National Forest Inventory - Tool for Decision Making

Policy Brief

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WORKSHOP ON FOREST MONITORING AND RESTORATION IN THE CAUCASUS AND CENTRAL ASIA

9 DECEMBER 2020, ONLINE

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- Forests are vital for human life and provide numerous ecosystem services

- Forests are resilient systems, but the condition of forests changes due to our land use practices, forestry operations, climate change and abrupt climatic events

- To make informed decisions on the maintenance and enhancement of the multiple forest functions we need up-to-date, reliable and relevant information on the state of forests.

  - National Forest Inventories – NFIs – are cost efficient systems for such information

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# The core elements of NFI

- ## Statistics
  - Sampling = measuring objectively selected objects rather than the whole population

- ## Exact nomenclature
  - Definition for all concepts, variables and classifications applied in the work: what is a tree/forest/forest type/FAWS etc.

- ## Measurement protocols
  - Guidance and documentation for correct measurements to avoid bias and unnecessary variance

- ## Modeling
  - From measurable varieables (e.g. stem diameter) to variables of interest (e.g. volume or biomass of growing stock)

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Scenario modeling with NFI data

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- Scenario analyses = Analyzing future development alternatives

- Necessary information

  - Current state: forest area and growing stock by forest types, age structure,…

  - Models for increment, mortality and cutting practices

- Example: Past and modeled development of forests in Finland in two alternative scenarios
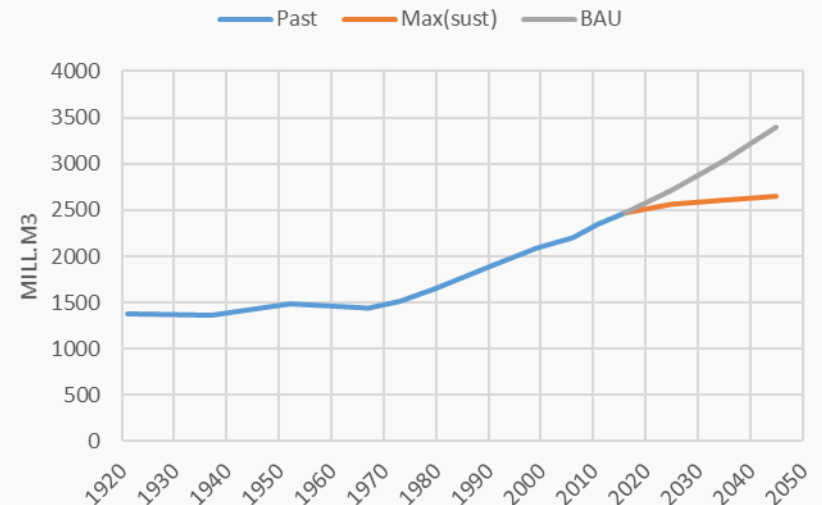
Institutionalizing NFI

- Legal basis, mandate to access all land: public, private, protected

- Stable budget for the whole cycle + future monitoring

- Available specialists on
  - Statisticis
  - Mathematical computing
  - Data management
  - Field work

- Modern technology and tools for
  - Navigation
  - Measurements
  - Information sharing

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NFI and Management Planning Inventories

- NFI for
  - Country & regional statistics and monitoring, scenario analyses
  - Must avoid bias and need to know the reliability to guarantee correct policy analyses

- Management planning for individual forest owners and forest stands/compartments
  - Management decisions at stand compartment level: data need to be reliable for every stand where managemen options are considered
  - Bias can be accepted if reliability is good (low variance) at stand level
  - Information need may vary according to owner preferences

- With current technologies combining the two is not cost-efficient
  - This may change as digitalization proceeds

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International aspects

- Several international statistics and processes need NFI
  - Global FRA and Pan-European reporting of sustainable forest management, FAO & UNECE
  - Forest Europe C&I for sustainable forest management
  - UNFCCC
  - LULUCF regulation

- The European NFIs have voluntary network for harmonizing European forest data and for promoting use of NFI data in decision making

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Further Information

- FAO 2017. Voluntary guidelines on national forest monitoring, ISBN 978-92-5-109619-2. http://www.fao.org/3/a-i6767e.pdf

- Vidal C., Alberdi I., Hernández, L. & Redmond J. (Eds.) (2016): National Forest Inventories - Assessment of Wood Availibility and Use. Springer International Publishing, Switzerland 2016.DOI: 10.1007/978-3-319-44015-6. http://www.springer.com/fr/book/9783319440149

- European National Forest Inventories Network (ENFIN: http://enfin.info/

Thank you!

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7 December 2020, Joensuu, FINLAND

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