



# Earth observation at the national level in Ukraine

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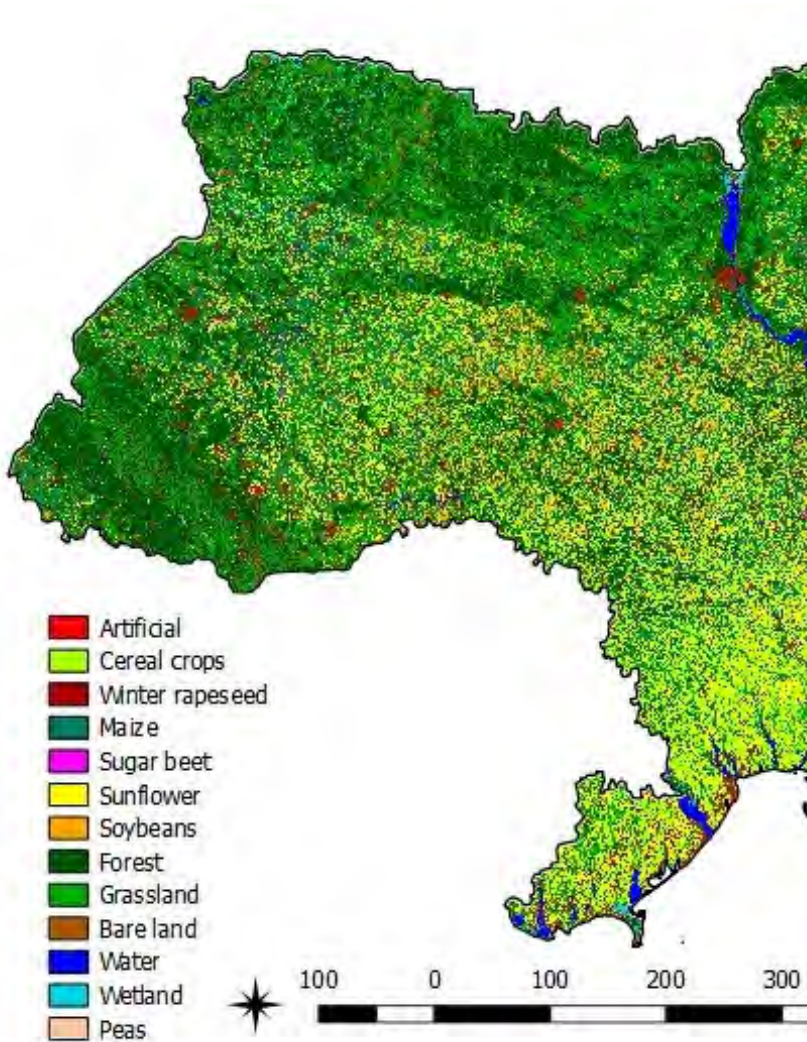


# Earth observations in Ukraine (outline)



- **ESA Sen2Agri project - National level demonstration (2015-2018)**
  - Sentinel 2 and Sentinel 1 data for crop monitoring
  - Cloud based implementation
- **Horizon-2020 ERA-PLANET and national program of National Academy of Sciences of Ukraine (2016-2020)**
  - Essential variables=>Indicators=> SDG
  - Copernicus data and services for Essential variables
- **UNCCD related activities (since Evidenz workshop in Kiev)**
  - Copernicus data use for land degradation neutrality

# Sen2Agri: LU/LC and crop map for Ukraine, 2017



Класи	Classification accuracy F1, %
Artificial	63.9
Cereal	94.5
Winter rapeseed	96.6
Maize	81.8
Sugar beet	78.5
Sunflower	94.4
Soyabeans	57.6
Forest	96.9
Grassland	59.2
Bare land	49.3
Water	98.2
Wetland	70.7
Peas	93.7
<b>Overall accuracy</b>	<b>88.9</b>

# H2020 ERA-PLANET (2016-2020)



## ERA-PLANET

THE EUROPEAN NETWORK FOR OBSERVING OUR  
CHANGING PLANET

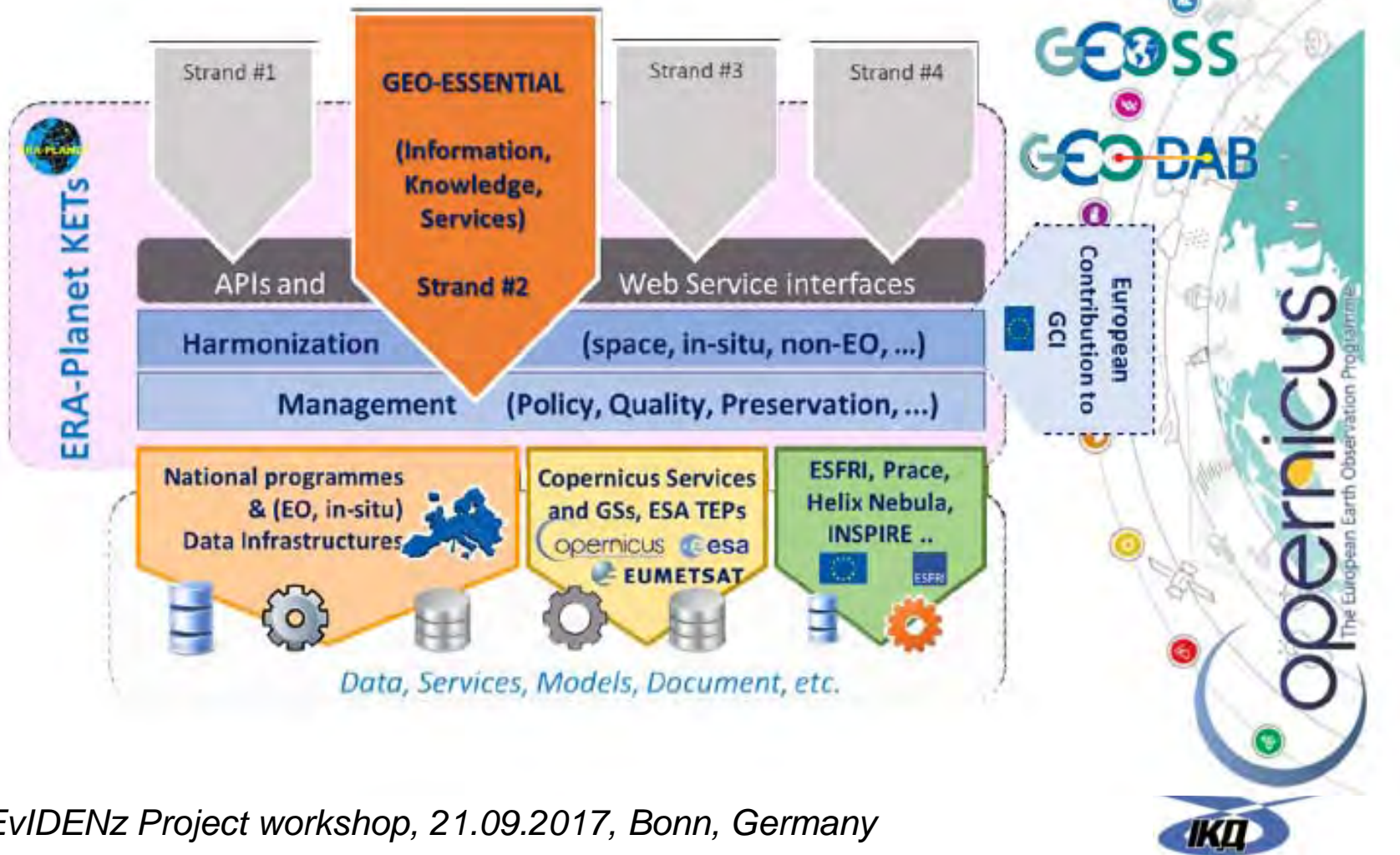
H2020 Topic

SC5-15-2015: Strengthening the European Research Area in the  
domain of Earth Observation

The **overarching goal** of ERA-PLANET is to strengthen the European Research Area in the domain of Earth Observation in coherence with the European participation to **Group on Earth Observation (GEO)** and the **Copernicus**.



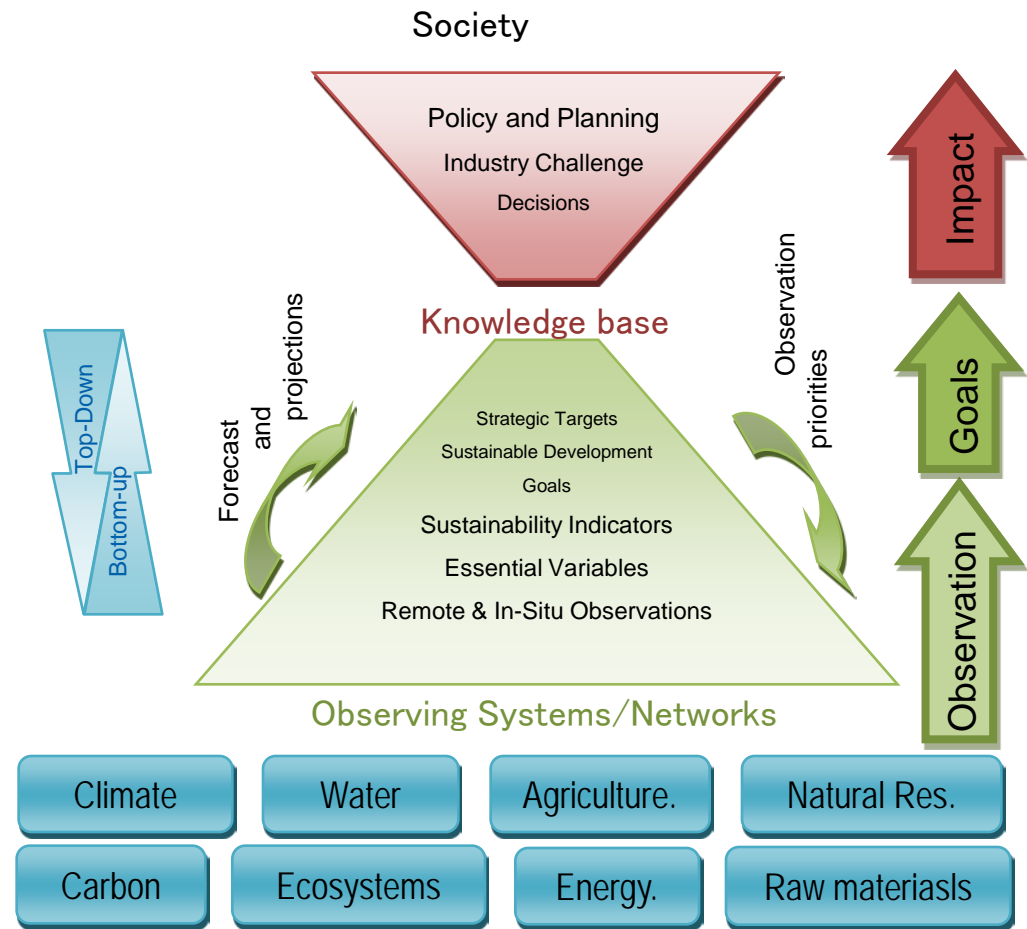
# Interoperability



# «GEO-ESSENTIAL»: Essential variables for Sustainable Development Goals

## SGGs Indicators Essential variables Observations

- To connect knowledge (SDG) with indicators and essential variables;
- To identify essential variables (EV) for quantitative analysis of indicators;
- Essential variables are used to formulate the requirements for observations



# UNCCD related activities: Indicators of Land Degradation Neutrality (LDN) (goal 15 task 15.3)



According to *Global Support Programme and Land Degradation Neutrality Target Setting Programme* the tasks on monitoring the following indicators are defined:

- **Land Cover (LC) change trends;**
- **Land Productivity trends** (land productivity dynamics);

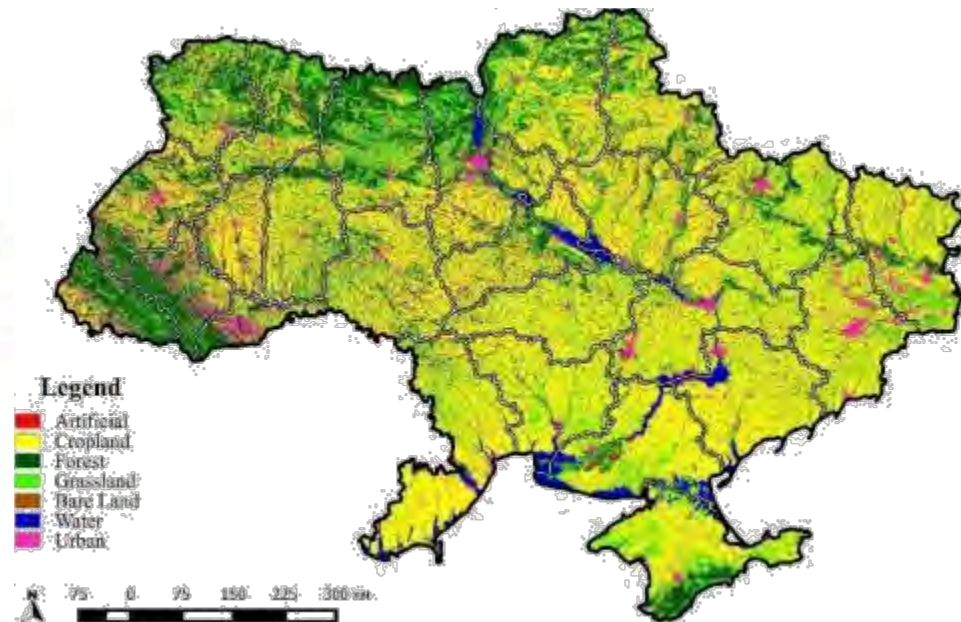
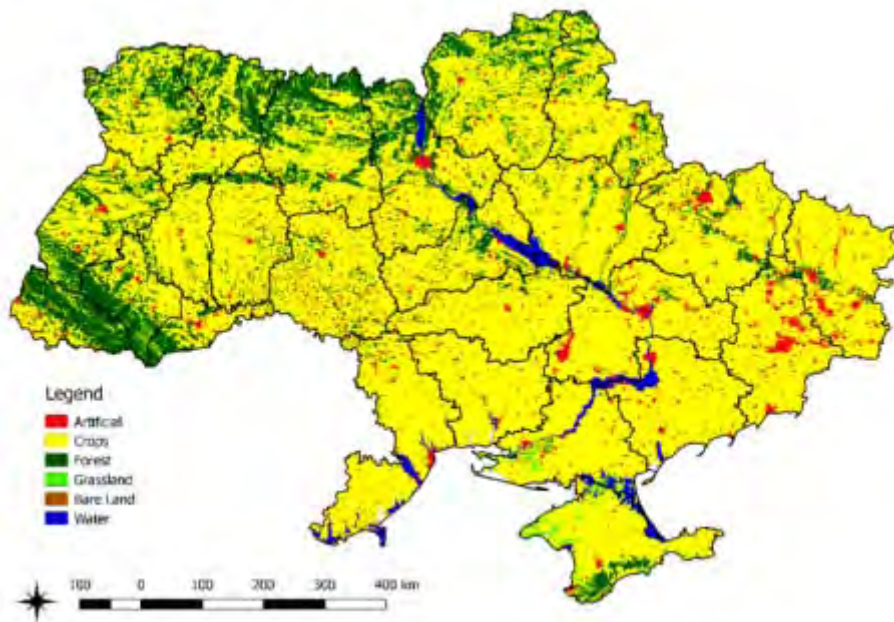


# Land Cover maps 2010



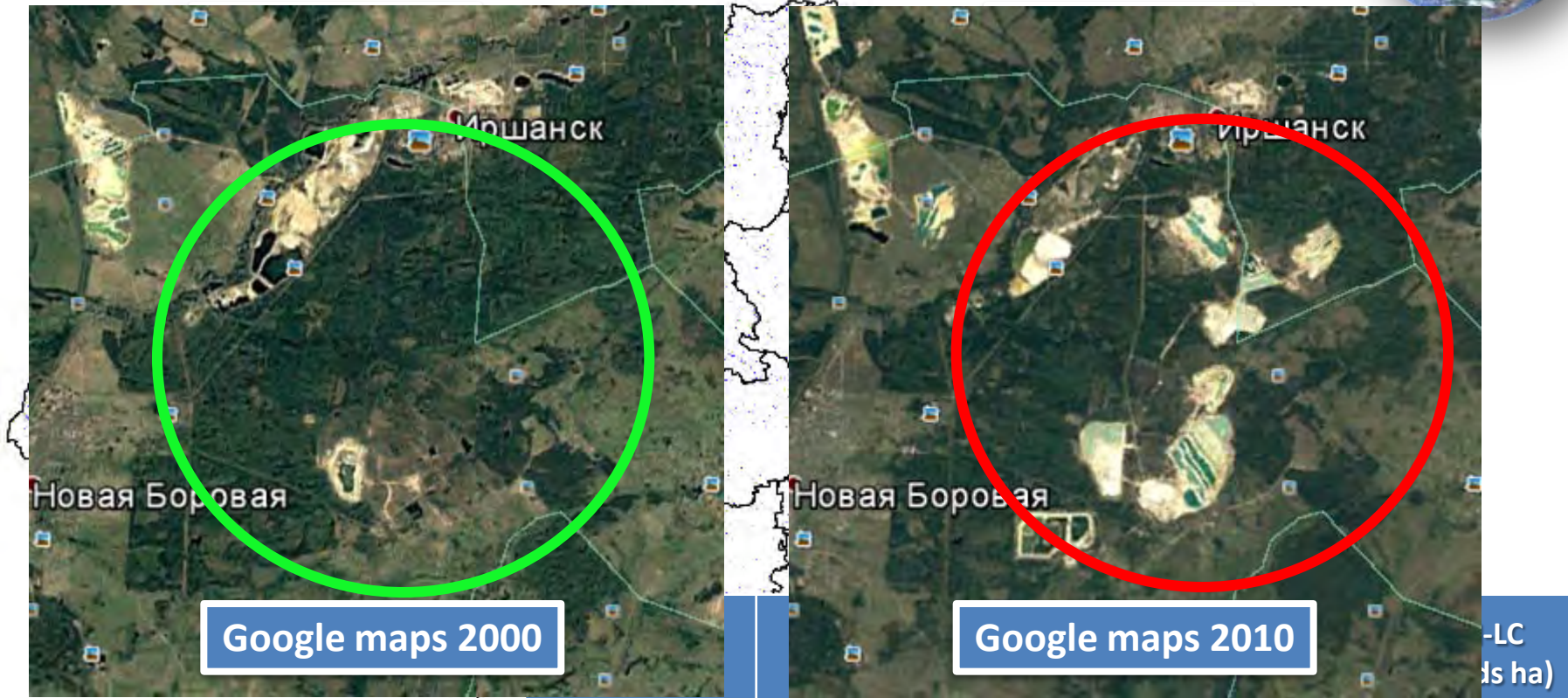
ESA CCI-LC, 300 m

SRI, 30 m





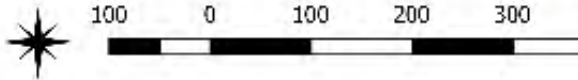
# Land Cover Change(2000-2010)



Google maps 2000

Google maps 2010

-LC  
(s ha)

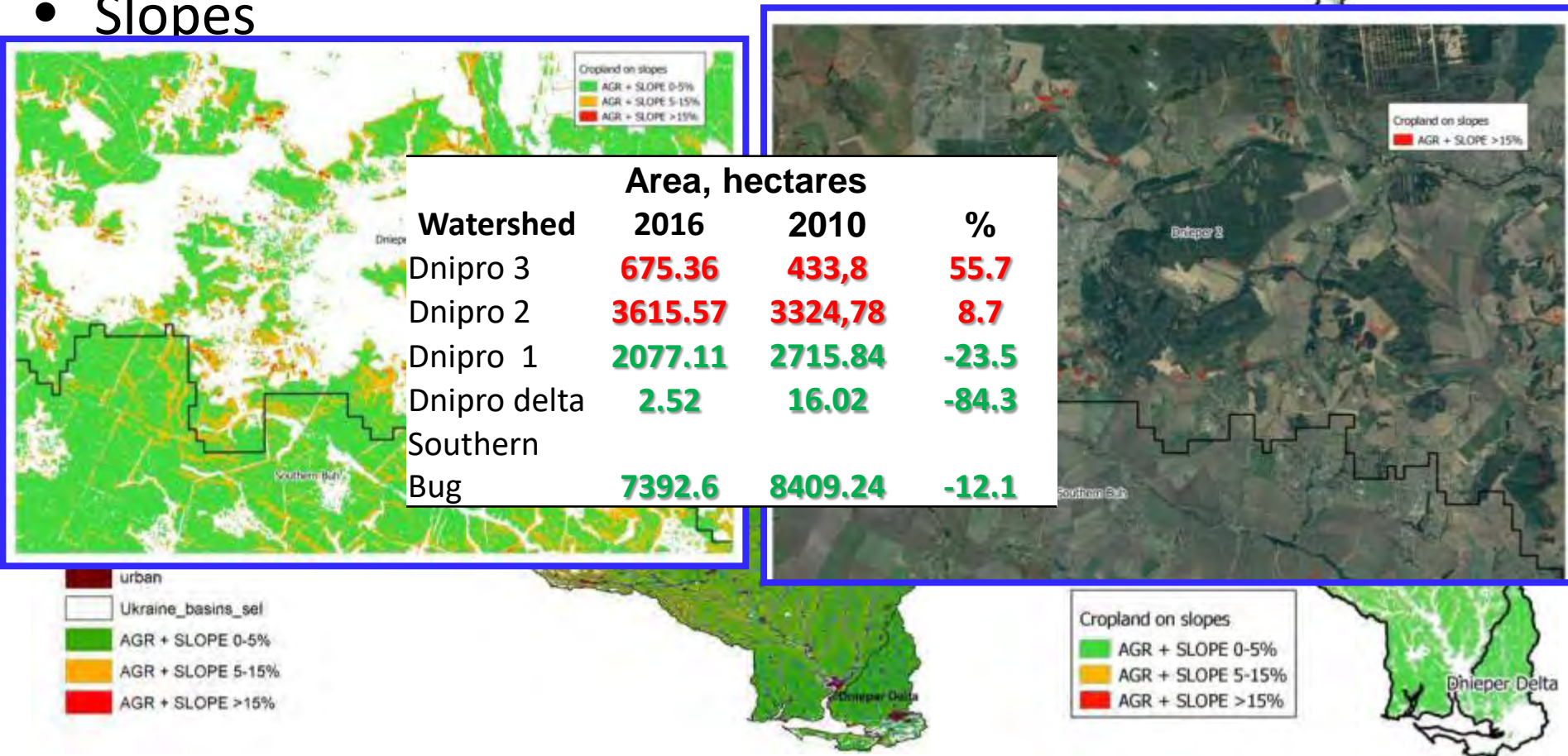


12	Forest to grassland/ shrubland	222,02	8,15
13	Forest to cropland	17,001	22,93
16	Forest to bare land	7,76	0,74

# DEM and cropland



- SRTM DEM, 30 m
- Slopes



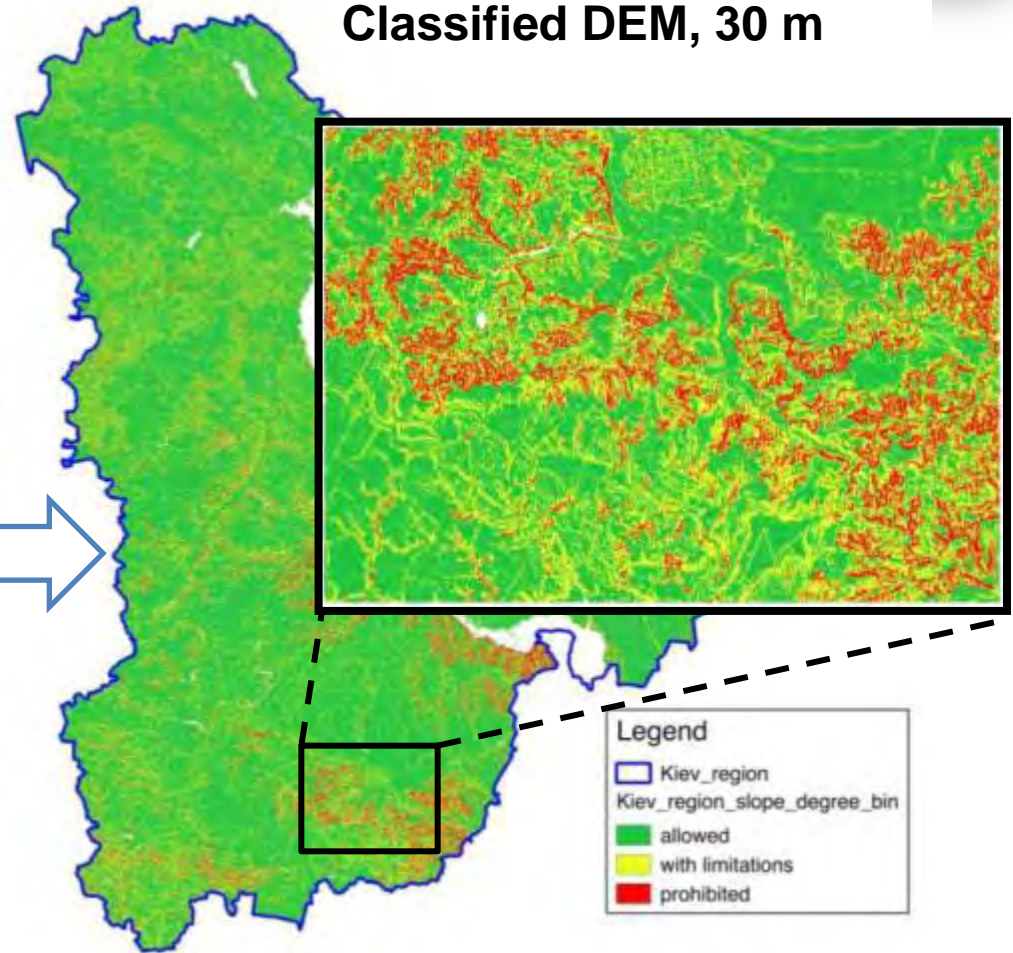
# DEM usage for LUC trends assessment



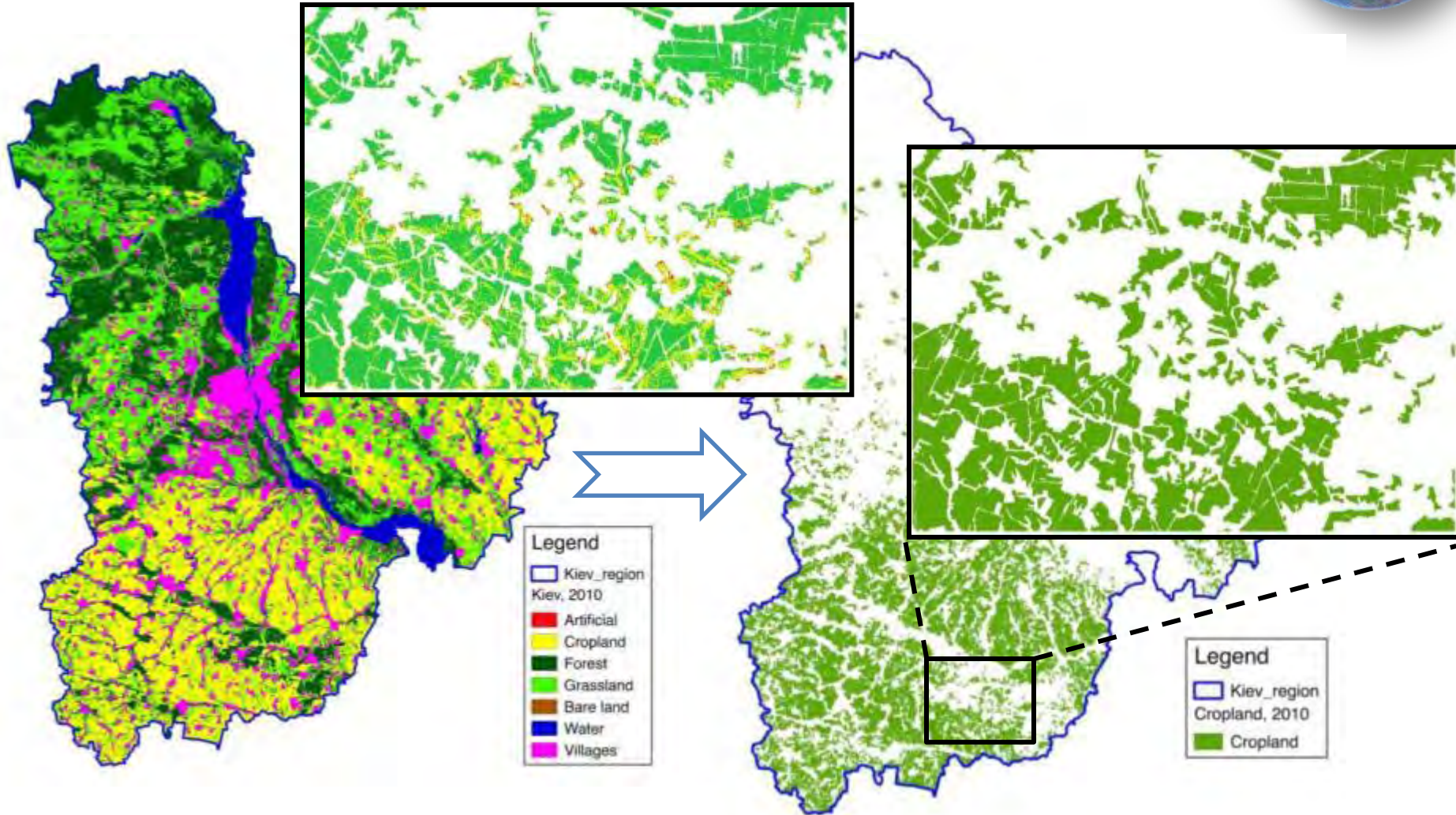
DEM, 30 m



Classified DEM, 30 m



# Cropland distribution regarding DEM





# Thank you!

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