

SIXTH FRAMEWORK PROGRAMME

PRIORITY 8.1

**Policy-oriented research, Scientific support to policies,
Integrating and Strengthening the European Research
Area**



FORE • SCENE

**Development of a Forecasting Framework and Scenarios
to Support the EU Sustainable Development Strategy**

Contract no.: 022793

Summary Description of Objectives and Workplan

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1 Project Summary

FORESCENE will develop an analytical framework for consistent environmental sustainability scenario building (forecasting, backcasting, simulation) in areas such as water, soil, biodiversity, waste and natural resources. Problem issues and priority policy fields such as agriculture, infrastructures/land use, industry/economy will be selected in close contact with the EU Commission. The project will focus on backcasting, to identify different scenarios leading to the achievement of future targets. FORESCENE will (1) describe the chosen environmental problems, review policy objectives and indicators, and determine the cross-cutting driving forces; (2) develop core elements of integrated sustainability scenarios (goal definition); (3) determine measures and processes to be considered for change (pre-backcasting); (4) address quantitative and qualitative parameters for measurement (parameterization); (5) develop a Business-As-Usual (BAU) scenario framework and example projections (forecasting); (6) develop alternative scenarios (incl. backcasting); (7) check the options for modelling, and (8) work out conclusions. To integrate the eight steps FORESCENE will organize a series of workshops to involve DGs and stakeholders, to integrate knowledge on (a) cross-cutting drivers of various environmental problems and priority policy fields, and (b) to define essentials for integrated sustainability scenarios in terms of goals and cross-cutting policy measures. Further experts will be involved at various stages of the project. The project will result in recommendations for future policy development with regard to the EU's sustainability strategy and the framework for Impact Assessments and concrete proposals for the use and extension of existing simulation models.

2 Project objective(s)

2.1 Problem definition

The challenge addressed by this project is to develop a framework for creating sustainability scenarios, which integrate different environmental topics such as water, soil, resource use etc. In the general context of the EU Sustainable Development Strategy and to comply with the specific needs of Impact Assessments the European Commission and DG Environment in particular need a robust and scientifically sound forecasting framework to develop harmonised middle and long-term (2015-2030) baseline and alternative policy scenarios. Their need is not only to refer to scenarios on which there is a general consensus, but also “extreme” scenarios, which show the boundaries within which the future may lie.

There is also a need to have access to scenarios that can be used for strategic policy preparation to better specify and disentangle the mutual relationships between environmental, economic and social trends, in the context of the Sustainable Development Strategy. By its very nature, sustainable development means that trends in single variables (e.g. economic growth) cannot be studied without considering their impact on others (e.g. resource use), which themselves may have a negative impact on one of the dimensions of Sustainable Development (e.g. additional costs due to increased waste generation or pollution abatement). It is therefore necessary to create a multidimensional analytical framework based on relationships and interactions.

To be effective policy development and appraisal need to understand the key driving forces and their cross-cutting linkages, which lead to, increased pressure on different aspects of the environment. Cross-cutting driving forces which are relevant for various environmental and sustainability related problems have not yet been analyzed in a systematic policy oriented manner. Measures which are designed to solve single problems are at risk to become symptoms oriented and they may be ineffective due to the complex interaction of environmental effects. If one also regards limited public budgets, this approach is not sufficient to sustain the ecological and physical basis of our economy and society. Developing effective and efficient measures needs to focus on cross-cutting measures, which tend to mitigate several problems at the same time. So far, this has often been not the case, also due to lacking cross-sectoral analysis and scenario building. Moreover, existing environmental policies at the EU level are rather diverse, at different stages of development, and often lacking quantitative targets. Headline indicators, which also represent major, driving forces, are still under development.

The need of policies based on cross-cutting analysis is indicated in the Communication “The 2005 Review of the EU Sustainable Development Strategy: Initial Stocktaking and future orientations” (COM(2005)37 final) as well as in the Commission’s Communication on its Strategic Objectives 2005-2009: “We should make policy choices that ensure that our various objectives are mutually reinforcing. Actions that promote competitiveness, growth and jobs, as well as economic and social cohesion and a healthy environment reinforce each other. These are all essential components of the overarching objective of sustainable development, on which we must deliver.” COM (2005) 12. This spirit is also one of the driving-forces behind the Commission’s impact assessment as expressed in the communication on impact assessment (COM (2002) 276). Especially the subsequent impact assessment guidelines (SEC (2005) 791) emphasise the importance of scenarios and the consideration of policy interactions.

2.2 The approach of the project

The current EU environmental policy context is determined by the four priorities of the 6th EAP on climate change, nature and biodiversity, environment and health and quality of life, and on natural resources and waste.

These priorities have been translated into seven Thematic Strategies that are being developed according to a common approach independently of the specific content requirements relating to their subject matter - Soil protection; Protection and conservation of the marine environment; Sustainable use of pesticides; Air pollution; Urban environment; Sustainable use and management of resources; Waste recycling.

FORESCENE will take up the problematique and the policy goals in these fields and further develop an *integrated approach* to the ex-ante assessment of policies which are either designed to implement those strategies or which may have positive or negative impacts with regard to those issues and in the broader context of sustainable development. In doing so FORESCENE will address the cross-thematic and cross-sectoral drivers of the different environmental problems, and work out related scenarios that will enable to assess measures that are multi-beneficial in a way that they could contribute to solve at least part of various problems. A related key question will be how problem shifting across sectors and environmental media can be minimized.

A basic hypothesis of FORESCENE is that the *production and consumption* patterns have essential influence on the interaction between industry and society on the one hand and the environment on the other hand. A key methodological approach will be the analysis of the material flows between and within those spheres, because these are the carriers of environmental pressure as well as the basis for materials wealth and the physical basis of production and consumption. Thus, material flows provide the bridge between the environment and the economy, and the strategic link to fields of action both of policy and industry. They also reflect how human behaviour altogether respond to policy action, e.g. when use of resources is influenced by changed economic incentives induced by policy. A key challenge will be related to the question how certain policy measures will affect the development of material and resource flows in production and consumption (e.g. through technological or institutional changes) and whether and to which extent this will lower or increase the pressure on natural resources, biodiversity, soil etc.

In the course of globalization the EU is increasingly involved in international trade. Recent studies have shown that the EU to a growing extent draws from natural resources in other regions and thus contributes to a shifting of environmental and sometimes socio-economic problems to other countries, e.g. through the increasing import of raw materials which leave the exporting countries with relative low value added but high environmental degradation. FORESCENE will therefore especially consider the *international and transregional dimension* of sustainable development. A key question will be how the problem shifting across regions can be minimized.

With regard to the international dimension of sustainable development FORESCENE will build on UN Millennium Ecosystem Assessment¹, and relate the work on the European scale also to the activities of the Group on Earth Observations (GEO) especially with regard to the development of sustainability scenarios (<http://www.earthobservations.org>)

The work of FORESCENE will also refer to the OECD activities on material flows and resource productivity². A linkage will be drawn to the relevant activities of EUROSTAT and the EEA, with regard to business as usual and alternative development scenarios, and key indicators in the fields of biodiversity, soil and land use, resource use and waste. An exchange is also foreseen with relevant European Topic Centres, e.g. the ETC on Resource and Waste Management (ETC-RWM).

FORESCENE will build on results of other related EU projects and will interact with parallel and ongoing projects such as TranSust.Scan, SENSOR, SEAMLESS, MATISSE, MOSUS and ALARM in a synergistic manner (state-of-the-art see section 4, and project management section 6).

FORESCENE will involve stakeholders from the CEC, NGOs and industry. Expertise of external experts will be integrated to make optional use of existing knowledge.

¹ Reid et al. (2005): Millenium Ecosystem Assessment Synthesis Report. April 2005

² Working Group on Environmental Information and Outlooks, latest OECD workshop on material flow indicators and related measurement tools, 23-24 May 2005, Berlin; based on OECD council decision on material flows and resource productivity, April 2004 (C(2004)79)

2.3 Project objectives

The objectives of FORESCENE are:

(1) Determination of cross-cutting driving forces for environmental topics such as water, biodiversity, resource use and waste

FORESCENE will start with a review of past and ongoing work with regard to the topics water, biodiversity/soil/landscape, resource use and waste and related scenarios (overview of the workpackages see 7.4). This will be done in order to address the key drivers of the problems, the relevant policy goals, and potential extreme scenarios for future development. The knowledge on the topic specific drivers will then be combined in order to search for the cross-thematic and cross-sectoral drivers of the various problems.

(2) Development of core elements of integrated sustainability scenarios (goal definition)

FORESCENE will then shift the perspective from the problem-oriented topics towards activity fields (sectors, policy fields) such as agriculture, infrastructure/land use, and industry/economy. For those activity fields the essential elements of sustainable development will be defined in a positive manner, i.e. not only in the sense of avoiding and mitigating current problems but also through answering what the desired future should look like and which prerequisites are deemed essential for sustainability.

(3) Determination of measures and processes to be considered for change (pre-backcasting)

Having defined the future goal situation, FORESCENE will pursue the way back to the present situation and answer the question which changes and measures are required to reach that goal. First, this step will be done for each of the three activity fields. Second, the findings will be combined in order to determine the cross-sectoral measures, which could be expected to exert a multi-beneficial impact on each of the activity fields and the mitigation of the various problems addressed before.

(4) Checking the options for modelling various scenarios

Based on the textual descriptions developed, FORESCENE will address the quantitative and qualitative parameters for modelling (parameterization). Various existing models will be screened whether they can be used to model the scenarios under discussion. This will be done based on the models run by the partners, and through exchange with ongoing projects which are going to further develop models in the realm of integrated sustainability assessment, such as MATISSE, and [TranSust.Scan](#). In addition, further experts will be involved, who run relevant other models that could potentially be expanded to model future sustainability scenarios at the EU level.

(5) Development of a Business-As-Usual (BAU) scenario and example projections

For the main parameters under scrutiny, and in consideration of other BAU scenarios, e.g. economic development etc., the baseline scenario will be developed which may then serve purposes of future projections, and especially as reference for comparison with alternative scenarios.

(6) Development and modelling of alternative scenarios

The alternative scenarios (incl. extreme variants) will be further defined and - in conjunction with objective (4) - checked with the modelling options. Based on available models and resources selected scenarios will be modelled in order to simulate impacts, which can be interpreted in terms of sustainability, i.e. considering environmental, economic and social implications. Depending on the topics and activity fields, this will be performed on a regional, national and EU scale. In doing so, the deficiencies of current models and modelling approaches, the options for improvement and the repercussions for the IA processes at the EU level will also be addressed.

(7) Working out the conclusions

The conclusions of the project will comprise the following elements: (a) synthesis of the main findings of the scenario development and modelling, (b) recommendations for ongoing and future policy development with regard to the EU SDS strategy, related thematic strategies and the strengthening of the integrated approach, (c) elaboration of consequences for the Impact Assessment in order to improve the validity of the assessments and support effective ex ante policy evaluation, and (d) development of proposals for concrete extension of existing models in order to allow for the simulation of various alternative scenarios.

2.4 Advances aimed at in the research approach: the scientific objectives

(1) Develop a method to determine cross-cutting driving forces, integrating expert knowledge of various fields, while considering the priorities of policy customers and stakeholders.

Integration of different issues has often been lacking in scenario development³. Before the background of the DPSIR-concept, FORESCENE will analyze environmental problems with regard to their interrelations and search for underlying by common drivers. For instance, the use of resources in the production and consumption system is associated with the extraction and harvest of resources that impacts soil (e.g. for building infrastructures), biodiversity (e.g. by mining/quarrying) and water (e.g. by agriculture). One may expect that important driving forces, which - in a cross-cutting manner - relate to various environmental topics, are linked to the material flows of the physical economy. These flows are determined by economic characteristics of intermediate and final demand; they are influenced by technological and institutional changes, and are associated with social and cultural implications. Thus one can expect that the development of integrated scenarios will be critically depending on the determination and assessment of the cross-thematic and cross-sectoral drivers of resource use. These parameters determine the volume and structure of the societal or industrial metabolism, and thus the interaction with the environment through resource extraction, final waste disposal and physical expansion of the technosphere (infrastructures, buildings). FORESCENE is expected to make those interlinkages explicit and to discuss the implications with policy makers, esp. in the Commission, and with stakeholders.

(2) Develop essentials for integrated sustainability scenarios with regard to goals and required measures, focussing on priority policy fields (to be determined in the course of the project)

The problem-orientated way to create policy will be transferred to an actor and activity orientation. In order to assess the impacts on soil and biodiversity at a macro level, it may not be practical to address the local implications or impacts on species diversity directly, but rather to assess the implications on landscape diversity and the extension and type of agricultural cultivation. Another major pressure relates to urban sprawl and the loss of fertile land for reproduction of biomass. Finding the scientifically sound scaling is also linked to the task of finding actor relatedness of the approach. A major challenge will be to define essential aspects of sustainable development in prioritised policy fields (such as agriculture, infrastructure/land use, industry/economy). This will be made in a way which allows for minimum consensus between involved experts and stakeholders taking into consideration long-term goals and measures necessary for implementation of sustainable development; at the same time goals and measures need to be based on quantifiable parameters as a prerequisite for monitoring and modelling.

(3) Develop a scientifically sound basis for a “business as usual” and plausible alternative scenarios while considering expert consultation and the practical needs and restrictions of policy makers.

Modelling future developments will focus on backcasting, which explores the measures necessary to reach a desired future situation starting from status quo. This usually depends on a multitude of data quantifying the interaction of various influencing parameters (for details of example parameters addressed by FORESCENE see Section 7.1). On the one hand, models require a certain complexity in order to reflect the essential parameters and their interaction. On the other hand, policy makers and decision makers in industry require a limited number of overarching goals and targets for orientation which at the same time lead to manageable action for implementation in a "directionally safe" manner. FORESCENE will have to build the bridge between indicator based policy objectives and quantitative modelling through scenario building also thanks to the expert consultation. Applicability of the results shall be ensured through appropriate stakeholder involvement at various stages of scenario development.

(4) Lay the basis for improved modelling and simulation.

FORESCENE will use a couple of models to simulate part of the environmental problem complexes considered (for details see Section 7.1). Comprehensive as well as policy oriented models, which could be used to simulate essential policy options still do not exist. As it would exceed the capacity of the

³ Raskin, P., Swart, R.J., Robinson, J. (2004): Navigation the Sustainability Transition: The Future of Scenarios. In: F. Biermann et al. (Eds.): Proceedings of the 2002 Berlin Conference on the Human Dimensions of Global Environmental Change. Amsterdam, Berlin, Potsdam and Oldenbourg, pp. 53-66

project to develop new simulation models, FORESCENE will explore the use of existing models, check possible combinations for synergism between them (e.g. socio-economic/econometric models and physical models), and work out relevant options for further model development.

(5) Make use of and promote synergies with ongoing related projects

In doing so, FORESCENE will primarily make use of and evaluate the usefulness of models, which have been reviewed in projects such as A-Test, applied in projects such as MOSUS and those to be further developed in projects such as MATISSE, SENSOR and SEAMLESS. The focus of FORESCENE will be on scenario development, addressing cross-cutting drivers for selected environmental topics and multi-beneficial policy measures, use of existing information and models for forecasting and backcasting.

2.5 Relevance to policy objectives

At the EU level the EU *Sustainable Development Strategy (SDS)* was agreed at Göteborg in 2001. The international community has reinforced its commitment towards sustainability at the Johannesburg Summit in 2002. As a result all major EU policies must consider the inter-relations of environmental, economic and social impacts of policies and measures in both qualitative and quantitative terms. A key aspect of the analysis of policy from a sustainability perspective is that it requires an analysis of the constraints or thresholds relating to the behaviour of environmental systems, so that we can evaluate the implications of policy proposals and potential outcomes. Such a task is particularly challenging for the research community because of the complexity of the issues involved particularly in the area of scenario development and their effective use in policy design and evaluation.

FORESCENE is therefore designed to *support the formulation and implementation of Community policies*, esp. those in relation to the SDS, by providing scientific contributions to policies as formulated by the Commission which expressed the demand for a scientifically solid basis for scenario development in various environmental fields such as biodiversity, water, and resource use.

FORESCENE will develop scenarios and forecasting methods, which can be used as an *EU wide reference* for policy appraisal and evaluation. The created scenarios will be coherent across the various Community policy areas, and sensitive to changes as they take place.

FORESCENE will provide timely and effective scientific inputs to policy development while covering a wider field of policies than recent projects have done. One of the main objectives is to support the further development and implementation of the EU's sustainability strategy, considering environmental, economic and social requirements and institutional and cultural aspects. Sustainable development demands policies in various sectors that are mutually reinforcing, not contradictory. The project shall contribute to this requirement through *development of cross-sectoral scenarios*.

In terms of the analysis of cross-cutting issues, the analysis of sustainability limits or thresholds is poorly developed because of the complexity of drivers and the fragmentation of knowledge across discipline areas. This deficiency in knowledge poses a major problem for society in that it restricts the application of sustainability assessment and planning. However, as we look towards the development of appropriate spatial analytical techniques and concepts to take forward our thinking, the landscape perspective stands out as a particularly important avenue of research. By using the landscape concept, we are forced to consider the relationship between people and places, and to connect up analysis of social and biophysical processes at sufficiently broad geographical scales to make strategic analysis and planning possible. The importance of landscape as a focus in the sustainability debate is highlighted by the *European Landscape Convention*, which is currently awaiting ratification. The Convention asserts that landscape is a key element of individual and social well-being and that its protection, management and planning entail rights and responsibilities for everyone. The Convention also asserts that, to achieve sustainable development, it must be based on a balanced and harmonious relationship between social needs, economic activity and the environment. It concludes that only by recognising the importance of landscape, Society will be better placed to achieve the goals of sustainable development that have now come to underpin a wide range of social, economic and environmental policy. By the development in integrated scenario techniques, FORESCENE will allow the linkages between policies framed for land use or landscape to be better traced through to other important environmental sectors.

The need for such an approach is, for example illustrated in the new agendas set by the European *Water Framework Directive*, which will fundamentally change the way in which land and water are managed within the EU. It expands the scope of water protection to all waters, surface and ground water, and sets clear targets and deadlines. Member states are committed to bringing their surface and ground waters to good status within 15 years of the date of entry into force of this Directive. The Directive promotes an integrated approach to river basin management that is underpinned by a comprehensive programme of measures derived from scientific, technical and economic analysis. It also requires that the design and operation of management strategies are informed of the results of wide ranging public consultation. Although a significant amount of preliminary work has now been undertaken in relation to the implementation of the Directive, many important decisions on how to achieve its goals and what measures and legal instruments will be required have yet to be made. This uncertainty and lack of information is reflected in the wide range of estimates for the associated costs and benefits that will be involved, and what the costs and requirements are in relation to training. The development of integrated scenarios such as those proposed here will enable policy strategies to be better explored and evaluated.

FORESCENE will contribute to the integration of Community policies through the *analysis of cross-cutting driving forces* for environmental problem issues such as water, biodiversity, and resources/waste, and through addressing these priority policy fields in terms of common sustainability goals and test what *response measures* are more suitable because of their *cross-cutting effect*, i.e. policy measures with multi-beneficial effect. In doing so it will also foster integration of environmental aspects into sectoral policies such as on agriculture, transport, production and consumption.

FORESCENE will support the improvement of the relationship between research and policy through participatory processes and increased exchange between researchers and involved DGs at various stages of the project. The need to integrate our understanding of biophysical and socio-economic systems is particularly acute in the area of biodiversity, for example, where the strategies for conservation and management in a multifunctional landscape have to take account of the fact that stakeholders often view biodiversity as just one function amongst many to be provided or conserved, resp.. The problem is well illustrated by the trade-offs that need to be considered between the requirements of efficient and economically sustainable agricultural production and the desire by people for a range of additional environmental goods, including biodiversity. The design of future agri-environmental schemes will have to take account the need to achieve minimum levels of intervention to sustain the biodiversity level, the willingness of people to meet the cost involved in implementing such a strategy, the levels and type of biodiversity 'output' that is socially desirable and economically acceptable. The techniques and deliverables provided by FORSCENE will help overcome such difficulties.

FORESCENE is also expected to support the further development and implementation of the *Thematic Strategies of the 6th EAP*⁴. Beyond minimising and mitigating environmental impacts on certain media such as air and water, there is a need to base policy on a better understanding of environmental impacts across these media as well as the complex cause-effect relationships. More attention also needs to be paid to inter-linkages between environment and other, sector-oriented policy areas, so that policies can become mutually supportive and more effective. Moreover, with a view to enhance European competitiveness, environmental policy needs to be developed on a sound economic and scientific basis. FORESCENE will reflect the main features of the thematic strategies defined by the Environmental Council such as

- a broad analysis of specific themes, looking at the relevant issues and linkages both within the field of environment as well as across different policies and sectors,
- consideration of a broad range of options and a varied policy mix (including the use of more innovative tools), to deal with the identified problems in an effective way,
- a longer term perspective, exploring not only short to medium but also longer-term aspects of proposed policy issues and initiatives.

⁴ Thematic Strategies - Progress Report. Environmental Council, 20 Dec 2004

FORESCENE will support the development of an EU policy on *sustainable production and consumption* in drawing up scenarios of future resource use. Consumption of materials and energy in industry and households is regarded as one key driver of different environmental pressures and interlinked with various environmental issues such as loss of top-soil through housing and transport activities, eutrophication of ground water and the marine environment. Cross-sectoral strategies and measures such as to increase resource efficiency, minimize waste and emissions may be regarded as key elements of a cross-thematic policy approach that relieves pressure from the rural as well as urban environment.

FORESCENE will not only regard the problems but also search for the *positively defined options for development*. If EU policies were only to avoid certain problems, the outcome would probably be different from a policy that follows a positive vision of the future. For backcasting those measures will have special importance which promise to generate multiple and productive effects. For instance, increase in resource efficiency is also one promising factor deemed essential to foster innovation and thus competitiveness of the EU economy while mitigating the pressure to the environment and enhancing economic growth.

FORESCENE will contribute to the development of the *European Research Area* through the exchange of and further development of methods on sustainability scenarios, forecasting and backcasting between researchers from different member states and hence provide a common EU wide reference for scenario building and integrated environmental assessment.

FORESCENE will provide results that will

- support policy makers and the Commission through improved orientation and reference in the further development and pursuit of the Sustainable Development strategy and the related thematic strategies;
- contribute to the development and implementation of the Impact Assessment at the EU level;
- provide a reference for future outlooks, e.g. EEA, and state-of-development reports of the EU;
- define the basis for further development of modelling tools to support scenario oriented forecasting and backcasting in the relevant fields;
- produce results that can be directly used by other ongoing EU projects such as MATISSE and TranSust.Scan thus producing synergies with that project.

3 Workplan for whole duration of the project

3.1 Introduction - general description

The project will start with a kick-off meeting in Brussels in order to select and define the environmental problem issues to be further dealt with in detail, such as water, biodiversity/soil/landscape, and resources/waste. For that purpose the core partners will meet with representatives of the relevant DGs.

In **Workpackage (WP) 1** each of the core partners will focus their analysis on one of the selected environmental topics each. Each analysis will consider problems and policy objectives, and important driving forces considering also economic and social aspects. The analysis will result in three reports, which will be combined to provide the input for the first integration workshop.

The first integration workshop will be held in Brussels. It will be attended by all partners of FORESCENE as well as invited DGs representatives as well as other stakeholders. The aim of the workshop will be to discuss the results of the “topical analysis” and address the driving forces, which play a cross-cutting role with respect to different environmental topics. The workshop shall also assess priority fields of action where cross-cutting drivers should be controlled (which will be the focus in the subsequent phase of the project).

Workpackage 2 changes the perspective from a problem orientation to an activity or policy perspective. It will work out goals and potential measures to reach those goals for three selected policy fields, such as agriculture, infrastructure/land use, industry/economy. This will be done through intensive expert involvement during three workshops.

The results of the first integration workshop in the end of WP 1, together with a guidance paper for the proceeding of the three workshops, will form the input for these three events. Each of them will be held at different locations in Europe and organized by partners who have relevant expertise and networking relations to experts and stakeholders with regard to the activity fields. The workshops will be two days events, where the goals shall be discussed on the first day, and the necessary measures to reach them on the second day. The results of the workshop will be documented through the organizers in assistance with one of the core partners each.

The results of the activity field workshops will then form the basis for the second integration workshop in Brussels. All partners of FORESCENE will participate and this will again involve relevant DGs and stakeholders. The aim will be to discuss the results reached so far, and focus on essential elements for sustainability in those activity/policy fields and assess which policy measures may have a positive cross-cutting effect with respect to different fields and sectors.

The subsequent **Workpackages 3 to 5** will then use the results of WP1 and WP2. The core partners will in parallel analyse the options for parameterization and simulation/modelling (WP3), develop a Business-As-Usual (BAU) scenario (WP4), as well as alternative scenarios, which proceed towards sustainability (WP5). WP3-5 will be closely interrelated. WP4 will concentrate on prognosis of future trends if no specific action is taken to enhance sustainability; here the key question is how far past, recent and ongoing trends can be prolonged to future periods, or in other words how long certain base assumptions on the development can be conceived as valid. According to a growing variation along the time axis WP4 will provide a corridor of BAU development, showing the range between worst and best case of development with no specific SDS intervention, while still assuming a realistic range of framework conditions. WP5, on the contrary will explore alternative scenarios where essential sustainability criteria for the main action fields will be met. The future desirable situation will be described, and using a back-casting approach, adequate measures will be defined (preferably the multi-beneficial measures addressing the cross-cutting key driving forces determined by WP1/2) and modelled. In addition, and depending on the width of the variation already covered by the BAU development, WP5 may also consider some extremely negative development paths in order to assess the consequences of either lacking or failing policies. WP3-5 will also involve experts, thereby providing effective exchange with TranSust.Scan, as well as MATISSE and SENSOR etc. In searching for adequate options for modelling, FORESCENE will expand the scope of these projects, and also develop aspects of models not dealt with in them. This will be done through meetings with experts and/or small workshops and written consultation of selected experts for relevant models.

In **Workpackage 6** the results of WP1-5 will then be used to derive conclusions and recommendations for policy development, improvement of Impact Assessment methodologies, and further development of official information systems of the EU. It will describe the forecasting and alternative scenarios and provide options for further development of existing models for simulation of those sustainability scenarios (WP6).

The final results of FORESCENE will be presented at the third major workshop held in Brussels. All project partners will participate; representatives of DGs will be invited together with stakeholders from industry and NGOs.

Workpackage 7 will establish and implement the operational, financial and scientific management structure of FORESCENE. Internal communication structures and information flows will be established. Project progress will be monitored and evaluated. Especially alongside the joint meetings with TranSust.Scan there will be specific review and assessment of the project results and progress towards the objectives.

An joint Advisory Board for FORESCENE and TranSust.Scan will be set up to assure quality within FORESCENE by securing internal consistency within the project and its interlinkages to TranSust.Scan.

FORESCENE will use the Internet as main communication tool for the internal as well for the external communication and the dissemination of the project results. A FORESCENE web portal will be established which will provide access to the scenarios and their analyses. As communication platform it will ensure a close dialogue with the stakeholders within and outside the Commission.

Involved modelling

FORESCENE will use several different models for different purposes. The models can be categorized according to their use or scope. To be able to consider changes over time, i.e. climate change, demographic development, changes in resource use etc. FORESCENE will use dynamic models whenever possible. Examples of existing applicable models in the water domain are TOPMODEL, which is a versatile hydrological model at catchment scale based on a simple topographic description and runoff mechanisms including both saturation excess and infiltration excess runoff, and the HBV model, a rain-fall-runoff model, which includes conceptual numerical descriptions of hydrological processes at the catchment scale. Yet another model to be explored is CATCH, a decision support system for catchment-based water management. In the land use sector, the dynamic models considered will include CLUES⁵ and IMPEL⁶. Both can potentially be linked to the output of other sectoral models relating to climate, demographics or economic change, and give insights into changing allocation of land use resulting in changes within different sectors of the economy, and its potential impacts on soil and agriculture. Biodiversity issues will be considered by exploring the use of the MIRABEL model, currently being extended by the BIOPRESS project⁷, which provides a set of tools for an integrated review and analysis of biodiversity in European landscapes based on the DPSIR framework.

Some important parameters in these models and in the scenarios to be developed are climatic characteristics of the modelled region besides soil physical properties, vegetation cover and land-use. Dynamic vegetation models such as 3-PG will be scrutinized and also the forest-soil model ForSAFE which describes both forest development and soil chemistry dynamically. Important features of such models are the ability to consider climate change and its influence on vegetation growth rate, water balance and soil fertility in ecosystems. Models that are being developed within the SEAMLESS and SENSOR projects will also be used.

An important aspect of the model out-puts and the different scenarios are that they get visualised in a comprehensive way to stakeholders. A clear image must be created for providing insights into the consequences of different actions both in the present and in the future. This is important not only for conveying the results of the scenario building but also to facilitate a dialog between stakeholders and modellers. The scenarios are to be described by the aid of geographical information systems (GIS) by which key parameters can be mapped, change over time can be presented and can to some extent be made interactive. An important aspect of the scenario presentation is that the uncertainty and variability in key parameters also are accounted for. Commonly a model out-put consists of a single trend line, time series of figures and numbers. The variability in out-put is however seldom presented. This can be done by descriptive statistics in the form of animated charts and diagrams displaying development trends and their correlation with key parameters. The BAU- and other scenarios can thus easily be compared and the effect of different actions made easily understood. All of these methods for visualisation are suited for distribution and viewing on the internet thus a dialog about results can be established early in, and continuously updated through, the scenario building process.

Examples of what is described above can be found on the www-sites: www.gapminder.org and www.basinfutures.net/play_gb_quest.cfm

In addition to the formal dynamic models described above, FORSCENE will explore the use of empirical models and causal loop analysis for the construction and review of scenarios. The former will be based on the concept of land cover accounts at European scales, currently being developed by the EEA⁸. When linked to a GIS, such accounts offer the potential for representing spatially how changes in

⁵ <http://www.dow.wau.nl/clue/>

⁶ <http://www.geo.ucl.ac.be/LUCC/research/endorsed/02-impel/IMPEL.html>

⁷ <http://www.creaf.uab.es/biopress/>

⁸ Jean-Louis Weber, J-L, Paramo, F & Breton, F., Haines-Young R. Tomáš Soukup, T Kupková, L. (2003) Development of Land and Ecosystems Accounts in Europe. Implementation of land cover accounts Discussion of accounts of land use functions London Group meeting, Rome, 5-7 November 2003; http://eea.eionet.eu.int/Public/irc/eionet-circle/leac/library?l=/reportsposters/reports_notes&vm=detailed&sb=Title

particular economic sectors may impact on land cover through an analysis of land use/economic sector, land use/land cover relationships. As a result the costs and implications of changes in land cover under different economic, social or biophysical scenarios can be explored. Group-based, causal loop analysis using modelling tools such as STELLA⁹ will be used alongside the outputs from the dynamic and empirical models to explore with stakeholders the assumptions underlying different scenarios and the ways in which they are linked.

With regard to the resources and waste topics, FORESCENE will build on the framework of economy-wide material flow analysis (EW-MFA) and derived indicators which had been developed in conjunction with EUROSTAT¹⁰ and applied in several pioneering reports of the EEA¹¹. EW-MFA considers all material inputs and outputs of an economy from the environment and other regions in a balanced manner. The accounting system is compatible with the SEEA of the UN, providing a physical satellite of the overall accounting system. EW-MFA provide indicators on the input, output, consumption, physical growth, trade balance and material productivity of an economy. Key indicators are the Direct Material Input (DMI), the Domestic Material Consumption (DMC), and the Total Material Requirement (TMR), the share of hidden flows and the proportion of domestic and foreign resource requirements. These indicators can be provided for the economy as a whole as well as for different branches, based on input-output analysis. The latter will be used, based on monetary tables, and combined with physical vectors of the indicators (differentiated by resource groups, e.g. biotic, abiotic resources).

In combination with information about technological changes and institutional effects, this will be used to provide a framework for modelling scenarios of the physical economy and to use it for the modelling of selected cases, based on available models. In order to do so, synergies with the MATISSE project will be explored, esp. with the case study on dematerialization, resource use and waste (WP 5) and case study on environmental technology, also considering the transition of the physical economy and related socio-economic impacts (WP7). For that purpose, a coupling with the E3ME model is planned in MATISSE, which could provide a useful input to FORESCENE. Similarly, the use of the economic models of TranSust.Scan for modelling options of dematerialization will be checked in the course of FORESCENE (joint modelling workshop and potential involvement of selected experts of TranSust.Scan and ALARM in WP 3 of FORESCENE). In the same vein, FORESCENE will also consider to make use of the results of the MOSUS project, which are expected to be available until the end of 2005. In that project the GLODYM model has been used in combination with physical data on material resource use in order to model the development of resource consumption and productivity in the EU. That model, although applicable at the global scale, has only limited number of branches. FORESCENE will involve modelling experts in order to check the potentials for using more elaborate models as has been developed for single member states, e.g. the German Panta Rhei, for the possibilities of further extension towards the EU level, and to explore other options for extended modelling. In doing so, practicability and efficiency in terms of an effective sustainability impact assessment will be considered as essential.

⁹ <http://www.hps-inc.com/>

¹⁰ EUROSTAT (2001): Economy-Wide Material Flow Accounts and Derived Indicators: A methodological Guide <http://europa.eu.int/comm/eurostat/Public/datashop/print-catalogue/EN?catalogue=Eurostat&product=KS-34-00-536--C-EN>

¹¹ EEA (Ed.) 2001: Total Material Requirement of the European Union
a. European Environment Agency Technical report No 55, Copenhagen, 37 pp.

b. Technical part: Technical report No 56, Copenhagen, 61 pp.

PDF-Download: http://reports.eea.eu.int/Technical_report_No_55/en/

http://reports.eea.eu.int/Technical_report_No_56/en/

EEA 2002: Environmental Signals 2002. Benchmarking the millenium. Chapt. 12. Waste and material flows. Environmental assessment report No 9, Copenhagen

http://reports.eea.eu.int/environmental_assessment_report_2002_9/en/signals2002-chap12.pdf

EEA (Ed.) 2003: Europe's environment: the third assessment. Chapt. 2. Material Flows. Environmental assessment report No 10. http://reports.eea.eu.int/environmental_assessment_report_2003_10/en/

http://reports.eea.eu.int/environmental_assessment_report_2003_10/en/kyiv_chapt_02_0.pdf

External experts

Besides the in-house expertise of the partners, FORESCENE will also involve external experts in order to integrate all relevant know-how, broaden the scientific knowledge base for scenario development and modelling, and use synergies of networking for policy relevant research. External experts will be involved at various stages of the project. Most of them will be invited to participate in and contribute to workshops

The external experts to be involved will be determined in the course of the project according to the tasks of the work packages. FORESCENE will establish and use links to relevant institutions and networks, such as the European Council for Nature Conservation (ECNC), LANDSCAPE EUROPE, the European Research Network for Sustainable Development of Multi-functional Landscape (Landscape Tomorrow), the UNESCO network Hydrology for Environment and Life Policy (HELP), the International Hydrological Program (IHP), the International Water Association (IWA), the Stockholm International Water Institute (SIWI), the network Harmonised Modelling Tools for Integrated Basin Management (HARMONI-CA), The Integrated Assessment Society (TIAS), the International Society for Industrial Ecology (ISIE), the International and the European Society for Ecological Economics (ISEE & ESEE), the international network on material flow analysis (ConAccount), the UN Millennium Ecosystem Assessment group, and the IPCC.

In the context of the Workpackages 3-5 a selected number of experts will be asked to provide written input to targeted questions, such as the applicability, potential extension and crossbreeding of models and draft papers (e.g. on alternative scenarios). For instance experts like Sandrine Petit, Centre for Ecology and Hydrology - expert on MIRABEL/BIOPRESS or Bernd Meyer, University of Osnabrück - expert on the economic-environmental model "Panta-Rhei" could be shortlisted.

Linkage of the projects FORESCENE and TranSust.Scan

The Commission advised the consortium of TranSust.Scan to exploit synergies - such as the topic of natural resources - with the project FORESCENE by establishing links, since there is substantial complementarity between both projects as to the topics, methods and dissemination plans.

Involvement of the EU Commission and the European Institutions

Representatives of the EU Commission will be involved in the project at several stages in order to define the demand for scientific policy support and to provide information about the options and limitations of policy development. Besides the regular exchange with the project manager in the Commission, usually by email, various representatives will be invited to participate in meetings and provide comments to draft reports. In the inception phase the project design will be discussed with representatives from the Commission and delineated according to the requirements of DG Research and DG Environment. These representatives will also be asked which other DGs should participate in the first meeting (WP1).

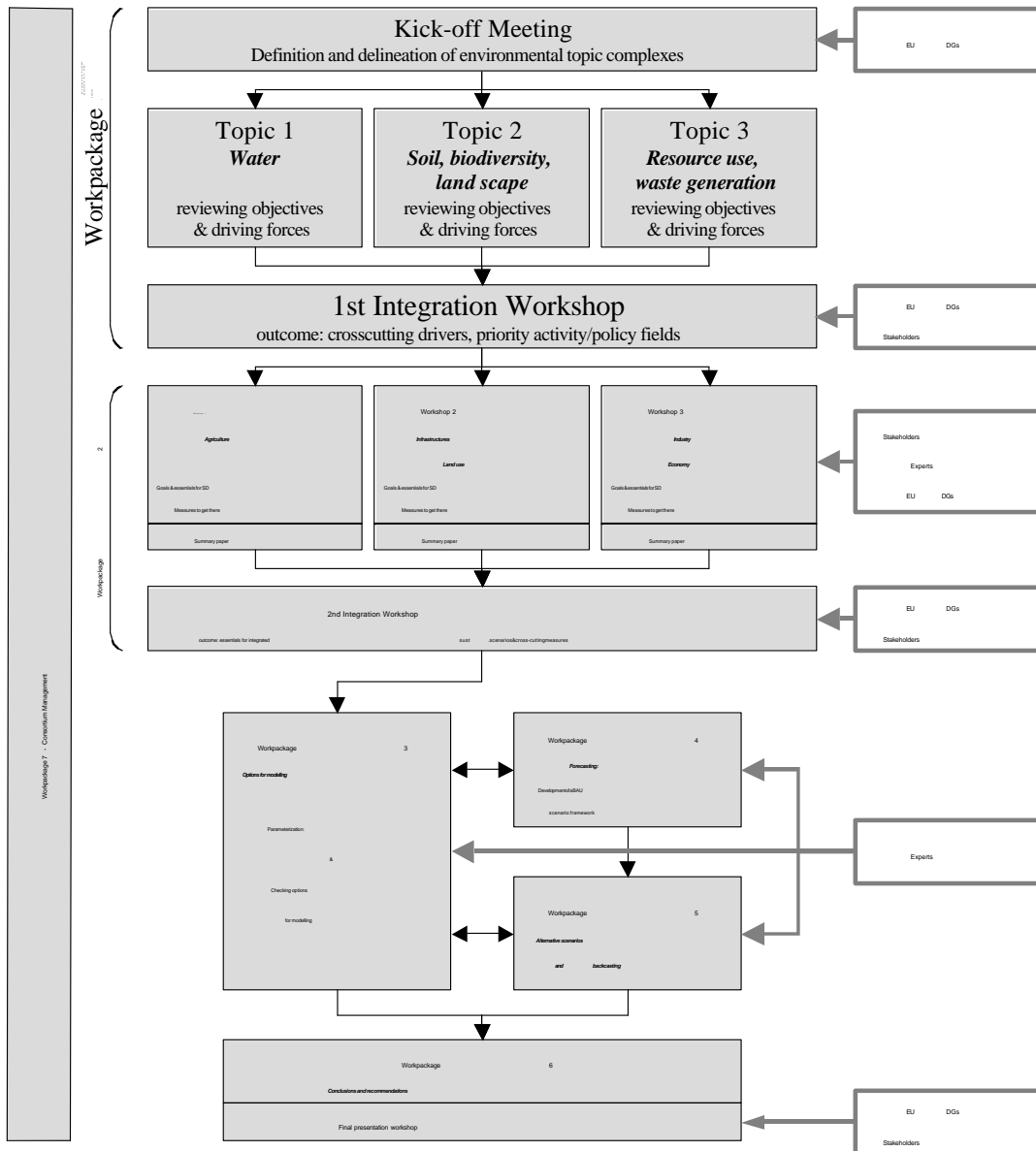
The focus of the project with regard to environmental topics and priority policy fields will be determined in exchange with the Commission in the course of the project. In the first and second integration workshops, as well as the final workshop (all three will take place in Brussels) several DGs will be invited to participate (WP1, WP2, WP6). Depending on the outcome of WP1 and the delineation of priority policy fields such as agriculture, infrastructure/land use, and industry/economy, representatives of various DGs like DG Agriculture and Rural Development, DG Transport and Energy, DG Enterprise and Industry will be invited in addition to RTD and ENV DGs (WP2). One may expect that the project will also support policy development, which relates to DGs Trade, Enlargement, Economic and Financial Affairs, Internal Market and Services, Employment, Social Affairs and Equal Opportunities. The appropriate way of involvement will be explored and agreed in the course of the project.

In order to ensure an adequate feed-back and cooperation with those institutions which already use scenarios and provide forecasts and underlying basic data, EEA and Eurostat will be regularly informed about the progress of the project and invited to participate in essential meetings.

Stakeholder participation

Stakeholders will be involved at different stages of the project in order to integrate their priorities in the development of the sustainability scenarios. Stakeholders will be invited to meetings and workshops to participate, and may also be asked to provide written input to the project process. No reimbursement of costs is foreseen. Stakeholders will represent different groups of society.

3.2 Graphical presentation of work packages



3.3 Deliverables list

Deliverables list					
Del. no.	Deliverable name	WP no.	Nature	Dissemination level	Delivery date (project month)
D.0	Setup and update of an Internet portal	7	O	PU	1
D.1.1	Mapping of related projects and policies and their relevance to FORESCENE.	1	R	PU	2
D.1.2	Background paper for discussion at the 1 st Integration Workshop on environmental topic complexes describing the main environmental problems, economic and social implications, important drivers, and related policy objectives	1	R	PU	5
D.1.3	Summary report of the 1st Integration workshop	1	R	PU	6
D.2.1	Guidance Paper for the workshops	2	R	PU	8
D.2.2.1	Summary report of the workshop on the activity/policy field 1	2	R	PU	11
D.2.2.2	Summary report of the workshop on the activity/policy field 2	2	R	PU	11
D.2.2.3	Summary report of the workshop on the activity/policy field 3	2	R	PU	11
D.2.3	Background document for discussion at the 2 nd Integration Workshop	2	R	PU	12
D.2.4	Summary report of the 2 nd integration workshop	2	R	PU	13
D.3.1	Progress report on parameterization of narratives of SSEs	3	R	PU	15
D.3.2	Technical report on possibilities for modelling sustainability scenarios	3	R	PU	27
D.4.1	Technical report describing baseline scenario assumptions and BAU scenario	4	R	PU	20
D.4.2	Model projections for selected target indicators	4	R	PU	20
D.5.1	Technical report with description of alternative sustainability scenarios (in comparison to BAU)	5	R	PU	25
D.5.2	Report on model simulations for selected target parameters depending on available models	5	R	PU	27
D.6.1	Summary report of the findings for the Final Workshop	6	R	PU	30
D.6.2	Final report	6	R	PU	30

3.4 Work package descriptions

WP 1: Description of problem areas, review of objectives and indicators and determination of cross-cutting driving forces

Work package number	1	Start date or starting event:			Month 1	
Participant id	WI	LUND	UNOTT	REC	SERI	DEART
Person-months per participant	6	4	4	0,1	0,1	0,1

Objectives

- Selection of topic complexes to be covered, in exchange with the relevant DGs
- For each topic complex: description of main environmental problems, economic and social implications, important drivers, and related policy objectives
- Addressing the cross-cutting drivers

Description of work

Task 1.1: Delineation of topic complexes

- Description and review of the SDS objectives and the ongoing policy development at EU level;
- Mapping of related projects and policies
- Definition and delineation of environmental topic complexes to be dealt with in exchange with the EU Commission (relevant DGs);

Task 1.2: Environmental problems, policy objectives and indicators

- For each topic complex such as
 - water, (*Task 1.2.1*)
 - soil/biodiversity/ landscape, (*Task 1.2.2*)
 - resource use/waste, (*Task 1.2.3*)
 the relevant environmental problems will be highlighted; existing policy objectives and available indicators will be reviewed; existing knowledge on driving forces determining the environmental pressure will be reviewed; in doing so, relevant economic and social implications (related causes or effects) will be considered, with a focus on the search for potentially cross-cutting driving forces;

Task 1.3: Determination of cross-cutting drivers

- Determination of cross-cutting driving forces which relate to different environmental pressures and topics (e.g. investment in infrastructure which exerts pressure to resource use, waste generation, to soil, landscape diversity and biodiversity) and assessment of priority policy fields

Deliverables

- D1.1:** Mapping of related projects and policies and their relevance to FORESCENE.
- D1.2:** Background paper for discussion at the 1st Integration Workshop on environmental topic complexes describing the main environmental problems, economic and social implications, important drivers, and related policy objectives
- D.1.3:** Summary report of the 1st Integration workshop

Milestones and expected result

- Month 1:** Kick-off-meeting in Brussels with Commission services and in accordance with TranSust.Scan to agree on the main lines of project development.
- Month 6:** 1st integration workshop in Brussels with Commission services and other stakeholders in order to address the key cross-cutting drivers for the different topics.

WP 2: Development of core elements of integrated sustainability scenarios (Goal definition & Pre-Backcasting)

Work package number	2	Start date or starting event:			Month 7	
Participant id	WI	LUND	UNOTT	REC	SERI	DEART
Person-months per participant	4	0,75	0,75	3,25	3,25	3

Objectives

- Translation of the policy objectives of topic complexes to goals for major activity and policy fields
- For each activity field: description of Sustainability Scenario Elements (SSEs)
- Development of narratives of integrated Sustainability Scenarios (ISS)
- For selected policy fields: Pre-Backcasting: addressing requirements and potential measures deemed promising to reach the defined ISS, focussing on cross-cutting measures

Description of work

Task 2.1: Essential elements of sustainability

- Delineation of activity/policy fields to be covered such as
 - agriculture (*Task 2.1.1*)
 - infrastructures/built environment (*Task 2.1.2*)
 - industry/economy (*Task 2.1.3*)
- Review of existing scenarios relevant for the activity fields and important elements for each of the topics
- Working out essential elements of sustainability („SSE“) for each of the topic complexes;

Task 2.2: Measures, Pre-backcasting

- For selected activity/policy fields
 - agriculture (*Task 2.2.1*)
 - infrastructures/built environment (*Task 2.2.2*)
 - industry/economy (*Task 2.2.3*)
 addressing requirements and potential measures deemed promising to reach the ISS

Task 2.3: Integrated narrative scenarios and cross-cutting measures

- Development of integrated narrative scenarios for sustainability considering essentials of environmental, economic and social development)
- Assessing cross-cutting measures with multiple beneficial effect
- Definition of processes and parameters to be considered for quantitative assessment

These steps shall be supported by expert involvement through workshops

Deliverables

- D.2.1:** Guidance Paper with checklist of questions for the workshops
- D.2.2.1:** Summary report of the workshop on the activity/policy field 1
- D.2.2.2:** Summary report of the workshop on the activity/policy field 2
- D.2.2.3:** Summary report of the workshop on the activity/policy field 3
- D.2.3:** Background document for discussion at the 2nd Integration Workshop
- D.2.4:** Summary report of the 2nd integration workshop

Milestones and expected result

Month 9: 3 Workshops on the activity/policy fields

Month 12: 2nd integration workshop in Brussels with Commission services and other stakeholders to address the core elements of sustainability in the priority activity fields and key cross-cutting measures for implementation

WP3: Checking the options for modelling

Work package number	3	Start date or starting event:			Month 13	
Participant id	WI	LUND	UNOTT	REC	SERI	DEART
Person-months per participant	4	5	4	0	0	0

Objectives

- Translate the narratives to quantitative and qualitative parameters using as far as possible available indicators
- Review of existing models which can provide relevant information
- Description of the potentials and deficiencies of selected models
- Checking possibilities for further development of models (incl. combination)

Description of work*Task 3.1: Framework for systems based analysis and review of indicators*

- Outline of a general framework for systems based analysis and assessment, drawing from existing and ongoing work
- Review of available indicators for the important cross-cutting drivers and measures, considering their environmental, economic and social performance

Task 3.2: Review of simulation models

- Review of existing simulation models capturing specific and cross-cutting drivers, key processes etc., on the basis of and in interlinkage with projects such as A-Test and MATISSE, as well as of additional tools related to the specific topics

Task 3.3: Options for improved modelling

- Selection of those tools which capture the most relevant aspects or which seem most promising for extension to include essential parameters and goal functions so far missing
- Description of the potentials and deficiencies of selected models and checking possibilities for further development of models (incl. combination)

In this workpackage there will be expert involvement through small workshop(s) and/or consultation process

Deliverables

D. 3.1: Progress report on parameterization of narratives of SSEs

D.3.2: Technical report on possibilities for modelling sustainability scenarios

Milestones and expected result

Month 14: Joint modelling workshop with TranSust.Scan to explore the potentials for modelling the scenarios developed so far

Month 15: Progress report on parameterization

Month 27: Draft technical report on possibilities for modelling sustainability scenarios

WP 4: Forecasting: Development of a BAU scenario framework and example projections

Work package number	4	Start date or starting event:			Month 16	
Participant id	WI	LUND	UNOTT	REC	SERI	DEART
Person-months per participant	4	3	3	0	0	0

Objectives

- Development of a forecasting framework
- Description of available parameters

Description of work

Task 4.1: Generic framework for forecasting

- Review of existing forecasts for selected topics and activity fields
- Cross-check of methods used so far for forecasting with basic assumptions, parameters and processes deemed necessary to consider
- Description of a generic framework for forecasting focussing on cross-cutting driving forces for the topic complexes considered

Task 4.2: Baseline for integrated BAU scenario

- Generation of a baseline for an integrated BAU scenario; possibly with variants according to varying basic assumptions

Task 4.3: Examples of forecasts

- Provision of examples of forecasts of selected indicators, based on available methods of projection or modelling

Deliverables

D.4.1: Technical report describing baseline scenario assumptions and BAU scenario

D.4.2: Model projections for selected target indicators

Milestones and expected result

Month 18: Progress report on BAU

Month 20: Progress report on model projections

WP 5: Development of alternative scenarios and backcasting

Work package number	5	Start date or starting event:			Month 19	
Participant id	WI	LUND	UNOT	REC	SERI	DEART
Person-months per participant	3,5	3,5	4,5	0	0	0

Objectives

- Development of alternative scenarios (in comparison to BAU) which proceed towards sustainability
- Determination of effective measures to reach the sustainability goals by means of backcasting
- Development of a methodological framework to produce and further develop ISS

Description of work

Task 5.1: Narratives for alternative scenarios

- Taking up and refining the goals and measures and related sustainability scenario elements (SSEs) as defined in WP2
- Selection and refining of narratives for two alternative integrated sustainability scenarios (ISSs)

Task 5.2: Backcasting

- Work out the measures deemed promising to reach sustainability goals (backcasting)

Task 5.3: Simulation of alternative scenarios

- Translating the scenarios – in exchange with WP 3 - into a quantifiable form which covers cross-cutting driving forces and processes essential for backcasting, as far as possible based on existing indicators, incl. those used for BAU;
- Simulation of alternative scenarios as far as possible with available models; exchange with WP3;

In this workpackage there will be expert involvement through small workshop(s) and/or consultation process

Deliverables

D.5.1: Technical report with description of alternative sustainability scenarios (in comparison to BAU)

D.5.2: Report on model simulations for selected target parameters depending on available models

Milestones and expected result

Month 22: Progress report on alternative sustainability scenarios

Month 24: Joint scenario discussion with TranSust.Scan, experts and invited Commission service members as basis for consistent scenario development

Month 25: Progress report on model simulations

WP 6: Finalising the conclusions for dissemination activities

Work package number	6	Start date or starting event:			Month 27	
Participant id	WI	LUND	UNOT	REC	SERI	DEAR T
Person-months per participant	4	2	2	0,1	0,1	0,1

Objectives

- Conclusions for policy development, focus on SDS implementation
-
- Recommendations for Impact Assessment
- Descriptions of relevant options for further development of models

Description of work

Task 6.1: Recommendations for policy development

- Recommendations for ongoing and future policy development with regard to the implementation of the EU SDS strategy and the strengthening of an integrated approach
- Elaborating the consequences for Impact Assessment in order to improve the validity of the assessments and support effective ex ante policy evaluation
- Developing proposals for concrete extension of existing models in order to allow for the simulation of various alternative scenarios
-

Task 6.2: organising the final workshop in cooperation with TranSust.Scan Task 6.3: Dissamination of the project outputs

- Editing of the final report
- Dissamination of all final FORESCENE publications
-

Deliverables

D.6.1: Summary report of the findings for the Final Workshop

D.6.2: Final Report

Milestones and expected result

Month 29: Draft final report

Month 30 Final Presentation workshop in Brussels

Month 30: Editing of the final report and dissamination of all final FORESCENE publications

WP 7: Consortium Management

Work package number	7	Start date or starting event:			Month 1
Participant id	WI				
Person-months per participant	5,75				

Objectives

- Secure the effective and efficient operational, financial and scientific management of the project
- Facilitate the project internal communication to insure integration of work packages, theoretical and empirical work, diverging approaches and the necessary iterations identified in the implementation plan.
- Assure quality within FORESCENE by securing internal consistency within the project, and by monitoring the effectiveness and impact of FORESCENE in relation to its goals..
- Setting up an Advisory Board to assure quality within FORESCENE and its interlinkages to TranSust.Scan.
- Review and assessment of the project results and progress towards the objectives by the Advisory Board
- Facilitate the internal and external communication

Description of work

This work package will establish and implement the operational, financial and scientific management structure of FORESCENE. Two full consortium assembly meetings and 4 Scientific Core Group Meeting will be organized as far as possible back to back with the thematic workshops. Internal communication structures and information flows will be established. Project progress will be monitored and evaluated. Especially alongside the joint meetings with TranSust.Scan there will be specific review and assessment of the project results and progress towards the objectives. To ensure information exchange between FORESCENE and TranSust.Scan, there will be regular communication between the two consortia on the project coordination level.

An joint Advisory Board for FORESCENE and TranSust.Scan with six members will be set up to assure quality within FORESCENE by securing internal consistency within the project and its interlinkages to TranSust.Scan. The board is expected to meet three times, preferably in conjunction or back-to-back with other meetings

FORESCENE will use the Internet as main communication tool for the internal as well for the external communication and the dissemination of the project results. A FORESCENE web portal will be established which will provide access to the scenarios and their analyses As communication platform it will ensure a close dialogue with the stakeholders within and outside the Commission.

In cooperation with the its partners the co-ordinator will prepare a publication plan based on the Internet platform, ranging from policy recommendations emerging from the project to scientific publications.

The website will be regularly updated by the co-ordinator.

Deliverables

D.0: Setup and update of an internet portal

Milestones and expected result

Month 1: Scientific Core Group Meeting and joint meeting with the Advisory Board

Month 6: Consortium Assembly Meeting

Month 12: Consortium Assembly Meeting

Month 14: Scientific Core Group Meeting and joint meeting with the Advisory Board

Month 24: Scientific Core Group Meeting

Month 30: Scientific Core Group Meeting and joint meeting with the Advisory Board

