

3.3. (3.3) Forest Modelling Toolbox

Business processes

The Forest Modelling Toolbox is a collection of tools/functions to simulate growth and development of forests, simulate management interventions and allow to evaluate economic impacts of the simulation runs.

It can be defined as toolbox as some elements and features can be used in the context of different FIMS modules.

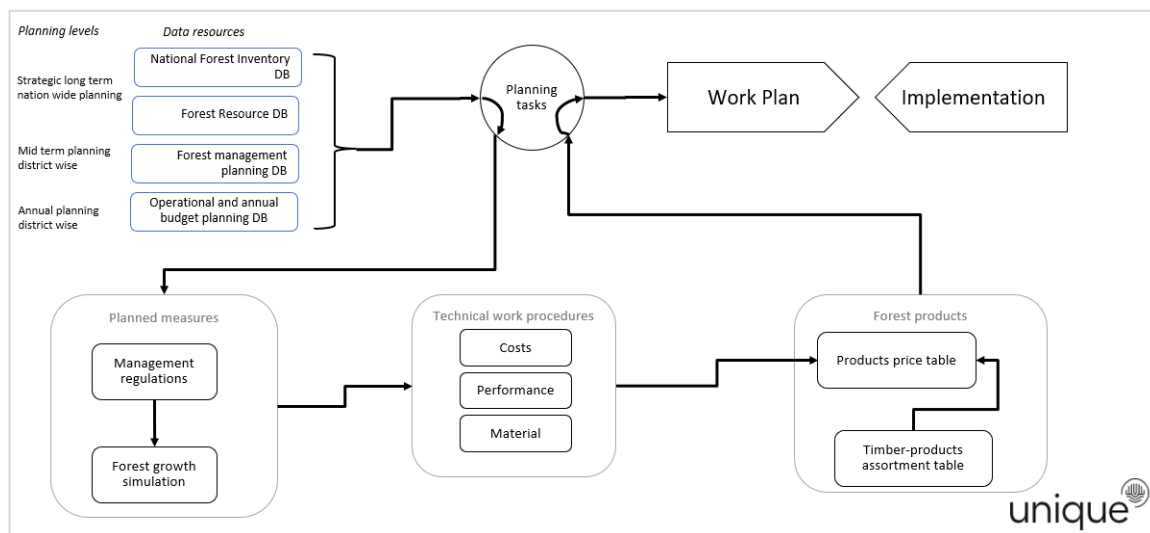


Figure 2: Schema of the Forest Modelling Toolbox

The full set of tools are necessary for the (3.2) Forest Management Planning module or the (2.) NFI module. A complete national forest management plan and simulation of the forests could be provided, if the toolbox is linked to the NFI database.

The tools for "technical work procedures" like plan costs by measures tables or the tools for "forest products" like a timber assortment table or function can be used for the 6) Forest operations module – specially to derive an Annual plan (6.1) Operational plan, (6.2) Annual Budget plan one-to-one.

Features

Set of tools plugged on different forest database NFI, FMP, Forest Resource DB (see upper left in figure 2)

- Forest Growth Simulator
 - Simulation of annual growth by using: increment data per tree species to update stand information annually and updating of age information.
 - Simulation of management interventions (regeneration or thinning or final harvesting)
- Forest Management regulations: in a digital format describing rules for the application of certain interventions and intensities (forest type x: Between 17-18 m of mean height apply selective thinning and remove 20% of the volume).

- Technical work procedures tool: List of typical technical work procedures combined with: Tables or functions for costs per unit for all kind of measures; tables and functions defining performance of work per output unit (m³/h skidding, m³/h felling and delimbing etc.); Tables of material inputs per work procedure (oak seedlings / ha etc.).
- Forest product tool: Assortment tables or functions allowing to calculate assortments based on tree species, height and DBH and an estimate of quality classes of each assortment. Table of prices per assortment – including features to update it from timber sales statistics.

Users

- Owner/Main users: MEPA BFD
- Users: NFA / APA / AFS – indirectly used via the respective modules
- Other users with (limited) access: - -

Most relevant data interfaces

- 1.2) Forest Resource DB
- 2) National forest inventory module
- 3.2) Forest Management Planning module
- 6.1) Operational plan, 6.2) Annual Budget plan

Status of development

- Conceptual work about the modeling toolbox has started but is not yet concluded
- The so-called "Forest Model" as MS Excel developed for the GCF project proposal has been and can be used as kind of template.
- Module itself not yet under active development

PLEASE NOTE: this is an excerpt of the Forest Modelling Toolbox chapter from the document "Forest Information and Monitoring System - Fact Sheets of Software Modules" (2023) prepared by "UNIQUE land use" GmbH within the framework of supporting the further development of Georgia's Forestry Information and Monitoring System (FIMS).