

Assessing impacts of EU agri-environmental policies and technical innovations on farming systems sustainability: how to translate policy questions into SEAMLESS-IF compatible scenarios?

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Scenario approaches in environmental and policy assessment studies are increasingly applied in Integrated Assessment and Modelling (IAM) frameworks. The SEAMLESS-Integrated Project aims at developing such an IAM framework to assess, ex-ante, impacts of agricultural, environmental and rural development policy options and agro-technical innovations on the sustainability of agricultural systems and on sustainable development at large. The main challenge of this project is to develop a generic framework, which translates a diversity of policy experts' questions into scenarios that can be implemented in the modelling chain of the framework. The definition of scenarios has to comply with the aim of the framework: to assess impact of different change factors across hierarchical levels (from field to global). Accordingly, a scenario definition and assessment procedure has been developed which is subject of this study. The procedure is composed of three main phases. In the pre-modelling phase integrative modellers, who set up the IA project in the SEAMLESS-Integrated Framework (S-IF), interact with policy experts to capture and rephrase their questions into a set of scenarios. These scenarios describe through three sets of parameter i) the exogenous driving forces (e.g. demographic and climatic evolutions) ii) the agricultural policy context (i.e. combination of po-

licies and policy options) and iii) the agro-technical context (i.e. technical innovations). To complete this phase Policy experts have to select key indicators used to assess scenarios. The modelling phase corresponds to the implementation of scenario parameters into S-IF by the integrative modeller, who then runs a suitable model chain to calculate indicator values for each scenario. Finally the post-modelling phase allows reviewing and analysing assessed scenarios. The first phase of this procedure has been evaluated with policy experts at regional and national levels, while for the second and third phase two prototypes of the SEAMLESS-IF have been tested.

Keywords: scenario, impact assessment, agricultural systems