

COST ACTION E43
Harmonisation of National Inventories in Europe:
Techniques for Common Reporting

Draft Minutes of the Plenary Sessions

8th Joint Working Group and Management Committee Meeting

Thursday, 7 June 2007, 9:00 - 12:30 hrs and
Friday, 8 June 2007, 16:30-17:30 hrs

Haikko Manor Hotel
Porvoo, Finland

1. Welcoming and Opening of Meeting

The Action Chairman Prof. Erkki Tomppo opened the meeting and welcomed all participants and introduced several special guests and participants.

- Dr. Andrey V. Kushlin, Senior Forestry Specialist, ECSSD, The World Bank
- Dr. Nikolay N. Kashpor, Head, Directorate of Forest Inventory and Assessment Federal Forest Agency of the Russian Federation
- Mr. Vladimir I. Arkhipov, Director, Northwestern Forest Inventory Enterprise, Russian Federation
- Prof. Dr. Michael Köhl, Chair of ICP forest, Institute for World Forestry, Germany
- Dr. Martin Lorenz, Head of PCC of ICP Forests, Institute for World Forestry, Germany
- Dr. Ron McRoberts, USDA Forest Service.

Hannu Raitio, Director General of the Finnish Forest Research Institute, welcomed the 90 meeting participants, from 26 different countries, to Finland and to the meeting. He gave a presentation about the role of National Forest Inventories and relationships to other monitoring systems.

2. Adoption of Agenda

Agenda was accepted with minor changes to include a presentation from Dr. Nikolay N. Kashpor and Mr. Vladimir I. Arkhipov from the Russian Federation.

3. General report of Action: E. Tomppo and K. Scadauer

Reference definitions need to be elaboration and finalized and the possibilities to create bridging functions need to be identified for harmonization.

Reference definitions need to be further prepared. The methods to convert forest resource estimates from non-reference to reference (bridge building) were prepared in the Joint WG Task Force meeting in Vienna, Austria, on 22-23 February.

Workgroup 1 organized an extended Task Force meeting in Vienna, Austria, on 11-12 April. The purpose was to identify difficulties in obtaining comparable forest resource estimates, as well as to find solutions. Work group 1 organized a Short Term Scientific Mission in Roslin, Scotland from 14-24 May. The objective of the STSM was to work on a questionnaire formulated during the Task force meeting in Vienna (11-12, April 2007), on quantitative methods for bridging functions, and the publications. It was also stated that reference definitions are the basis for the harmonization process and a time schedule is needed for the adoption of reference definitions. Many countries have already adopted reference and “automatic harmonization” is occurring, also, several NFI are already exploring building bridges.

Workgroup 2 organized two Task Force meetings, the first was in the Joint WG in Vienna, Austria, 22-23 February and the second, organized by WG2, in Eberswalde, Germany 16-19 April. Results from a small questionnaire were compiled, addressing to what extent European countries can report according to selected reference definitions. Further, country-specific bridges for selected case study countries were prepared in order to be able to report according to selected reference definitions. The case study countries are Finland, Germany, Italy, and Sweden. Also, possibilities to perform initial sensitivity analyses for the selected case study countries were identified and the potential for a scientific article based on the results of the work conducted during the Task Force meeting were discussed.

Workgroup 3 also had also two Task Force meetings, the first in Vienna, Austria, 22-23 February and the second one in Florence, Italy 20-24 March. Principles in creating reference definitions were discussed on the basis of the conclusions in Vienna in February. The principles were applied to concepts and variables of WG3. Main rules for the operative test on using existing NFI data were discussed and set-up, as well as, the structure of the data-based agreed. Co-operation with ICP forests was one of the meeting items.

4. Progress Report from Working Groups

Working Group 1: C. Vidal

WG1’s first scientific publication is going to be submitted to Silva Fennica, and there is an updated version of the Draft reference definitions, as of 31 May 2007, (reference-definitions-cost-e43-wg1-2007-05-31.pdf) available in WG1 internal documents.

Name	Author (s)	Stage	Published in
Establishing forest inventory references for volume and growing stock: a study towards common reporting Cost / Enfin	Claude Vidal, Adrian Lanz, Erkki Tomppo, Klemens Schadauer, Thomas Gschwantner, Lucio di Cosmo and Nicolas Robert	under preparation (finalizing)	to be submitted to Silva Fennica

The reference definitions that have been agreed upon are:

- tree and shrub
- tree components
- forest and other woodland

In Haikko the reference definitions to be agreed upon are:

- standing deadwood
- specification for forest and other wooded land
- growing stock biomass

WG1 thanked all countries that responded to their small tree questionnaire, in 3 weeks they received 22 responses. The results for the questionnaire:

- most countries have data for below national DBH threshold
- The three types of data available are:
 1. crown cover
 2. tree measurements
 3. number of stems

Working Group 2: G. Ståhl

Background

Objectives of WG2 are to:

- assess state-of-art in UNFCCC LULUCF and Kyoto reporting
- Propose reference definitions, clarification, and guidance
- bridging and sensitivity analysis
- uncertainty assessment (not yet started)

Achievements of WG2 to date

- Links established
- In depth review of reporting requirements
- 2 questionnaires to different countries
- first bridges established

At Thessaloniki, Greece the state-of-art article was finalized; the reference report was revised; preparation work of building bridges was done.

In Eberswalde, Germany there was a general discussion of country wide examples, and a flow chart was created of how to compare bridges. The flow chart is an example of how problems can be handled.

In Haikko, WG2 will work on finalizing the report on the references. There will be a presentations and a discussion of building bridges an analysis. Additionally the sensitivity analysis will be started and it will be determined how to proceed.

WG2 has several publications in progress:

Name	Author (s)	Stage	Published
Preparing reporting systems for LULUCF: use of National Forest Inventories in European countries	E. Cienciala*, E. Tomppo, A. Snorrason, M. Broadmeadow, A. Colin, K. Dunger, Z. Exnerova1, B. Lasserre, H. Petersson, T. Priwitzer, G. Sanchez and G. Ståhl.	under review	Submitted to Silva Fennica.
scientific article on bridges and sensitivity analysis		draft outline available	
scientific article on uncertainty analysis		yet to be prepared	

Working Group 3: G. Chirici

WG3 has assessed 44 variables to see which ones are most important for assessing biodiversity. From these, five core variables have been selected. All these include several sub-variables. When possible they have built direct links between the different countries so that NFI data can be aggregated. Sometimes this is not possible, i.e. forest type, so another approach is used, using the raw data collected during the NFIs.

Operative test with NFI data

1. definitions of common data base
2. selection of plots at country level
3. population of database
4. apply bridging function

WG3 would like to invite all countries to join in the data test. Currently 10 countries are involved. There are some problems with data and the problems need to be solved.

Over the last year WG3 has produced 2 publications:

Name	Author (s)	Stage	Published in
Monitoring biodiversity using data from National Forest Inventories	Chirici, Winter, Bastrup-Birk, Bertini, Marchetti	Under review	Submitted to European Journal of Forest Research.
Possibilities for harmonising national forest inventory data for use in forest biodiversity assessments.	Susanne Winter*, Gherardo Chirici, Ronald E. McRoberts	review comments received, major changes needed, under revision	Submitted to the Journal of Forestry. 2006

The work plan for 2007:

- o prepare final version of report on references and bridging functions
- o produce scientific papers based on real NFI-data

5. Presentations from Guests

1. **Harmonizing project by University of Hamburg / JRC: Micheal Köhl, Aljoscha Requardt**

The partners for the project, “Pilot study for harmonizing NFIs in Europe” include Spain, Italy, and Germany.

Examples of harmonization are:

- Temperate Boreal Resource Assessment (TBFR) 2000
- Background documents (C+I MCPFE)
- Forest Resource Assessment 2000 and 2005
- EFICS

The objectives of the project are:

- no new standards
- bottom up
- symmetry between national and international level
- demonstrate different harmonization approaches for selected forest ecosystems
- apply the different approaches in test areas
- compare approaches in test areas

The selected core variables are:

- forest area
- spatial pattern
- forest types
- diameter, growing stock, carbon stock

Data preparation and test sites

There are three test sites located in Germany, Italy, and Spain.

Three approaches are being used:

- sub sampling (high resolution remotely sensed, level 1 NFI monitoring)
- calibration of NFI data and CLC 2000 data
- modeling the sub sampled data

The outcomes of the project will be the harmonization of NFIs, maps of forest attributes, and comparable NFI definitions, where internal definitions are taken into account. At the end of the project there will be an evaluation of the reliability.

Potentials for collaboration include creating a common time schedule to bring projects together. There are many different options for co-operation, Köhl pointed out that is a very new project and many details are still under work. There are many discrepancies between the NFI and CORIN Land cover definitions, it may be possible to harmonize these.

2. FutMon new: Dr. Martin Lorenz, Head of PCC, ICP Forest

The FutMon project is working towards the further development and implementation of an EU-level forest monitoring system. The main objectives are an EU wide forest monitoring system, synergy with existing systems and to build bases between networks.

FutMon structure to meet the operational goals: (WP- Work Package)

- WP A – creation of level 1 large scale representative grid
 - elaboration of data sources
 - identify minimum set of parameters
 - develop linkages between networks (level II)
- WP B – improvement of intensive monitoring
 - elaboration of selected criteria
- WP C – Accretion of field data
 - level I and level II
 - monitoring WP A and WP B
 - feasibility of level II core variable plots
- WP D - Contribution to the installation of European forest information and communication platform
 - harmonization
 - definitions of attributes
 - quality assessment and quality control of measurements
 - establishment and maintenance of data
 - integration of data

A summary of the issues involving the role of NFI and ICP was distributed during the WG meetings. Further discussions continued at an internal meeting. Separate minutes are available from the internal meeting.

3. Ministerial Conference on the Protection of Forests in Europe (MCPFE) 2007 Enquiry – quantities indicators: Experience from the harmonization process: Stein Tompter

Dr. Stein Stomter, Norwegian Land Survey, worked for UNECE/FAO for compiling MCPFE 2007 report. He presented experiences about the work and some points to be considered by the NFIs and in the coming reports.

The tasks of the enquiry were:

- data collection
- checking of country reports
- preparation of result tables

The main problems with the enquiry were:

- indication of data quality
- some tables or part of the tables were not filled in
- the totals for the subgroups did not equal the total

Reporting on OWL- (Other Wooded Land) was often unsatisfactory.

Examples of problems and comments by tables

Table 1: Growing Stock – was usually okay for Forest Land (FL).

Table 4: Carbon Stock – most countries have of above and below ground estimates, but there is high variation in the estimation of deadwood and the corresponding carbon stock. Very few countries reported carbon stock on OWL.

Table 5. Recommended minimum area was 1 ha.

Table 13. Naturalness seem to a bit complicated, particularly the category "Modified natural".

Some further guidelines in MCPFE reporting are still needed, examples are:

how to handle temporarily unstocked areas

Marketed services (is that needed)

Regeneration, need to be explained is it annual or under regeneration, also "Regeneration of uneven stands".

Cultural and Spiritual values should also be clarified, as well as

Projection to a specific year.

4. "Forest Assessment System in the Russian Federation": Dr. Nikolay N. Kashpor and Mr. Vladimir I. Arkhipov

Dr. Kashpor and Mr. Arkhipov thanked COST E43 for the invitation to participate in the meeting. Dr. Kashpor presented the current status in forestry and forest inventory in the Russian Federation.

Since the beginning of 2007 the Russian Federation has begun decentralizing forest management. Prior to 2007 the forest inventory and forest management plan was carried out at the same time. The quality and quantity of the forest was assessed and this was mainly used to calculate harvest. The forest inventory data was used to make maps at 1:100 000 and 1: 10 000.

Since 1947, every 10 to 15 years, the forest inventory is carried out. There are 40 million primary assessment units. In the last 10 years forest attribute data has been presented in GIS maps.

In December of 2006, the Russian Federation made a new forest code to allow for major decentralization of forest management planning. The basis of forest management is large

leases of forest land for a period of 10-49 years. During that time the leaser is responsible for the entire scope of forest management. There are 16 types of forest that are managed for, i.e., harvest, recreation, hunting, scientific purpose...

Forests could be divided into 3 groups during the USSR:

- o forest for harvest 54%
- o protected forests 23%
- o reserved forests 23%

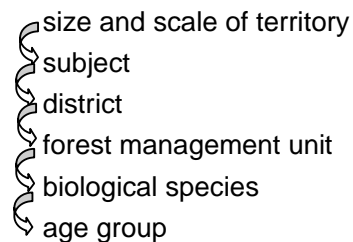
During this period the forest planning was carried out at a local level by the leasers. The government was responsible for:

- o reliable information on forest quality and quantity
- o timely identification of negative processes
- o controlling the responsibilities of the users

In December forest inventory representatives from Sweden, Finland, USA, and Canada came to Russia to offer advice with the start of the new Russian Federation forest inventory process. Currently this process is in its initial stage and the Russian Federation is taking into account foreign experience.

The main principles of the State FI are

- o 25% of the territory is set aside as reserves (Land area of Russian Federation is 1.71 billion ha, and forest land area is 809 million hectares.)
- o 40 million primary forest units
- o management strategy is developed based on decreasing size of management unit



The general part of the work involves utilizing areal photographs and remotely sensed photos at different scales and resolutions. Annually, one million ha of land is planted.

The current and future forest inventory methods can not be based solely on a western model because there are problems with geographic location and statistics. There are many challenges that are major issues. For example, in the far east of the Russian Federation, the population is very sparse and there are few roads, therefore, it is hard to carry out western methods of forest inventory. The future method need to maximize the potential of using a sampling method along with remote sensing data, existing management data and a selection method.

The current major goals are to estimate the state of the forests and to assess if the leasers are complying with the responsibility to take care of the forests. Additionally, the standardization and harmonization of forest inventory is very important for the Russian Federation. Future monitoring of the forest in the Russian Federation will mostly be by remote means.

The definition of forest land is the territory of forest at the largest level and the definition of forest cover is the ratio of area covered by forests and the area of an administrative unit.

Participation in COST E43 allows for building of bridges and it helps the Russian Federation avoid mistakes in the planning of its new forest inventory process

After the presentation, a smaller, in-depth meeting took place between the Russian participants and key interested experts from other countries/organizations: Erkki Tompo (Finland), Ron McRoberts (US), Göran Ståhl and Ulf Söderberg (Sweden), Andrius Kuliesis (Lithuania), Günter Siegel (COST Office), Alexander Korotkov (UNECE Timber Committee), Andrey Kushlin (World Bank). This meeting allowed an opportunity for a very enriching and frank discussion of some of the key technical challenges the NFI development faces in Russia, and how international expertise could best be of assistance in addressing these challenges. The notes for this part were prepared by Dr. Andrey Kushlin.

The Russian side explained that the local NFI methodology team (mentioned in our previous email exchange on this subject) would be fully mobilized in the next two weeks, and that about 20-25 districts (former leskhozoes) in 13 regions across Russia have already been preselected for conducting field trials of the draft methodology in August-October 2007. The Russian side confirmed their open invitation to the interested international experts to contribute to these tasks - both through the international 'subgroup' of the National Working Group on NFI that is being set up by the FFA, and directly through the respective on-going bilateral programs (Russia-US, Russia-Sweden, Russia-Finland, Russia-FAO, etc.).

It might be possible to consider inviting international experts to attend some of these field trials (this would be subject to clarification and confirmation with FFA).

The Russian side specifically invited their counterparts from countries with rich experience in NFI development to prepare - at their earliest convenience in the next few weeks - short (3-4 page) concept pieces that would lay out key ideas on how to approach Russian NFI development on the basis of comparable and applicable national experiences from the peer countries.

The US, Finnish and Swedish participants agreed that this would be possible (as a first step), but also suggested it might be even more useful if they could arrange to sit together for 2-3 days to lay out these concepts in a coordinated way, i.e. creating synergy from individual country experiences. Ron McRoberts took upon himself - within the next week or so - to coordinate among the three mentioned countries the likelihood and possible timing and venue for such a joint exercise, and let the Russian side know if and when this could be organized.

To ensure fuller and clearer understanding of the underlying "boundary conditions" for such a conceptual brainstorming, the Russian and international participants identified and confirmed the following main assumptions:

1. legacy stand-level data from operational inventories will be used in the process of the construction of the new NFI system;
2. some of the regions - for reasons of poor accessibility etc. - would fall into the NFI zones where most of data would be derived from remote sensing data and minimum - if any - ground data;
3. randomization of data plots would be an essential element of the NFI design in order to ensure statistical validity and credibility of aggregated information [ALL AGREED THAT THIS IS THE METHODOLOGICAL CORE CHALLENGE];

4. satellite imagery of acceptable resolution (5-6 m, eg SPOT) is going to be available for all country (confirmed by Mr. Kashpor);
5. because of the challenge of accessibility and distances (travel to and from a sampling plot is the largest cost item in NFI even in more developed road networks such as the US), a key intellectual challenge for a design of an affordable system would be the design of location of sample plots (e.g. clustered vs. regular design);
6. different techniques and sample designs would be applied in different parts (NFI zones) of the country - hence, another key element of NFI design should be the technique for a statistically valid "stitching" of the different data sets into nationwide aggregates (so-called "stratified estimation").

The FFA will follow up with the relevant international counterparts so as to reconfirm and clarify suggested next steps. An independent "technical audit" of NFI concept - to be provided at the FFA's request by the FAO & World Bank - would be one of the elements of this cooperation. A TOR has been confirmed between FAO and FFA. The NFI Working Group and proposed concept briefs from individual countries (possibly also complemented by a multi-country brainstorming) would be other key elements of this approach. Possibility of participation in field trials in September-October 2007 would also be clarified and confirmed soonest by the FFA.

6. Final plenary session

The outcomes from WG meetings with the future activities were presented discussed by WGs. The details of the WG work are given in the WG minutes. The meeting plan for the next year was prepared.

Meeting Plan

Meeting	Date and place	Reimbursements
MC / JWG	7-9 June, Helsinki, Finland	70
STSM, TF, SC	End of September, 2007, Norway	9
MC / JWG	25-27 October, 2007, Bucharest, Romania	70
Steering committee	22-23 November, 2007, Florence, Italy	9
Joint TF	15-18 January, 2008, Vienna	12
STSM + TF	Feb-Mar 2008, Italy	
Joint TF	15-18, March, 2008 TF, Country report, Helsinki	10
Steering committee	12-13, April, 2008	10
MC / JWG	5-7 June, 2008, Portugal	80
Total		270

7. Closing of the meeting

The chair closed the session and the Cost Meeting expressing his gratitude to the organizers, to the WG leaders, to all other attendants and to Günter Siegel from the COST office.