



Earth observations for SDG monitoring in Ukraine

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SUSTAINABLE DEVELOPMENT GOALS



UNCCD: 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);



Data sources



- **Global datasets (spatial resolution – 300 m), provided by CCD Secretariat**
 - Crop type maps for 2000 and 2010 based on satellite data;
 - Land use change maps for 10 years
- **National datasets, developed by Space Research Institute (SRI) of Ukraine within participation in international projects SIGMA and Sen2Agri (spatial resolution – 30 m)**
 - Crop type maps for 2000, 2010, 2016, 2017 based on satellite data;
 - Land use change maps

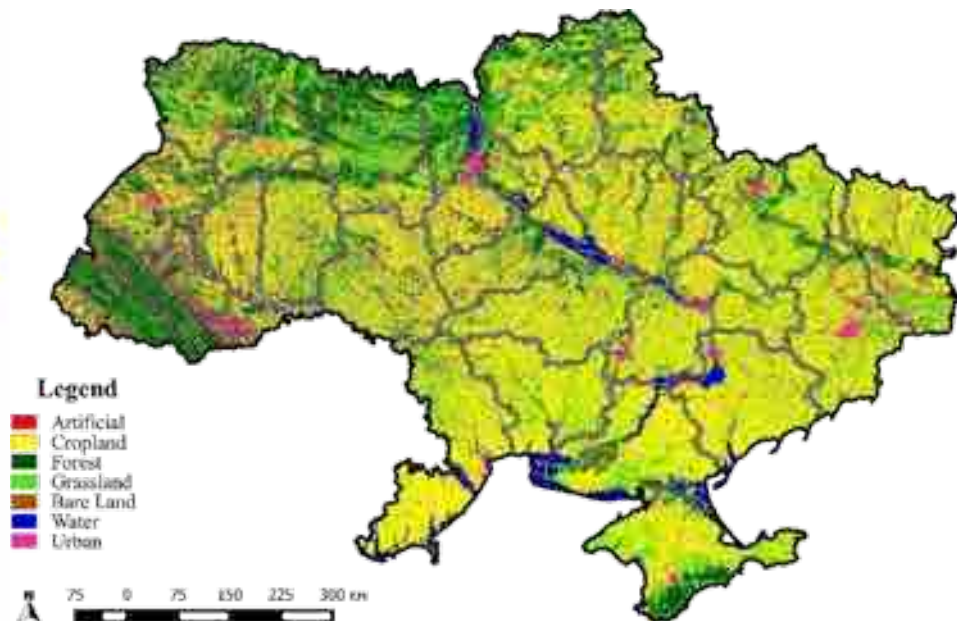
Land Cover map 2010



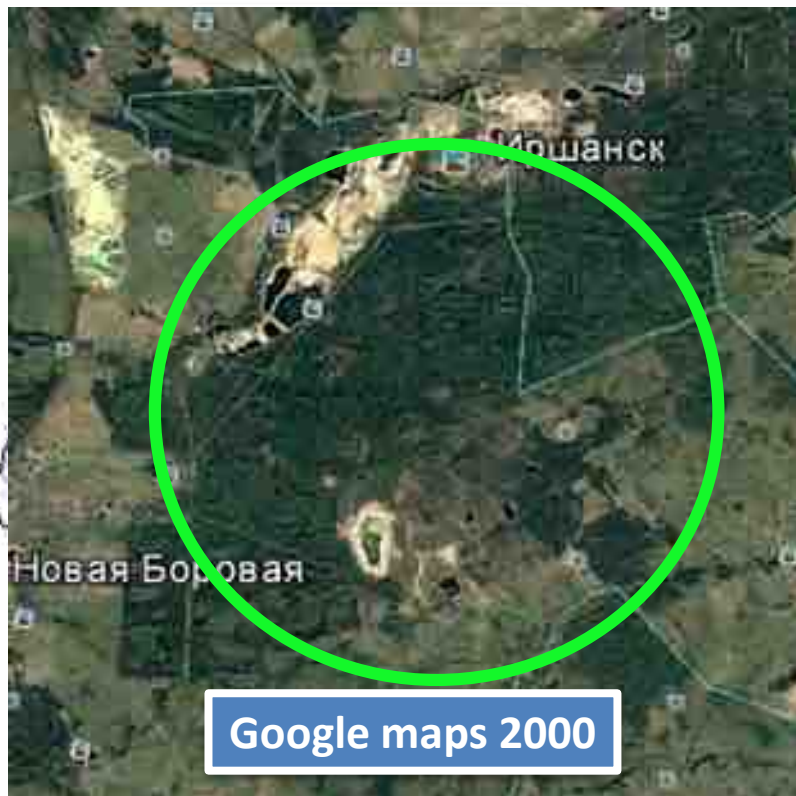
ESA CCI-LC, 300 m



SRI, FP-7 SIGMA project, 30 m



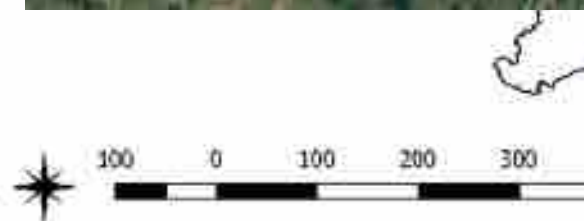
Land Cover Change(2000-2010)



Google maps 2000



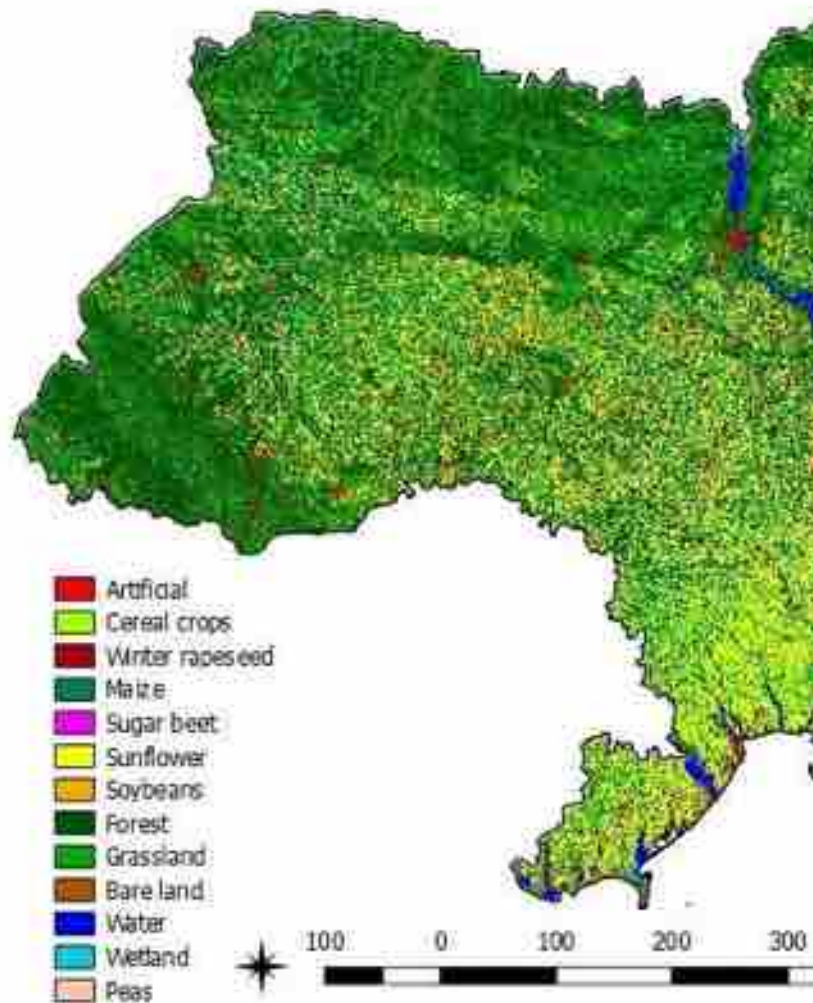
Google maps 2010



			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



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

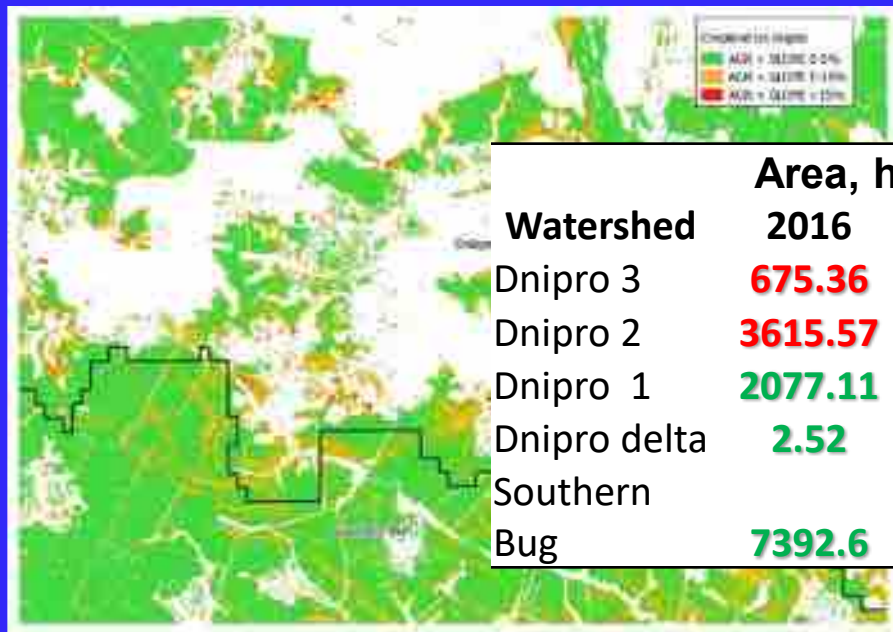


Класи	Classification accuracy F1, %
Artificial	63.9
Cereal	94.5
Winter rapeseed	96.6
Maize	81.8
Sugar beet	78.5
Sunflower	94.4
Soyabeans	57.6
Forest	96.9
Grassland	59.2
Bare land	49.3
Water	98.2
Wetland	70.7
Peas	93.7
Overall accuracy	88.9

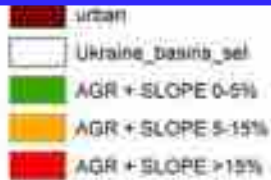
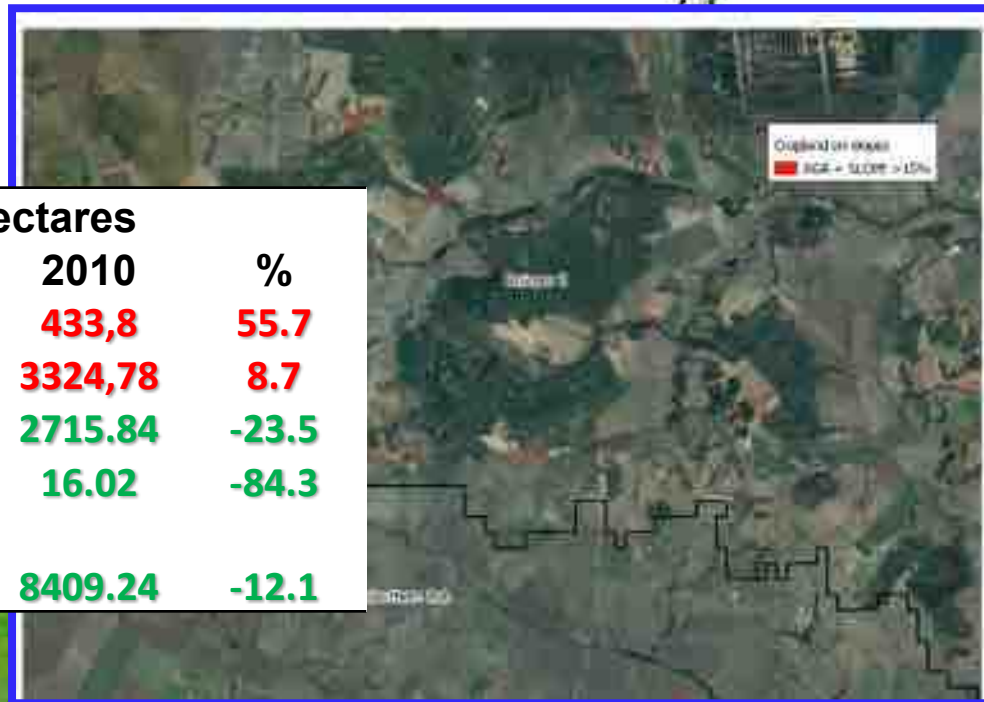
DEM and cropland



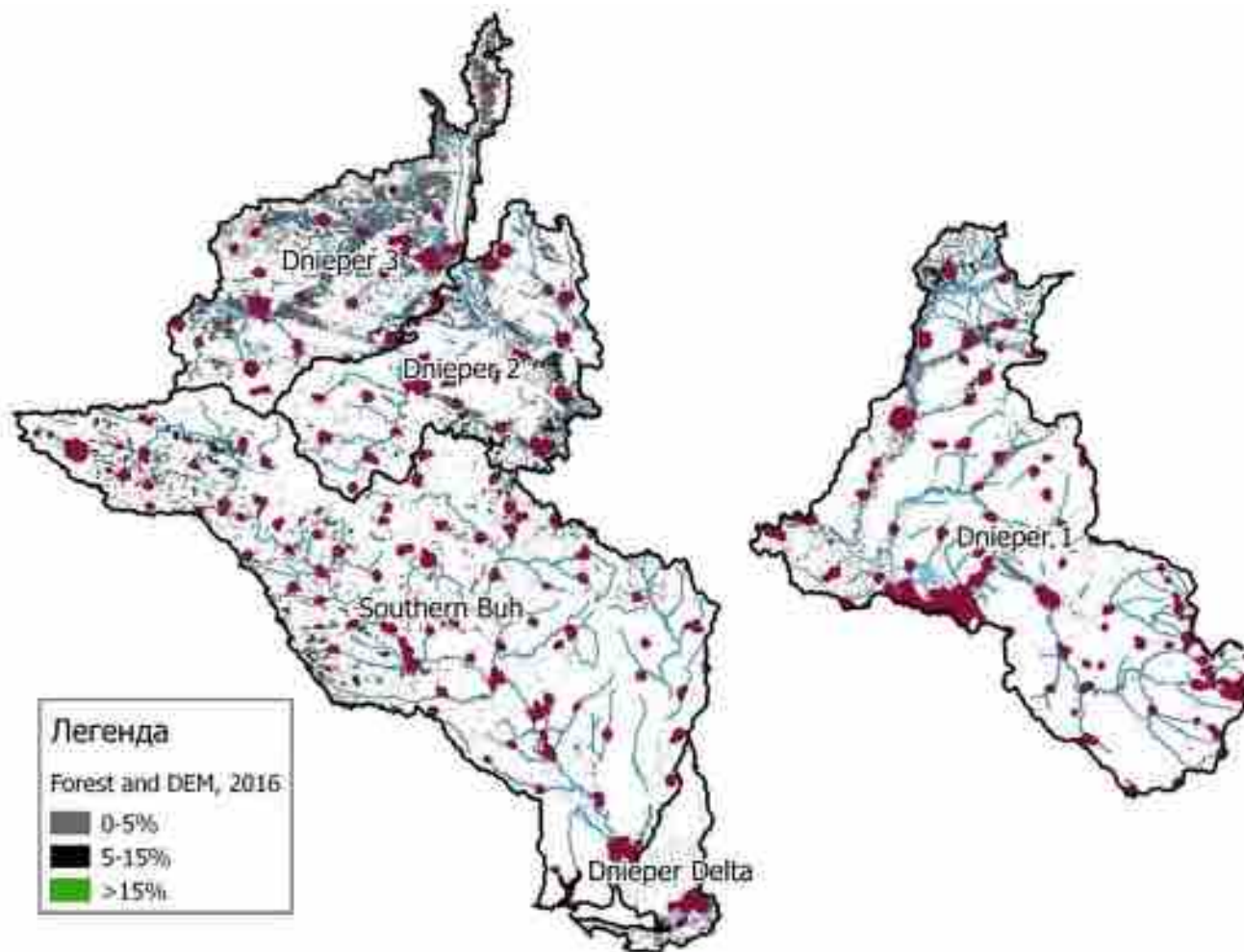
- SRTM DEM, 30 m
- Slopes



Watershed	Area, hectares		
	2016	2010	%
Dnipro 3	675.36	433,8	55.7
Dnipro 2	3615.57	3324,78	8.7
Dnipro 1	2077.11	2715.84	-23.5
Dnipro delta	2.52	16.02	-84.3
Southern Bug	7392.6	8409.24	-12.1



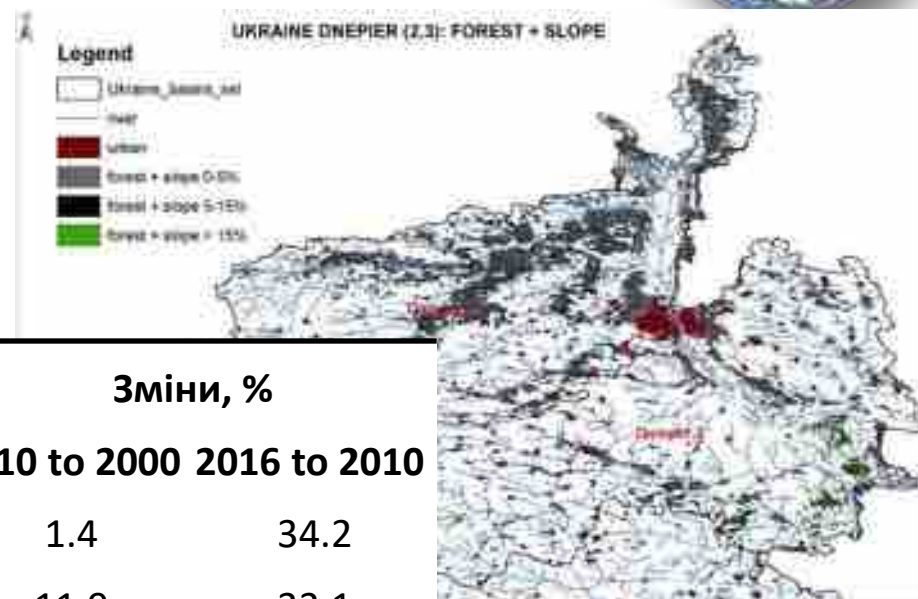
Landscape and forests



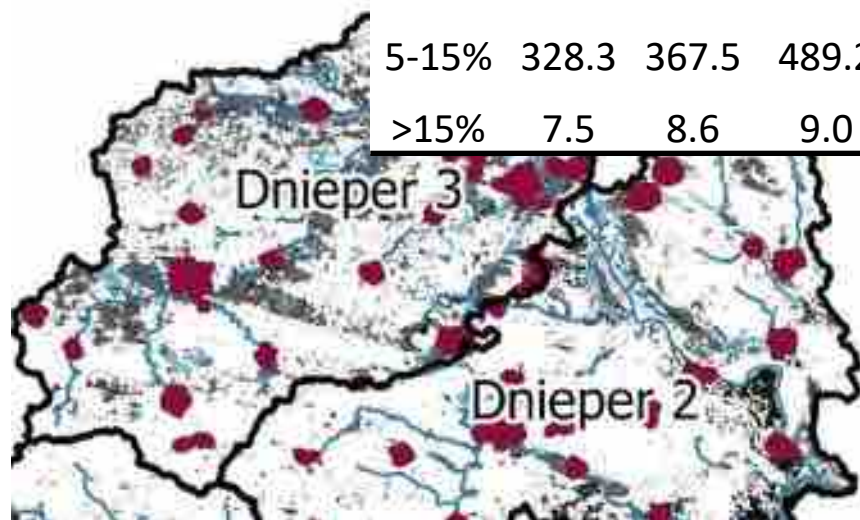
Landscape and forests, cont.



Національні продукти



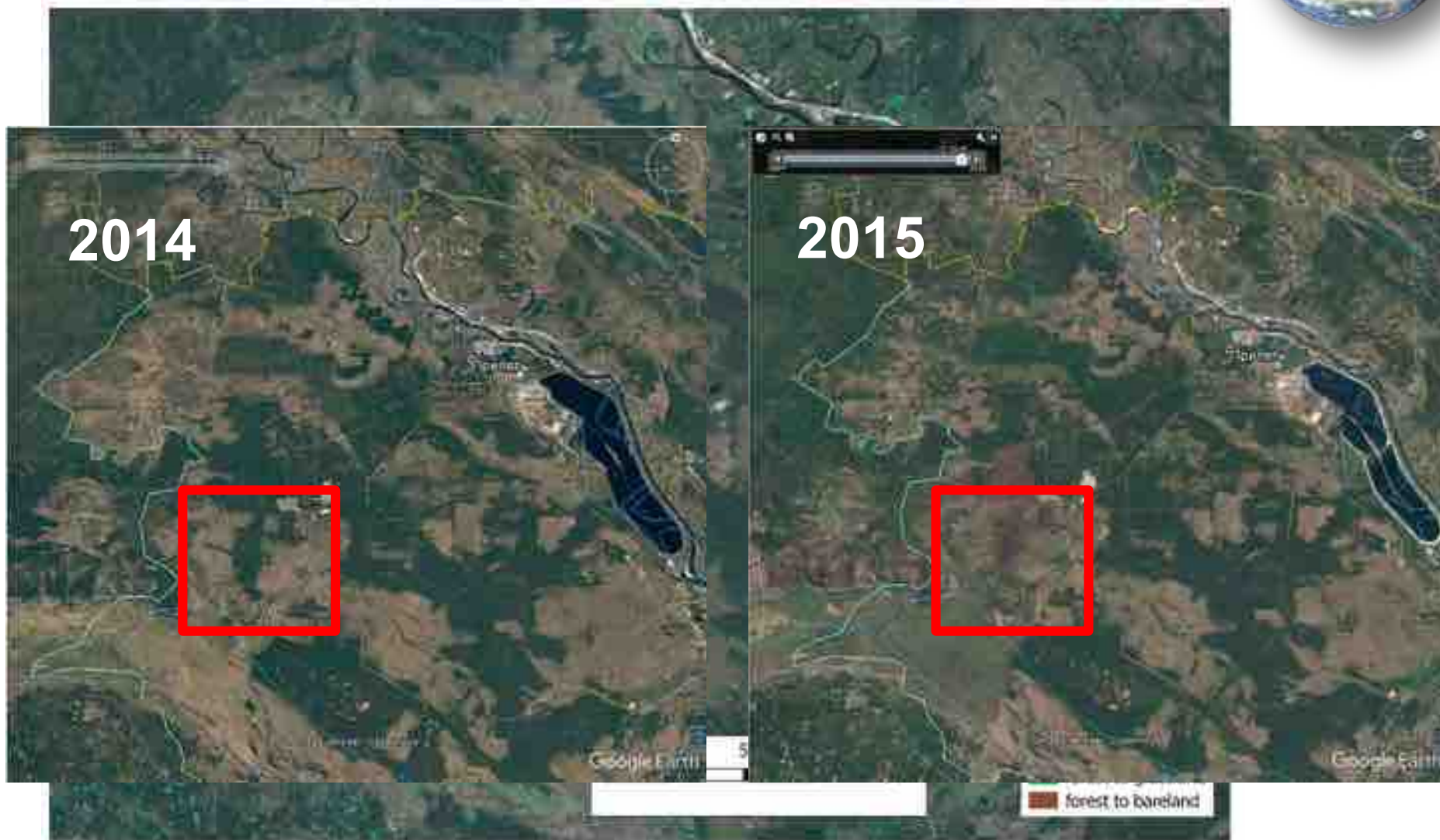
	Площа, тис га			Зміни, %	
	2000	2010	2016	2010 to 2000	2016 to 2010
0-5 %	932.3	945.8	1268.8	1.4	34.2
5-15%	328.3	367.5	489.2	11.9	33.1
>15%	7.5	8.6	9.0	14.7	4.7



і продукти



Deforestation in Chornobyl



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**.



ERA-PLANET strands



ERA-PLANET

STRAND 1

Smart cities and
resilient
societies



STRAND 2

Resource
efficiency &
environmental
management



STRAND 3

Global change
and
Environmental
treaties

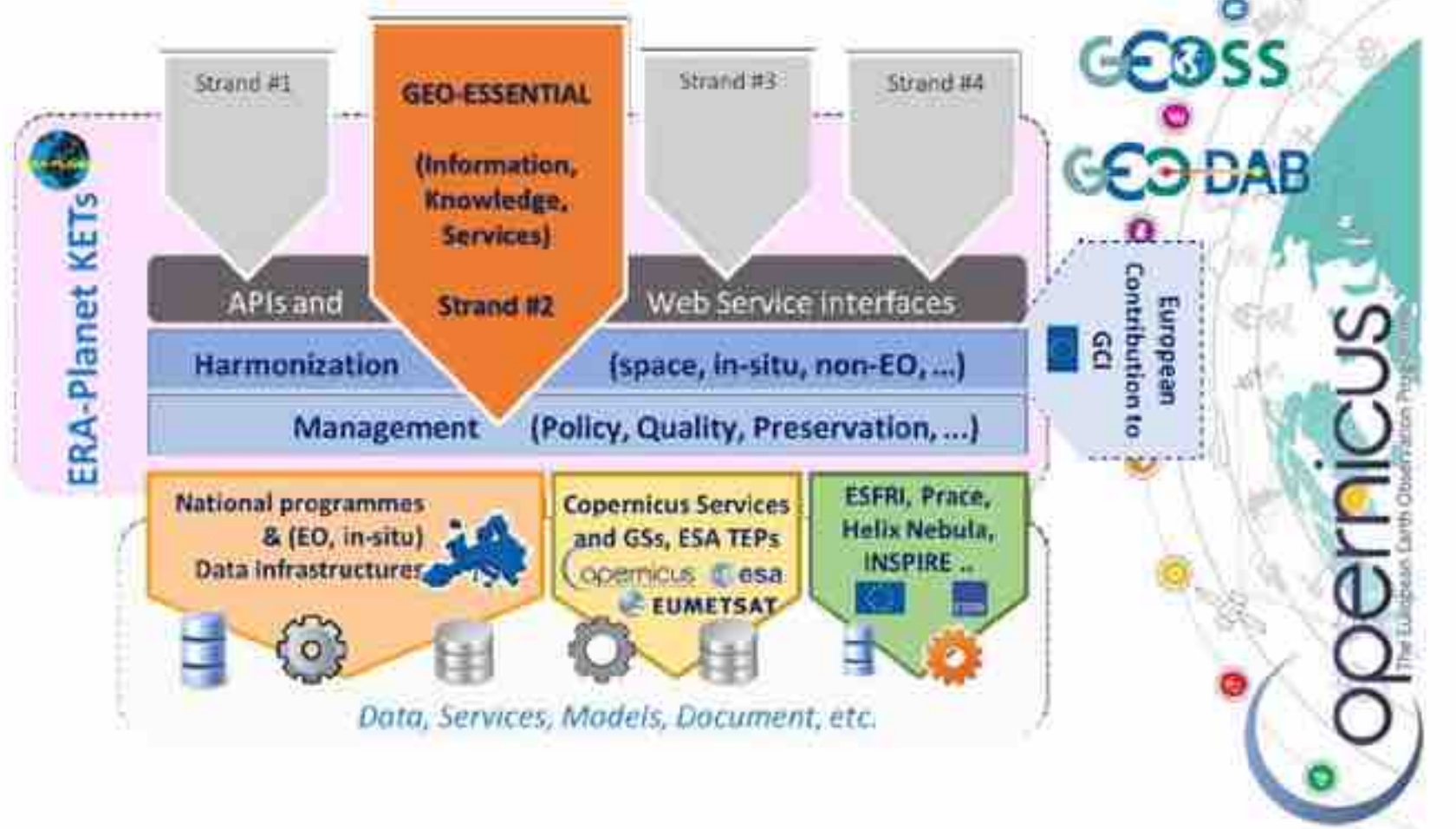


STRAND 4

Polar areas and
natural
resources



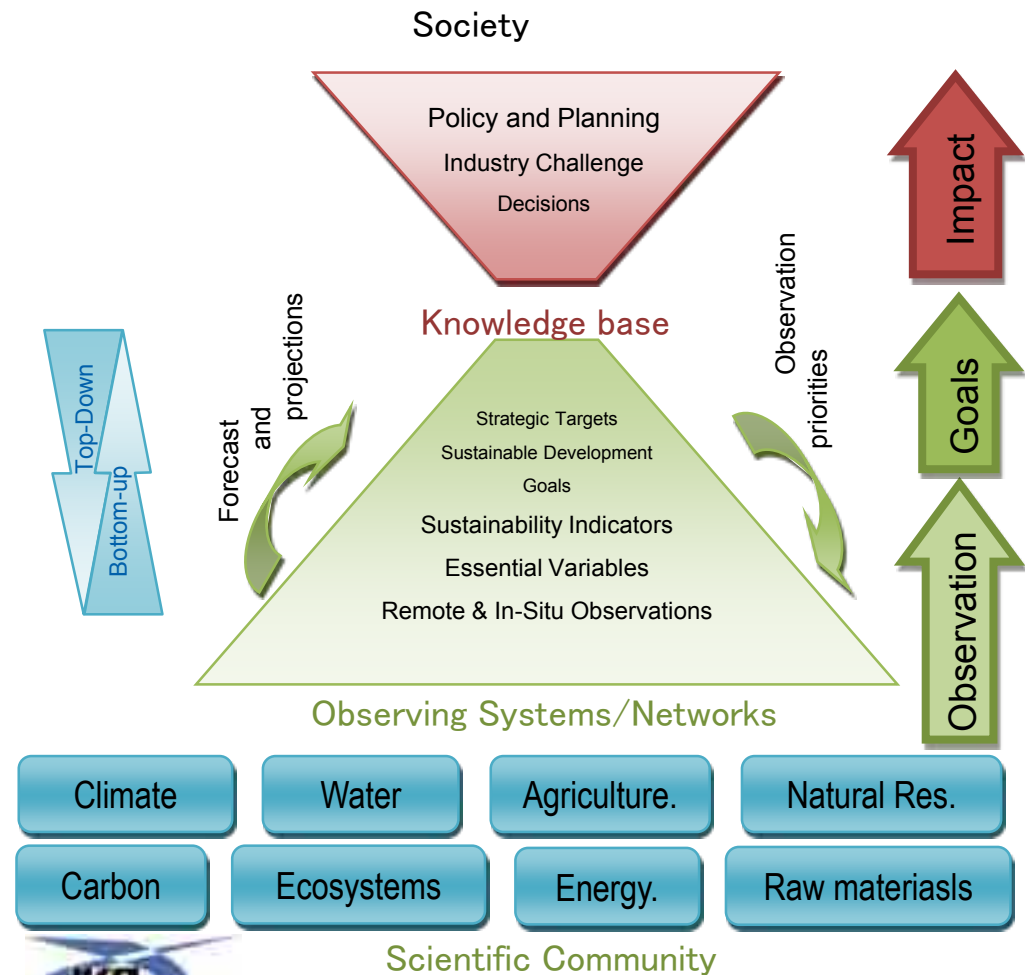
Interoperability



«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





Thank you!

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