Approaches to creating State of the Environment Reports

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Focus of SoER Reports

▶ Provide high-quality assessment of the state of and impact trends for the environment

▶ Instigate environmental and **other areas** of decision-making (**sectors, levels, types)**

▶ Encourage public and experts' participation and contributions **(case studies, governance, particiation)**

To cover in NSoER

▶ Identify priority issues influencing environmental sustainability.

▶ Describe and interpret environmental change through time and space, by making use of qualitative and quantitative information, including indicators.

▶ Identify direct and indirect causes of environmental change.

▶ Identify and characterize impacts of environmental change on environment and society.

▶ Identify and analyse policy mechanisms and responses that directly or indirectly contribute— in positive or negative ways—to environmental change

(UNEP, GEO, 2016)

# The integrated analysis to support the NSoER:

- ▶ 1. What is happening to the environment and why?

- ▶ 2. What are the consequences for the environment and humanity?

- ▶ 3. What is being done, and how effective is it?

(UNEP, GEO, 2016)

Driving Forces-Pressure-State-Impact-Response (DPSIR) framework

- Beginning in the late 1990s, several countries prepared SoE reports using the IEA approach, with increasing emphasis on root causes, policy drivers and impacts of environmental change

- Information on the evolving concepts and methods used in the Global Environmental Outlook (GEO) and related reports by UNEP.

(UNEP, GEO, 2016)

(UNEP, GEO, 2016)
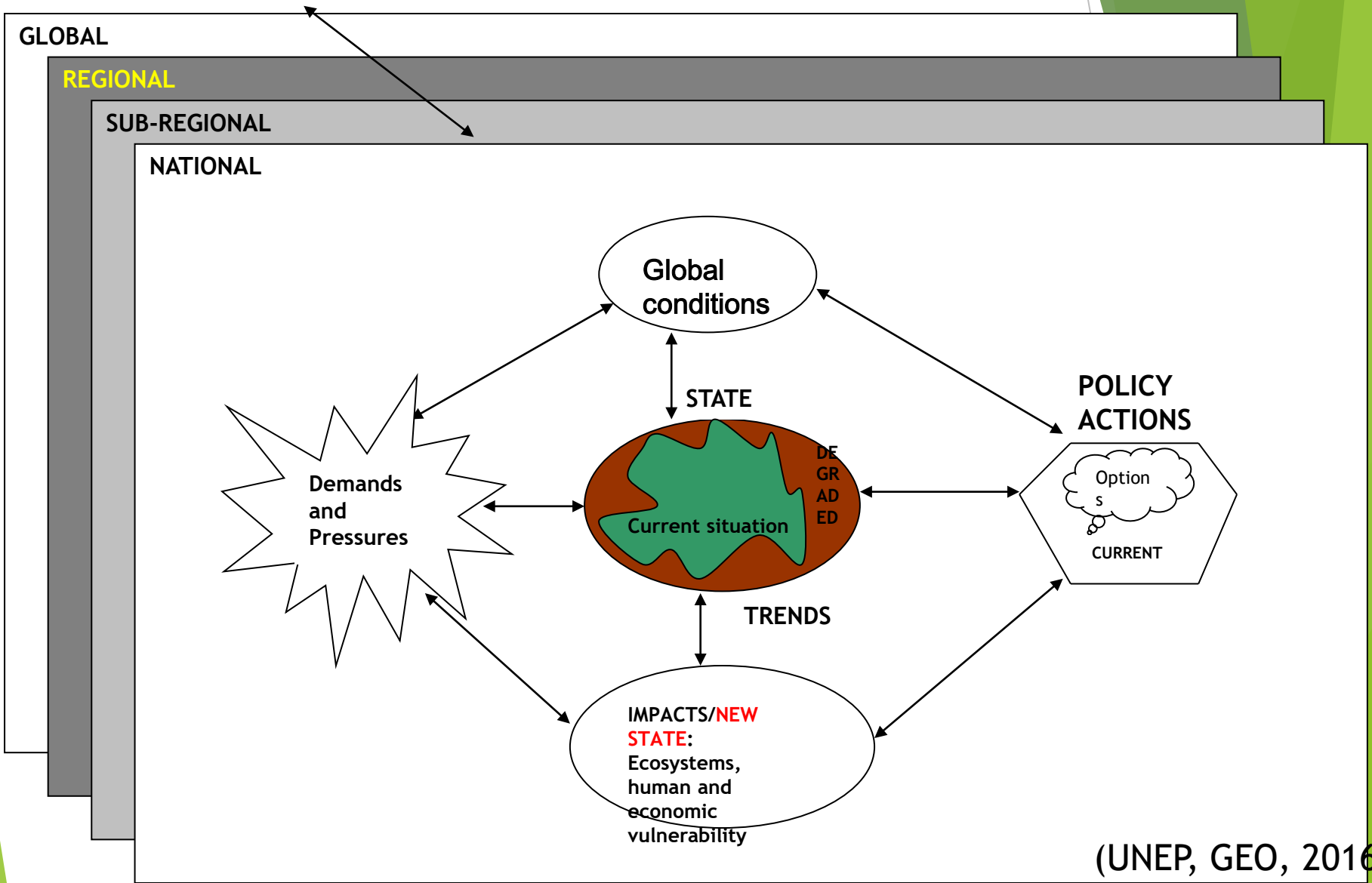
Purpose of identifying drivers and pressures

▶ To establish an integrated story of likely causes of the observed changes in the state of the environment. The story starts with identifying a pressure, which is readily identifiable as a cause of the environmental change.

▶ For example, sewage discharge from upstream communities represents a pressure causing changes in water quality in a river. A driver behind this particular pressure could be rapid population growth in the upstream communities.

(UNEP, GEO, 2016)

DRIVERS:

Sometimes referred to as indirect or underlying drivers or driving forces and refer to fundamental processes in society, which drive activities having a direct impact on the environment.

Among the key Drivers (i.e., indirect drivers) of these pressures are urban expansion due to population growth and increased agricultural production to meet growing agriculture export demands.

(UNEP, GEO, 2016)

PRESSURES

▶ increase stress on the environment, e.g. rapidly increasing population, high per capita consumption of resources, overuse of forest resources, (negative) imbalance of trade, overgrazing.

▶ Are considered:

  ▶ from a policy perspective as the starting point for tackling environmental issues, and

  ▶ from an indicator viewpoint, where they are the most readily available, since they are derived from socioeconomic databases.

(UNEP, GEO, 2016)

STATE

▶ the condition of the environment resulting from the pressures outlined above, e.g. polluted water resources, degraded land, deforested areas.

(UNEP, GEO, 2016)

Impacts

▶ Is important in affecting human health and well-being, and socioeconomic activities either directly or indirectly, e.g. degraded land → reduced food production→ increased food insecurity →malnutrition

▶ Also includes trends, that may reveal environmental change, which could be both natural and human induced.

(UNEP, GEO, 2016)

RESPONSES

▶ Societal or individual actions taken to overcome, reduce, correct or prevent negative environmental impacts; correct environmental damage; or conserve natural resources.

▶ May include regulatory action, environmental or research expenditures, public opinion and consumer preferences, changes in management strategies, and the provision of environmental information.

▶ Satisfactory indicators of societal response tend to be the most difficult to develop and interpret.

(UNEP, GEO, 2016)

DPSIR Illustration
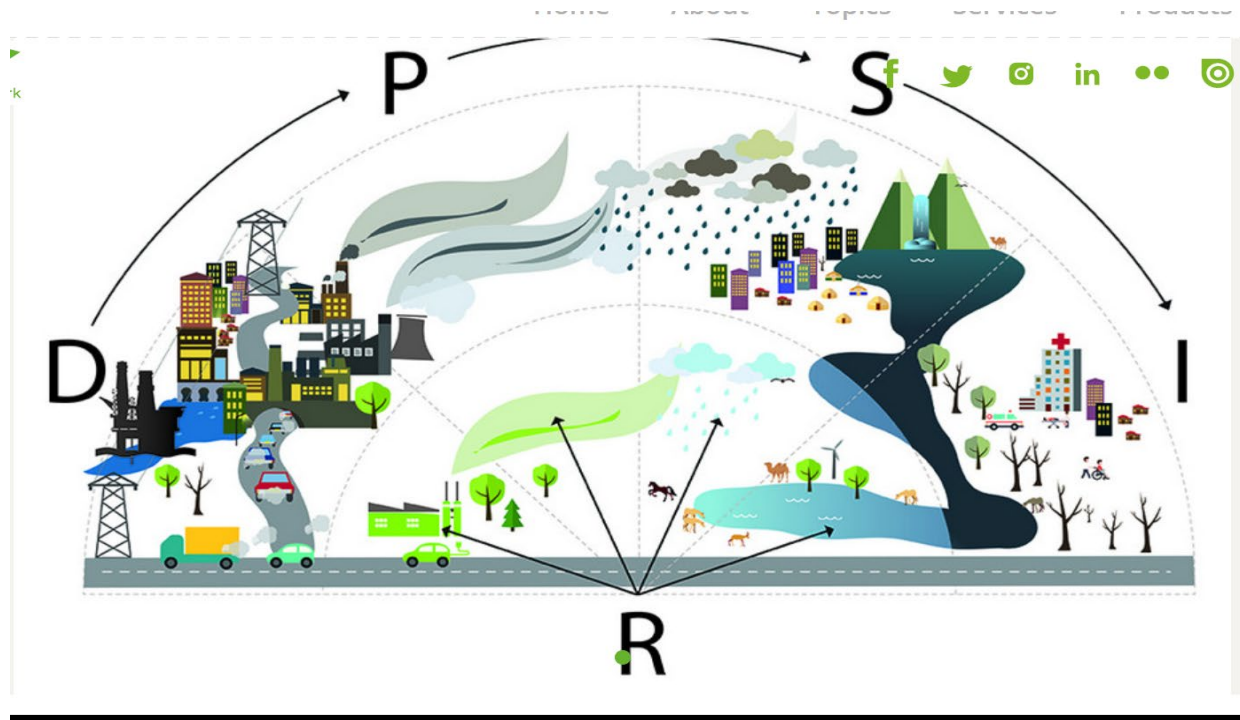
Global

Regional

Local

HUMAN SOCIETY

D – DRIVERS:

Material, Human and Social Capitals

Human development:
- *Population demographics*
- *Economic processes* (consumption, production, markets and trade)
- *Scientific and technological innovation*
- *Distribution pattern processes* (inter- and intra- generational)
- *Cultural, social, political and institutional* (including production and service sectors) *processes*

R – RESPONSES
to environmental challenges:

formal and informal adaptation to, and mitigation of, environmental change (including restoration) by altering human activity and development patterns within and between the D, P and I boxes through inter alia: science and technology, policy, law and institutions.

I – IMPACTS

Change in human well-being broadly defined as human freedoms of choice and actions, to achieve, *inter alia*:
- *security*
- *basic material needs*
- *good health*
- *good social relations*
which may result in human *development* or *poverty, inequity and human vulnerability.*

Demographic, social (institutional) and material factors determining human well-being

P – PRESSURES:

Human interventions in the environment:
- Land-use
- Resource extraction
- External inputs (fertilizers, chemicals, irrigation)
- Emissions (pollutants and waste)
- Modification and movement of organisms

Natural processes:
- *Solar radiation*
- *Volcanoes*
- *Earthquakes*

ENVIRONMENT

S – STATE and trends:

Natural capital: atmosphere, land, water and biodiversity

Environmental impacts and change:
- *Climate Change and Depletion of the Stratospheric Ozone Layer*
- *Biodiversity change*
- *Pollution, degradation and/or depletion of air, water, minerals and land (including desertification)*

Environmental factors determining human well-being
- *Ecological services* such as Provisioning services (consumptive use), Cultural services (non-consumptive use), Regulating services and Supporting services (indirect use)
- *Non-ecosystem natural resources* i.e. hydrocarbons, minerals and renewable energy
- *Stress inter alia* diseases, pests, radiation and hazards

(UNEP, GEO, 2016)

| TIME: | 1987 | 2007 - 2015(short term) | 2050 (medium term) |

(long term)

Presenting indicators

Examples of indicators on aspects of DPSIR

Data availability and gaps

SoER, Jamaica, 2019

13. Environmental Health & Air Quality

Scorecard 13: Environmental Health & Air Quality (2014 – 2017)

This scoresheet is intended to serve only as a visual chapter summary of the content that follows. For in-depth explanations of indicators, data and data sources please consult the contents of this chapter.

INDICATOR	SUMMARY	ASSESSMENT GRADE Condition / Trend	CONFIDENCE Grade Trend	RISK
MEAN ANNUAL CONCENTRATION OF FINE PARTICULATES IN URBAN AREAS	Kingston PM$_{10}$ - Rockfort and Spanish Town Road do not meet standards.	POOR (For the monitored areas – generally poor and declining in some areas. Insufficient data on public health cases)	2 1	Insufficient data.
HOUSEHOLD AIR QUALITY	No data on air quality but trash burning appears to be prevalent (32.1% of households reported burning trash in the 2015 SLC). The 2011 Census (STATIN) found ~16% of households reported using fuels not considered clean-burning (mainly wood and charcoal).	UNCLEAR	1 1	Insufficient data.
% MONITORED SITES MEETING SO2 AND NO2 WHO STANDARDS	SO$_2$ compliance: down from 85% in 2014 to 62% in 2017. NO$_2$ compliance: down from 100% compliance in 2014 to 75% in 2017.	POOR / NET LOSS Poor data coverage (not generally representative). Net loss -compliance has declined in the review period.	2 2	Insufficient data.
MORTALITY DUE TO UNSAFE WASH	No data. Proxy indicators – Improved drinking water sources coverage – 80% population in 2015. Sanitation – 82% population (2015) Outbreaks of dengue, Zika and Chikungunya – *Aedes aegypti* mosquito	STABLE (Likely to be stable except for possible increasing outbreaks of mosquito borne diseases (standing water)	2 2	Insufficient data. Likely to impact the poor and very young disproportionately.
EXPOSURE TO HAZARDOUS WASTE	Insufficient data. Lead poisoning appears to be locally important.	UNCLEAR (insufficient reporting of hazardous waste production and blood lead levels)	1 1	Insufficient data.

Presenting indicator trends

Indicator	Long-term trend (15 years and more)	Medium-term trend (10 years)	Short-term trend (5 years)	State
Water quality in watercourses	↗	→	→	~
Bathing water quality	↗	→	~	~
Groundwater quality	N/A	→	→	~
Population supplied with water from the public water supply	↗	↗	→	✓
Waste water treatment	↗	↗	↗	✓
Waste water discharge	↘	↘	↘	~
Groundwater and surface water abstraction by sector	↘	↘	↘	~
Water consumption from the public water supply and water losses in the water supply network	↘	→	→	~

SoER, Slovakia and Czech republic, 2022 and 2020)

Trends in the indicators
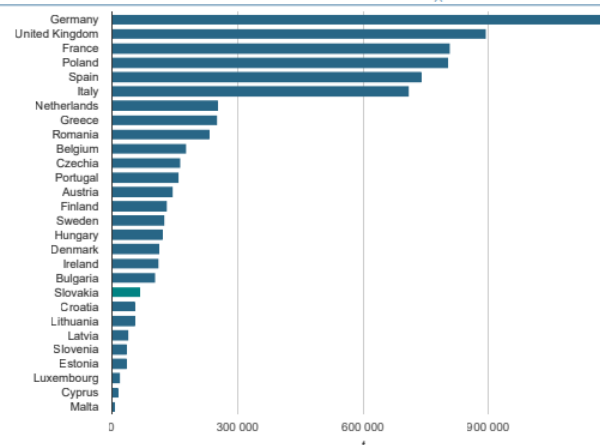
- Choosing a base year (2005 in the example)

- On the States, but also Pressures presented in the context of the environmental issues water used in agriculture, not actual performance of the sector - in the early the intro section

Biodiversity

Conservation status of species and habitats of European importance

Change since 2005	🙂	Compared to the 1st (2004-2006) and 2nd (2007-2012) repo in the 3rd reporting period (2013-2018) there was a more s improvement in knowledge, however in fact their status re
Last year-on-year change	😐	
Status (2018)	☹️	

Status and trend in the national net

Change since 2005	😊	
Last year-on-year change	😊	
Status (2018)	😐	

Agriculture

Area of agricu

Change since 2005	☹️	Since 2005 the agricultural lan
Last year-on-year change	☹️	Another fall in t 2017.
Status (2018)	😊	Agricultural lan

Consumption of industrial f

Change since 2005	☹️	There has beer and pesticides
Last year-on-year change	☹️	The year-on-y increased.
Status (2018)	😐	5 403.5 t of pesc consumption of hectare of soil.

Water demands

Change since 2005	😐	Between 2005 surface water b
Last year-on-year change	😊	The abstraction year.
Status (2018)	😊	The share of su total water abst

SoER, Slovakia, 2022)

International comparison

- Performance in terms of the SDGs and some MEAs

- Comparing to other countries in the region, groups of countries and others

Chart 008 I International comparison of emissions of NO$_x$ (2017)

Germany
United Kingdom
France
Poland
Spain
Italy
Netherlands
Greece
Romania
Belgium
Czechia
Portugal
Austria
Finland
Sweden
Hungary
Denmark
Ireland
Bulgaria
Slovakia
Croatia
Lithuania
Latvia
Slovenia
Estonia
Luxembourg
Cyprus
Malta

0   300 000   600 000   900 000
t

Source: Eurostat

▼ CURRENT ASSESSMENT – SDG DASHBOARD

▼ SDG TRENDS

Decreasing — Decreasing score, i.e. country is moving in the wrong direction

Stagnating — Score remains stagnant or is increasing at a rate below 50% of the growth rate needed to achieve the SDG

Moderately Increasing — Score is increasing at a rate above 50% of the required growth rate but below the rate needed to achieve the

On track — Score is increasing at the rate needed to achieve the SDG by 2030

Maintaining SDG achievement — Score is level and trend remains at or above SDG achievement

	Total national CO$_2$ emissions (ktons)*		Emissions per capita per capita (2013-2014)**		% change in Emissions	Emissions Rank
	2013	2014	2013	2014		
Jamaica	8,093	7,422	2.98	2.73	-8.5%	7, 7
Antigua and Barbuda	524	532	5.36	5.38	0.3%	3, 3
Bahamas, The	2,802	2,417	7.43	6.32	-15%	2, 2
Barbados	1,448	1,272	5.13	4.49	-12%	4, 4
Belize	513	495	1.49	1.41	-5.6%	13, 13
Dominica	132	136	1.82	1.86	2.2%	12, 12
Grenada	304	242	2.87	2.28	-21%	8, 10
Guyana	1,936	2,010	2.55	2.63	3.1%	9, 8
Haiti	2,406	2,860	0.23	0.27	17%	14, 14
St. Kitts and Nevis	224	231	4.21	4.30	2.2%	5, 5
St. Lucia	407	407	2.32	2.31	-0.4%	10, 9
St. Vincent and the Grenadines	209	209	1.91	1.91	0.0%	11, 11
Suriname	1,918	1,991	3.53	3.63	2.8%	6, 6
Trinidad and Tobago	46,542	46,274	34.5	34.2	-1.0%	1, 1
CARICOM average	4,818	4,750	5.45	5.26	-3.5%	

* CO2 emissions from energy and cement manufacturing (ktons) from the Carbon Dioxide Information Analysis Centre (CDIAC);
**Population data for Jamaica from STATIN, all other population data are from the World Bank Indicators series (SP.POP.TOTL).

SoER, Czech republic, Jamaica, 2022 and 2019)

Criteria for selecting policies

▶ Relevance to the environment.

▶ Relevance for the public and decisionmakers.

▶ Link with key environmental priorities identified in the state of the environment and trends section.

▶ Affecting the health, income and well-being of a large number of people.

▶ Importance of policy response to an environmental situation that is: – physically severe – changing rapidly – irreversible

▶ Related to the country's international obligations.

▶ Potential for policy to cause disruption or conflict.

▶ Potential for easy and feasible solutions.

(UNEP, GEO, 2016)

Examples of responses & gaps

▶ Identifying all policies that have significant influence on the environment and human well-being. It also helps identify policy gaps and opportunities for policy innovation and determine the effectiveness of policies.

▶ Accelerate the national programmes

▶ Creating monitoring and enforcement of emission standards

▶ Promote reclamation of wastelands through energy plantations for rural energy

▶ Regulation and implementation

(UNEP, GEO, 2016); SoER 2008, India

Responses

- Beyond regulation
- Programs, budget allocation
- Other types of projects
- Pilot projects, initiatives

Water quality is a true index of health

Programme		Number of approved projects	Financing amount (EUR)	Drawing as of 31 December 2018 (EUR)
Table 023 I Overview of provided subsidies and loans (2018)				
Priority axis 1	Air protection and ozone layer	1.1 Support for heat and hot water generation through the use of low-emissions sources	3	225 245	225 244.99
		1.2 Promoting the generation of heat, hot water and electricity through the use of renewable resources	3	380 000	379 523.19
		1.3 Supporting projects aimed at adapting to the unfavourable consequences of climate change while improving air quality	14	1 089 771	1 078 007.66
Priority axis 2	Protection and use of water		213	26 392 514	25 710 763.70
Priority axis 3	Development of waste management	3.1 Prevention of biodegradable municipal waste generation and recovery of biodegradable municipal waste	22	1 292 168	1 248 643.33
		3.2 Introducing separate collection in municipalities and building collection yards	15	1 278 202	1 260 483.30
Priority axis 4	Nature and landscape protection	4.1 Establishment of TSES elements and green infrastructure based on approved TSES documentation	0	0	0
		4.2 Protection of the natural species composition of ecosystems	2	200 000	183 455
		4.3 Implementation of approved care programmes	0	0	0
		4.4 Implementation of measures in buffer zones protected areas	1	350 000	350 000
		4.5 Implementation of measures to achieve or maintain the favourable status of protected species and habitats	3	330 000	329 989.47
		4.6 Implementation of measures aimed at fulfilling, achieving and maintaining the mission of zoos	1	78 000	77 900
Priority axis 5	Environmental training, education and promotion	5.1 Environmental training, education and promotion	13	973 839	856 528.01
Priority axis 6	Research, development and research aimed	6.1 Research and development aimed at			

Programme	
Flood prevention III and IV (emphasis on implementation of mea...	
Support for measures on small watercourses and small reservoirs (fr...	2,...
Restoration. desilting and reconstruction of ponds and construction of water reservoirs (since 2016 replaced by the programme Support for Water Retention in the Landscape – Ponds and Water Reservoirs)	66.2
Support for Water Retention in the Landscape – Ponds and Water Reservoirs (since 2016)	456.4
Support for measures to mitigate the negative impacts of drought and water scarcity	76.2
Supporting the competitiveness of the agri-food complex – Irrigation I and II	330.9
Construction and renewal of water supply and sewerage infrastructure (to 2015). Construction and technical improvement of water supply and sewerage infrastructure I and II**	2,393.1
Vlachovice – settlement of rights to immovable property affected by the planned construction of a waterworks	120.0
Settlement of rights to immovable property affected by the planned implementation of a comprehensive drought solution in the Rakovník region	33.0
Skalička – settlement of rights to immovable property affected by the planned construction of a waterworks	120.0
Support for the planting of ameliorative and strengthening trees according to the Forestry Act	56.8
Total national resources	**9,228.2**
Rural Development Programme 2014–2020*** – Implementation of land consolidation in total	9,398.0

Cumulative impacts and linkages

▶ Presenting multiple challenges impacting people and then environment (competition over water use, different osurces of pollution)

▶ Implications for responses

SoER, Australia, 2022)
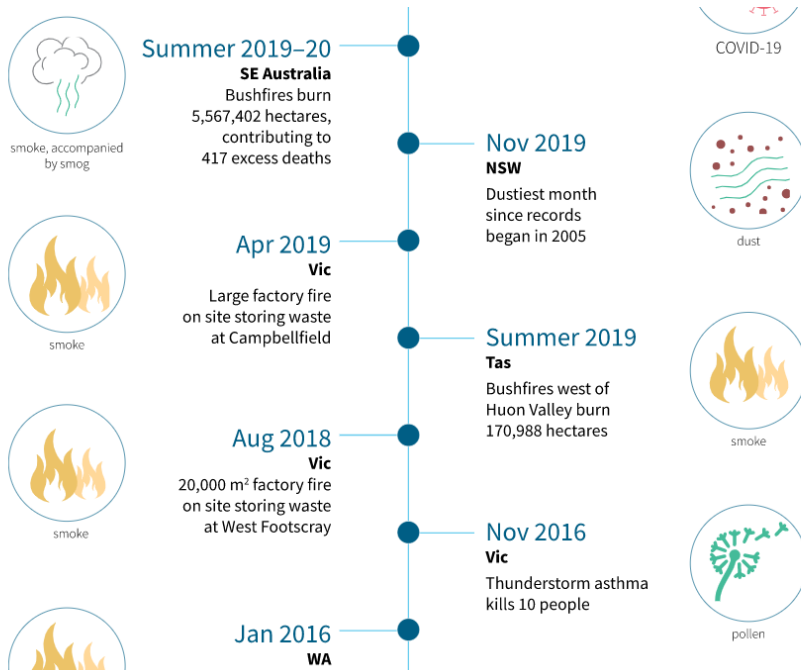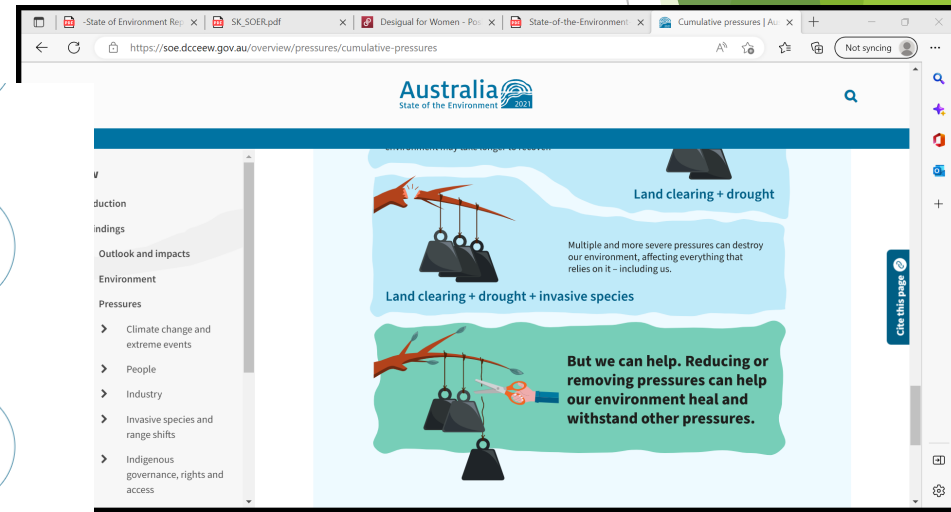
Online reports

▶ Online portals, report and additional information

▶ Putting reports online as pdf, all to one place

▶ Putting just the report alone

SoER, Slovakia and Australia, 2022)

(UNEP, GEO, 2016)

Group work

Each groups has a moderator; please select a rapporteur

1. Select a specific state

- - Aspects of air pollution, water quality and/or quantity, land and biodiversity

- - Select 2-3 indicators to describe the state

2. Identify drivers and pressures leading to the state

- Select two - three indicators to describe these drivers and pressures

3. Identify impacts linked to the states

- Select two - three indicators to describe impacts

-4. Identify responses