PROTOCOL TO FILL THE FORMIT QUESTIONNAIRE

The questionnaire is in MS Access. For every forest unit (FU) in your country (see the subchapters "*What is a forest unit?" and "Forest Units in the Country"* below for the definition of forest unit) a separate questionnaire must be filled. The questionnaire is divided in two sections:

- Section 1: Management practices: in this part a description of the management is asked. It is in turn further divided in four sub-forms. In the first, "*Forest Units in the Country*", the FUs present in the country must be indicated; in "*General description",* an overall description of the management regime of each Forest Unit is asked; in the fourth "*Interventions",* all the activities carried out in this FU are described in detail and, in the last form, "*Trends in management practices*", the changes occurring or expected in the future for the management regime under study are addressed.
- Section 2: Economy of the interventions: here economic information about the management regime and its interventions are asked.

Even if the survey is presented in one unique file, it can be filled by different persons. Presumably the first part is filled by an expert in forest management, while the second by a forest economist.

IMPORTANT: Be aware that *the form on management practices (section 1) must always be filled in before the corresponding on the economy of the interventions (section 2)*. For each of the interventions there is a parallel form for their economic information.

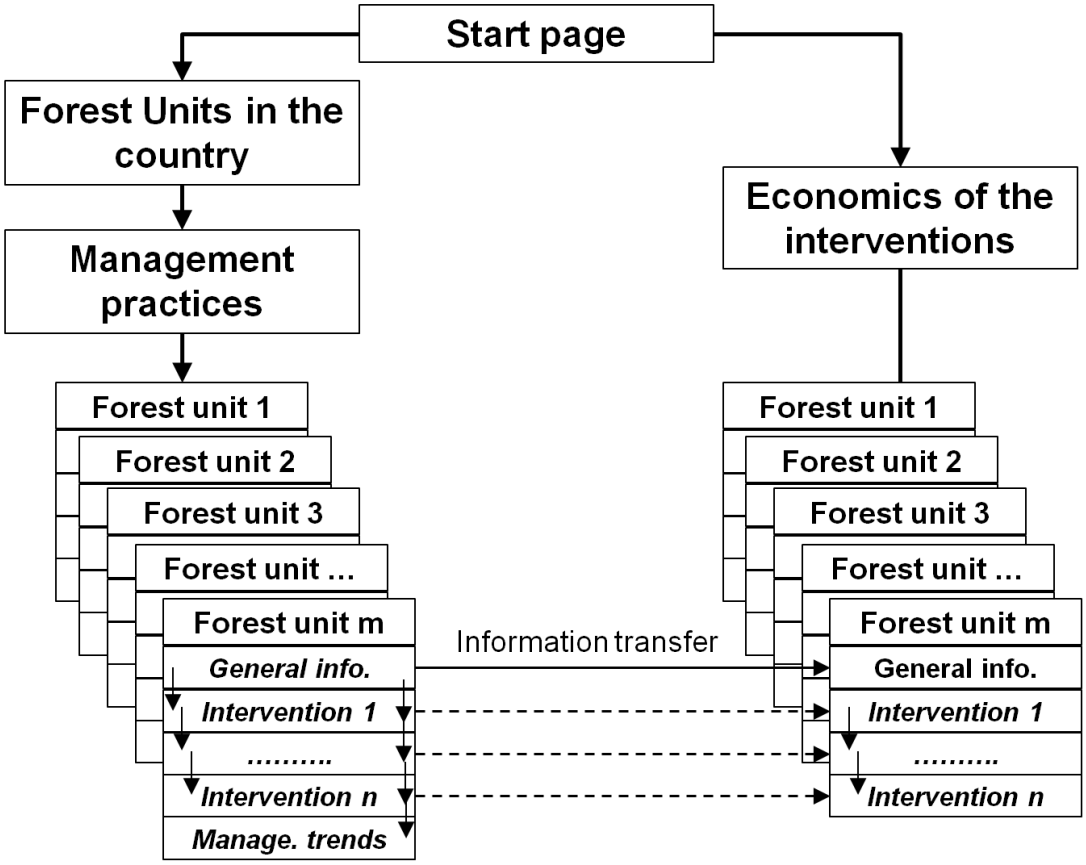

Figure 1 questionnaire structure

In the Figure 1 the structure of the questionnaire with the links between the different sections is showed and below you will find a description of the different parts. Should you have any further question regarding the questionnaire structure or the part on *Management practices* please do not hesitate to contact Giuseppe Cardellini (mail: giuseppe.cardellini@ees.kuleuven.be). For questions concerning the part on *economy of the interventions* please contact Per Kristian Rørstad (mail: per.kristian.rorstad@nmbu.no)

Before starting

What is a forest unit?

The resolution of the analysis is what we call "forest unit". It represents, for each country, the combination of a certain management system with a species group, as classified within the FORMIT consortium. There are 7 species group and 7 management systems resulting in a maximum amount of 49 possible forest units for each country (see annex I for the list). The questionnaire must be filled for all the forest units existent (see the chapter *"Forest Units in the Country"*) in the country describing an average management that can be considered representative of the forest unit under consideration.

The "SAVE TIME" field

When the management of a forest unit is equal or very similar to another, you can save time just going to the field "save time" and choose in the drop-down box the forest unit similar to the one you should describe. Once clicked all the fields of (only) the form open will auto-populate copying the description of the forest unit chosen. At this point, if the management is exactly the same, you can just save and go ahead, otherwise you can go through the questions and change only the fields that differ and then save (see the chapter *"Forest Units in the Country"* for further details). This "save time" field works and recall *only* the form you are working with i.e. the one open and can be particularly useful for filling in the questionnaire for those forest units that have a management similar to the main FUs (see below)

There is a "SAVE TIME" field in all the forms but the one "*Forest Units in the Country*".

Correction toolbox

Whenever you want to check, correct or complete an unfinished form just go on the "correction toolbox" in the bottom and search for the forest unit or intervention of interest in the drop-down box. After clicking, it will be recalled and all the fields already entered will be showed in the form. At this point you can make the changes you want and save them just by clinking on the button in the correction toolbox named "save changes" (DO NOT USE IN THIS CASE THE BUTTON SAVE IN THE BOOX "END").

Opening and closing the questionnaire

When you have opened the file, in the start page, indicate the country under analysis and the contacts of the respondents and then choose which of the two sections you want to fill. You will be automatically redirected to it. To exit just close down Access. Please do it only when the form you are filling for a certain forest unit or intervention is concluded and saved. When you reopen the questionnaire and want to go to a specific section click on the specific section "Go to section" in the first form.

Management practices

Forest Units in the Country

In this table you should indicate what are the forest units that occur in the country.

- Firstly you have to identify *at least the 7 main forest units*[1] in the country, for which the questionnaire must be filled in detail.
- Secondly, indicate those who do not occur.
- Thirdly, indicate the FUs for which the management is identical to the main forest units. *For these units the questionnaire must not be filled* (i.e. the questionnaire of the identical FUs will be considered for the analysis).
- Lastly, identify those FUs with a management similar to the main ones. *In this case the questionnaire must be filled. It can be copied and adapted from the main FUs using the "save time" field.*

[1] Whit *main forest unit* is meant the forest units that have the highest importance in the country in terms of area, from an economical perspective etc. These must be from the respondent on the basis of his knowledge.

General information

Before starting on a new forest unit you always need to push the button "start a new management regime". In the box "Studied forest unit" enter the info on country, management regime and species group for the forest unit you want to describe. You do not have to enter the ID, as it will be automatically assigned.

Fill all the other 6 boxes (i.e. composition, regeneration, forest transport, intervention rules, data sources and effects on ecosystem services) with the *description of an average management that can be considered representative for the forest unit*. Once finished, just push the button "save and add first intervention" in the "end" box to start with the detailed description of the interventions.

Interventions

Before starting with the description of a new intervention for the forest unit, you always need to push the button "start a new intervention" for each intervention you enter. After this, in the box "Forest unit under study" clicking on the drop-down box "Enter forest unit under study" you have to define the FU under study[2]. The other fields in this box will be automatically populated (i.e Country, Management system and Species Group) . Afterward enter the chronological number of the intervention and start with a description of the first intervention occurring in this management regime along a rotation period. It must be done in a chronological order and for each intervention separately. For example in the case of felling and hauling, even if they can occur together, they must be considered separately thus two different interventions must be described.

Once finished with the first intervention in the box "end" push the button "Save and add another intervention". Push again the button "start a new intervention" and then follow the procedure explained in the previous paragraph. Follow the same procedure for all the interventions and, once reached the last one, push the button "Intervention finished, save and go to trends in management practice" to be redirected to the form on trends in management practices.

Trends in the management

When the management in forest unit is changing or this is foreseen in the near future, this form must be filled describing this trend. If there isn't any trend just skip this part. Also in this case, before starting, you always need to push the button "start a new trend" and afterward, in the box "Forest unit under study", clicking on the drop-down box "Enter forest unit under study" you have to define the system under study. Describe these changes in terms of composition, regeneration, rotation length, intervention etc and once finished in the box "end" push the button "Save trend and start another forest unit".

[2] The drop-down list recalls (thus shows) only the forest units already entered in the form "general description".

Economic analysis of the interventions

In this form the economic information of all the interventions already filled are asked.

Before starting always push the button “start a new intervention” and afterward, in the box “Forest unit under study”, clicking on the drop-down box “Enter forest under study” you have to define the system under consideration. Once you define the forest unit, the form will automatically recall the description of the activities for this intervention in the first column of the form. After this go to the second column on the right and fill in all the economic information for this intervention. The costs are split in three classes. For each of them the weight in percentage for labour, fuel and other type of cost must be indicate (thus their sum must be 100%).

Annex I

Tree species groups (grouped according to their growing style).

Species group	Species
1. Light demanding conifers	*Larix spp., Pinus sylvestris, Pinus nigra, Pinus cembra, Pinus heldreichii, Pinus leucodermis, Pinus radiata, Pinus uncinata, Pinus mugo, Pinus contorta, Pinus strobus, Cedrus spp., Juniperus spp.*
2. Shade tolerant conifers	*Picea abies, Abies spp., Pseudotsuga menziesii, Thuja spp., Taxus baccata, Tsuga spp., Chamaecyparis spp.*
3. Mediterranean conifers	*Pinus pinaster, Pinus halepensis, Pinus pinea, Pinus canariensis, Cupressus spp., Pinus brutia*
4. Fast growing deciduous	*Betula spp., Populus spp., Alnus spp., Salix spp., Robinia pseudoacacia, Eucalyptus spp.*
5. Slow growing light demanding deciduous	*Quercus robur, Q. petraea, Q. cerris, Q. pubescens, Q. faginea, Q. frainetto, Q. macrolepis, Q. pyrenaica, Q. rubra, Q. trojana, Q. hartwissiana, Q. vulcanica, Q. macranthera, Q. libani, Q. brantii, Q. ithaburensis, Q. pontica, Fraxinus spp., Castanea sativa, Rosaceae (Malus, Pyrus, Prunus, Sorbus, Crataegus, etc.), Juglans spp., Cercis siliquastrum*
6. Slow growing shade tolerant deciduous	*Fagus spp., Carpinus spp., Tilia spp., Ulmus spp. , Buxus sempervirens, Acer spp., Ilex aquifolium*
7. Mediterranean evergreen trees	*Quercus suber, Quercus ilex, Q. coccifera, Q. lusitanica, Q. rotundifolia, Q. infectoria, Q. aucheri, Tamarix spp., Arbutus spp., Olea europea, Ceratonia siliqua, Erica spp. Laurus spp., Myrtus communis, Phillyrea spp. Pistacia spp., Rhamnus spp. (R. oleoides, R. alaternus), Ilex canariensis, Myrica faya,*

Management systems

System	Definition
1. Unmanaged forests	No management
2. Continuous cover forest management	Continuous cover forest management • Selection cuttings based on diameter
3. Even-aged forest management with shelterwood	Even-aged (2-layer) forest management • Regeneration: natural • Thinnings • Shelterwood cut after certain mean diameter (or age) has been reached
4. Even-aged forest management: Uniform clear-cut system	Uniform forest management • Regeneration: planting or natural • Thinnings • Clear-cut after certain mean diameter (or age) has been reached
5. Coppice	Woodland which has been regenerated from shoots formed at the stumps of the previous crop trees, root suckers, or both, i.e., by vegetative means.
6. Coppice with standards	Coppice system under low density (un-)even-aged high forest
7. Short rotation	Plantation forestry including exotic species.

Forest Units (grouped by species group)

Light demanding conifers

1. Light demanding conifers- Unmanaged forests
2. Light demanding conifers- Continuous cover forest management
3. Light demanding conifers- Even-aged forest management with shelterwood
4. Light demanding conifers- Even-aged forest management: Uniform clear-cut system
5. Light demanding conifers- Coppice
6. Light demanding conifers- Coppice with standards
7. Light demanding conifers- Short rotation

Shade tolerant conifers

8. Shade tolerant conifers- Unmanaged forests
9. Shade tolerant conifers- Continuous cover forest management
10. Shade tolerant conifers- Even-aged forest management with shelterwood
11. Shade tolerant conifers- Even-aged forest management: Uniform clear-cut system
12. Shade tolerant conifers- Coppice
13. Shade tolerant conifers- Coppice with standards
14. Shade tolerant conifers- Short rotation

Mediterranean conifers

15. Mediterranean conifers- Unmanaged forests
16. Mediterranean conifers- Continuous cover forest management
17. Mediterranean conifers- Even-aged forest management with shelterwood
18. Mediterranean conifers- Even-aged forest management: Uniform clear-cut system
19. Mediterranean conifers- Coppice
20. Mediterranean conifers- Coppice with standards
21. Mediterranean conifers- Short rotation

Fast growing deciduous

22. Fast growing deciduous- Unmanaged forests
23. Fast growing deciduous- Continuous cover forest management
24. Fast growing deciduous- Even-aged forest management with shelterwood
25. Fast growing deciduous- Even-aged forest management: Uniform clear-cut system
26. Fast growing deciduous- Coppice
27. Fast growing deciduous- Coppice with standards
28. Fast growing deciduous- Short rotation

Slow growing light demanding deciduous

29. Slow growing light demanding deciduous- Unmanaged forests
30. Slow growing light demanding deciduous- Continuous cover forest management
31. Slow growing light demanding deciduous- Even-aged forest management with shelterwood

32. Slow growing light demanding deciduous- Even-aged forest management: Uniform clear-cut system
33. Slow growing light demanding deciduous- Coppice
34. Slow growing light demanding deciduous- Coppice with standards
35. Slow growing light demanding deciduous- Short rotation

Slow growing shade tolerant deciduous

36. Slow growing shade tolerant deciduous- Unmanaged forests
37. Slow growing shade tolerant deciduous- Continuous cover forest management
38. Slow growing shade tolerant deciduous- Even-aged forest management with shelterwood
39. Slow growing shade tolerant deciduous- Even-aged forest management: Uniform clear-cut system
40. Slow growing shade tolerant deciduous- Coppice
41. Slow growing shade tolerant deciduous- Coppice with standards
42. Slow growing shade tolerant deciduous- Short rotation

Mediterranean evergreen trees

43. Mediterranean evergreen trees- Unmanaged forests
44. Mediterranean evergreen trees- Continuous cover forest management
45. Mediterranean evergreen trees- Even-aged forest management with shelterwood
46. Mediterranean evergreen trees- Even-aged forest management: Uniform clear-cut system
47. Mediterranean evergreen trees- Coppice
48. Mediterranean evergreen trees- Coppice with standards
49. Mediterranean evergreen trees- Short rotation