

# Land monitoring in the LULUCF reporting – POLAND

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# The current state of art...

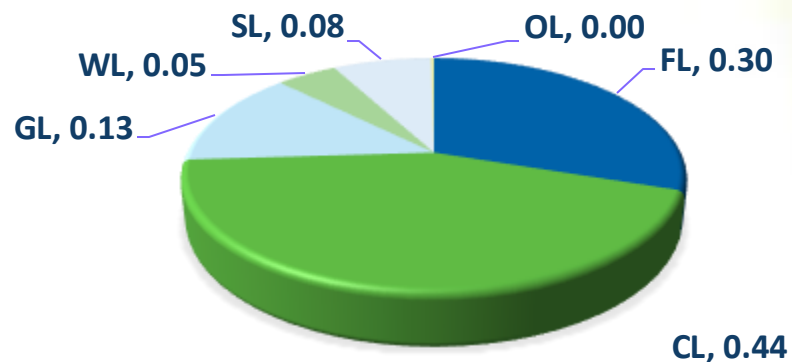
## Land statistics within the Official Statistics Survey Program

(more information is available at:  
<https://bip.stat.gov.pl/dzialalnosc-statystyki-publicznej/program-badan-statystycznych/pbssp-2023>)

## 39 national land-use categories

(specified in the Regulation of the Minister of Administration and Digitization on the registration of land and building)

Land use structure in PL [%]



IPCC	EGiB (national cadaster)
Forests land (FL)	Forests and forest lands
Cropland (CL)	Ecological land on arable land
	Wooded and shrub-covered lands on arable land
	Arable land
Grassland (GL)	Orchards
	Orchards on arable land
	Ecological land on wooded and shrub-covered areas
	Ecological land on meadows
	Ecological land on pastures
	Wooded and shrub-covered lands
	Wooded and shrub-covered lands on meadows
	Wooded and shrub-covered lands on pastures
	Meadows
	Permanent pastures
Wetland (WL)	Orchards on pastures
	Orchards on pastures
	Ecological land
	Ecological land on flowing inland waters
	Ecological land on standing inland waters
	Wasteland
	Ditches
	Internal marine waters
	Flowing inland waters
	Standing inland waters
Land under fish ponds	
Settlements (SL)	Buildings on meadows
	Buildings on pastures
	Buildings on arable land
	Residential areas
	Industrial areas
	Other built-up areas
	Urbanized non-built-up areas
	Recreational and leisure areas
	Roads
	Fossil fuel land
	Other communication areas
	Railways
	Other land (OL)
Various areas	

# Exploring data sources...



Head Office of Geodesy and Cartography (GUGiK)

Land and Building Register  
(EGiB)

National Topographic Objects Database  
(BDOT 10k)



State forests  
vector layers



Forest Data Bank  
State Forests State Holding

Historical tree cover layers



LPIS/IACS

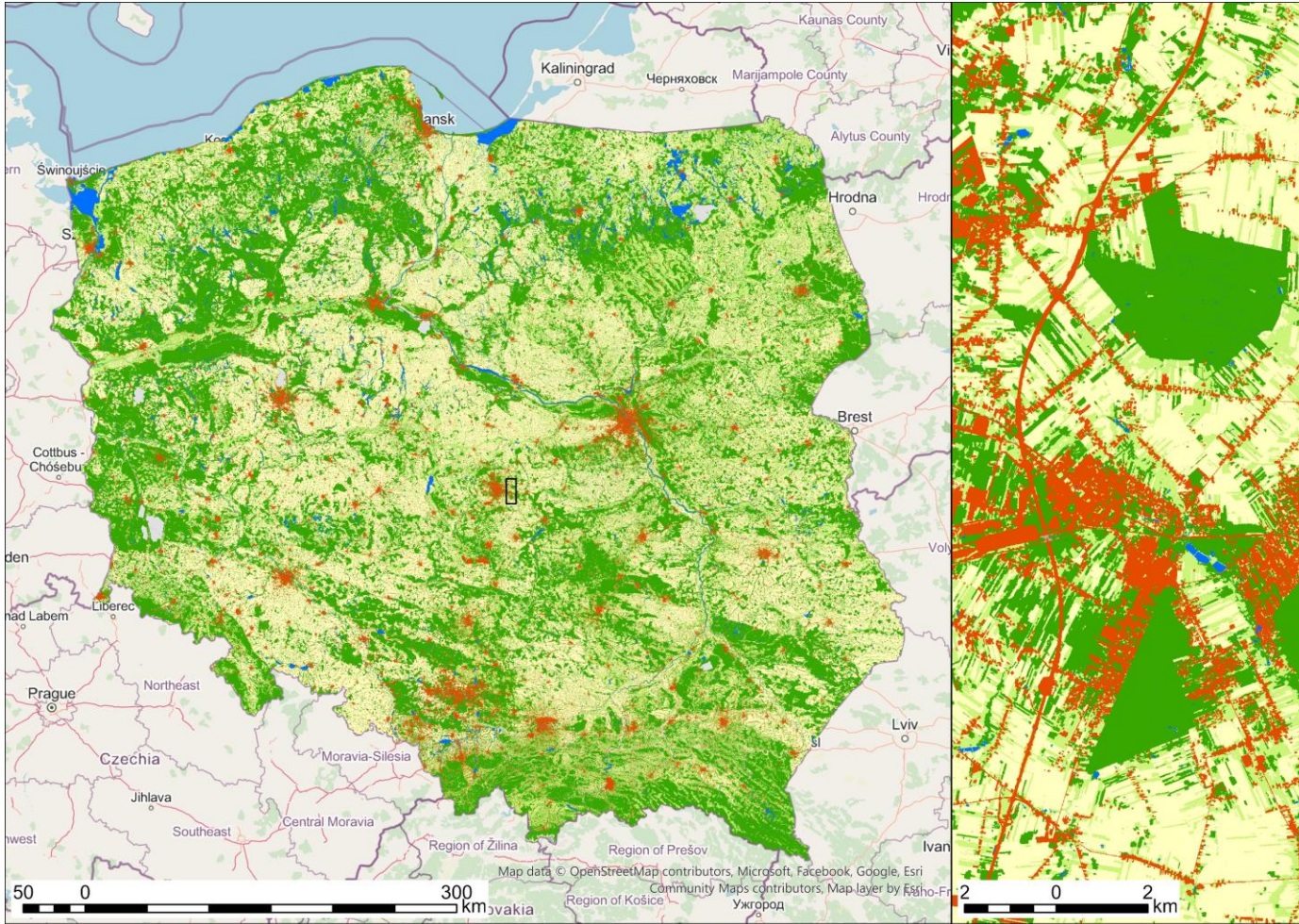


GIS Wetlands  
database

# Starting point - enriching LC with LU and Land characteristics



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InCoNaDa LULUCF map - level 1



Number of LU/LC classes:

- Level 1: 8
- Level 2: 44
- Level 3: organic/ mineral soils in level 2 classes

Reference year: 2018 & 2021

Data sources:



Topographic Objects Database

GIS Wetlands database



# Recent approach in the spatial explicit representation of land



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## **LULUC Mapping - under preparation:**

Spatially-explicitly mapping of land use and land-use change

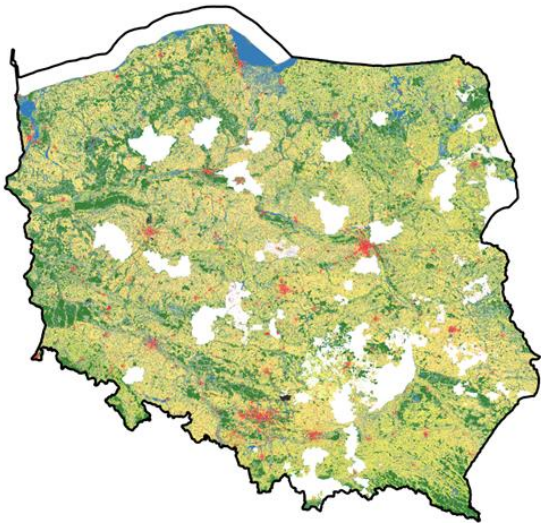
- Integration of national, spatially explicit datasets on land use for the years 2020, 2023, 2024
  - Mainly based on Digital Cadastral Maps
  - National Forest Database – used to fill in the gaps in Cadastral Maps (State Forest)
  - IACS-LPIS - Grassland and Cropland which are subsidised
  - National Topographic Database – land cover (Settlements, Other land subcategories, Croplands and Grasslands outside of IACS-LPIS, Wetlands (water bodies)
  - EO based products – CLMS Small Woody Features / CLCplus
- Hierarchical approach is applied to address the overlap between layers in the same year
- The 2020-2024 LUC and 2024 LU status

# Recent approach in the spatial explicit representation of land



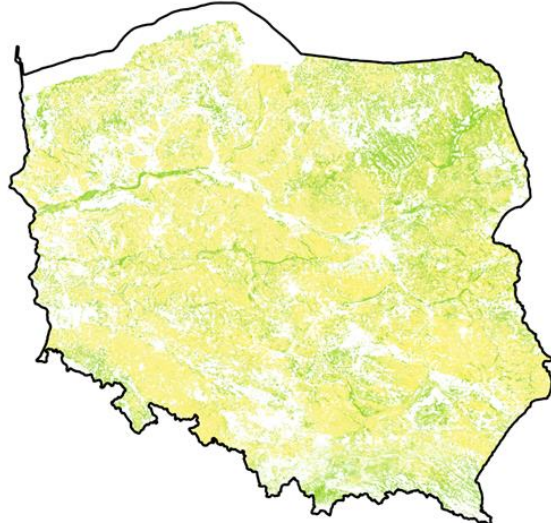
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2020-2023-2024



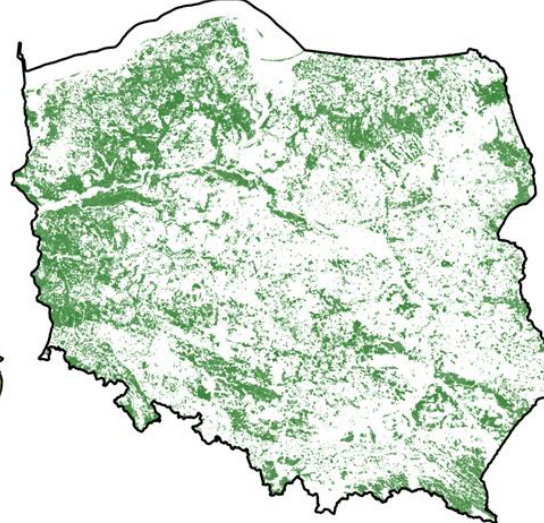
IPCC / Cadastral categories

- Forest land/ Ls,E-Ls
- Cropland/ R,S,Lzr,E-R
- Grassland/ E-ł,ł,Ps,Lz,E-Lz,E-Ps,E-Lzr
- Wetland/ Wsr,Ws,Wp,Wm,W,N,E-W,E-Wp,E-Ws,E
- Settlements/ B,Ba,Bi,Bp,Br,Bz,dr,K,Tk,Ti,Tp
- Other\_land/ E-N,Tr



IPCC / IACS-LPIS categories

- Cropland/ Grunty orne,Sady,Zagajniki
- Grassland/ TUZ+TUZ\_C



IPCC / NFI categories

- Forest/ D-STAN,ZRĄB,HAL,INNE WYL, ZWIERZ ...



- ...
- OT PTGN A kontur użytk
- OT PTLZ A kontur użytk
- OT PTRK A kontur użytk
- OT PTTR A kontur użytk
- OT PTUT A kontur użytk
- OT PTZB A kontur użytk
- Mokradło
- Roślinność na zabudowie
- Roślinność krzewiasta
- Uprawa trwała
- sad
- plantacja krzewów owocowych lub roślin ozdobnych
- plantacja roślin przemysłowych
- szkółka lasna drzew iglastych
- szkółka lasna drzew liściastych
- szkółka lasna drzew mieszanych
- ogródki działkowe, <Null>
- Teren leśny i zadrzewiony
- Woda powierzchniowa
- ...



# Use of EO and/or integration of other policy driven data



LIFE OrgFluX-PL project (starting beginning of 2026)



IOŚ-PIB

**Consortium:** 4 Polish research institutions + advisory board members, led by the Institute of Environmental Protection - National Research Institute / National Center For Emission Management

**Aim:** Improvement of the quality of the GHG flux estimation and evaluation of the level of uncertainties in GHG flux estimates from organic soils under agricultural use by developing and implementing a comprehensive, centralised data platform for land use change monitoring, gathering country specific emission factors and modelling.

## **Tasks related to the use of EO and other policy driven data:**

- Developing a comprehensive, centralized spatial information system for monitoring of land use and land use changes
- Examination and integration of existing spatial datasets towards a continuous layer of organic soils (e.g. LUCAS)
- Preparation of a spatially explicit data on grassland use intensity, productivity and drainage on organic soils (e.g. Sentinel data, exploitation of the data provided by CLMS, NSIS – Polish Space Agency).

# Summary and Planned improvements



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- The system for monitoring land use changes based on spatially-explicate data on land use is under development.
- It is mainly based on the national data i.e. Land and Building Register (Digital Cadastral Maps), IACS-LPIS, Forest Database, Topographic Objects Database
- Copernicus Land Monitoring Service - CLCplus, SWF will be used to map the area outside the IACS/LPIS and where the cadastral maps are lacking.
- Archive remote-sensed data are planned to be used to support mapping the historical land use.



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# Thank you for your attention

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