

PROTOCOL-BASED DEVELOPMENT OF STORYLINES FOR FUTURE EUROPEAN AGRICULTURE: EUR-AGRI-SSPS

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Integrated assessments of agricultural systems are valuable tools to provide information for decision-makers on farms, in federal and national governments, and international organizations. They frequently require storylines to define socio-economic framework assumptions. A set of qualitative storylines, collectively known as the Shared Socio-economic Pathways (SSPs), is available to inform integrated assessments at large spatial scales. Their spatial resolution and scope is insufficient for sectoral studies in agriculture at European, national and regional scales. Therefore, we aim at extending and enriching the global SSPs by developing new storylines of future European agriculture, called Eur-Agri-SSPs. We address two major research questions, (i) what should Eur-Agri-SSPs contain? and (ii) how can an ideal-typical development process, i.e. shared protocol, be conducted to obtain storylines that are consistent with the SSPs and relevant to scientists and stakeholders? Established standards for storyline development have been adopted to the specific needs of the climate change and integrated assessment research communities. We have defined six ranked quality criteria of Eur-Agri-SSPs – scientific credibility, vertical and horizontal consistency, legitimacy, salience, richness and creativity. These criteria are tightly coupled suggesting that efforts to strengthen one may incur costs to others. The design of the storyline development process is also related to the defined quality criteria. A nested, top down approach is suggested to translate storylines from higher to lower scales while maintaining vertical consistency. An iterative process is proposed in order to enhance credibility and horizontal consistency of the storylines, and an interdisciplinary and participatory process should be set up to increase salience, legitimacy, richness and creativity. We argue that the quality and process criteria can be effectively combined in a shared protocol to increase conceptual and methodological transparency and thus scientific credibility. The shared protocol consists of nine major working steps: (i) defining core elements of the storylines, (ii) setting-up a stakeholder group, (iii) identifying, clustering and prioritizing storyline elements, (iv) drafting storylines, (v) checking for consistency, (vi) developing presentation formats, (vii) peer review and revision, (viii) dissemination, and (ix) evaluation of the process. For each step, we suggest adequate methods and discuss if and to which extent stakeholders should be engaged. A high degree of stakeholder engagement is recommended for steps (iii) and (v). During the process of developing Eur-Agri-SSPs, we have engaged more than 50 stakeholders representing a diversity of interests, levels of operation and governance roles via workshops and semi-structured interviews. They provided insights on expected changes of European agriculture and relevant driving forces. However, when drafting the storylines trade-offs between vertical consistency and stakeholder-buy in remain. We conclude that the shared protocol facilitates systematic construction and evaluation of storylines, can be transferred to other regions, sectors and scales and helps to improve comparability of integrated assessments of agricultural systems. The Eur-Agri-SSPs form the basis for national, regional and sub-sectoral storylines and facilitate a structured and goal-oriented dialogue.