forest-monitoring/news/detail/en/c/1454962/>

You can also access to the French and the Spanish editions from this web page.

**2) Is documentation about Liberia NFI design and implementation available? where can I find it?**

The national forest inventory report is available via the FCPF website. You can find it here:

<https://www.forestcarbonpartnership.org/system/files/documents/Liberia%20National%20Forest%20Inventory.pdf>

**3) Question for Liberia: Do you enlist or engage the help of local communities, who are so dependent on forest resources to help with your forest monitoring and generating data for the NFI? If so, how, and what are the roles of these local communities? What is the level of the involvement of women in this process? Thank you.**

NFI made use of the Open Foris suite of tools - Collect, Collect Mobile and Calc.

Here you can access all tools: <https://openforis.org/>

**4) What are the government of Liberia plans for sustainability?**

The government through the 3Cs Approach - Community, Commercial and Conservation along with incoming Carbon are at the heart of Liberia's sustainable management plan. The Community especially is at the heart of the sustainability plan.

**5) Liberia NFI is quite new and curious to know that if the NFI design in Liberia also considered the possibilities to use the NFI plot data to validate the global space-based biomass products to use them at the country level.**

At present, the data is being used for management purposes within the country. FAO is supporting a regional project funded by SIDA, which may seek to make use of field data for the validation of a regional biomass map.

**6) How about the use of FAO's Open Foris tools in Liberia's NFI?**

Collect, Collect Mobile and Calc were used in Liberia's NFI.

**7) What was the minimum DBH you considered in your NFI in Liberia and Guatemala?**

Min DBH in Liberia was 2cm. In Guatemala it was cm DBH because lots of forest products are obtained from that diameter and we want to know its stock for management policies.



- 8) In Liberia, are the 285 clusters allocated with which distance apart from each cluster? Are the plots like nested plots with highest radius of 18m? If yes, what is the smallest radius? Is the NFI field manual for Liberia available to have a look? Thanks in advance.**

Clusters are approximately 19km apart. Nested plots were 2m -> 7m -> 18m. Here is a link to the final report:

<https://www.forestcarbonpartnership.org/system/files/documents/Liberia%20National%20Forest%20Inventory.pdf>

- 9) At what interval will you be collecting NFI data in Liberia?**

Liberia intends to undertake annual MRV activities, which see the reassessment of 10% of their clusters. As such they will revisit all PSP every 10 years.

- 10) Are all your types of indigenous in Guatemala? Do you have plantations of exotic species?**

In Guatemala there are 22 ethnic groups. Local species are preferred in the reforestation incentives, most of the species are coniferous, but there are some exotic species, as well.

- 11) From a technical perspective only, what are the main barriers or challenges identified for implementing NFI in Guatemala?**

It's always budget and political willingness, but after a lot of meetings and negotiations we finally include it in the budget, but we will also need partnerships to do it.

- 12) ¿Qué tan confiables son los datos, según áreas o actores relacionados a los bosques y cómo contribuyen estas a los datos para el corredor Mesoamericano de Biodiversidad y los planes de conservación y desarrollo sostenible en Guatemala? ¿Y qué tecnologías están usando?**

Hicimos análisis de varianza, usando los datos del IFN 2002-2003 para calcular la intensidad de muestreo óptima, a los equipos de campo se les da seguimiento en las primeras unidades de muestreo para garantizar la calidad de los datos y también las autoridades forestales tenemos equipos de control para revisar los datos, así mismo silvametricus tiene parámetros que ayudan en alertar datos "raros". En cuanto a los planes de desarrollo la información que colectamos ya previamente identificamos que la necesitamos para los planes de desarrollo, principalmente el forestal.

- 13) How reliable are the data, according to areas or actors related to forests and how do they contribute to the data for the Mesoamerican Biodiversity Corridor and the conservation and sustainable development plans in Guatemala? And what technologies are they using?**

Its reliable, we made variance analysis to obtain the sampling intensity, also, with actors we accompany them for the first plots to ensure quality and the forest services have a control team to recheck plots.



**14) How did you evaluate the superior cost-effectiveness of the new plot design (cluster of three circular plots over strip-shape)? The "cost side" is quite clearly understandable; but the "effectiveness" in terms of precision of estimation?**

We have analysed the variances of main variables and developed a regression based on the size, number and distance of the plots, based on the variance the best choices were obtained and them were compared with the costs. We used FRIED tool supported by USFS and FAO. The precision will increase specially for the re-measurements.

**15) Is Silvametricus an open-source platform? why did you decide to use it for data collection and analysis?**

It is an open source developed by the forestry service in Honduras supported by USFS and FAO. Guatemala has several similarities to the NFI of Honduras. As I know Silvametricus has also used in other countries as Costa Rica and Vietnam. Silvametricus is nice but need been supported by the developers at the beginning, the appropriation takes time, and it is necessary someone in the institution to obtain the capacities.

**16) What is the background of changing the methodology of NFI in Guatemala?**

Cost-efficiency, there were analysed several criteria.

**17) Does Guatemala NFI use permanent plots for data collection?**

Yes, plots are permanent.

**18) South Sudan has not yet conducted NFI since South Sudan attain Independent. South Sudan needs capacity building as well as fund for conducting NFI.**

Please get in contact with FAO office in your country: <https://www.fao.org/south-sudan/fao-in-south-sudan/en/>

**19) To all speakers: what specific methodology you used in the conduct of your NFI? Can you share the references (link) on the methodology you used in the conduct of the NFI. Thank you**

Please find below a link to the NFI report for Liberia. All information you require can be found in this document:

<https://www.forestcarbonpartnership.org/system/files/documents/Liberia%20National%20Forest%20Inventory.pdf>

And the link to the NFI documentation for Guatemala:

<https://www.inab.gob.gt/index.php/noticias/inventario-forestal>

**20) For Guatemala: how do you carry out comparison to ascertain changes by moving from square to circular plots? Also, can circular plot allow estimation per hectare?**

In the first 2-cycles comparison they only can compare at plot level (no tree-by-tree), in the 2nd and 3rd cycle they may compare without problems. Circular plots are more efficient for re-measurements, and yes you can obtain estimations per hectare.



**21) I don't see much focus of the speakers (Research and extension) on the insect, disease and other pests' management of the forest trees and plantation.**

Both NFIs in Liberia and Guatemala also included in their data the signs of disturbance due to insect pests and tree health status. These data are based on presence/absence of these disturbances in the plots in all kinds of forests. More detailed, probably specific protocols would be needed through parallel inventories if one aims to provide other abundance-based estimates.

**22) FAO forest definition includes 10% canopy cover. Liberia used 30% canopy cover in forest definition. Now the question is, does countries need to follow FAO forest definition in NFI or country can choose their own threshold?**

Typically a country will define its own definition of forest.

**23) Mr Rodrigo, how have you worked to incentives local communities to restore forests? Thinking that there often are priority conflicts between e.g., restoring/keeping forest and economic income (e.g., logging etc.)**

We have a forest incentives programme where we give them an amount of money for certain years for restoration purposes (6 years), so that encourages communities, also we give them trees and technical assistance, among others.

**24) Is there support for countries to develop their Forest Inventories?**

Yes, there is support, it usually comes either from bilateral projects between particular donors and recipient countries, or else as part of multilateral projects channeled through multilateral mechanisms. In any case if your country is interested in such options do not hesitate to contact us, for example, at the National Forest Monitoring team of FAO, or else through your FAO country office-

**25) For Mr. Rodrigo, I am just wondering whether did you revisit the previous permanent sample plots in your new cycle of NFI? And just my curiosity, "is there any difficulties that you encountered when using new sampling design? like during discussion phase with the high-level people or decision makers." Another question is, may be you already answered, the main objectives of these two NFI are the same or not?" Thanks in advance**

Yes, we revisited some, but we had some difficulties locating the exact point. In the new sampling design, we haven't had any difficulties yet, but it was hard convincing politicians to give budget to NFI. The objectives between the two NFI are similar but now are more targeted to forests and the first one was balanced with trees outside of forests.

**26) Have you created nurseries to reproduce native plants?**

Guatemala has created nurseries with local communities and involved the private sector. We provide incentives for nurseries as well.

Liberia: working with communities and nurseries.

**27) Can we apply forest inventories for forest plantations?**



Forest plantations are normally included as part of NFIs. However in many countries specific forest inventories in forest plantations are also carried out, normally by companies or individual landowners, as part of more extensive forest management unit inventories.

**28) What are the proper steps or procedures for FAO to support or fund Forestry activities such NFI in a particular country?**

There are several pathways. Countries can formally request technical and financial assistance to the FAO country office who, together with HQ technical experts, can help draw up a project proposal for NFI support. Otherwise, countries can also go through donors and request financial support that is then used to contract FAO for technical assistance. Countries may also use their own government resources for contracting FAO.

**29) Quelle la période indiquée entre deux inventaires nationaux?**

Normalement c'est 5 ans mais dans de nombreux pays, souvent à cause du manque de financement, c'est 10 ans.

**30) Rebecca, does this project consider providing technical support for developing standard operational procedures (SOP) for the different processes related to NFI design and implementation? I think this is important considering the constraints you mentioned in your presentation.**

This is something that indeed we can consider including in the future if there is a high demand for it. At the moment, the modules describe the processes within NFIs and best practices, considerations. But SOPs are an area that we can for sure consider in the future.

**31) As per FAO definition 10% canopy can be considered as forests. In India, the total forest cover increased as per the records. It includes 10 % canopy areas, including patches and plantations. Is it fair to tell the total forest cover increased as per this method?**

Yes. This happens often in many countries particularly those that either implement policies towards recovering forests or those exposed to land abandonment. In any case, it is so far up to the country to specifically define their forest definitions for their own national decision-making process. Only in the cases of international reports, such as FRA, they are supposed to follow that definition.

**32) Does the project consider technical backup?**

Where we have ongoing projects, technical backup in the form of more fine-tuned direct support would of course be included, but we can foresee a broader sort of technical back-up where we dive into a particular NFI theme and offer technical webinar sessions - together with a network of NFI experts.

**33) There is need for technical capacity building especially on GIS & remote sensing in National Forest monitoring, NFI etc.**



Please you can join us for upcoming training:

<https://www.fao.org/national-forest-monitoring/news/detail/en/c/1455357/>

### **34) What instrument do you use for tree height measurement?**

There is not one single option, many instruments are available. Depends very much on the available devices. It can reach from very simple devices (Suunto, Blume-Leiss, ...) to more modern laser rangefinders and clinometers.

### **35) Getting robot instruments is very difficult in some Africa countries. Is any plan by FAO to help in this regard?**

We are just starting to experiment with the use of drones in enhancing NFI efforts as well as terrestrial lidar, but it is not yet widely applied.

#### **Related links**

Self-paced e-Learning course on Forests and transparency under the Paris Agreement:

English: <https://elearning.fao.org/course/view.php?id=587>

Spanish: <https://elearning.fao.org/course/view.php?id=610>

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#### **Quick guidance**

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