EFORWOOD
Tools for Sustainability Impact Assessment

Review of research methodology

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Preface

This report is a deliverable from the EU FP6 Integrated Project EFORWOOD – Tools for Sustainability Impact Assessment of the Forestry-Wood Chain. The main objective of EFORWOOD was to develop a tool for Sustainability Impact Assessment (SIA) of Forestry-Wood Chains (FWC) at various scales of geographic area and time perspective. A FWC is determined by economic, ecological, technical, political and social factors, and consists of a number of interconnected processes, from forest regeneration to the end-of-life scenarios of wood-based products. EFORWOOD produced, as an output, a tool, which allows for analysis of sustainability impacts of existing and future FWCs.

The European Forest Institute (EFI) kindly offered the EFORWOOD project consortium to publish relevant deliverables from the project in EFI Technical Reports. The reports published here are project deliverables/results produced over time during the fifty-two months (2005–2010) project period. The reports have not always been subject to a thorough review process and many of them are in the process of, or will be reworked into journal articles, etc. for publication elsewhere. Some of them are just published as a "front-page", the reason being that they might contain restricted information. In case you are interested in one of these reports you may contact the corresponding organisation highlighted on the cover page.

Uppsala in November 2010

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EFORWOOD

Sustainability Impact Assessment of the Forestry - Wood Chain

Project no. 518128

EFORWOOD

Tools for Sustainability Impact Assessment

Instrument: IP

Thematic Priority: 6.3 Global Change and Ecosystems

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Review of research methodology

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Final version

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination level		
PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	X
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Introduction

The main task of this Work Package operating within the Eforwood Programme is to reach full logical, structural coherence in solving individual research tasks by all groups of specialists involved in the Eforwood Project and assessment of the applied research methodologies for their harmonization.
Attainment of the set targets will enable the construction of a model and, in the following stages, the application of tools for Sustainability Impact Assessment of the Forestry Wood Chain.

Methodological assumptions

The major task in setting the methodical assumptions is to answer the main question: "How much is the Eforwood Programme a research task and how much is it a utilitarian one?". The answer to this question creates no doubts. The structure of the Eforwood Research Programme points clearly to its scientific nature referring to the study of issues which has yet not been subject to scientific synthesis and to the scope of necessary result analyses. However, it should be emphasized that the research and analysis results within the framework of the Eforwood Programme point firsts of all to the possibilities of their practical implementation in many economic and political sectors. In performing the above-mentioned tasks, the following methodological assumption scheme has been adopted:

1. All references in this Research Programme are subordinated to the Sustainable Development Paradigm.

2. The scope of comparisons and compliances with the sustainable development principles is based on a framework and set of criteria and other Working Packages, while their determination, the weight and description attached to individual indicators, will use indicator, as a reference matrix.

3. The structure of the Eforwood research topics is closely linked with a number of interlaced theoretical and practical research elements.

4. The subject matter of the research is much diversified and it encompasses studies of the natural phenomena undergoing probabilistic processes, as well as studies in the

technical, economic and other fields which are mechanistically determined.
Additionally, included are the scopes of research, which contain elements, determined based on social (consumer) behaviors, shaped by different factors, not always foreseeable.

5. It is necessary to compare and harmonize the research methodologies applied by different fields of science, beginning from those used in natural, economic, mathematical, technical or chemical sciences to end with sociological, communication-with-society sciences, etc.

6. The scopes of theoretical and practical research differ from each other in both, the exactness degree as to the scale and range of measurement, frequently making it difficult to differentiate between generalization and detailness, and regional diversification, natural conditions, technical limitations, or the researched processes and technological operations.

7. The construction of tools to be used for building prototype and model solutions, as well as individual phases of checking and testing them require, to some extent, breaking some rigid, schematic, methodological rules.

8. While scientific recognition of all the research methodologies in the aforementioned scope by one team of this Working Package is impossible, methodical coordination between individual groups of scientists and assurance of the appropriate qualitative level of research is possible.

9. It is assumed that a great majority of the Research Teams under the Eforwood Project will take effort to seek solutions that will synthesize the accumulated knowledge, or, to a lesser degree, will carry out partial research enabling further compilation of the required knowledge for task implementation.

10. Basic and applied research carried out in Working Packages is intended to reach the results enabling the construction of relevant tools and models meeting the program assumptions and to perform comparative tests or checks of the prototypes of subsequent model solutions.

11. Synthesis of the research project results will be harmonised with ToSIA levels, single chain and case studies and will refer to:

- European wood forestry wood chain - or the highest level of synthesis of research results encompassing the occurrences of phenomena and their evaluation in 25 EU countries, as well as in Switzerland and Norway,
- forestry wood chain - the flow of raw materials, products and services deriving from and being subject to forest production. This will apply to both, the ways of carrying out forest management, that is the elements of organization, technology and scope of application of specified forest operations, as well as transport of forest raw materials and products,
- regional conditions in Europe seen from the point of view of forest space, however with a specific geographical, industrial, technical/technological and social variability.

Further analyses will encompass the processes of timber raw material processing pertaining to the production of the strictly defined groups of wood and wood-derivative products, cellulose, paper and energy.
- analyses referring to individual stages of the production chain,
- analyses pertaining to some specified products of, e.g., the adopted forest, management system or particular production process.

12. Setting the rules of making scenarios adopting different assumptions as to the direction and dynamics of development of the researched phenomena. The development of scenarios includes references to the manufacturing process variability embedded in the sustainable development assumptions, seen from the perspectives of:
- external factors with regard to the selected EU states and Switzerland and Norway,
- external factors with regard to the forestry wood chain, referring to the solutions in the EU energy, rural development and financial policy
- internal factors affecting the forestry wood chain, as well as new technical/technological and logistic solutions, timber raw material base variability, further processing directions, etc.

The adopted method of review of research methodology

1. In accordance with the general concept of the Eforwood Programme, the functional and methodical links pertain primarily to the assessments and analyses of different processes, starting from the basic silvicultural, protective, harvest-transport, processing and final product supply operations, to end with the utilization of the final products which are then recycled or otherwise end their life.

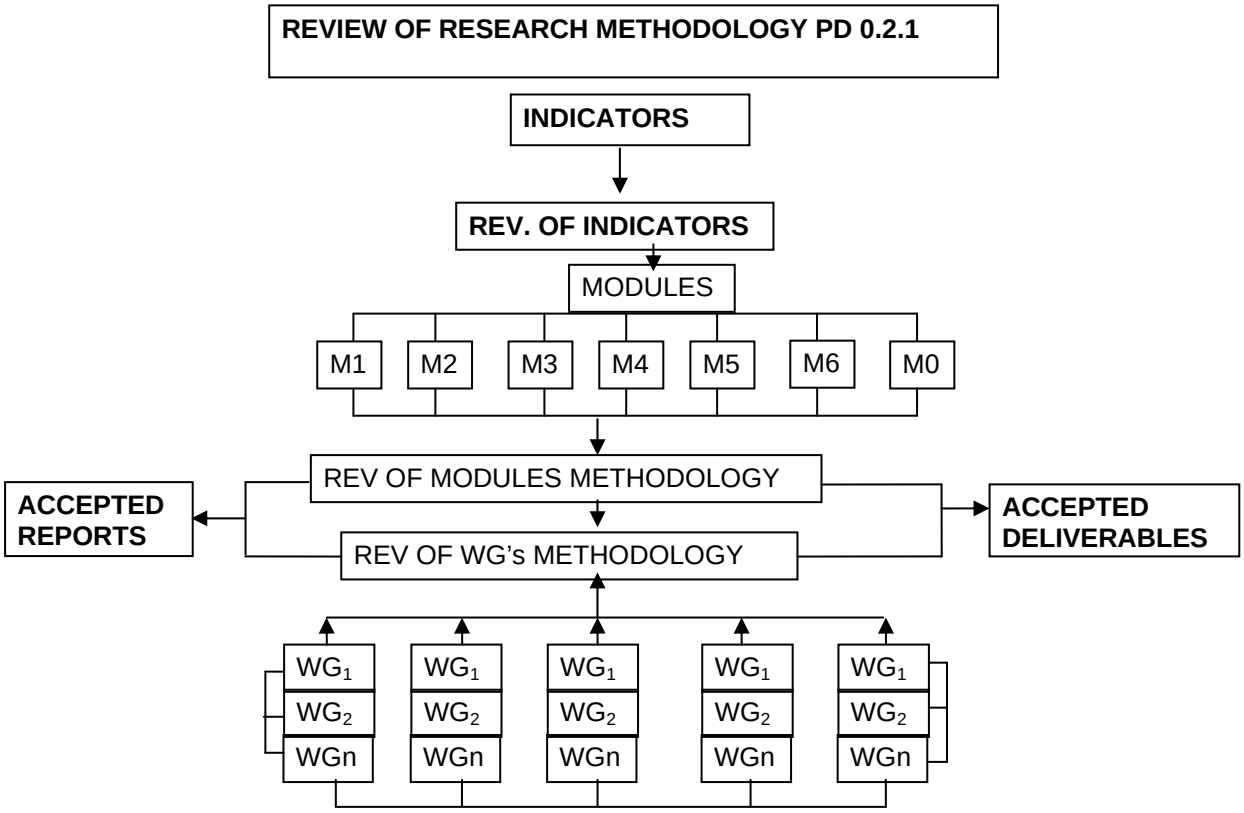
In view of the above, all the processes which are subject to evaluation must, in their research methodology, contain and describe those elements which are used in each of the processes and those which are common for all the processes. This means that the adopted set of sustainable development indicators, with all its modifications depended on, among other things, the adopted process, must fulfill the defined requirements as to its homogeneity.

2. The modular structure of solving research problems in the Eforwood Programme consists in attaching specified tasks to each of them. This means that the Working Packages performing their task and, later on, forming larger units, must have their data collection and processing methods harmonized in such a way that each Module can internally use its partially collected data and that the flow of materials among the Modules be also possible.

3. The necessity to report on the work progress in the implementation of the Eforwood Programme is based on the Deliverables submitted at the defined time and making up Module

Reports.

Each of the prepared Deliverables is subject to a check-up consisting of an analysis and assessment of the applied research methodology and measurement methods, at the stage of both, experience building, data gathering, compiling and processing, measurement exactness, applied technologies, operational links, and logical coherence of all the performed operations.



The above scheme of procedure for WP 0.2 Overall IP Quality Control pertaining to the scope of work PD 0.2.1. is as follows:

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