



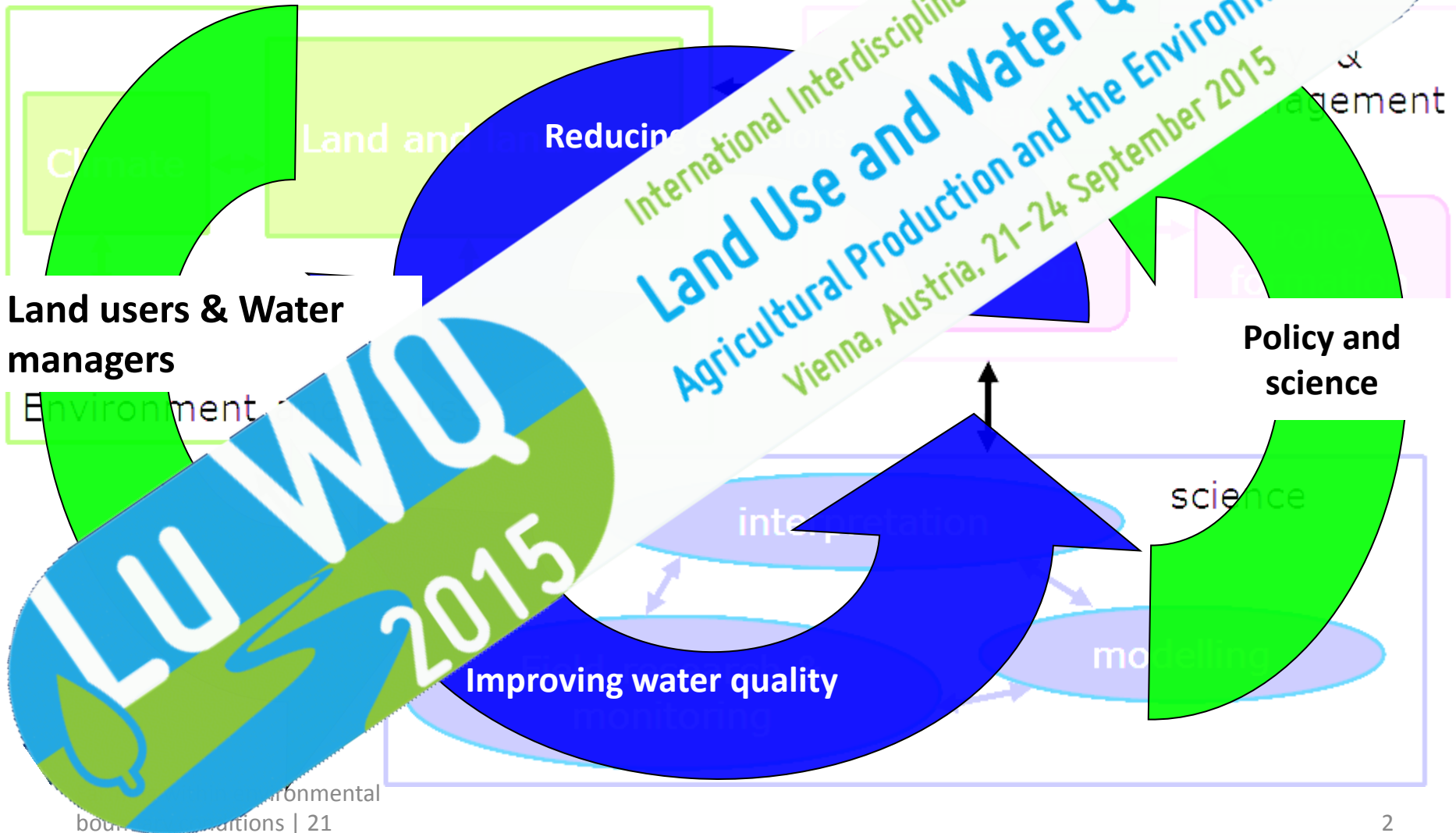
International Interdisciplinary Conference on  
**Land Use and Water Quality**  
Agricultural Production and the Environment  
Vienna, Austria, 21–24 September 2015

Closure of the Conference

Take home messages from the  
2<sup>nd</sup> LuWQ Conference 2015

# Cycle, science and actors

## 4. The Conference



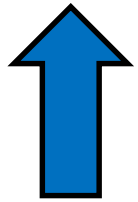
New Zealand — together with many other countries in the world – it is a great challenge for all with this twin challenge

## NZ Government's twin challenge:

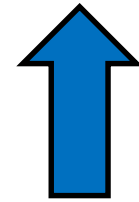
*'doubling export earnings from primary production, while maintaining or improving water quality'.*

2025:

**Economy**



**Environment**



**Joint up-lift rather than re-balancing**

Now:

**Economy**

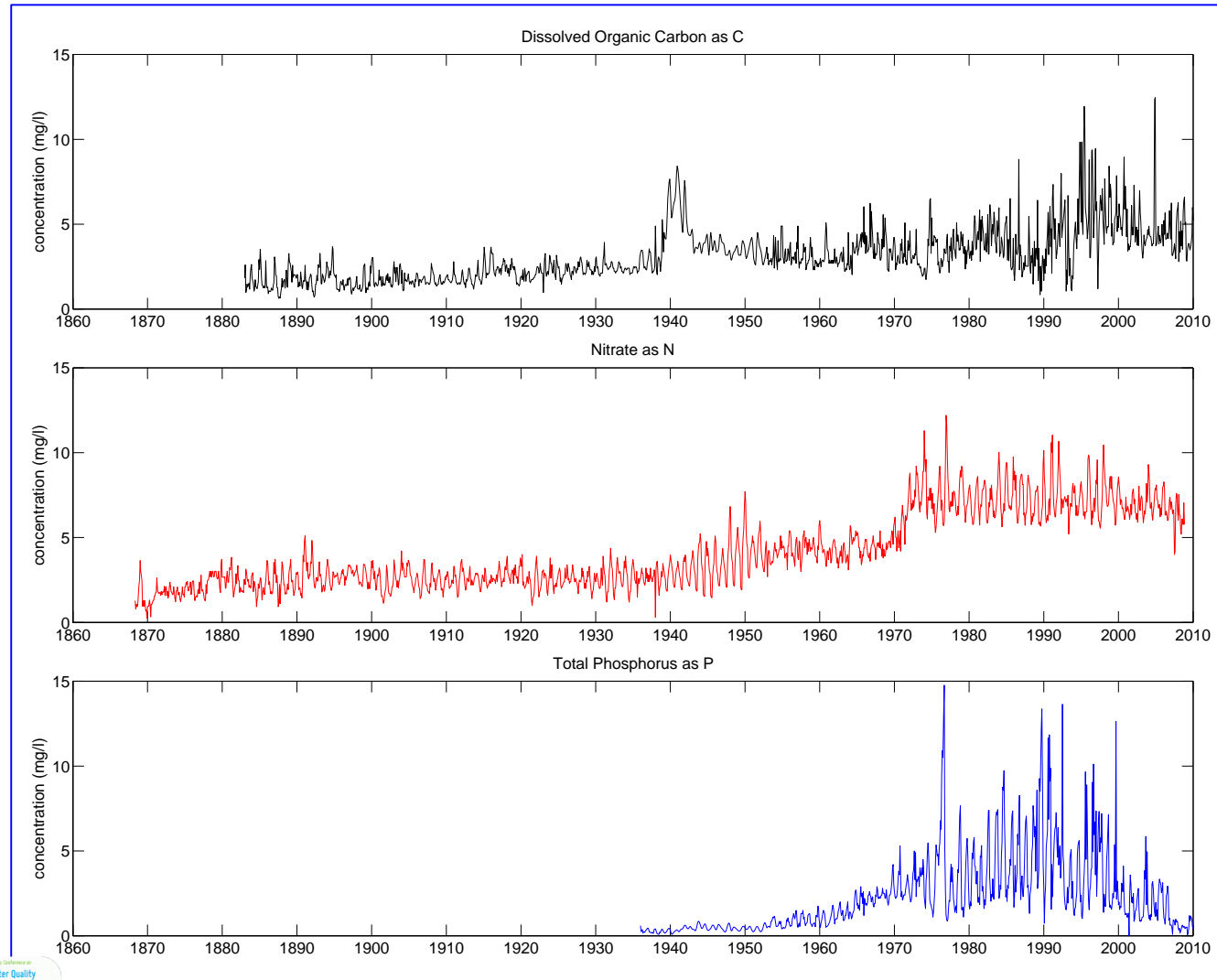


**Environment**

1860 to 2010 – long time series are important for telling the true story about land use and water quality – and the situation in reference period – 1900 ?

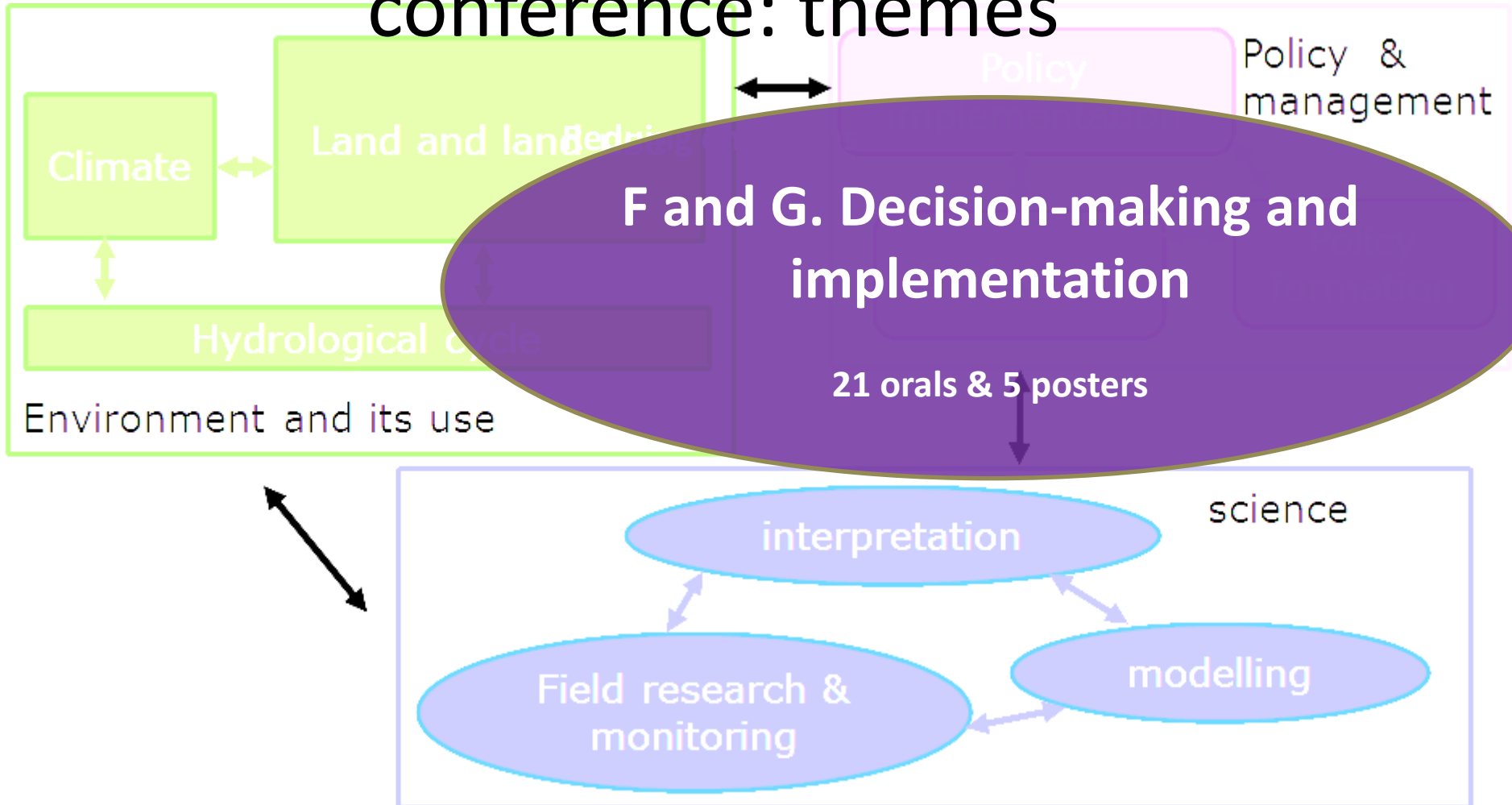
Models also need to be trained against data from long time series

From opening Key Note by Howden et al.





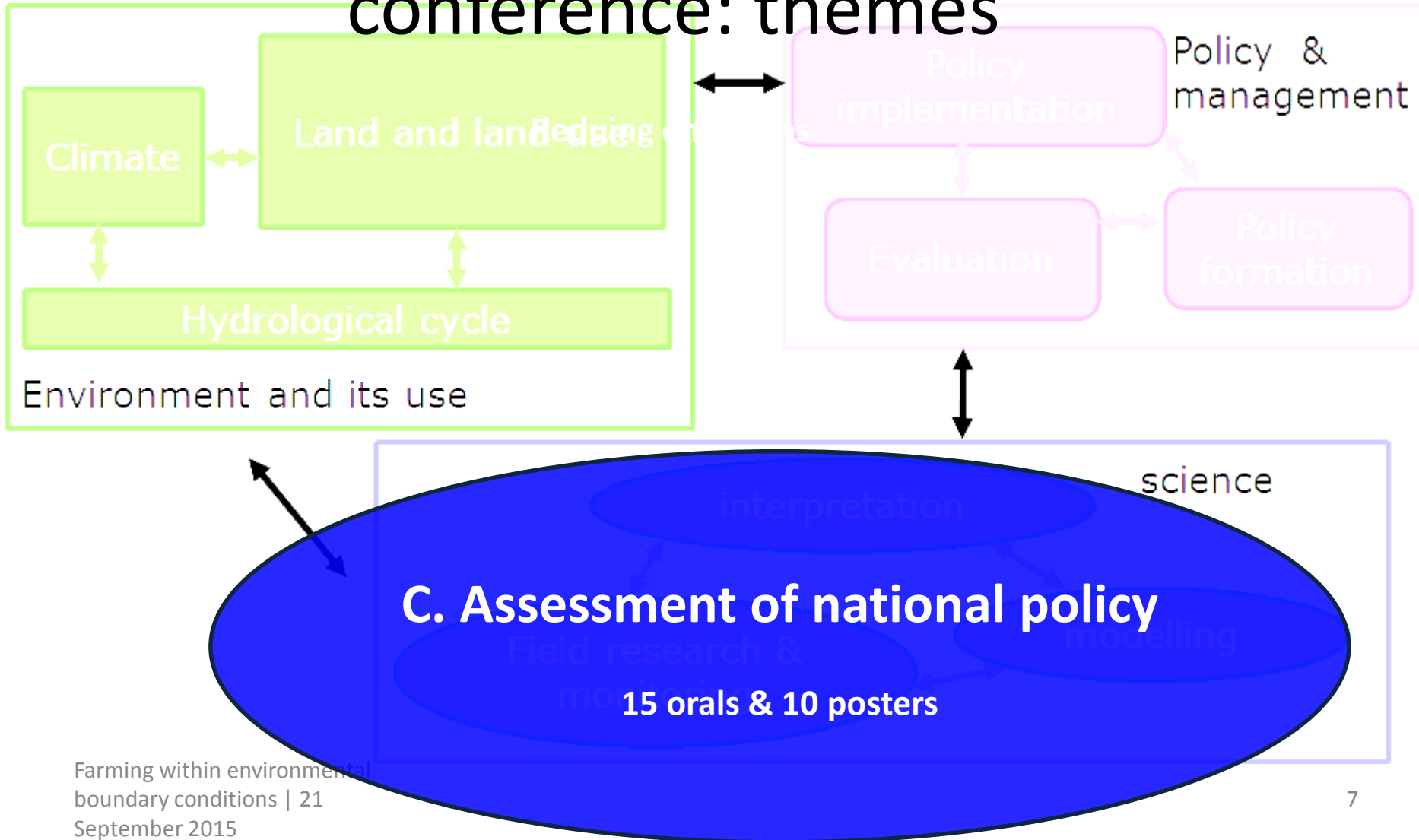
# Land use and Water Quality conference: themes



# Take home messages

- Top-down (EU) versus bottom-up approaches (NZ) – regional setting of targets for WQ
- Tailor made measures - needs tailor made support.
- Compliance checking needs to be done on a one by one basis.
- Mandatory versus Voluntary measures for farmers. Both will only really work if farmers are part of the solution. Will take more time to get started but pays out in the end
- A new way with more targeted regulation (natural attenuation and hot spot analysis) but also increases in use of fertilizers (DK).
- Important to test new ways to solve problem – decrease the waste of food, lower meat consumption, sustainable agricultural production within regions - own consumption, agroforestry, etc.

# Land use and Water Quality conference: themes



# Take home messages

Different ways of assessing effects of national policy:

- Monitoring of surplus and N-leaching.
- Monitoring target concentrations (GW, SW).
- Monitoring target loads to water bodies (GW, lakes, estuaries).
- Emission based regulations at farm (N quota) or sub-catchment scale.



# Land use and Water Quality conference: themes

## A. Increasing system knowledge

31 orals & 14 posters

Environment and its use

Policy  
implementation

Policy &  
management

Evaluation

Policy  
formation

interpretation

science

Field research &  
monitoring

modelling

# Take home messages

- Several presentations showed how models were applied at different spatial scales for analyzing if regulatory measures (especially surplus limits) could assist in reaching targets for ND and WFD.
- Important to consider model uncertainty and present results with the real uncertainty in simulated results to avoid false interpretations and uses for policy decisions and regulation.
- Several presentations showed how models (N) were used for mapping N sinks in groundwater and surface waters giving as an output the attenuation capacity of the landscape for use in risk mapping and regulation of agriculture (NZ, DK, GE).
- Need more focus on N and P legacy – groundwater (N), soils (P) and sediments (P).

# Land use and Water Quality conference: themes

## B. Climate change

7 orals

and land use

Hydrological cycle

Environment and its use

Policy implementation

Policy & management

Evaluation

Policy formation

interpretation

science

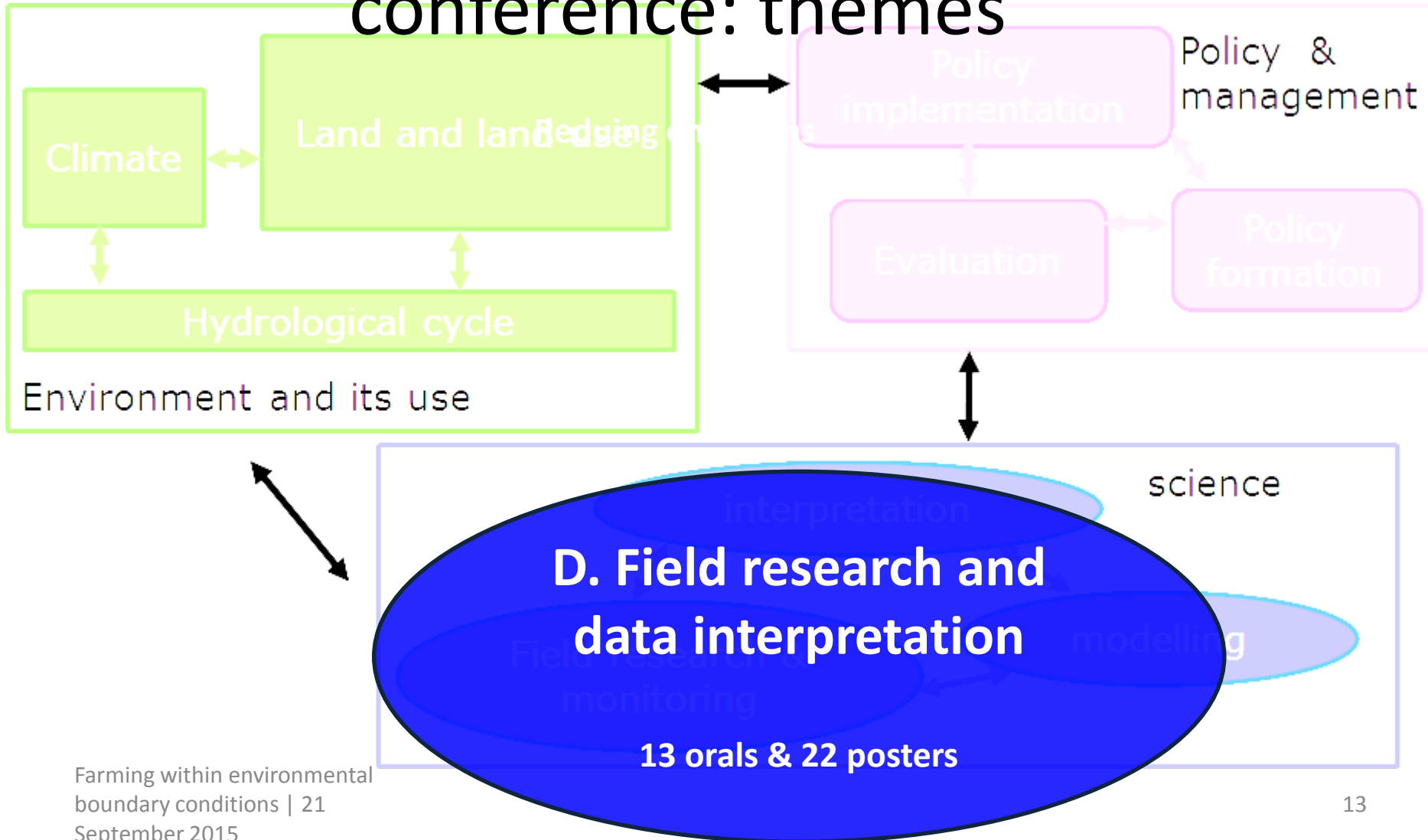
Field research & monitoring

modelling

# Take home messages

- How can we disentangle effects of climate change from land use change in water quality measurements?
- Model scenario runs for climate change impacts on water quality – important to include both climate and land use changes in such scenarios!
- Very difficult to model climate change impacts on P in small catchments even when having high frequency data available for calibration – example using SWAT!

# Land use and Water Quality conference: themes

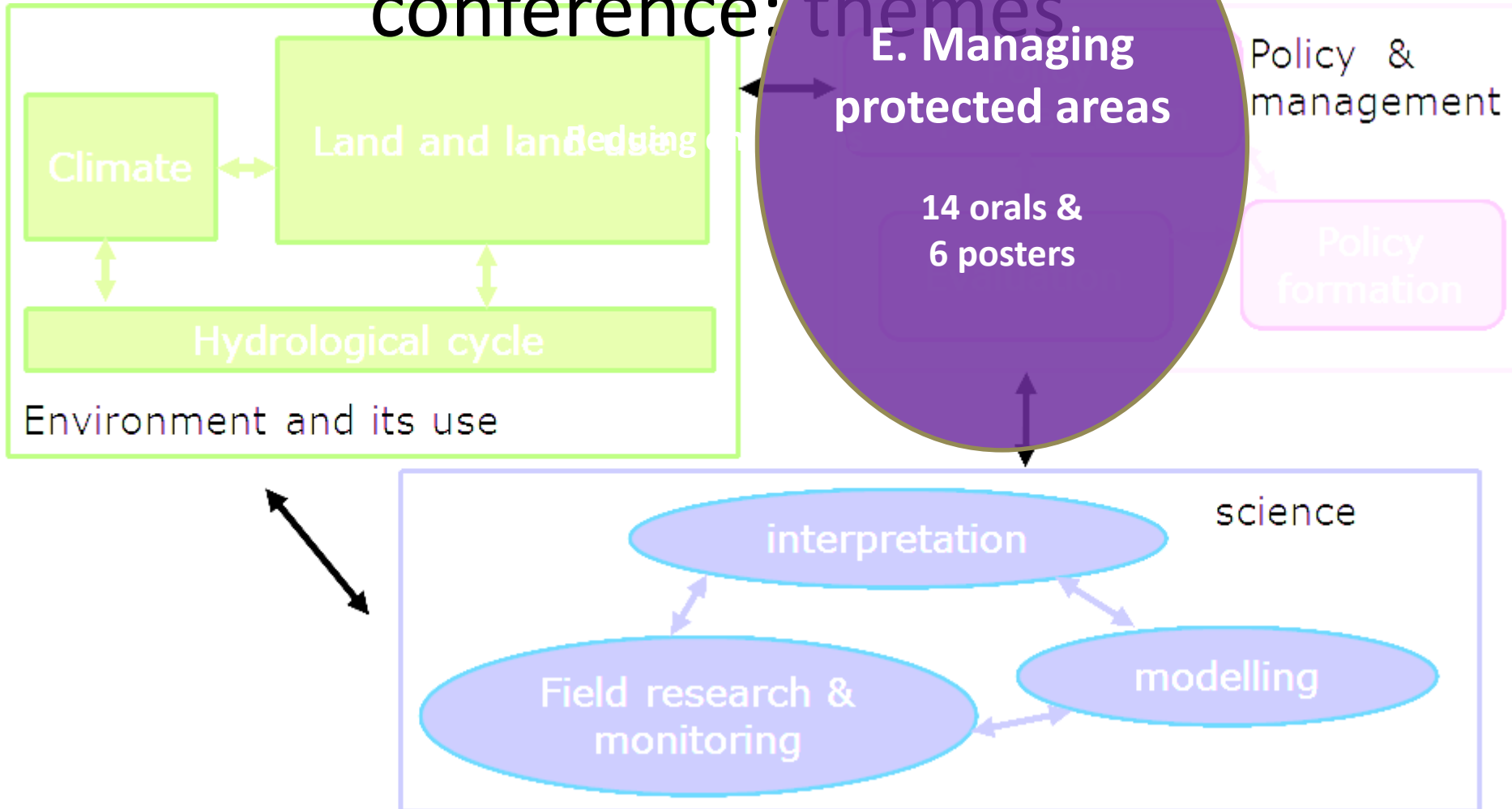


# Take home messages

- Need for more plot and field studies of N attenuation in soil and groundwater – exploring use of different methods – stable isotopes, etc.
- Important with high frequency monitoring of N and P in catchments for assisting in studying processes, sources, improve models, etc.
- A question about phosphorus – importance of total P against dissolved P – should we bother about PP for water quality? - bioavailability?
- Irrigation systems – combined analysis for risk of N loss and salinization when implementing measures – cover crops, etc.



# Land use and Water Quality conference: themes



# Take home messages


- Drinking water and forest management – important with manual for good management practices.
- Afforestation and/or agroforestry in areas with important groundwater water aquifers.
- Sustainable use of old groundwater resources – keep some for the future generations!
- Pesticides in groundwater aquifers – indicator for sources!



International Interdisciplinary Conference on  
**Land Use and Water Quality**  
Agricultural Production and the Environment  
Vienna, Austria, 21–24 September 2015

**167 participants  
from 31 countries  
from all (habitable) continents**





We have all enjoyed attending the  
LUWQ2015 Conference hosted by  
BOKU in beautiful Vienna  
We would like especially to express out  
gratitude to the local organisers

Prof. Dr. Willibald Loiskandl

and

Mrs. Dipl.-Ing. Alexandra Strauss-Siebert

That made this Conference possible

Thanks also from all of us to you that made the Conference a great success by assisting and helping us during the entire Conference - without your help - no Conference !

Many thanks from all of us to:

Mrs. Claudia Stelzer

Mr. Ing. Wolfgang Sokol

Mrs. Dipl.-Ing Martina Faulhammer

Mrs. Andrea Fuchs

Mr. Dietmar Fellner


Mrs. Dipl.-Ing. Dr. Margarita Himmelbauer

Mr. Prof. Dr. Gerhard Kammerer

Mr. Dipl.-Ing. Dr. Reinhard Nolz

Mrs. Patricia Romanofsky





Not least we as participants are very grateful to the two fathers of this series of Conferences -the main organisers of the scientific sessions:

## **Dico Fraters and Karel Kovar**

They have assisted with the scientific committee members have done a splendid job in setting up the sessions for the conference.

Without the great work of Dico and Karel this 2<sup>nd</sup> LUWQ2015 Conference would not have been such a great success !



A scenic landscape featuring a narrow canal that stretches from the foreground into the distance, flanked by lush green fields. The sky above is a deep blue with some light, wispy clouds. The overall atmosphere is peaceful and rural.

Once again we have all enjoyed attending  
the LUWQ2015 Conference

So

We are looking forward to  
the 3<sup>rd</sup> LUWQ2017 Conference

There is good chance that it will be held in  
The Netherlands