



# **UKRAINE: HUMAN HEALTH AND BIODIVERSITY CONCERNS AND LINKAGES**

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**Regional Capacity-building Workshop on Biodiversity and Human Health for the Europe Region**  
**23-25 October 2017 – Helsinki, Finland**

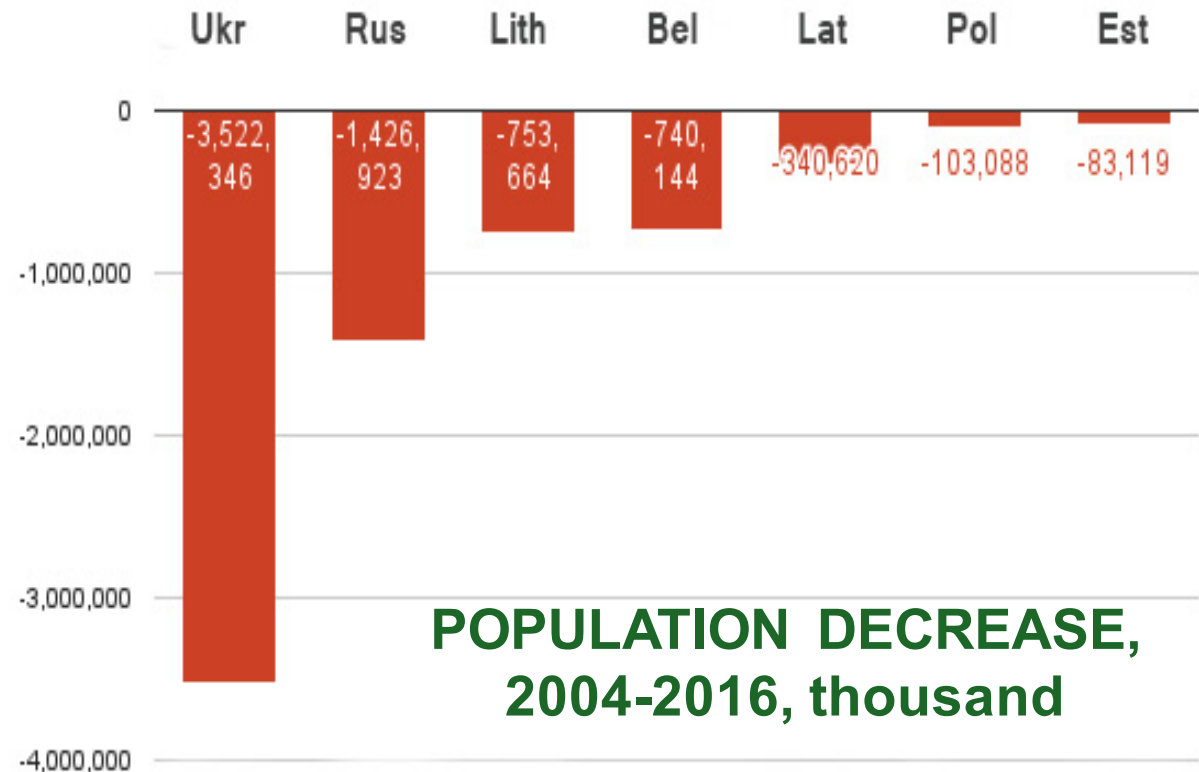
# HUMAN HEALTH AND BIODIVERSITY



# Ukraine: Current Challenges

1990	51838,5
1991	51944,4
1992	52056,6
1993	52244,1
1994	52114,4
1995	51728,4
1996	51297,1
1997	50818,4
1998	50370,8
1999	49918,1
2000	49429,8
2001	48923,2
2002 <sup>1</sup>	48457,1
2003	48003,5
2004	47622,4
2005	47280,8
2006	46929,5
2007	46646,0
2008	46372,7
2009	46143,7
2010	45962,9
2011	45778,5
2012	45633,6
2013	45553,0
2014	45426,2
2015 <sup>2</sup>	42929,3
2016 <sup>2</sup>	42760,5

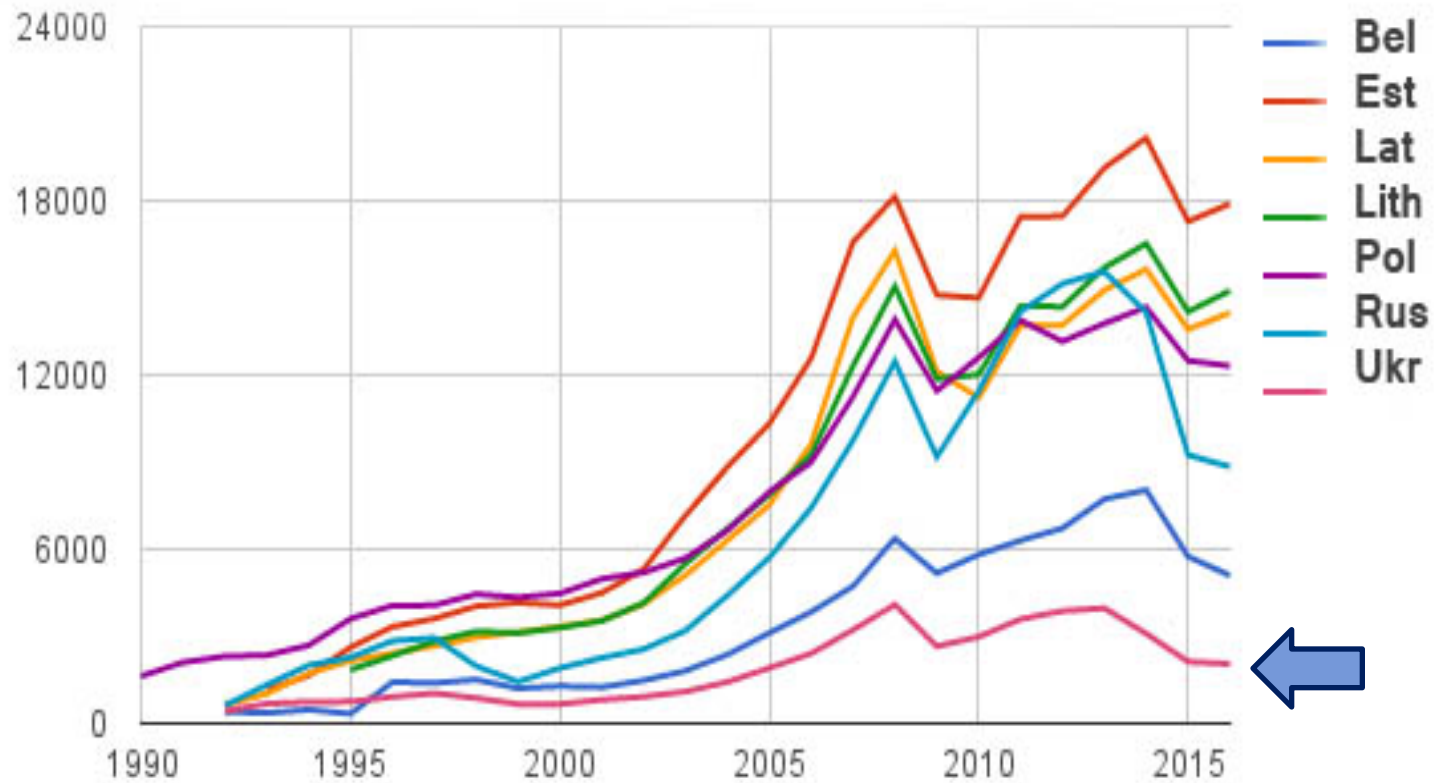
## DEPOPULATION



Source: FAO, <http://www.ukrstat.gov.ua/>

# Ukraine: Current Challenges

## ECONOMIC DEPRESSION



GDP per capita, USD



# Ukraine: Current Challenges

## Economic depression

### Ukraine GDP, billion USD



SOURCE: TRADINGECONOMICS.COM | WORLD BANK

**GDP forecast for 2017 – 113.81 Billion USD**

*Source: Trading Economics, WB*

# Ukraine: Challenges

Fighting with economic depression, Ukraine has launched

Political reform

Judicial reform

Public health reform

Administrative reform

Pension reform

Painful annexation of Crimea and on-going military conflict in Eastern Ukraine absorbs a lot of material, financial resources and human lives

# Collaboration of the Health and Environmental Sectors

## Policy and Legislation Development

Law “On Environmental Protection of Ukraine”, 1991

Law “On provision of sanitary and epidemiological wellbeing of population”, 1994

National Environmental Health Action Plan for 2000-2005, 2000

National Concept of Biodiversity Conservation, 2004

National Environmental Strategy till 2020, 2010

....

# Collaboration of the Health and Environmental Sectors

## National Programs Implementation:

National Program of Environmental Rehabilitation of Dnipro River Basin and Improving Drinking Water Quality, 1997

National Program for the Protection and Rehabilitation of the Environment of the Azov and Black Seas, 2000

State Target Program “Drinking Water of Ukraine for 2011-2020”

State Target Program of Water Economy Development and Environmental Rehabilitation of Dnipro River Basin till 2021

...



# Collaboration of the Health and Environmental Sectors



## Implementation of International Conventions and Agreements:

The Black Sea Strategic Action Plan (Istanbul, 1996; Sofia, 2009)

Protocol on Water and Health (London, 1999)

Ukraine-EU Association Agreement, 2014

Sustainable Development Goals: Ukraine, 2017

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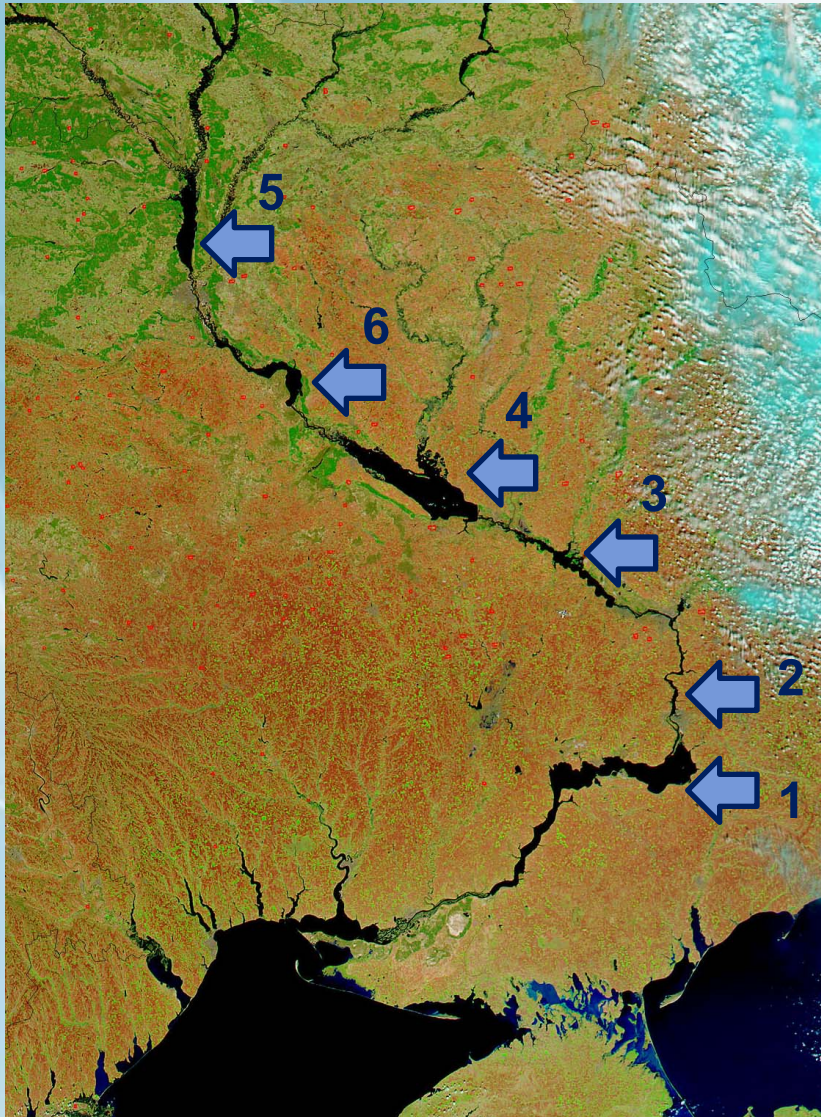
# **Collaboration of the Health and Environmental Sectors**

## **Practices for biodiversity and health mainstreaming in Ukraine**

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# Collaboration of the Health and Environmental Sectors



Dnipro River is main source of water for drinking, industrial, communal, agricultural etc. needs

## Dnipro (Dnieper) river reservoirs:

- 1 Zaporizhzhia, 1932
- 2 Kakhovka, 1957
- 3 Kremenchuk, 1961
- 4 Dniprodzerzhinsk, 1965
- 5 Kyiv, 1965
- 6 Kaniv, 1975



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Dnipro River, Kyiv area, July 2017



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## EUTROPHICATION

Dnipro River, Kyiv area, July 2017

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## Eutrophication

is characterized by excessive plant and algal growth due to the increased availability of one or more limiting growth factors needed for **photosynthesis** (Schindler 2006)

Key species are represented by green unicellular algae and cyanobacteria (blue-green algae)

Eutrophication is a condition in an aquatic ecosystem where high nutrient concentrations stimulate blooms of algae (e.g., phytoplankton). Eutrophication is a natural process that may occur to lakes, rivers with low flow, and marine shallow areas.

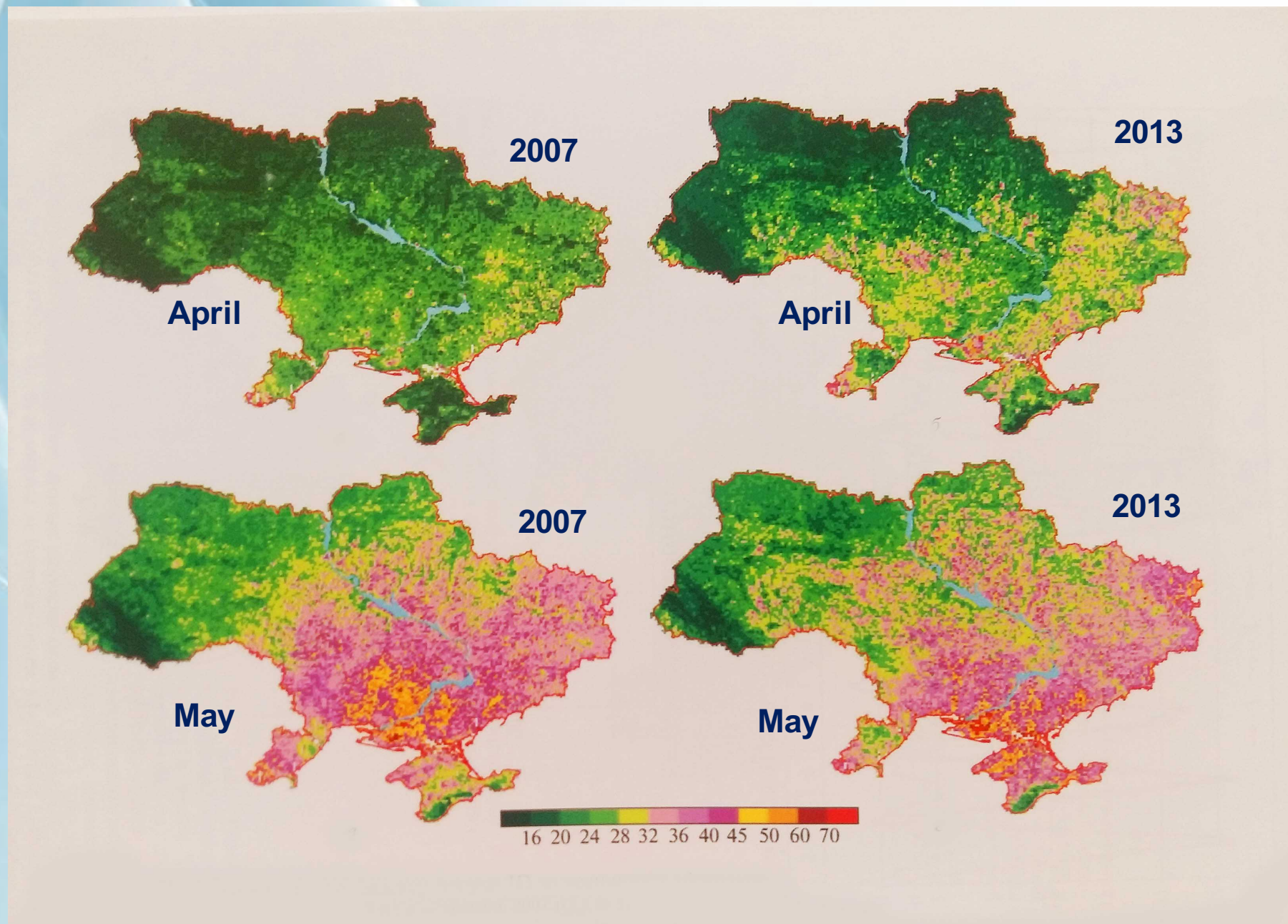
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## The main causes of eutrophication

- natural run-off of nutrients, inorganic fertilizers, detergents etc. from the catchment area
- discharge of partially treated or untreated sewage (containing nitrates and phosphates)
- warm (hot) weather
- low water flow



# DROUGHT INDEX OF TERRITORY OF UKRAINE



Source: *Greenhouse Effect and Climate Change in Ukraine*. Ed. V.I.Lialko, 2015



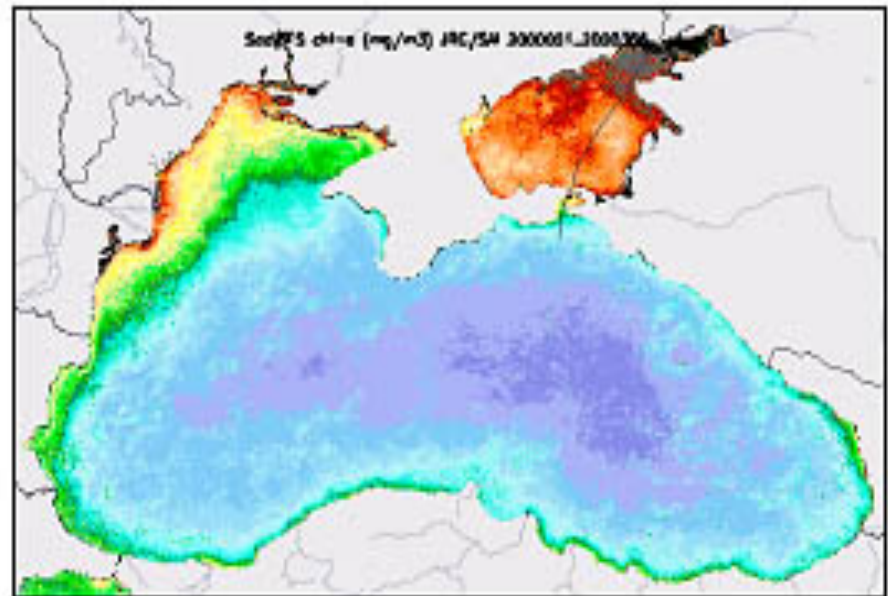
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## The main effects of eutrophication:

- Phytoplankton outbreak
- Increase in turbidity (cloudiness) of water
- Increase in rate of sedimentation
- Decrease in species diversity
- Change in dominant biota (e.g. blue-green algae replace green algae)
- Generation of bio toxins by blue-green algae
- Development of anoxic (anaerobic) conditions (low oxygen levels)
- Doom of some water organisms due to lack of oxygen
- Lost of recreational value of water bodies
- Increased health risk

# Collaboration of the Health and Environmental Sectors

- Eutrophication was recognized as one of key reasons of degradation of the Black Sea ecosystem in 1970s
- Caused by eutrophication hypoxia zones in the North-West part of the Black Sea resulted in doom of benthic species



*Source: Druon, J.-N., W. Schrimpf, S. Dobricic and A. Stips, 2002*

# Collaboration of the Health and Environmental Sectors

- Eutrophication of the Black Sea was eradicated by joint actions taken by the Health and Environment sectors at the national and international levels.**
- Rehabilitation of the Black Sea ecosystem resulted in co-benefits for Human Health and Biodiversity**
- Prevention of eutrophication in fresh water bodies requires consolidated efforts of Agricultural, Communal, and other sectors**
- Water monitoring and quality assessment, information of population, preventive actions decrease risk for human health and conserve biodiversity of aquatic ecosystems**



# Collaboration of the Health and Environmental Sectors

## HUMAN HEALTH – BIODIVERSITY INTERLINKAGE: ACTIONS

### Research, Capacity Building, Raising Awareness

- Research of Human Health and Ecosystem Health implications of Climate Change
- Research of agricultural plants variety resilient to Climate Change
- Risk Assessment of deceases associated with biota
- Disaster Risk Assessment
- Economic assessment of Human Health – Biodiversity implications
- Incorporation of Health-Biodiversity considerations into educational programs (schools and universities)
- ...



# Collaboration of the Health and Environmental Sectors

## HUMAN HEALTH – BIODIVERSITY INTERLINKAGE: ACTIONS

### Integration of Human Health - Biodiversity considerations into sectoral policies and action plans

#### Agriculture, Fishery, Aquaculture

- Regulation of invasive species
- Development and introduction of crops / vegetable plants resilient to draught and other climate change consequences
- Protection of pollinating species
- Prevention of eutrophication of water sources



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## HUMAN HEALTH – BIODIVERSITY INTERLINKAGE: ACTIONS

Integration of Human Health and Biodiversity considerations into sectoral policies and action plans

### Urban Development

- ❑ Planning green / recreational zones
- ❑ Introduction resilient plant species
- ❑ ...



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# **Collaboration of the Health and Environmental Sectors**

## **HUMAN HEALTH – BIODIVERSITY INTERLINKAGE: ACTIONS**

### **Environment**

**Integration of Human Health and Biodiversity considerations into**

- National Strategy of Adaptation to Climate Change**
- National Strategy and Action Plan on Biodiversity Conservation**
- Strategies and Action Plans of the Rehabilitation / Protection of the river basins**
- Strategies and action Plans of the Rehabilitation / Protection of the Azov and Black Seas Environment**
- ...**





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