

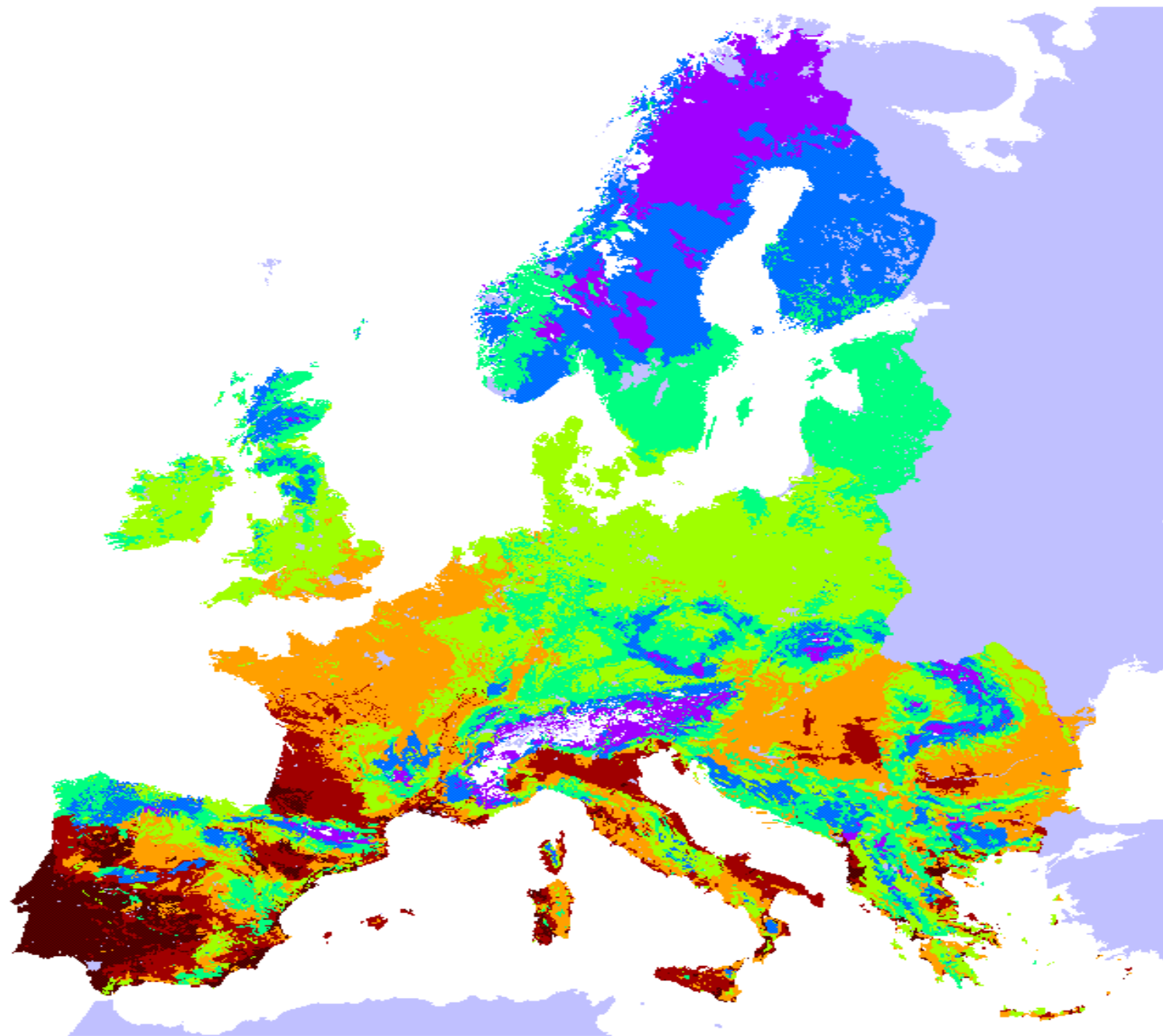
Tackling the water management issues due to agricultural activities in Romania

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Ministry Environment, Waters and Forests

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8-10 December 2021

Water management and agricultural activities

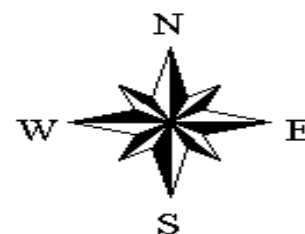
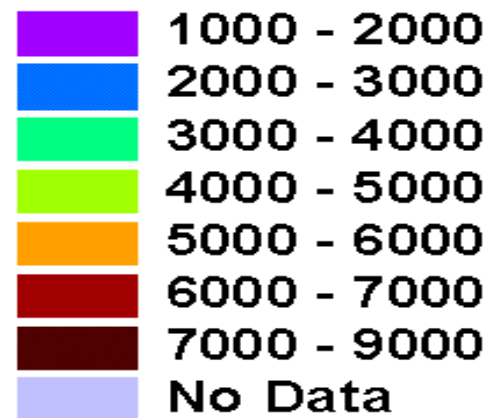
- Agriculture is an important economic sector for Romania
- An important water use and main source of diffuse pollution
- Large number of very small farms –about 3 millions
- Decrease of water use comparing with 1990
- Water use for agriculture influenced by the energy price
- Climate change is a huge challenge
- Agriculture has to adapt to climate change and EU environmental directives

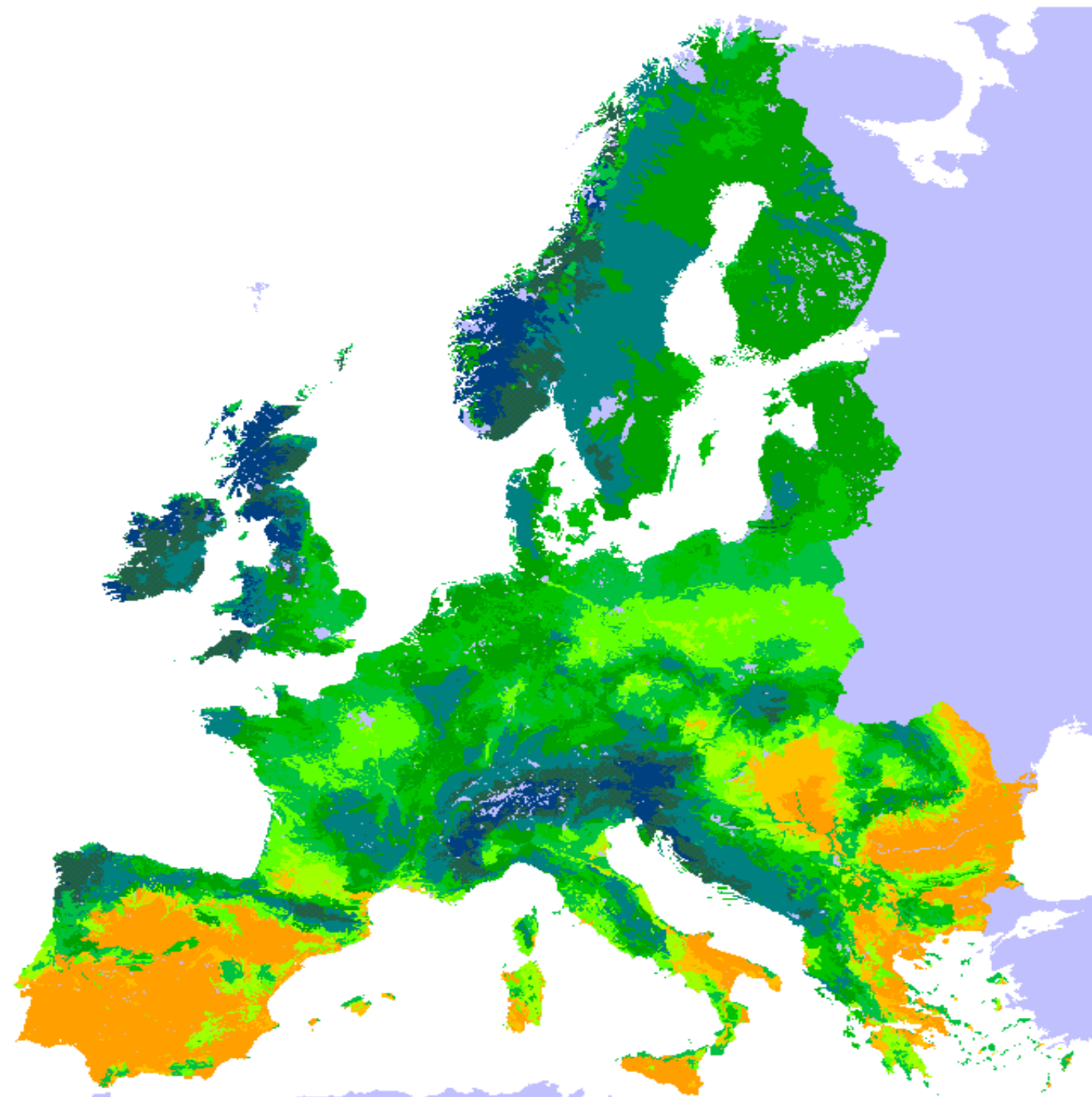


Sum T>0 All Year

Meteo 2085 h2.shp

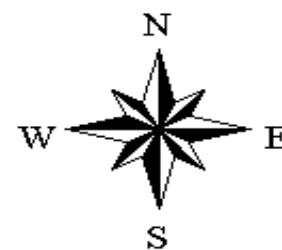
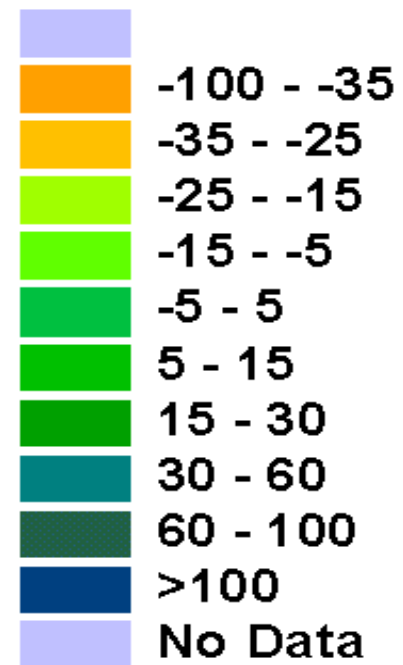
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Average Yearly Rain Excedent
Soil Drainage included

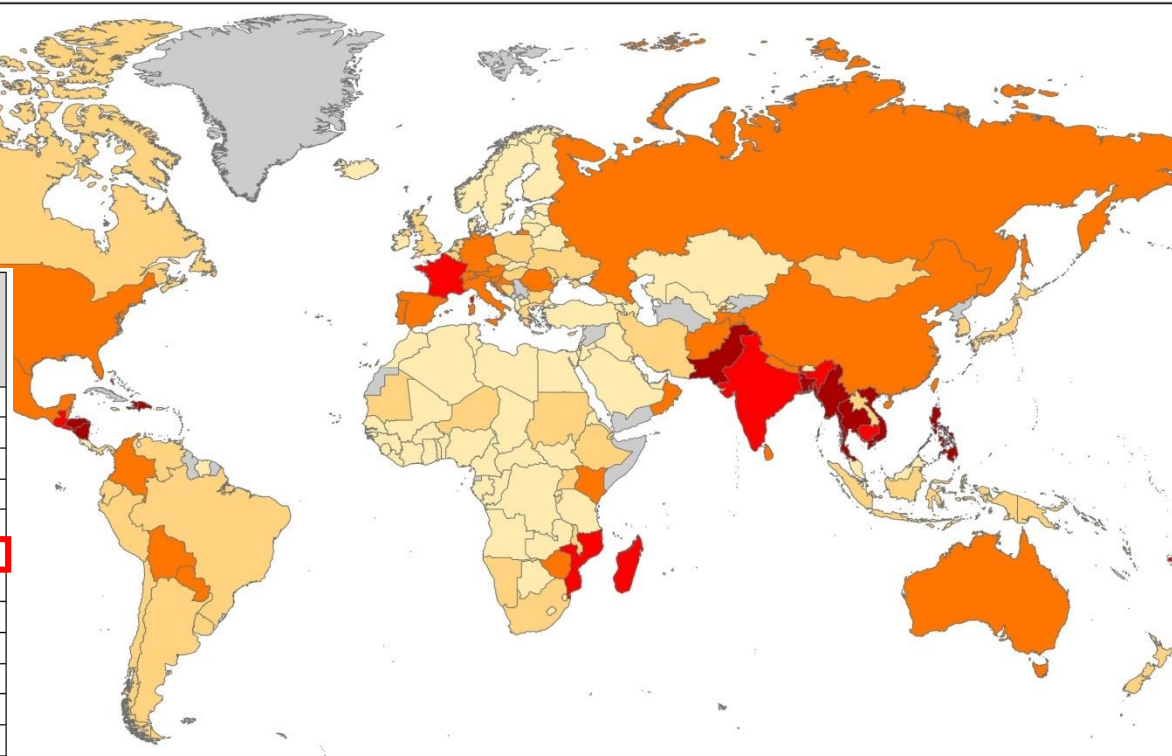
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CLIMATIC RISK INDEX (CRI) / 1997-2016

The most affected 15 countries in Europe / 1997-2016

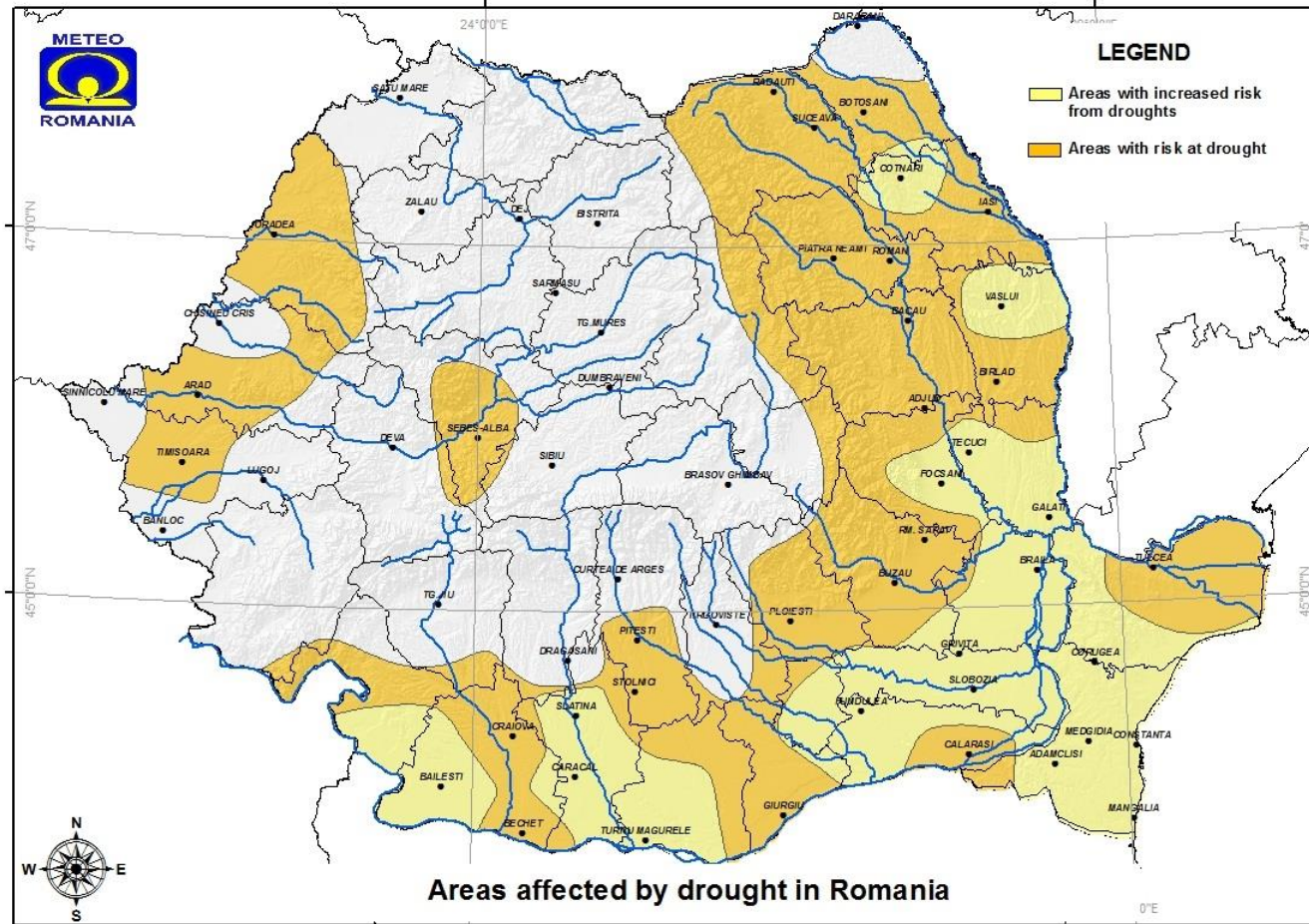
CRI Rank	Country	CRI Score	Fatalities (annual average)	Fatalities per 100 000 inhabitants (annual average)	Losses in million US\$ (PPP)	Losses per unit GDP in %
18	France	40.83	1 120.25	1.825	2 097.797	0.0964
22	Portugal	42.67	143.2	1.374	371.317	0.1432
23	Germany	43.17	474.7	0.585	3 798.068	0.1236
30	Italy	47.83	1 004.95	1.714	1 379.092	0.0699
31	Russia	48	2 944.45	2.039	2 051.364	0.0561
32	Romania	52	44.85	0.212	1 225.886	0.3362
33	Croatia	52.17	35.35	0.809	160.279	0.1979
34	Spain	52.33	696.95	1.585	828.947	0.0605
39	Switzerland	54.67	53.5	0.706	410.136	0.1063
42	Slovenia	55.67	12.05	0.597	125.033	0.2421
50	Austria	60.5	23.9	0.289	547.073	0.167
56	United Kingdom	65.83	153.25	0.25	1 475.778	0.0712
61	Hungary	68	34.3	0.341	215.435	0.0998
61	Poland	68	55	0.144	918.64	0.1281
64	Belgium	68.83	106.35	0.999	162.697	0.0408



Climate Risk Index: Ranking 1997–2016 ■ 1–10 ■ 11–20 ■ 21–50 ■ 51–100 ■ >100 ■ No Data

(Source: The Global Climate Risk Index – 2018 / Germanwatch, www.germanwatch.org/en/cri German Federal Ministry for Economic Cooperation and Development - BMZ)

DROUGHT INDICATORS / agrometeorological operational use and research activities



THE SOUTH, SOUTH-EAST AND EAST OF ROMANIA ARE THE REGIONS WITH RISK OF WATER SCARCITY AND DROUGHT



- **climatic indicators:** SPI, Aridity index, etc
- **agrometeorological indicators:** Soil moisture, heat waves, etc
- **satellite-derived products:** Normalized Difference Water Index (NDWI), Leaf area Index (LAI); Fraction of Absorbed Photosynthetic Solar Radiation (fAPAR)

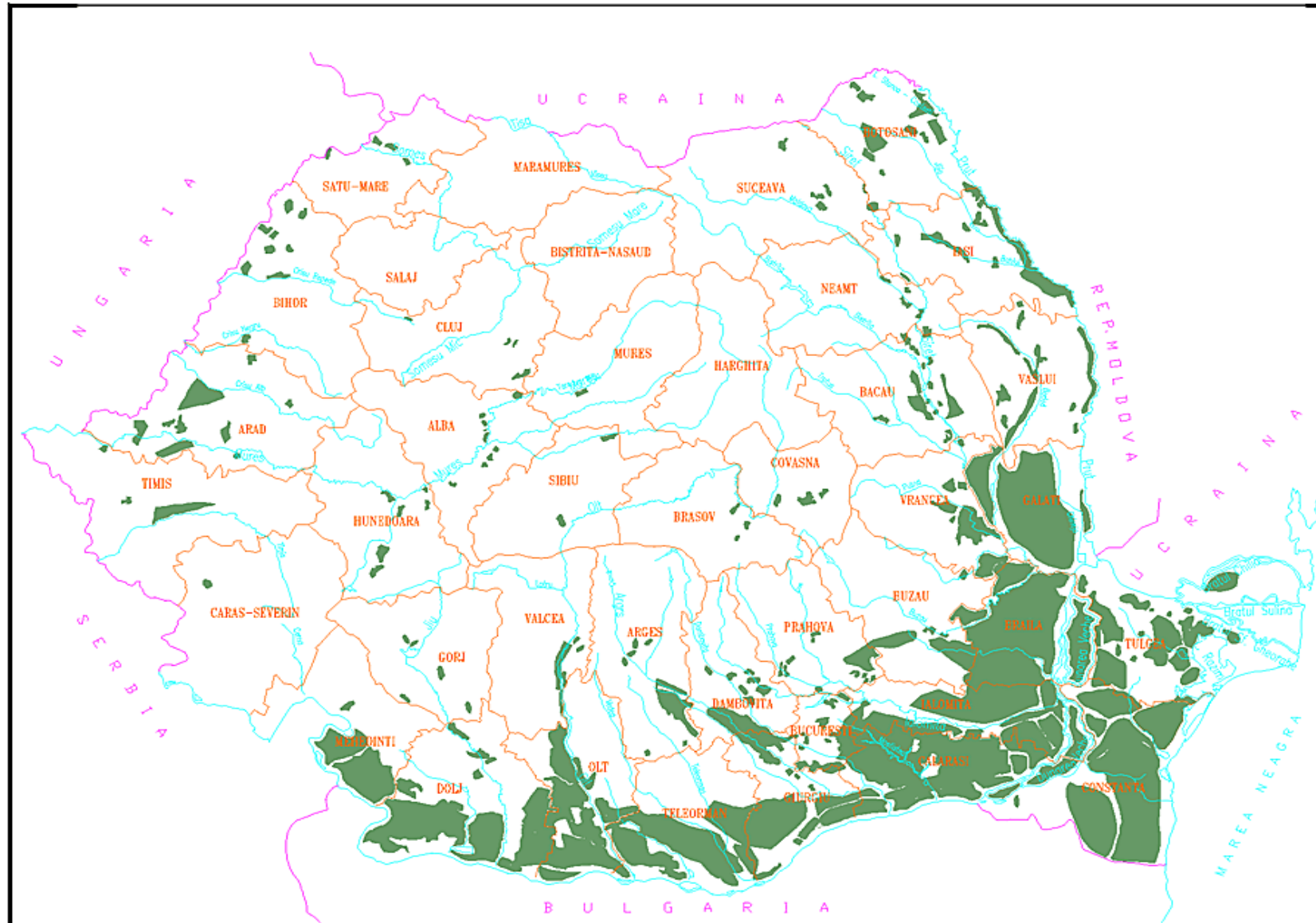
Target – small farmers

Challenges:

- **Polarised agricultural sector:** small farming and large intensive farms
- Scattered farms, mozaik pattern of villages and plots
- Limited available space for building a modern stable or an individual manure storage
- Need of further awerness and knowledge transfer
- Aged population and depopulation or rural areas
- Decrease trend of the number of animals in extensive management – already very limited livestock density at national level (0.4 LSU/ha)



Arranged Irrigated areas in Romania



Establishment and implementation of the adaptation measures (1)

Non- structural measures

- Creation of a water saving culture/new technologies
- Better forecast of water regime
- Use of economic instruments/right price on water
- Improve land use planning
- Optimization of the water management
- Re-use of water

Establishment and implementation of the adaptation measures (2)

- Afforestation
- Extensions and rehabilitation of the water supply networks
- Modernization of the irrigation systems
- Rehabilitation of the wetland areas
- Developing new water sources (wells)
- Improving waste water treatment
- Recharge of aquifers
- Waste Water reuse for irrigation

Promotion of green infrastructure for adaptation of the water management

- Started after 1990 with masive reconstruction in the Danube Delta
- Establishment of the Lower Danube Green Corridor in 2000 which include territories in Romania, Bulgaria, Moldova, and Ukraine
- Development a strategic planning after the floods on Danube in 2006 for the rehabilitation of the Romanian Danube Floodplain
- Hydromorphological restoration measures included in the River Basin Management Plan
- Implementation of the Green Deal in the water sector

Rehabilitation project of agricultural area applied in the Danube Delta



Abandoned
agricultural area



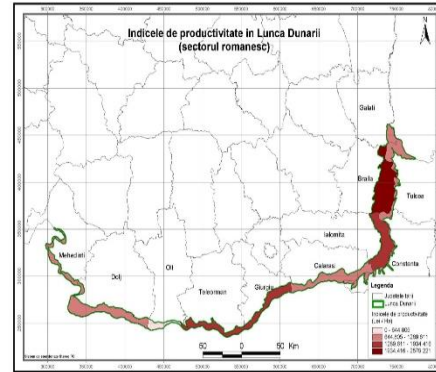
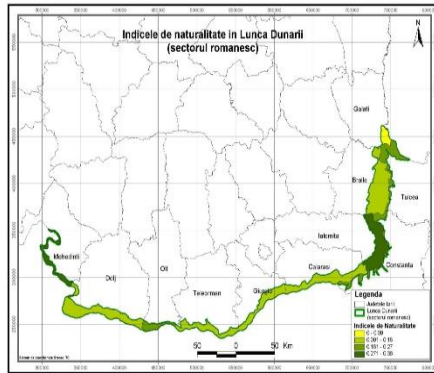
Performing the
breach for
flooding



The success of the
reconstruction
works

Ecological Rehabilitation in the Danube Delta



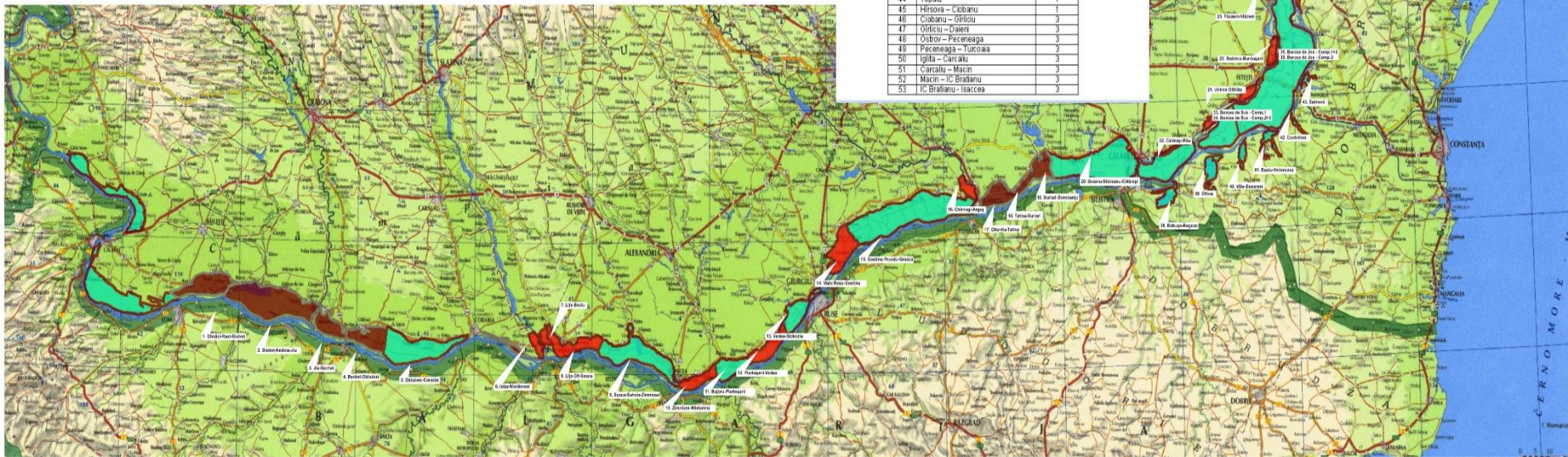


Pretabilitatea incintelor amenajate ca incinte mixte (agricole, piscicole/poldere pentru stocare de apă)

Nr. crt.	Incinta	Categoriile
1	Ohidici - Raci - Bichet	2
2	Bistret - Neteia - Jiu	2
3	Jiu - Bechet	2
4	Bechet - Dabuleni	2
5	Caluveni - Corabia	2
6	Izaz - Moldoveni	2
7	Lita - Beou	1
8	Lita - Oit - Seaca	1
9	Seaca - Surla - Jimitea	3
10	Zimnicea - Năstureu	1
11	Bujoru - Pietrosani	3
12	Pietrosani - Vedea	1
13	Vedea - Sibotca	3
14	Malu Rosu - Ostroiu	1
15	Ostroiu - Prundu - Greaca	1
16	Chimigi - Arges	1
17	Oltina - Talna	3
18	Talna - Surlui	3
19	Surlui - Dorobantu	2
20	Boroiu - Sticseanu - Calarasi	3
21	Ortiea - Calabau	1
22	Sticsea - Bradusani	1
23	Facseni - Vladeni	2
24	Braila - Ourgeni - Calmatu	1
25	Calmatu - Oroteni	1
26	Calmatu - Oroteni II	1
27	Oroteni - Chiscari	1
28	Nolari	1
29	Braila - Dunare - Siret	1
30	Braila de Jos	3
31	Sornova	2
32	Calarasi - Rau	2
33	Borcea de Sus comp. I	3
34	Borcea de Sus comp. II-III	3
35	Borcea de Jos (I-II)	3
36	Borcea de Jos (III)	3
37	Insula Mare a Braila	1
38	Babusa - Bureag	3
39	Oltina	3
40	Vile - Dunareni	3
41	Baciu - Vederosa	3
42	Cochirca	3
43	Sarmeni	3
44	Toscau	1
45	Hirsova - Ciobanu	1
46	Cobanu - Giritiu	3
47	Orliciu - Daini	3
48	Ostrov - Peceneaga	3
49	Peceneaga - Tulcoada	3
50	Igita - Carciu	3
51	Carciu - Macin	3
52	Macin - IC Brailanu	3
53	IC Brailanu - Isaccea	3

HARTA PRETABILITĂȚII INCINTELOR AMENAJATE CA INCINTE MIXTE (AGRICOLE, PISCICOLE/ POLDERE PENTRU STOCARE DE ApĂ)

- Legenda
- 1 INCINTE AGRICOLE PRETABILE
 - 2 INCINTE VULNERABILE LA INUNDATII
 - 3 INCINTE MIXTE (AGRICOLE, PISCICOLE / POLDERE PENTRU STOCARE DE APA)



Conclusions

- Agriculture is one of the main water uses which should adapt to the climate change
- Need for innovation and technology to reduce water demand –“More crop per drop”
- Awareness and training important for adaptation of the new technologies
- Use of green infrastructure is a win-win measure
- Economic instruments are very important for change in behaviour for the water sector



**Thank you for
your attention!**