Challenges of future land use in Europe

- climate change, quality of life and role of rural areas

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Outline

- Land use change in Europe
- Impacts of land use demands
- Current discussions
- Future options

Land use change in Europe 1

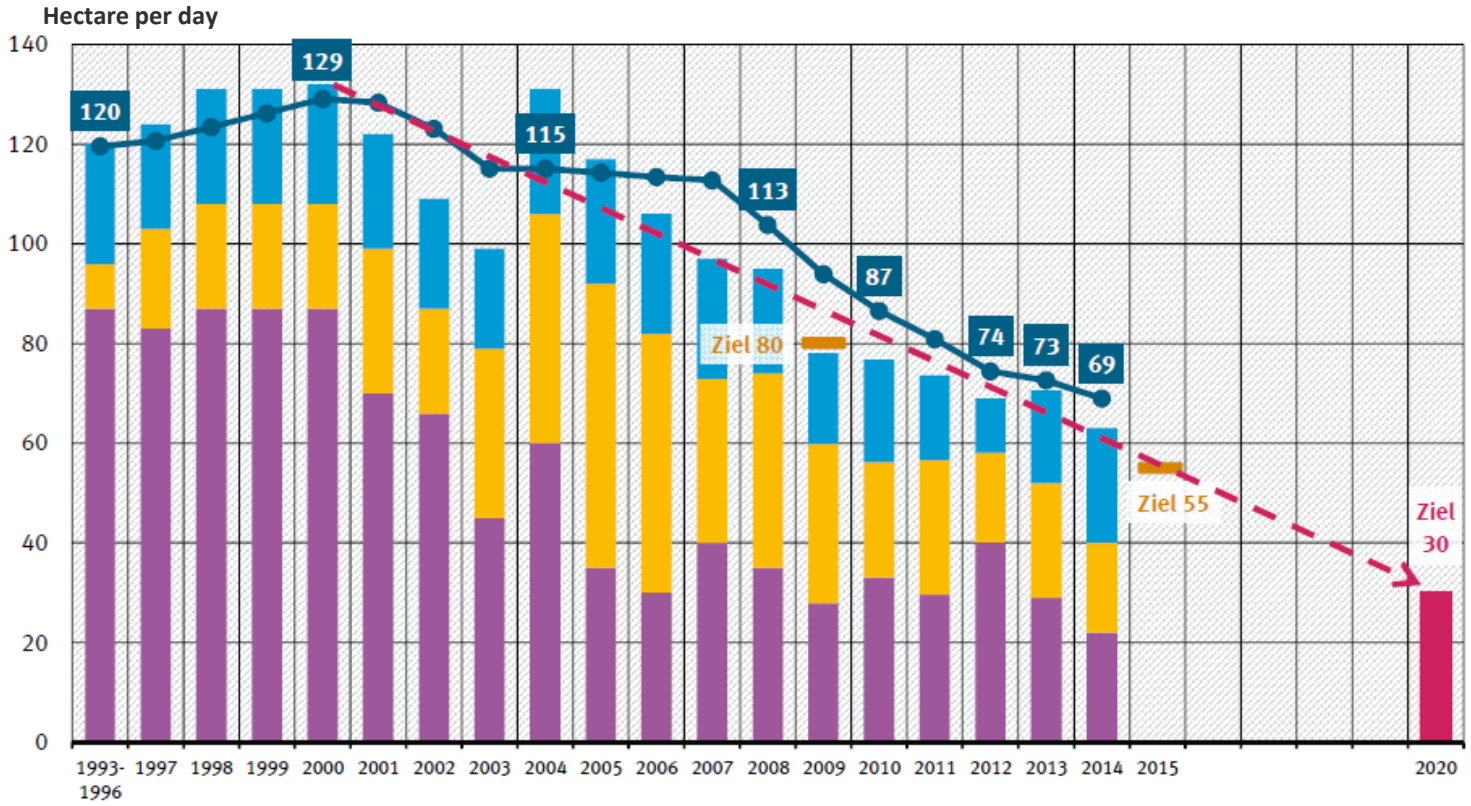
- Drivers for land use change
  - Social
    - migration
    - demographic change
  - Economical
    - concentration of economic activities (metropolitan areas …)
    - corresponding infrastructural development
  - Ecological
    - change of environmental conditions (esp. impacts of climate change)
      - for cultivation (agriculture, forestry)
      - for human wellbeing (heat, floodings)

Land use change in Europe 2

- Human demands on land increased over the last decades
- Growth of sub-urban and peri-urban areas due to
  - increasing demand for
    - living space (single family home)
    - change in household structures (smaller households)
    - production (industry) and logistics
    - infrastructure
  - improved accessibility
- Steady increase of residential and traffic areas amounting to 70 hectare per day in Germany
- One result is an ever-increasing fragmentation of natural habitats

Land use change in Europe 3

Increase of residential and traffic areas



Quelle: Statistisches Bundesamt 2015, Umweltökonomische Gesamtrechnungen. Nachhaltige Entwicklung in Deutschland. Indikatoren zu Umwelt und Ökonomie (Stand 11/2015)

Source: Federal Statistical Office of Germany 2015, modified

Land use change in Europe 4

- Land use change is also pushed by political decisions
  - Energy transition lead to higher land prices due to
    - increase in cultivation of energy plants and the corresponding (biogas) plants
    - increase in photovoltaic power plants and wind power plants (on farm land)
    - the corresponding infrastructure (e.g. power lines)
    - pushed by capital investments and intensive agriculture
- Local politicians in regions with uncertain future development perspectives try to reverse the trends by
  - developing commercial and industrial areas a.w.a. residential areas which further results in
  - areas for compensation

Impacts of land use demands

- Increase in conflicts regarding different land use demands
  - between different kinds of land use:
    e.g. agriculture vs. residential areas
    and infrastructure

- Increase in conflicts regarding different land use demands
  - within the same kind of land use:
    e.g. different agricultural foci
    (energy crops vs. food crops)

- General cohesion vs. regional differentiation

Current discussions 1

- The potential of abandoned areas
  - Most of the challenges related to land use change are well known
  - Reducing the ”artificial use“ of land is on the agenda since the 1960s
  - For years studies point out the high potential of convertible or re-usable areas / brownfields
    - e.g. Germany (2012): 120.000 – 180.000 ha re-usable areas
  - The impacts of current trends like re-urbanisation are not assessable to date

Source: (1) Federal Institute for Research on Building, Urban Affairs and Spatial Development 2013

Current discussions 2

- The currently existing legal and planning instruments are mainly to weak to induce or avert substantial changes (with exceptions)
- Neither legal instruments nor rural or urban subsidies policies let to a trend reversal to date (growth policies)
- New developments like the energy transition scheme are often implemented without discussing impacts on land use or spatial and settlement structures

Current discussions 3

- An improved coordination of the usage of legal and planning instruments, e.g. across spatial levels, is necessary
- New regulations should integrate follow-up costs (planning of settlement areas)
- More approaches to integrate planning information and knowledge management should be used (improving the awareness of actor groups and using ex ante impact assessment)

Future options 1

- Use existing approaches in rural development !

- Less development of residential and traffic areas on valuable (agricultural) land is paramount
  - Need for regional solutions
    - integrating new demands for flood control
    - combining “pooling” and new approaches (intelligent greening)
    - using synergies of different land use demands (e.g. agriculture and leisure)

Future options 2

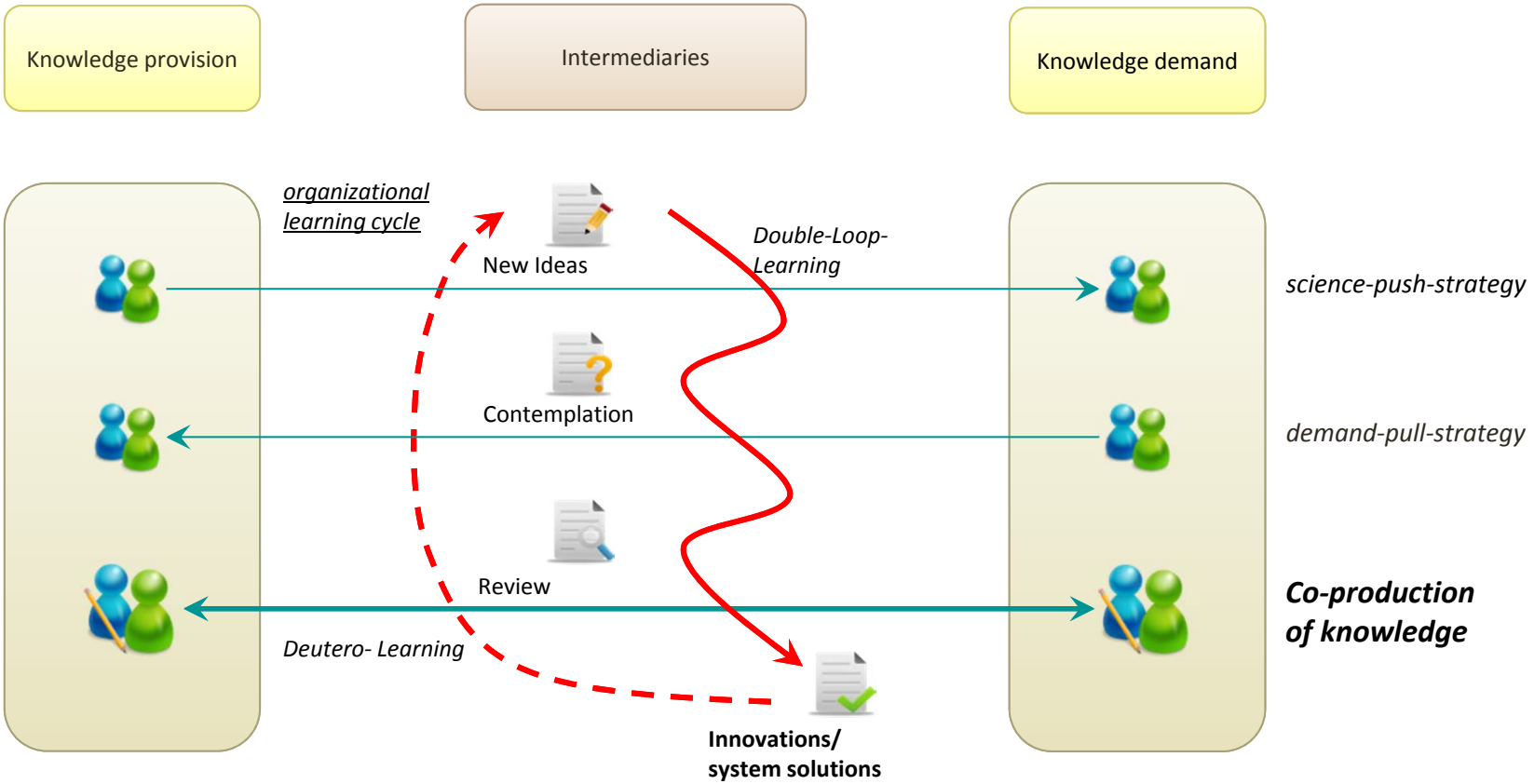
- Participation and knowledge integration is the key to acceptance

  (despite the high number of stakeholders and interests)

Source: ZALF

Future options 3

Transdisciplinarity and integrated knowledge management



Source: ZALF

Future options 3: Example

- Knowledge Library

Source: ZALF

Future options 4

- Integration of urban-rural interrelations (people / brains, cash flows, energy flows)
- Peripherality as a key issue – in urban and rural areas
- Integration of resilience as a conceptual approach
- Implementation of *Land* and *Space* as key issues / concepts in European political activities

Future options 5

- New impulses from the Sustainable Development Goals (United Nations)
  - Lead to new discussions on e.g.
    - sustainable urban development
    - sustainable agriculture and food security

- Intensive discussions are caused by
  - increase in value of farmland
  - changes in land ownership

Thank you for your attention!

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