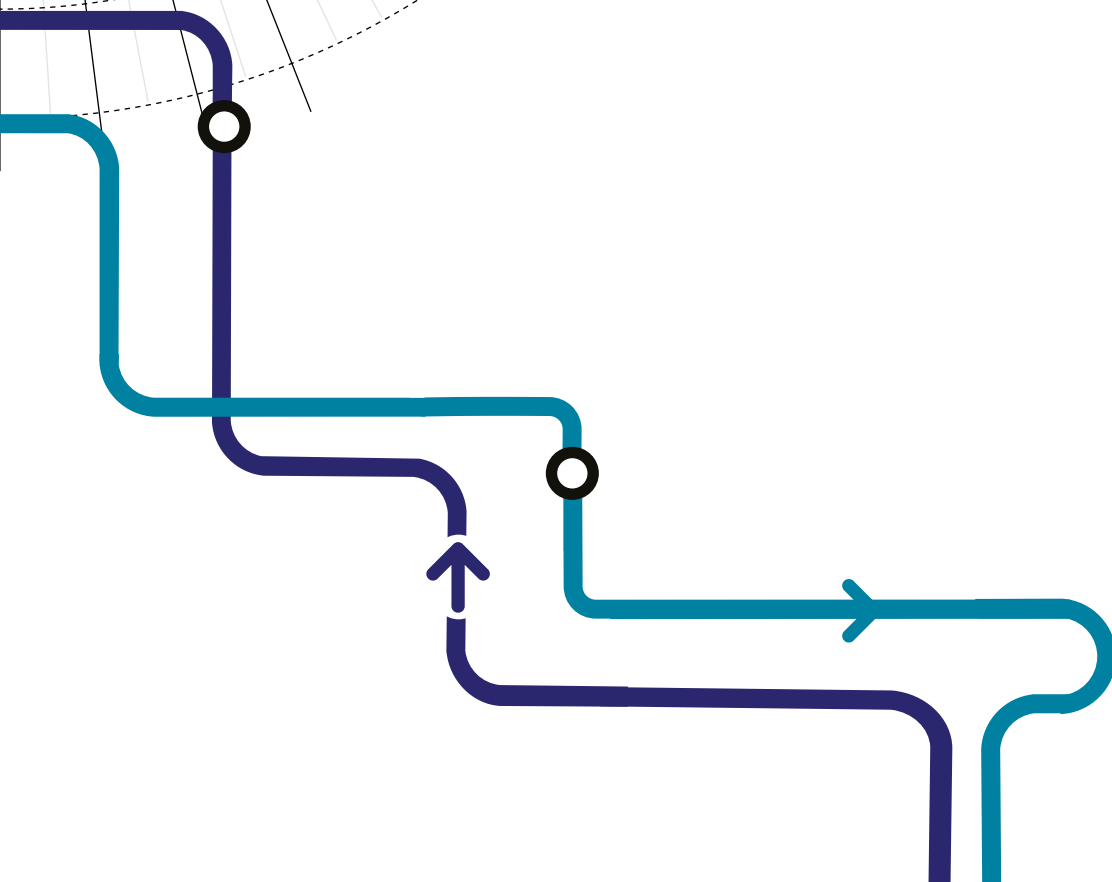


Zoï Environment Network
Graphic Portfolio



Welcome


www.mercurywaste.org

Welcome

Training course on

ENVIRONMENTALLY SOUND MANAGEMENT OF MERCURY WASTE

Website created by UN Environment with the collaboration of ZoE Environment Network
© UN Environment



1.2-Global Pollutant

www.mercurywaste.org/1.2-global-pollutant.html

Module 1

Mercury: Global pollutant and hazardous waste

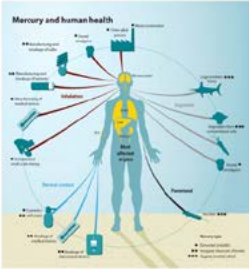
Mercury (Hg) is naturally occurring **chemical element** and **heavy metal** that cannot be destroyed.

Mercury can be released into the environment from natural sources and from human activity. Once released, it **persists in the environment and accumulates in the food chain**.

Mercury is **highly toxic**, harmful to ecosystems and human health. It affects reproductive, nervous, and immune systems, among other health effects.

Mercury is used in several industrial processes, in artisanal and small-scale gold mining, in electrical switches, measuring devices, lamps, batteries and dental amalgam, and other applications. It is also released in the processing and use of raw materials such as coal combustion and the processing of non-ferrous metal ores.

Due to their toxicity, **mercury wastes are hazardous wastes that require special management** to avoid risks to human health and ecosystems.

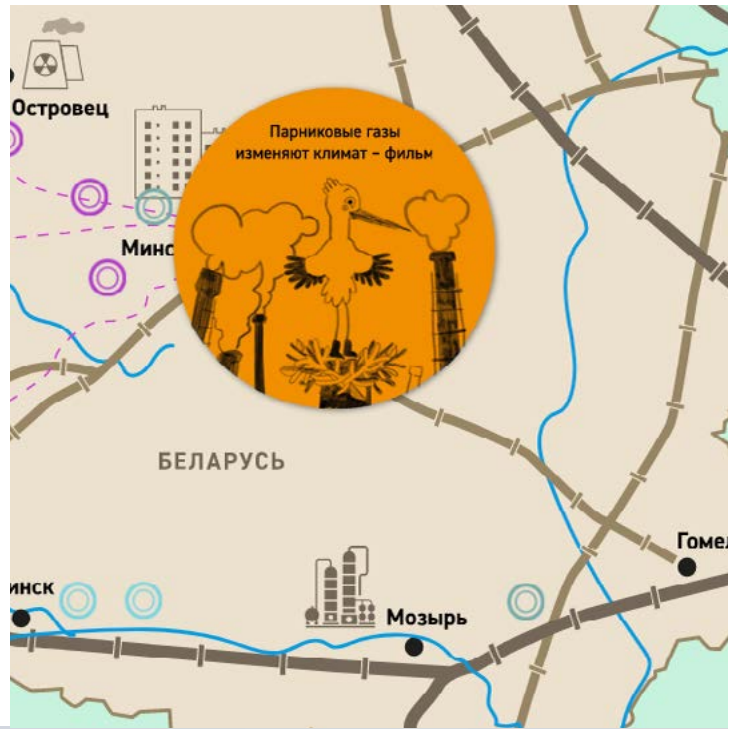


Source: Mercury - Time to Act (UNEP, 2013)

Module 1 - 2/11

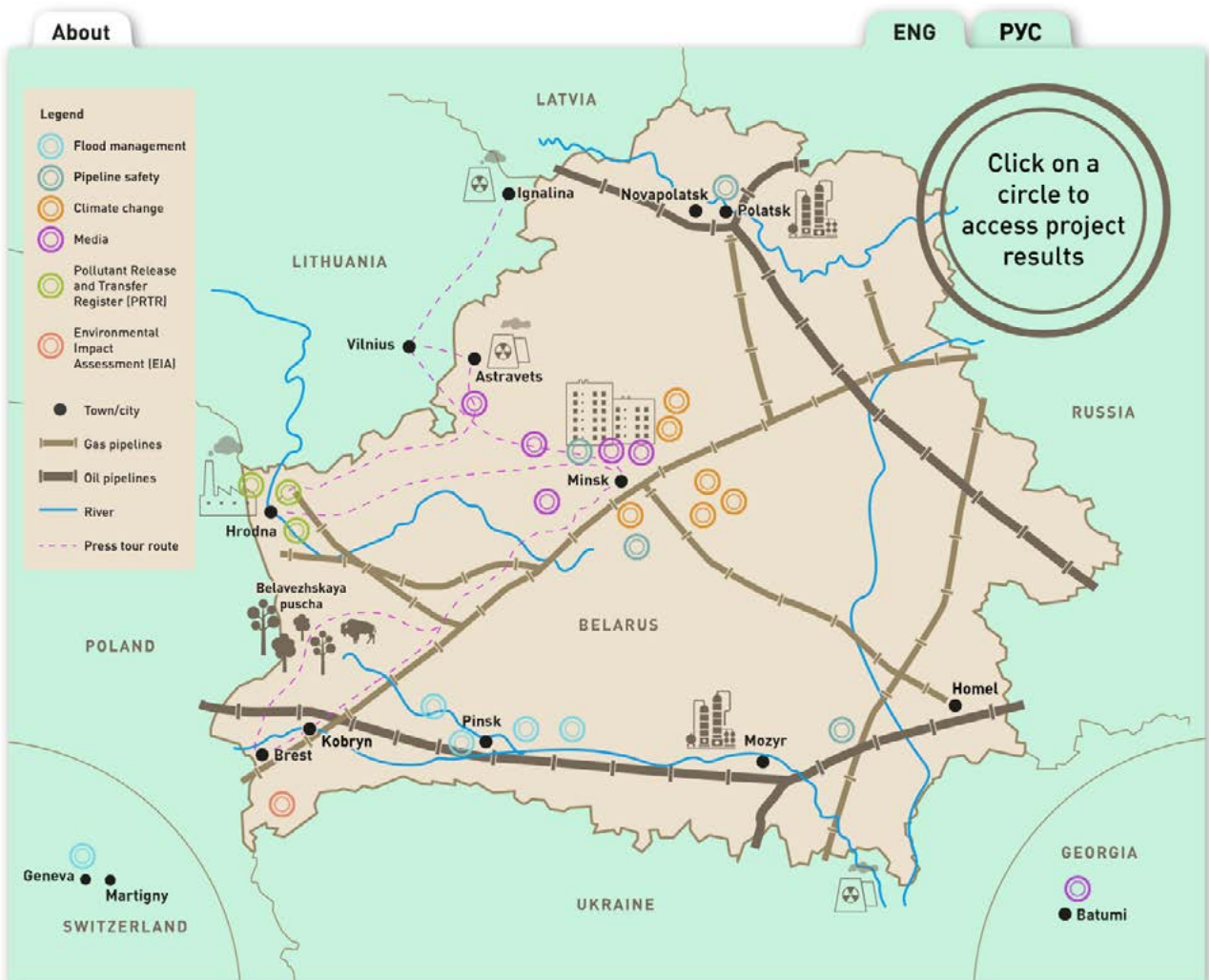
Mercury Waste,
online training course
UN Environment, 2017

Environmental Cooperation in Belarus,
digital portal
UN Environment, 2017



Home
belarusenvsec.zoinet.org

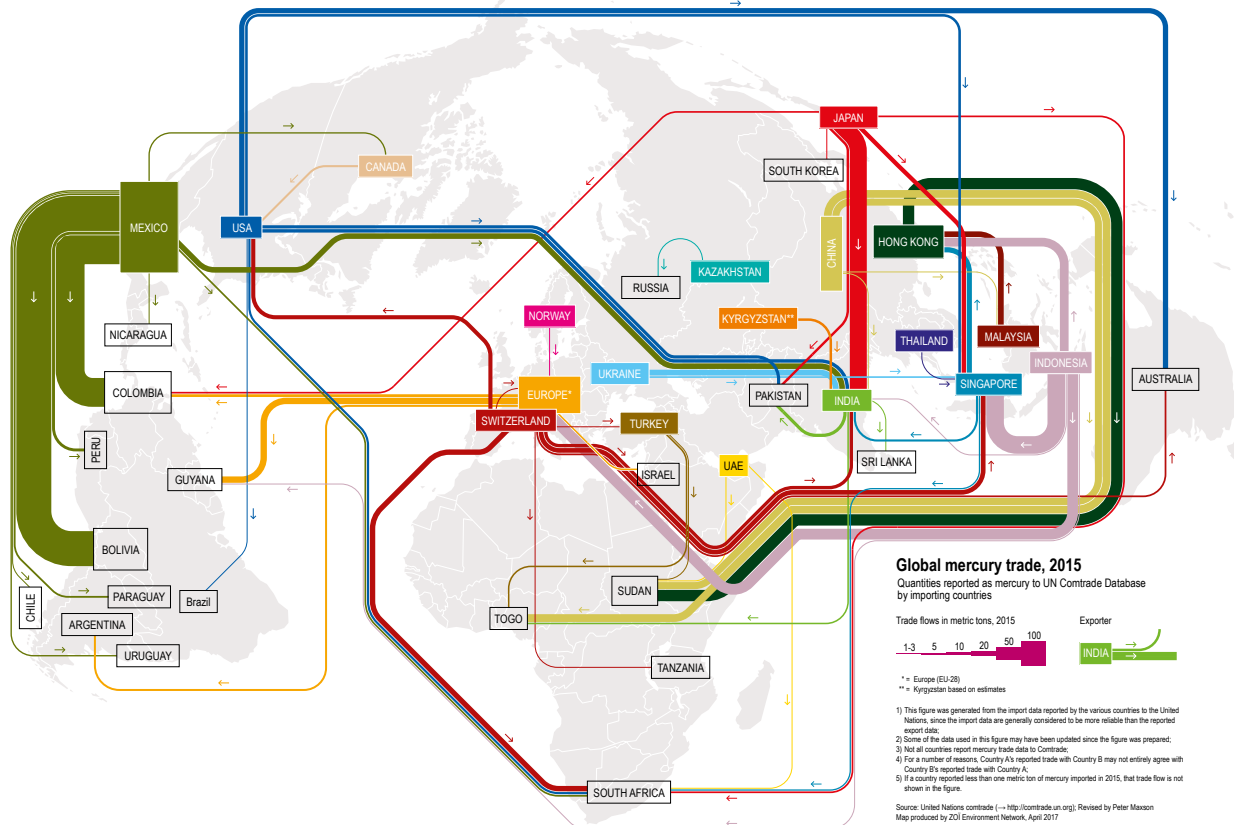
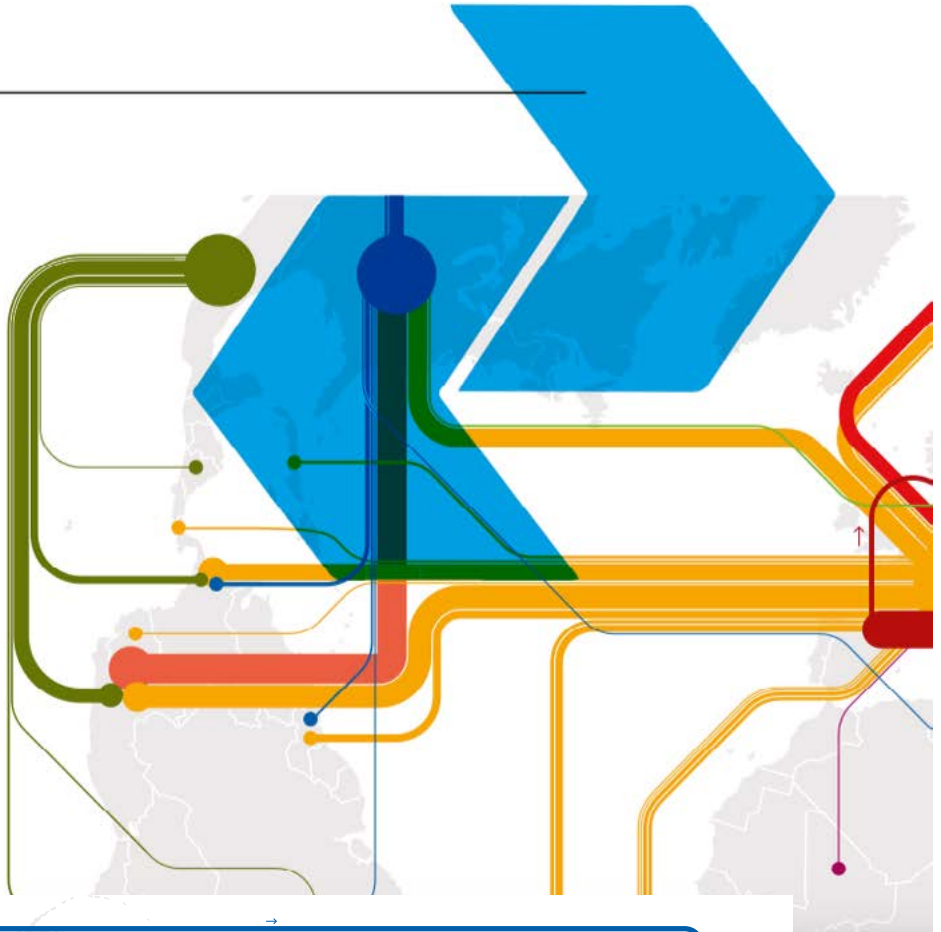
Environmental cooperation and sustainability in Belarus 2014-2016 Zoi support to the Environment and Security initiative



Global mercury

supply, trade and demand

Global mercury: supply, trade and demand
UN Environment, 2017



Burkina Faso

Waste management is a national challenge, and in the capital city of Ouagadougou, urbanization is increasing the amount of waste generated. Although the capital area has a waste management system, the existing landfill sites lack the capacity to meet future demand. In other cities, waste management is not as effective as in the capital.

Global mercury waste assessment
UN Environment, 2017

Global Mercury Waste Assessment

Review of Current National Measures

Legislative and Regulatory Framework

The Environmental Code⁶ (2013) of Burkina Faso promotes the fundamental environmental principles of prevention, precaution, polluter pays and sustainable development. The code distinguishes among municipal, industrial and hazardous waste. The Environmental Code and the Law of Public Hygiene define hazardous waste as any waste presenting serious risks to public health and safety or the environment. Based on the description in these laws, mercury waste is hazardous waste.

The dumping or burning of toxic industrial waste is prohibited (Article 23, the Health Law) as is dumping hazardous waste in the environment (Article 109 and 110, the Law of Public Hygiene)¹⁰. Waste management facilities need the approval of the Ministry of Environment and require an environmental impact assessment (Article 53, Environmental Law)⁹. Transboundary movements of hazardous wastes are to be conducted pursuant to the Basel Convention.

In the absence of a specific regulation for mercury waste, it is managed under the general legislative and regulatory framework.

Regulatory framework and mercury waste management in Burkina Faso



Current Practice

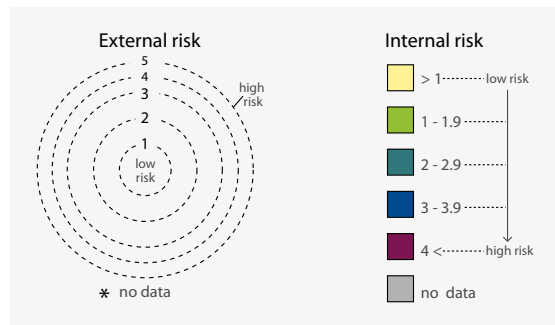
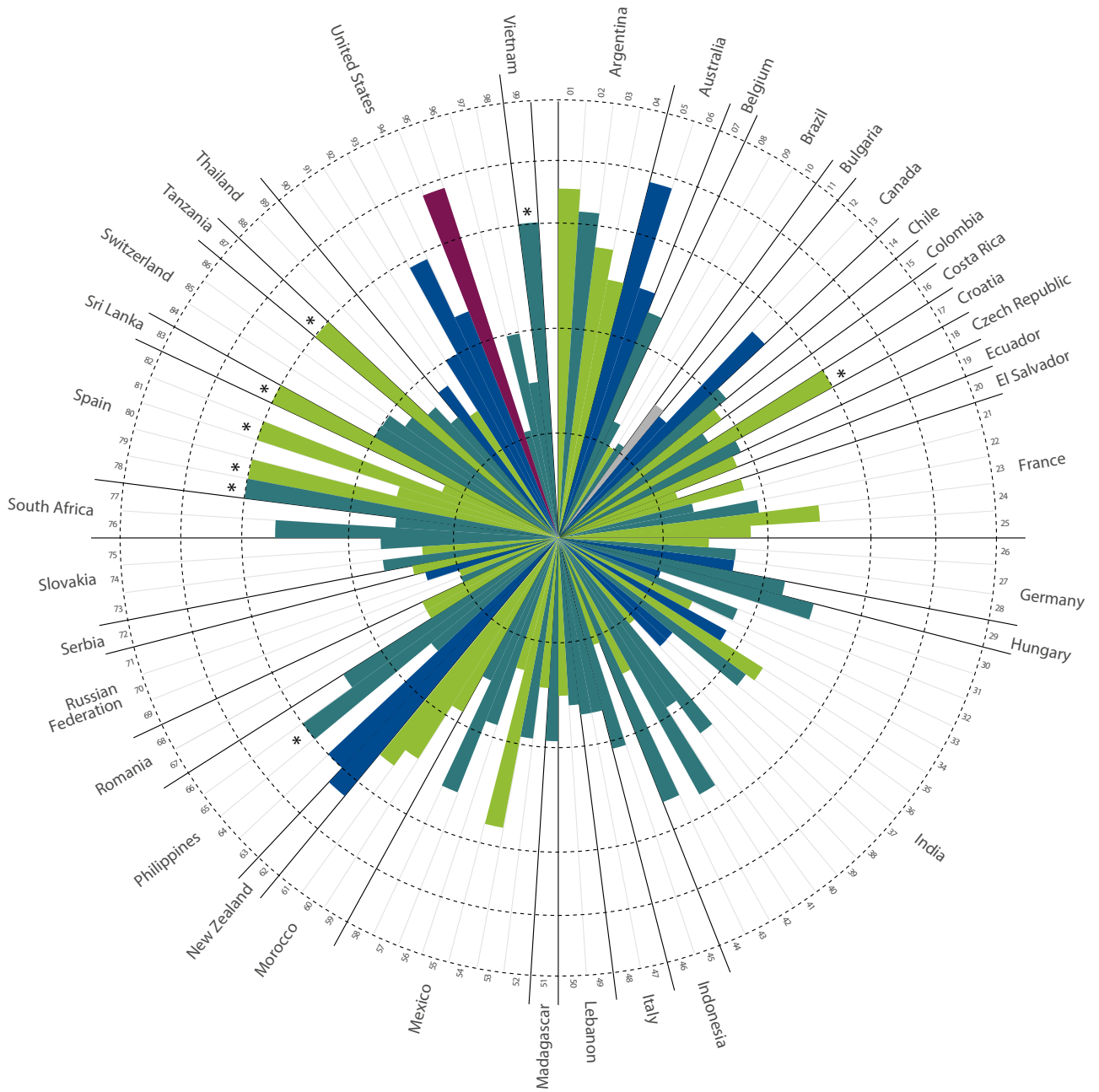
Municipalities are responsible for collection and disposal. In the capital city, household municipal solid waste is collected and taken to landfills for disposal. Only part of the solid waste is managed.

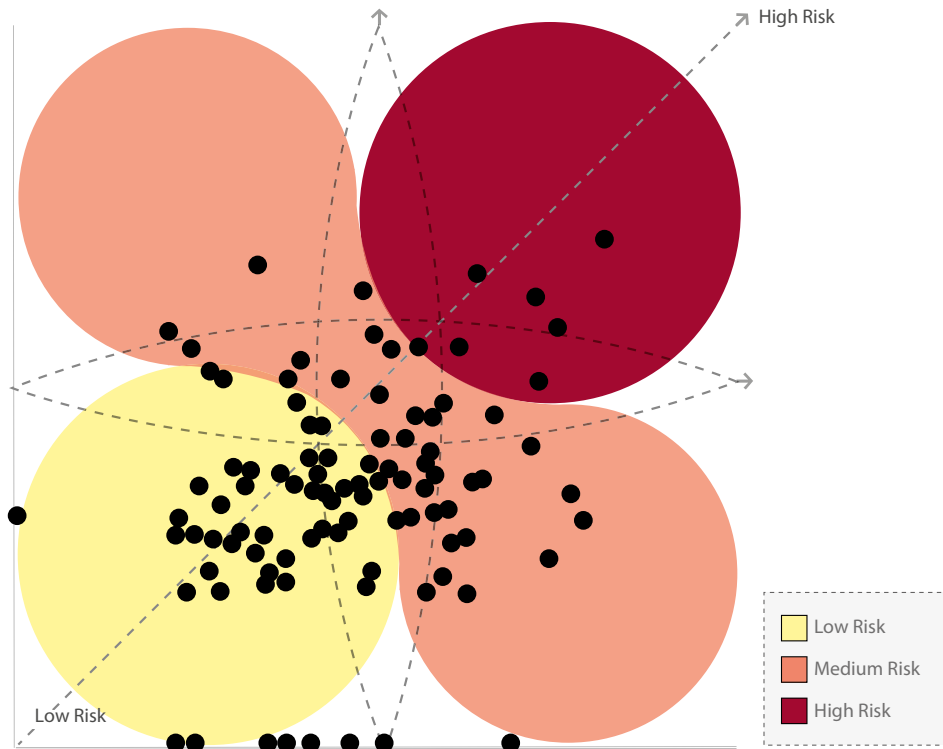
Waste contaminated with mercury is not managed. In artisanal activities, mercury residues and tailings are often dumped in the environment.

Source
Presentation by a 11 Meeting on E-waste 15-16 November 2011



Company A - General Risk Assessment





Cement and Aggregates
IUCN Global Water Programme, 2013

	No. of Operations				Water Resources	Water Use				Water Cost			Water Regulation			Water Management			Stakeholders		Awareness		SCORE	RESULT
	CEM	AGG	RMX	TOTAL		Q2	Q6	Q7	Q8	Q11	Q12	Q12'	Q14	Q15	Q16	Q20	Q21	Q17	Q21	Q21				
Austria	0	17	40	57	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	8	1	Green	
China	0	0	4	4	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	9	6	Green	
Colombia	13	5	28	46	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	10	2	Green	
Costa Rica	1	1	3	5	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	4	6	Red	
Croatia	3	1	7	11	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	7	4	Green	
Czech Republic	0	9	52	61	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	4	6	Red	
Dominican Republic	3	1	12	16	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	7	5	Green	
Egypt	3	1	3	7	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	3	10	Red	
France	0	49	342	391	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	9	5	Green	
Germany	7	37	260	304	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	9	6	Green	
Guatemala	0	0	4	4	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	6	4	Green	
Hungary	0	11	26	37	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	4	9	Red	
Ireland	0	27	33	60	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	7	3	Green	
Israel	0	11	55	66	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	3	10	Red	
Latvia	2	0	5	7	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	7	5	Green	
Malaysia	0	3	14	17	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	5	11	Red	
Mexico	36	12	269	317	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	10	2	Green	
Nicaragua	3	2	5	10	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	6	6	Grey	
Panama	1	2	14	17	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	6	9	Red	
Philippines 1	3	0	0	3	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	5	6	Red	
Philippines 2	2	0	0	2	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	8	3	Green	
Poland	2	16	64	82	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	8	6	Green	
Puerto Rico	3	1	16	20	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	4	8	Red	
Spain	21	36	77	134	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	7	5	Green	
Thailand	1	0	0	1	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	7	2	Green	
UAE	0	0	9	9	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	3	5	Red	
UK	5	99	366	470	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	8	4	Green	
USA	16	147	200	363	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	9	5	Green	

- positive
- negative
- no data
- positive result
- negative result
- neutral result

- 03 Editorial
- 06 Switzerland's global engagement
- 08 Portfolio evaluation
- 09 Overall effectiveness

10 **Energy**
 27% High effectiveness
 291 million CHF

14 **Cleaner Production**
 15% High effectiveness
 74 million CHF

16 **Natural Resources**
 9% High effectiveness mitigation
 28% High effectiveness adaptation
 154 million CHF

20 **Hazards**
 44% High effectiveness
 37 million CHF

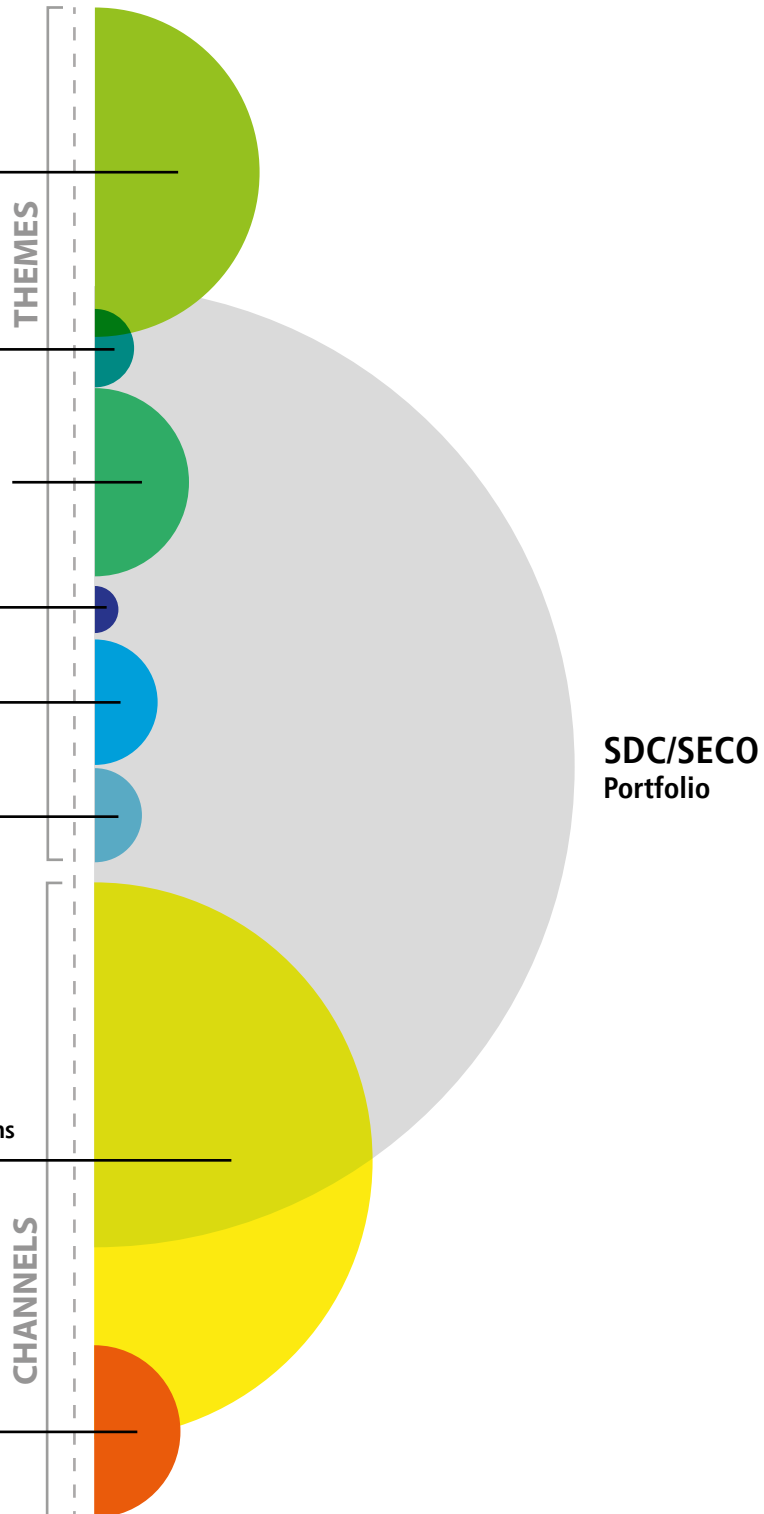
24 **Livelihoods**
 68% High effectiveness
 110 million CHF

28 **Knowledge**
 96% High effectiveness
 80 million CHF

29 **Funding and grants to organizations**
 66% High effectiveness
 490 million CHF

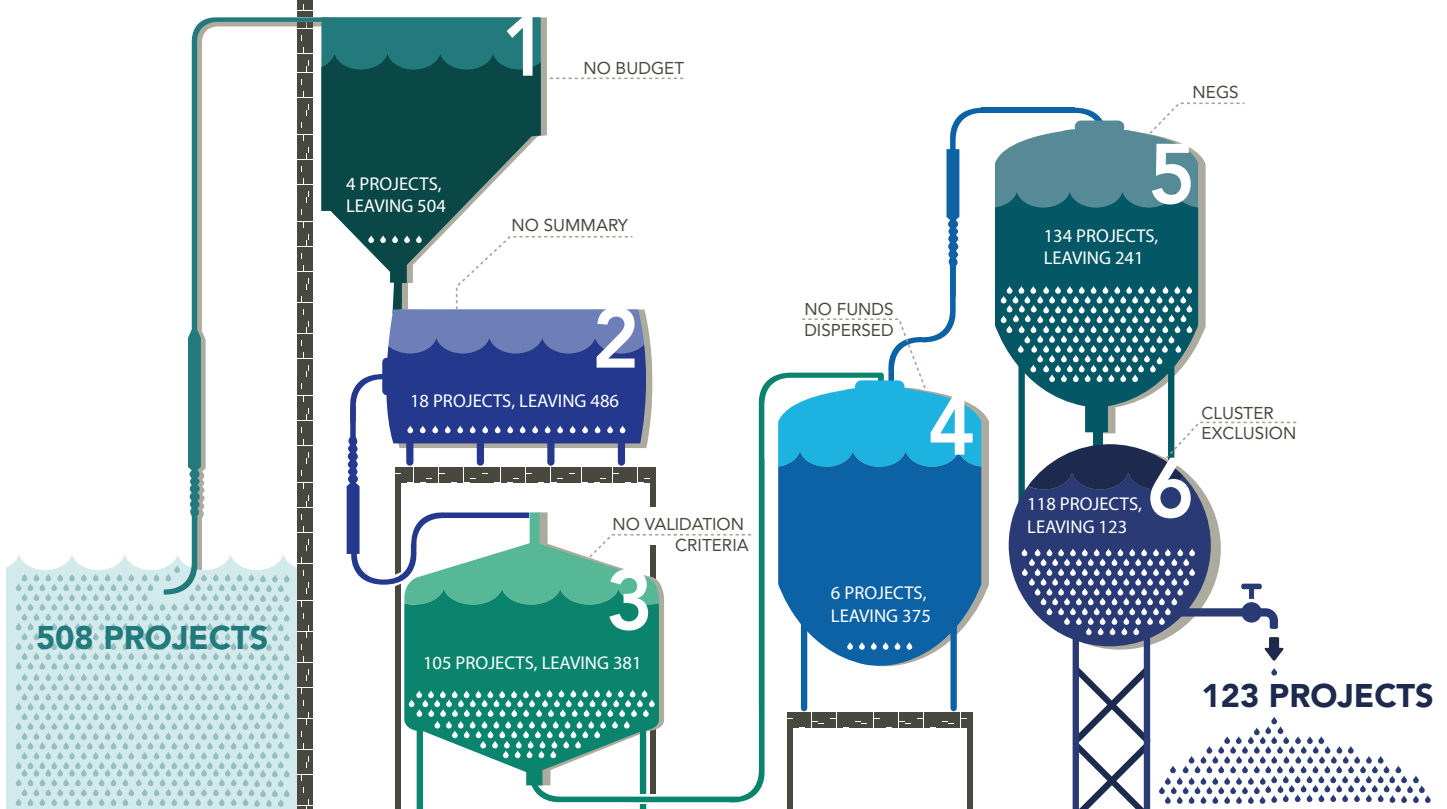
30 **Fast-start financing**
 High effectiveness predicted
 140 million CHF

- 32 Conclusions
- 34 Outlook



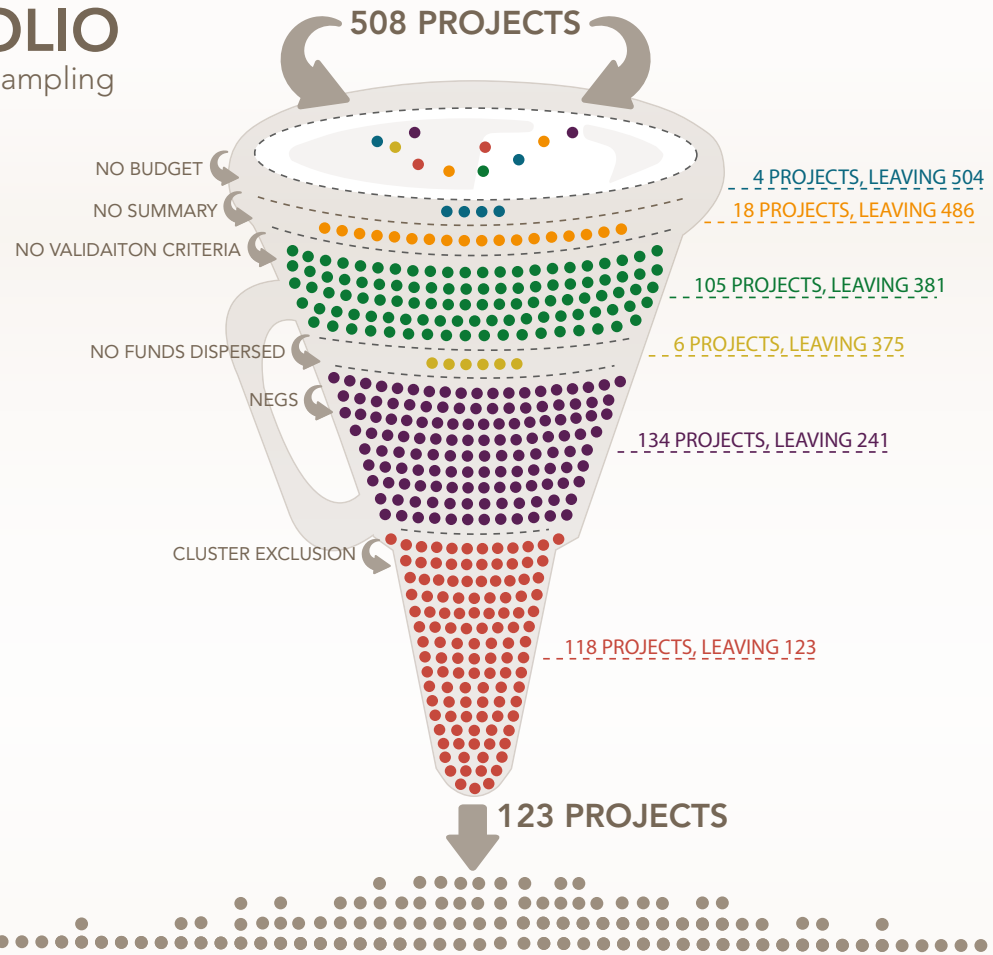
PORTFOLIO

screening and sampling



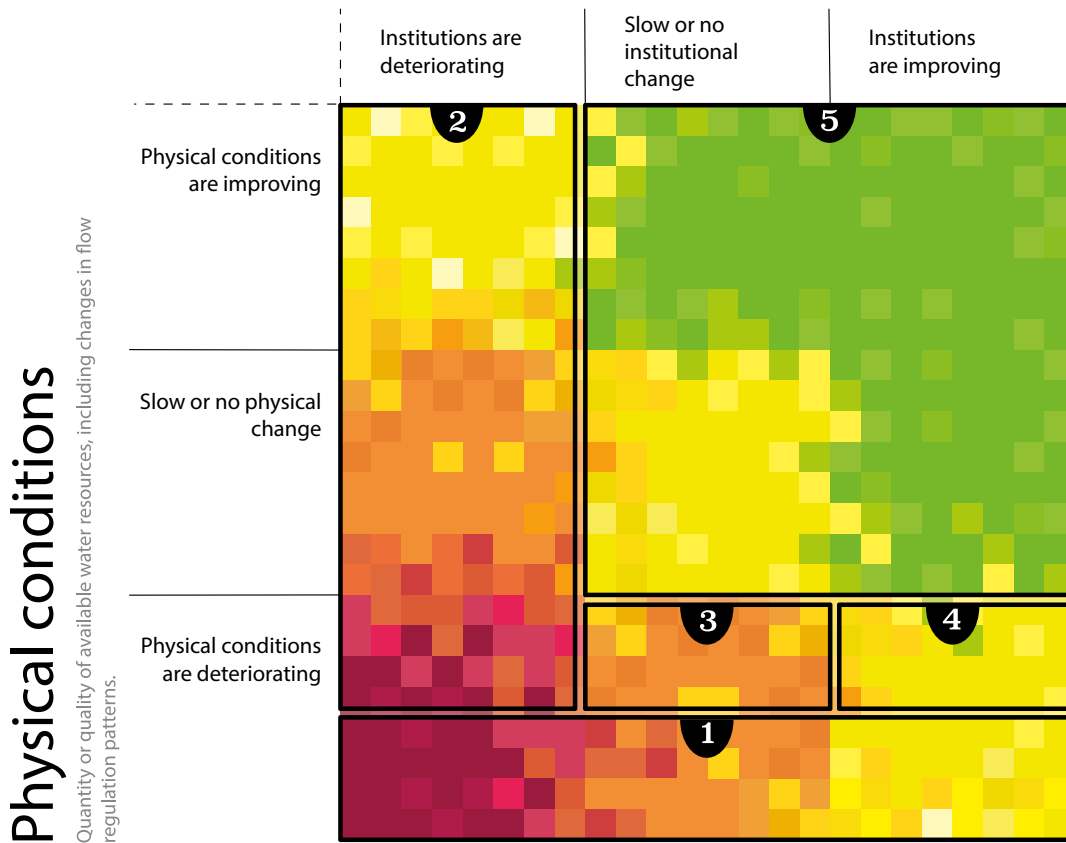
PORTFOLIO

screening and sampling

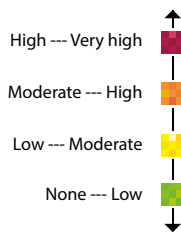


Institutions

National or inter-state arrangements regulating access to, the use and management of waters shared between states, communities, sectors etc.



Likelihood / intensity of conflicts or tensions under water stress (local, intra-state / inter-sectoral, inter-state):



Actions

- 1 Contain the fast change in physical conditions
- 2 Replace / restore damaged or deteriorating institutions
- 3 Boost institutional adaptation
- 4 Direct institutional adaptation
- 5 Maintain status quo, encourage improving and sustain institutions

Engaging the Network for Political Dialogue

1 Policy and diplomatic dialogue, region or basin-specific workshops, capacity-building for basin population and stakeholders

2 Desk and fields studies of water security issues and solutions

Tangible Joint Strategic Operations

2 Joint hydrological monitoring, modelling, management and exchange of water data

2 Transboundary basin management plans, legal frameworks and institutions

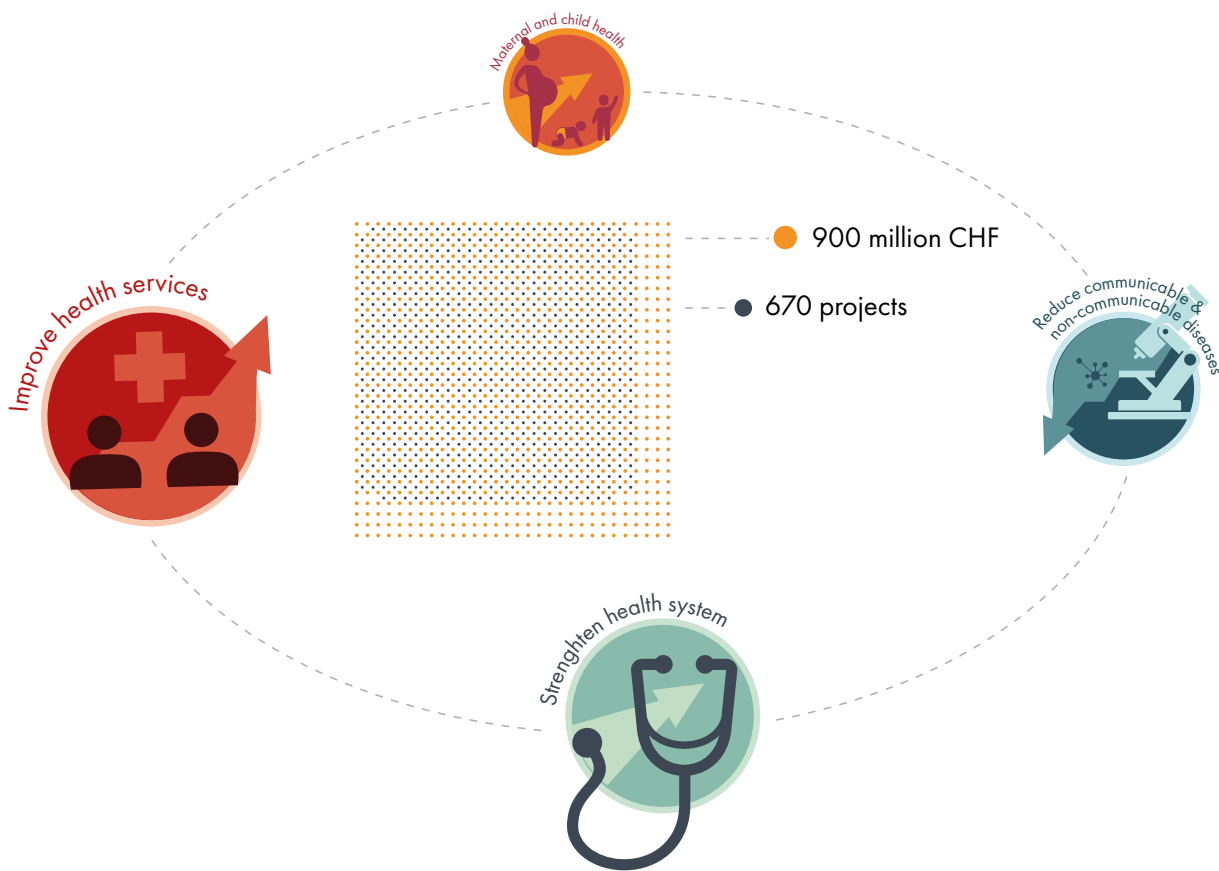
Humanitarian Interventions in Conflicts and Disasters

4 Providing sustainable access to water and sanitation services

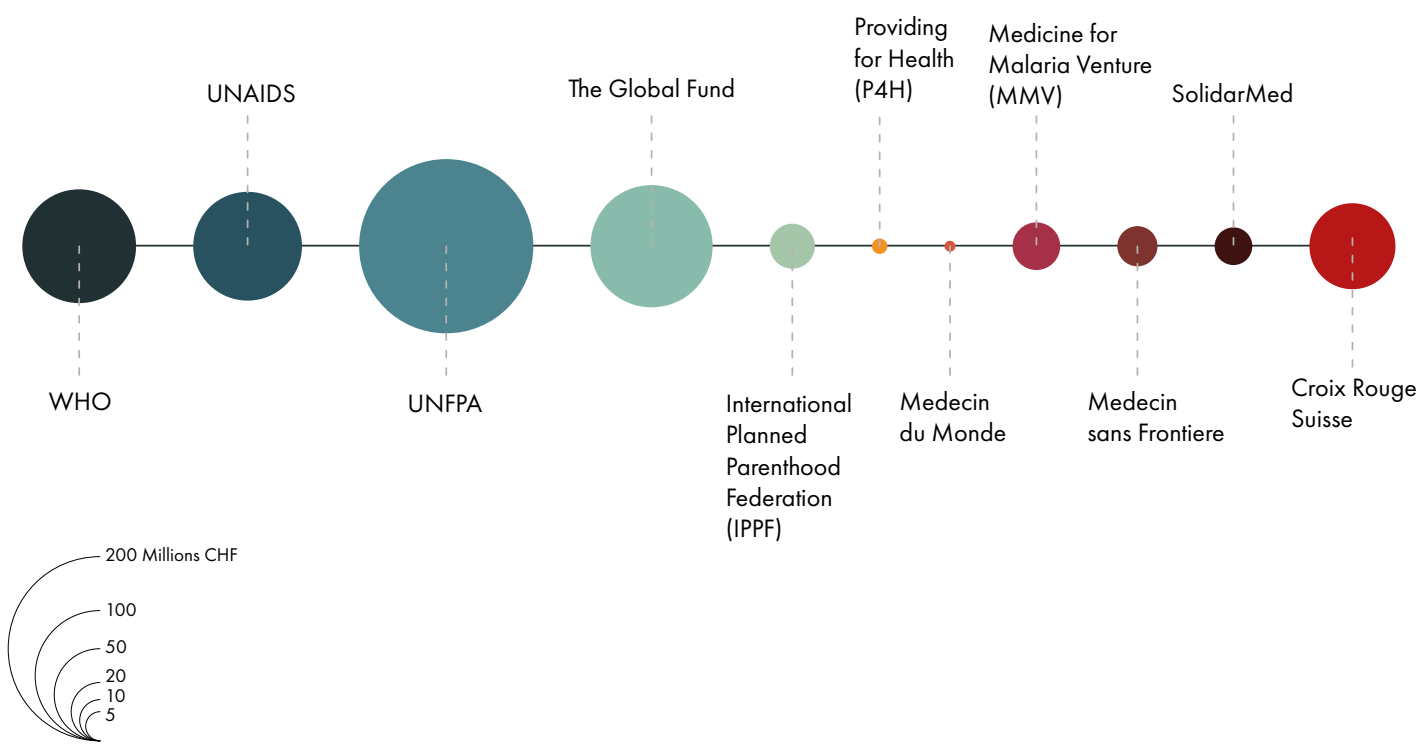
Communication and Advocacy

3 Advocacy, mass communication, inputs to formal and informal policy, political and diplomatic processes

Water as an Asset for Peace Atlas of Risks and Opportunities
SDC, 2017



Effectiveness of Swiss International Cooperation on Health Interventions 2000-2013
SDC, 2015



Risques

Accentuation des fortes chaleurs

- Dégradation de la santé humaine
- Baisse de la productivité au travail
- Augmentation du besoin en énergie de refroidissement



Accroissement de la sécheresse

- Pertes de récoltes agricoles
- Risque d'incendies de forêt
- Pénuries d'eau
- Diminution de la production hydroélectrique estivale



Élévation de la limite des chutes de neige

- Baisse des revenus du tourisme hivernal



Aggravation du risque de crues

- Dommages corporels
- Dommages matériels



Fragilisation des pentes et recrudescence des mouvements de terrain

- Dommages corporels
- Dommages matériels



Dégradation de la qualité de l'eau, des sols et de l'air



Modification des milieux naturels, de la composition des espèces et des paysages

- Dégradation de la biodiversité



Propagation d'organismes nuisibles, de maladies et d'espèces exotiques

- Dégradation de la santé humaine
- Dégradation de la santé des animaux de rente et des animaux de compagnie
- Pertes de récoltes agricoles
- Dégradation des services écosystémiques forestiers



Risques wildcards

- Risques difficiles à évaluer



Modifications du climat à l'étranger

- Risques indirects



Risques ou opportunités

Impacts ambigus : conséquences positives ou négatives possibles



Modification de l'activité des tempêtes et de la grêle

- Dommages corporels
- Dommages dus aux tempêtes
- Dommages dus à la grêle

Impacts positifs et négatifs

Impacts positifs et négatifs

Impacts positifs et négatifs

Opportunités



Amélioration des conditions locales

- Diminution du besoin en chauffage
- Revenus du tourisme estival
- Augmentation des récoltes agricoles



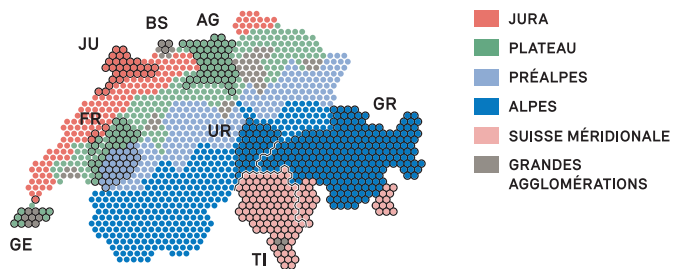
- Augmentation de la production énergétique hivernale
- Dommages et frais d'entretien liés à la neige



- Modification de la composition des espèces et des milieux



- Opportunités indirectes



CANTONS

RÉGIONS

Risques et opportunités liés au climat

FOEN, 2017

Augmentation de l'opportunité :

- légère

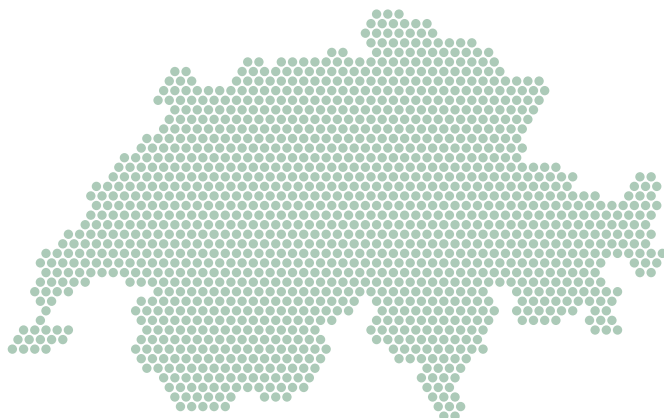
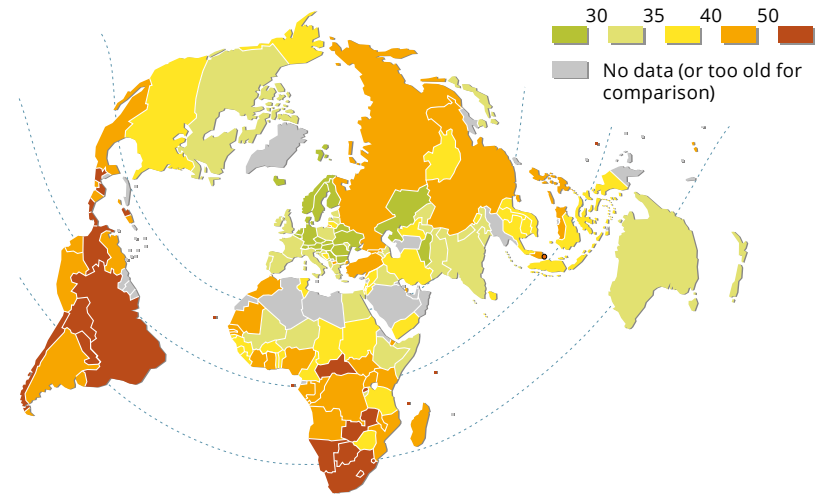


Figure 5.2 National GINI coefficient values



The Gini index measures the extent to which, within a country, the distribution of income deviates from perfect equality. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Sources: World Development Indicators, World Bank ; OECD Income distribution and poverty database ; US Central Intelligence Agency World Factbook ; 2014 (data: 2000 to 2012).

Figure 1.3 Population pyramids for Europe, Africa and Asia for 2000 and 2050 by age, sex and educational attainment

Source: Samir K.C. et al, 2010. Projection of populations by level of educational attainment, age, and sex for 120 countries for 2005-2050, IIASA.

**The European environment
– state and outlook
EEA, 2014**

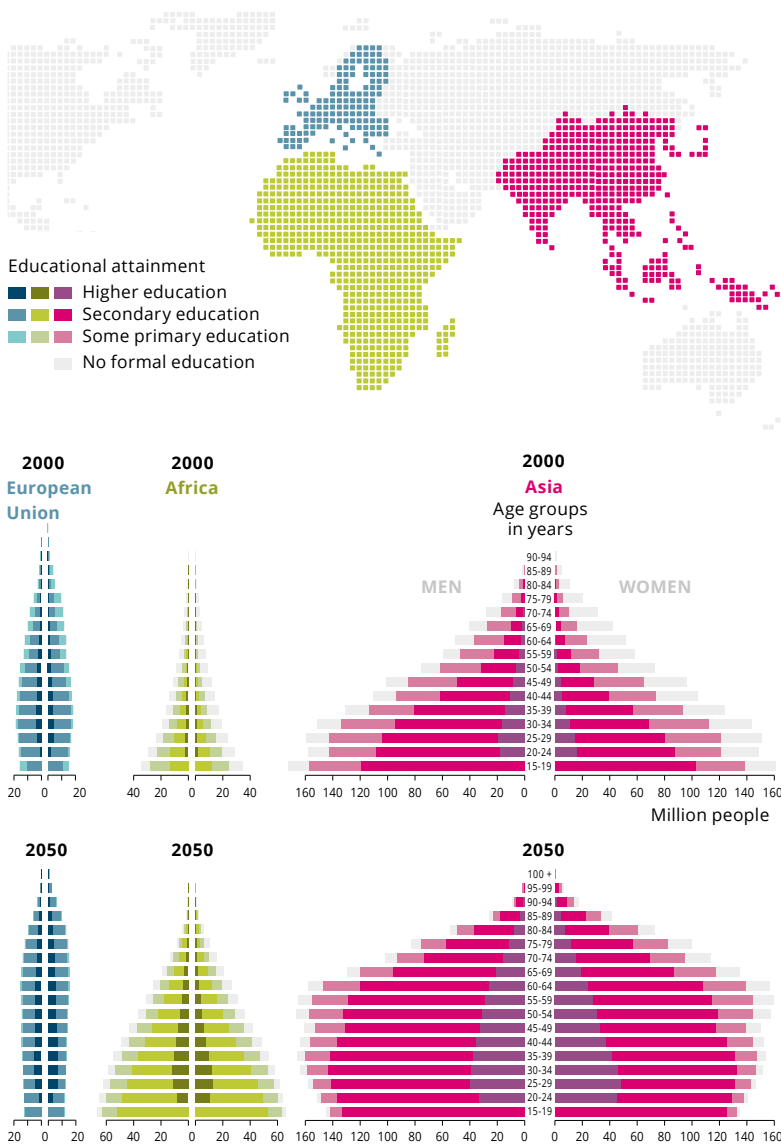
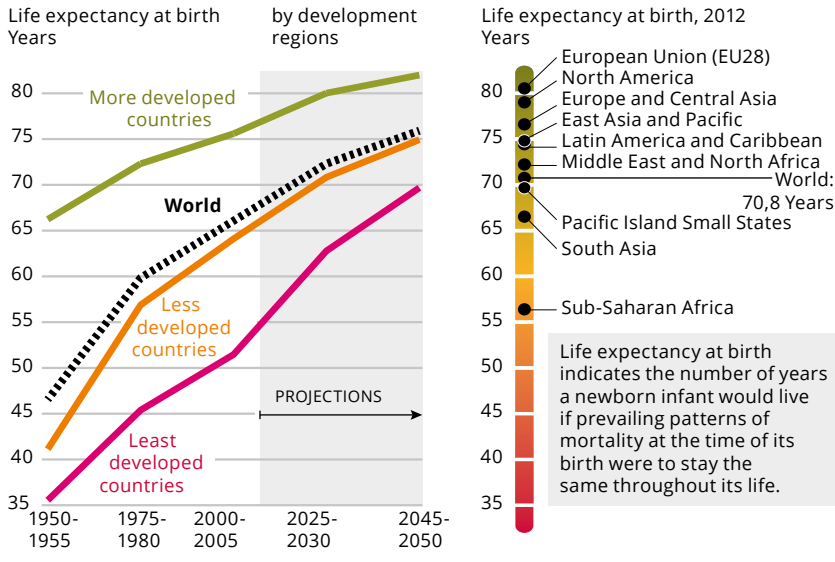


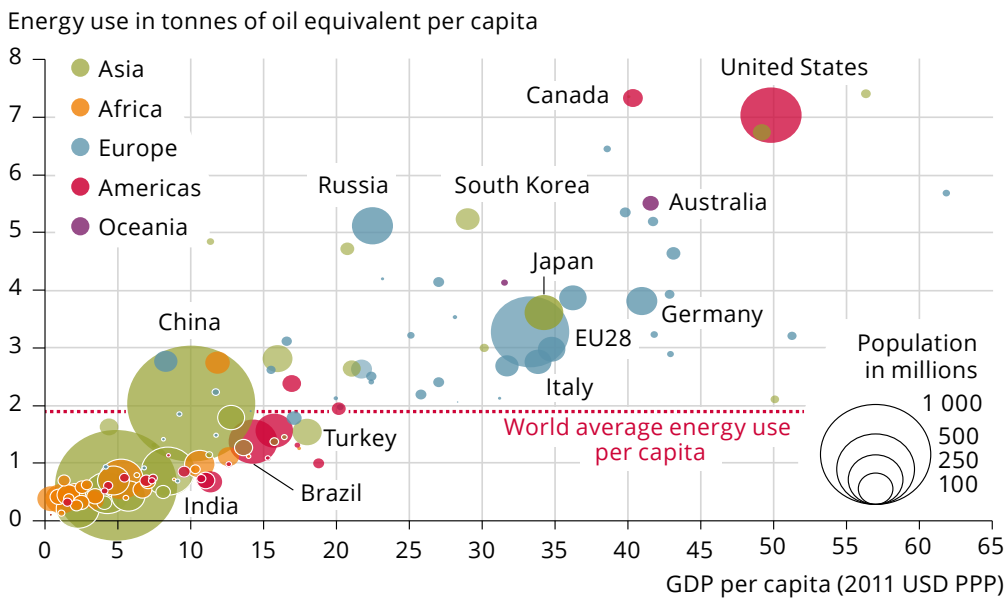
Figure 3.2 Life expectancy at birth by world regions until 2050



Source: World Development Indicators, World Bank, 2014.

The European environment
– state and outlook
EEA, 2014

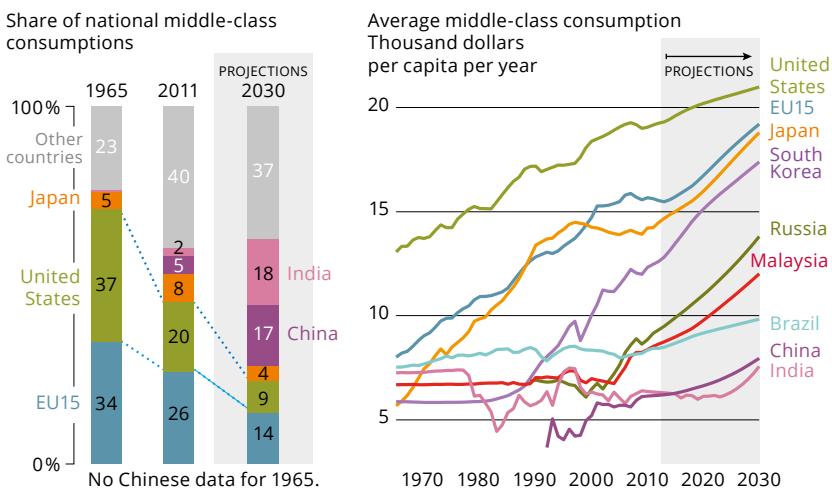
Figure 7.2 Correlation between energy use and gross domestic product, 2011.



European Union countries are represented both individually and collectively (EU28).

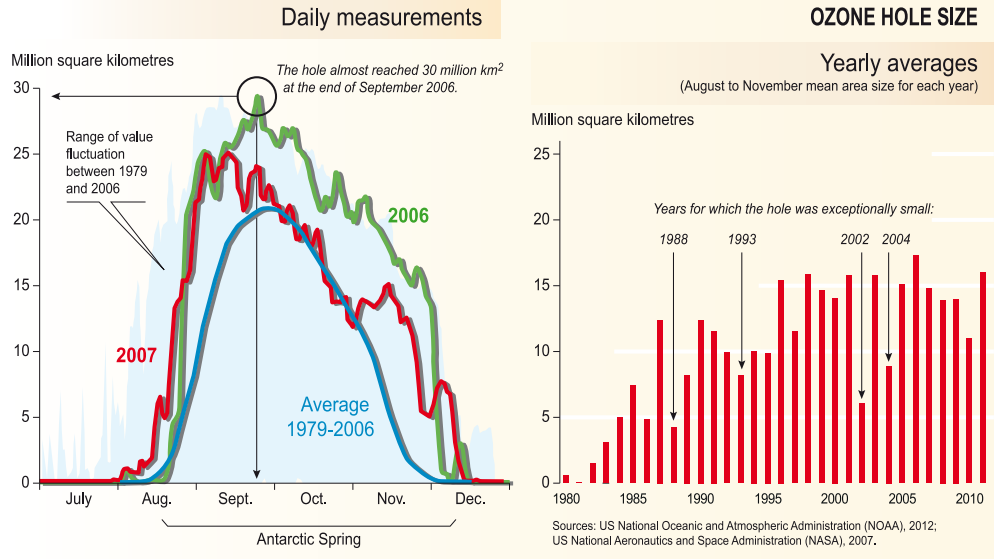
Sources: World Development Indicators, World Bank, 2014.

Fig 2.3 Middle class consumption, 1965-2030

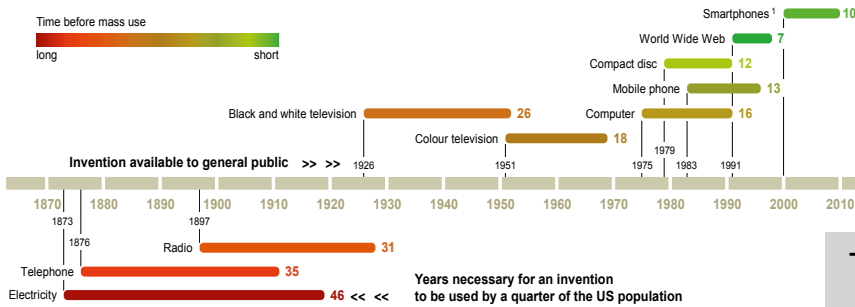


Source: Brookings Institution, 2013.

Vital Ozone graphics 3
UN Environment, 2012



Shortening time lapse before mass use of technological inventions

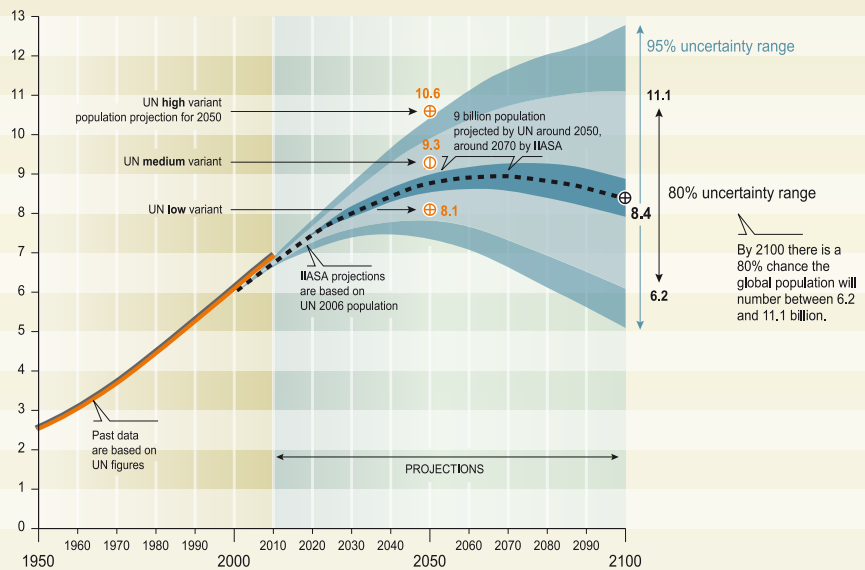


1. "Early smartphones (IBM Simon, 1993) were primarily used as enterprise devices and were prohibitively expensive for most consumers" (pcworld.com).
Sources for smartphones: pcworld.com; Wikipedia; eMarketer; US Census Bureau, 2012.
Sources for other inventions: Kurzweil R., 2005. *The Singularity is Near: When Humans Transcend Biology*, 2005.

The European Environment: Global Megatrends, 2010
EEA, 2010

World population projections
IIASA probabilistic projections compared to UN projections

World Population
Billions



Note: the UN Population Division studies fertility-evolution scenarios to produce high, medium and low variant figures, whereas the IIASA bases its calculations on assumptions for fertility, mortality and migration (the latter only affecting regional projections).

Sources: Lutz W., Sanderson W. and Scherbov S., 2007 *Probabilistic World Population Projections*, International Institute for Applied Systems Analysis (IIASA); UN Population Division, *World Population Prospects: The 2010 Revision*.

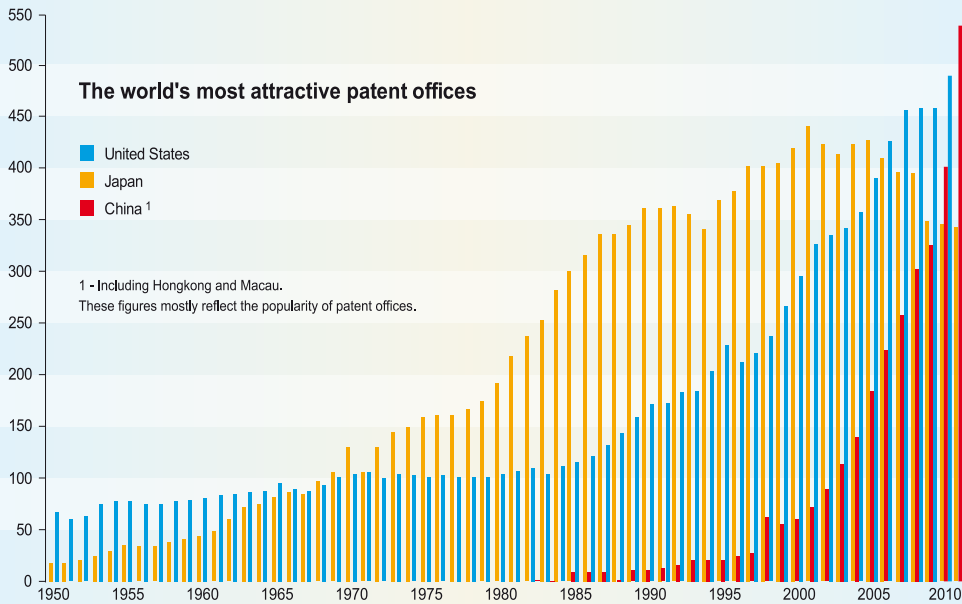
Patent registration trends

Patent filings
Thousands

The world's most attractive patent offices

United States
Japan
China¹

¹ - Including Hongkong and Macau.
These figures mostly reflect the popularity of patent offices.



In Europe

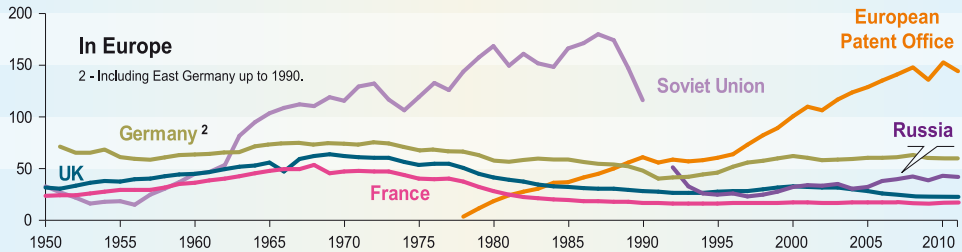
² - Including East Germany up to 1990.

UK
Germany²
France

Soviet Union

European Patent Office

Russia

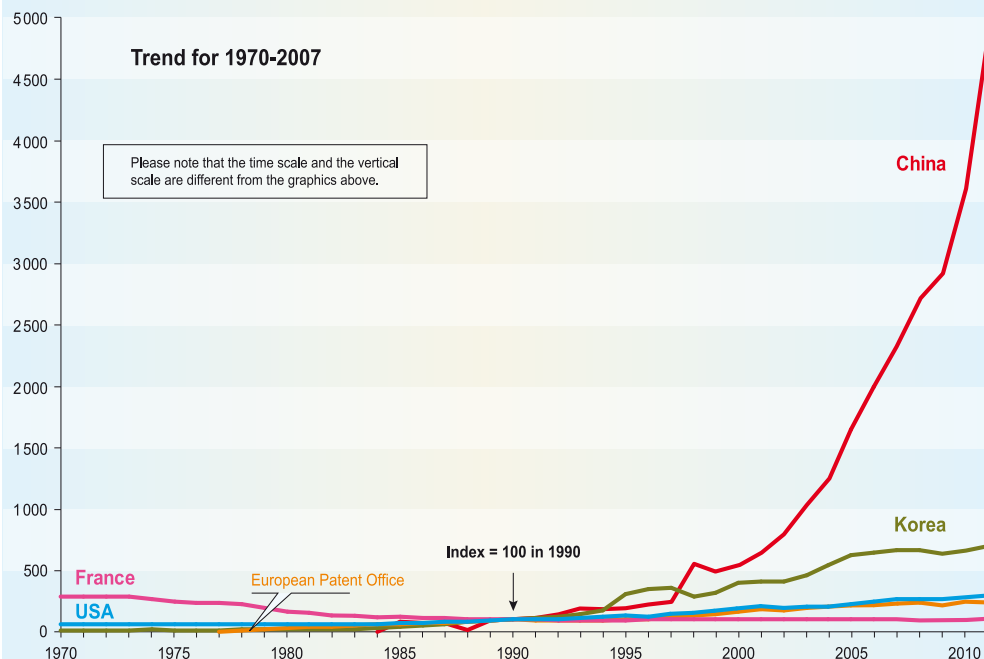


The European Environment:
Global Megatrends, 2010
EEA, 2010

Index = 100 in 1990

Trend for 1970-2007

Please note that the time scale and the vertical scale are different from the graphics above.



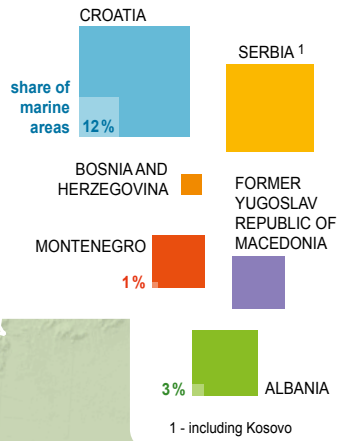
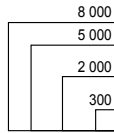
Source: WIPO Statistics Database, 2012.

West Balkans protected areas

Please note:
The same site can be protected under different status.
Overlaps have been removed and areas rounded for the proportional square sizes calculation (opposite) but not for the national percentage calculation below.
Some areas represented below are not recognized internationally.

■ Designated sites

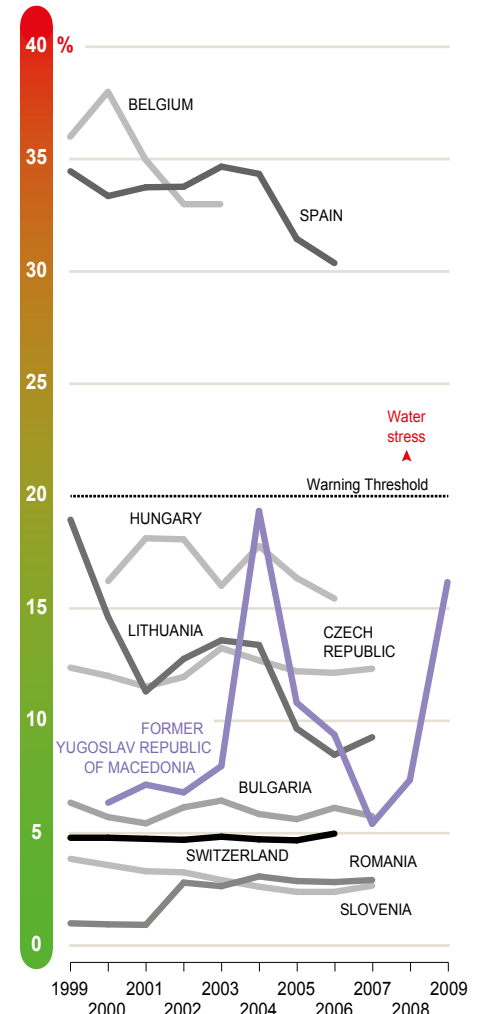
Areas protected
Square kilometres



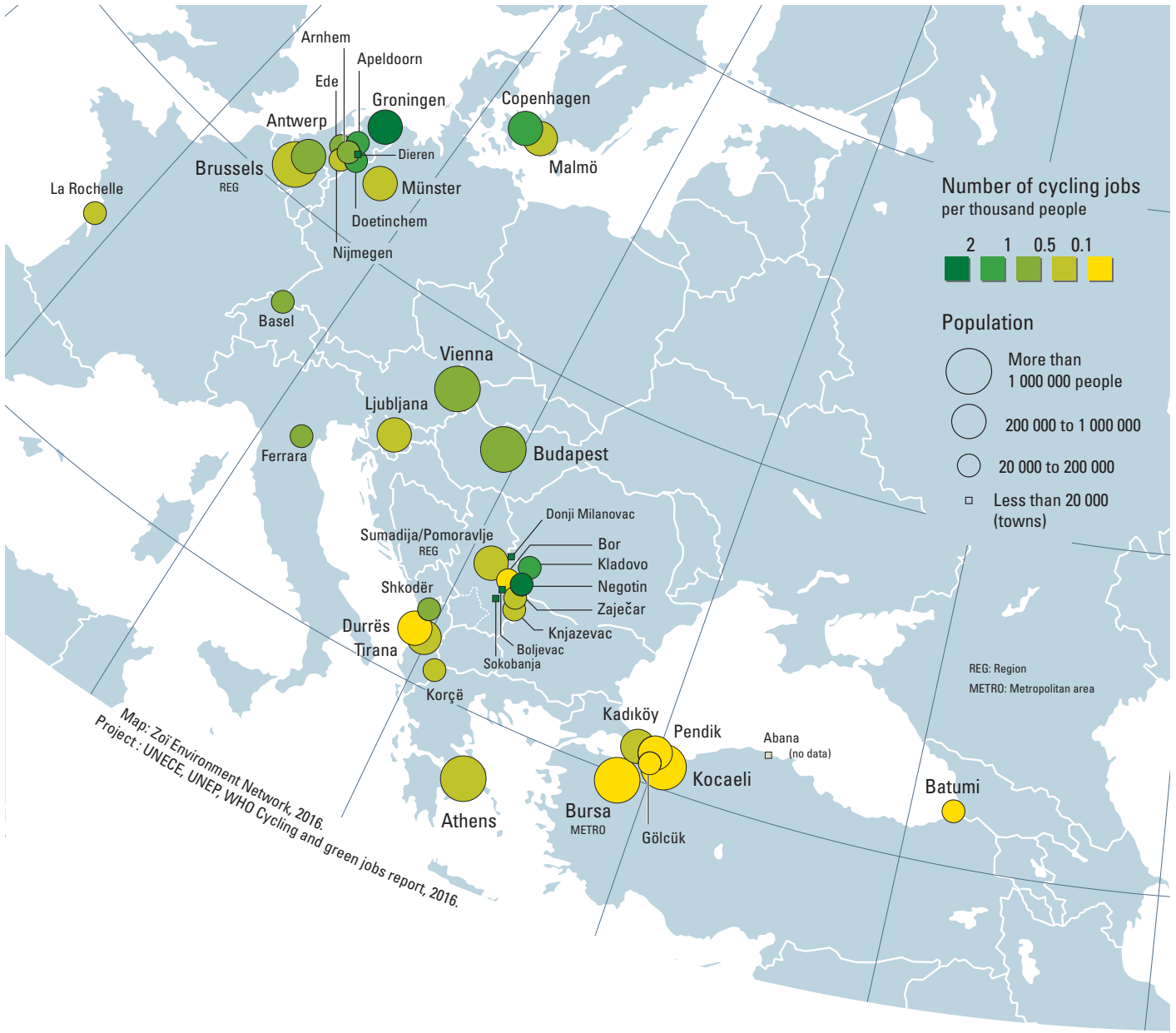
West Balkan Environmental Core Set of Indicators EEA, 2012

Water exploitation index Selected European countries

Water abstraction
as a percentage of available
long-term freshwater resources

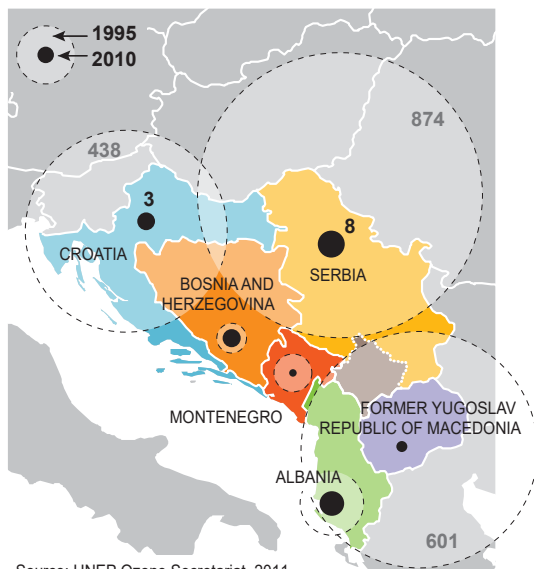


Sources: Eurostat, 2009; EEA, 2010; State Statistical Office and Water Economy Administration, Public Enterprises for Water Supply and Sewage System in the former Yugoslav Republic of Macedonia, 2011; Raskin et al. 1997.



1995-2010 evolution

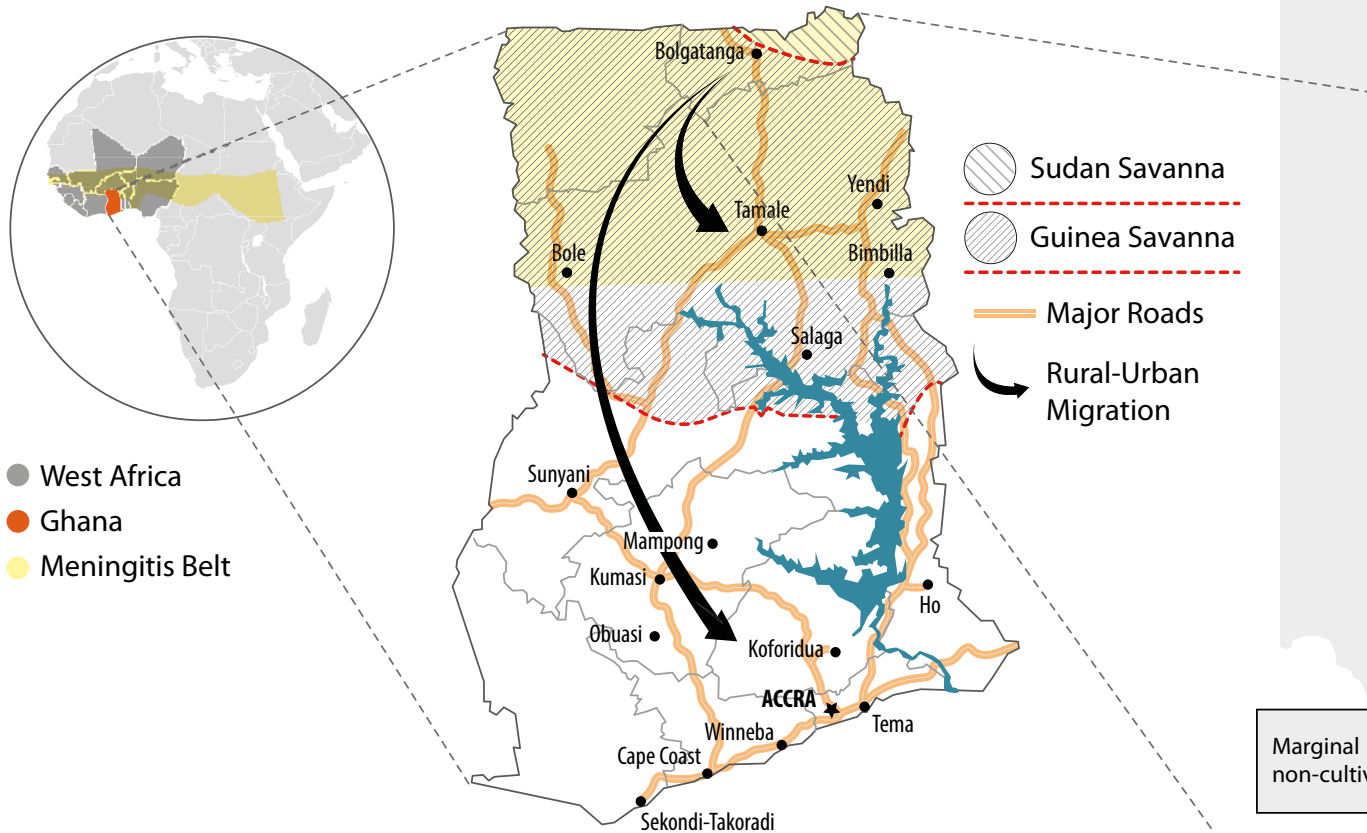
Consumption of ozone-depleting substances



Source: UNEP Ozone Secretariat, 2011.

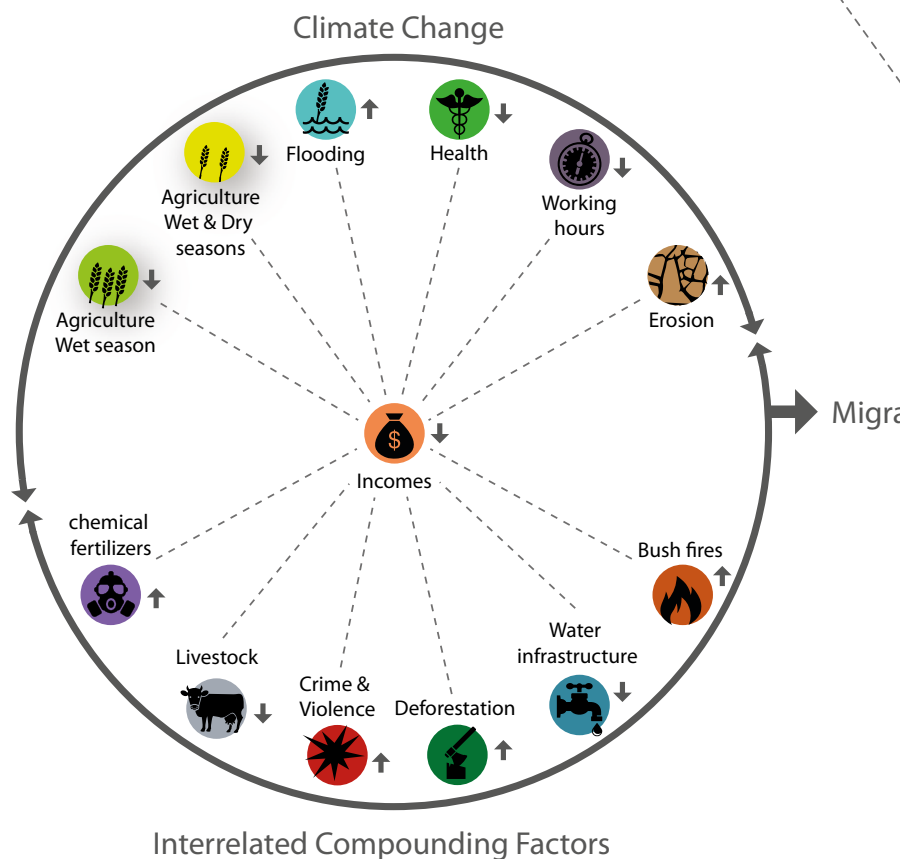
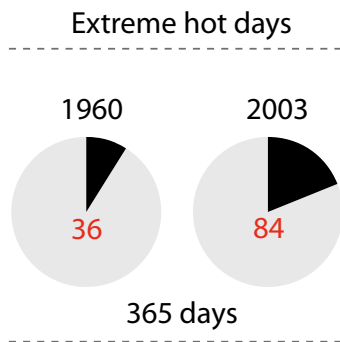
West Balkan Environmental Core Set of Indicators
EEA, 2012

CLIMATE CHANGE MIGRATION CAS



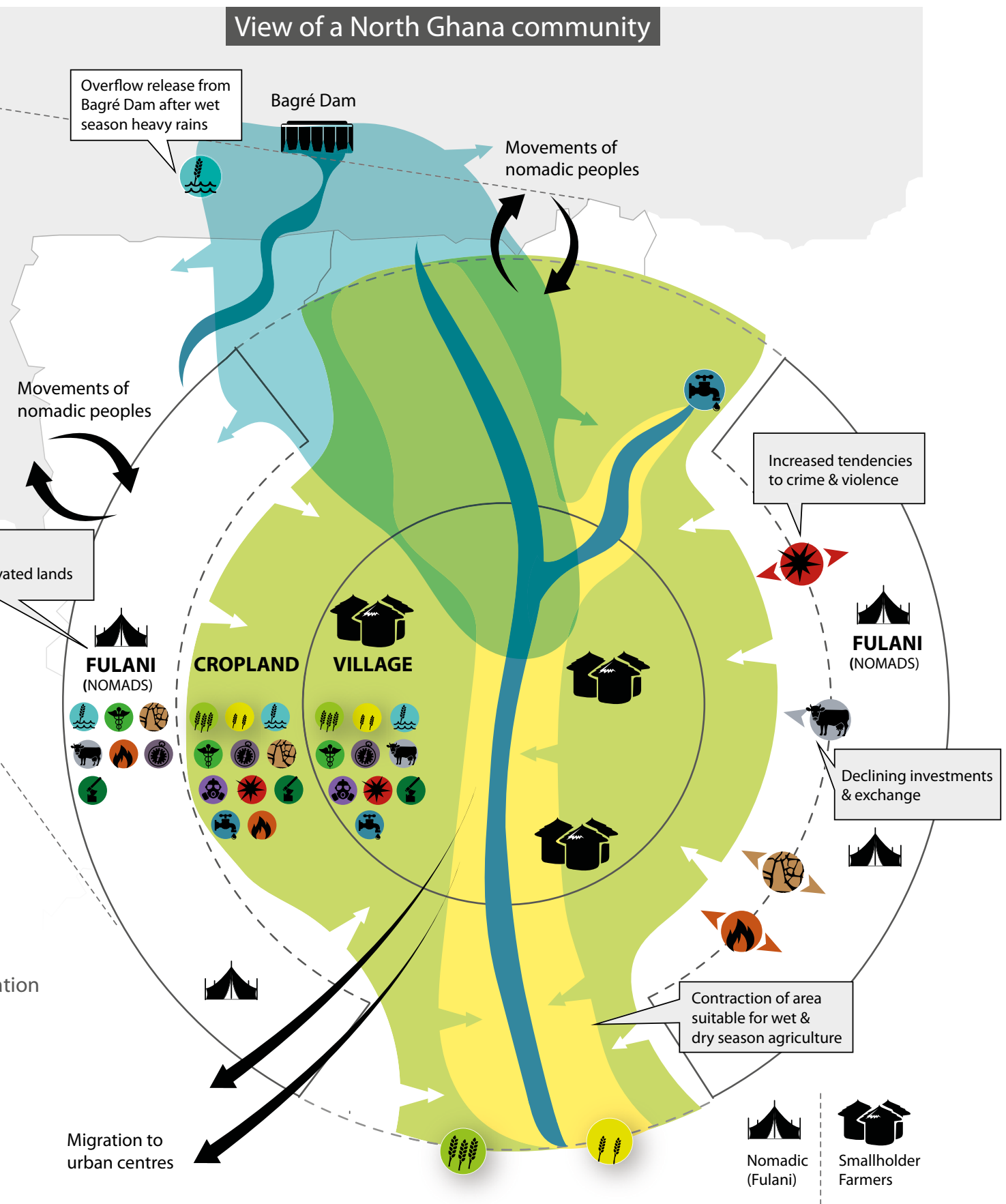
Climate change dynamics at community level

Climate shift in Ghana



Climate change migration
Case study - Ghana
UNDP, 2015

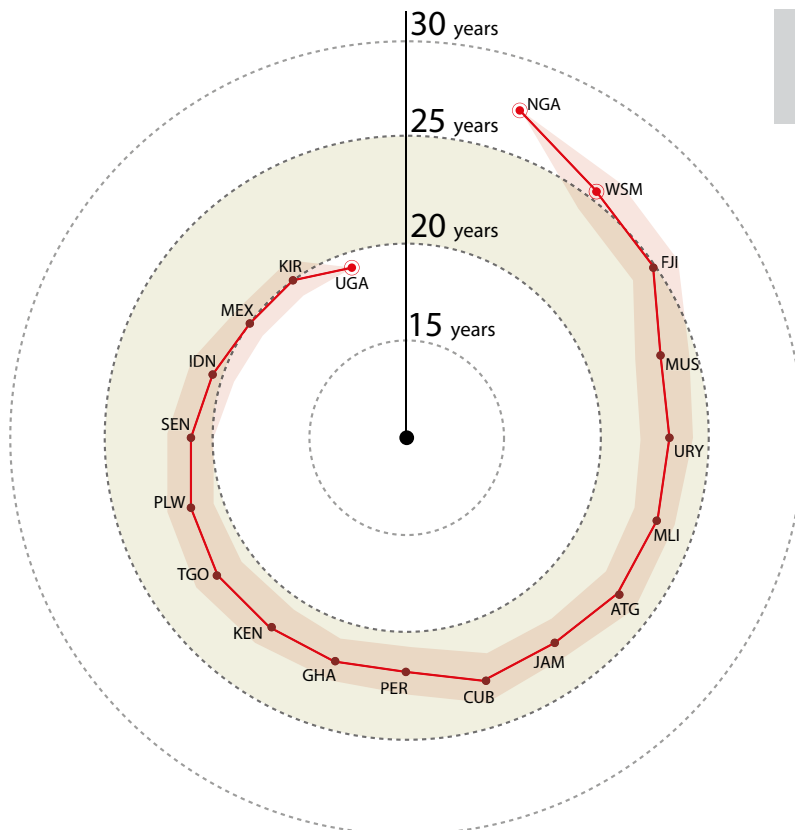
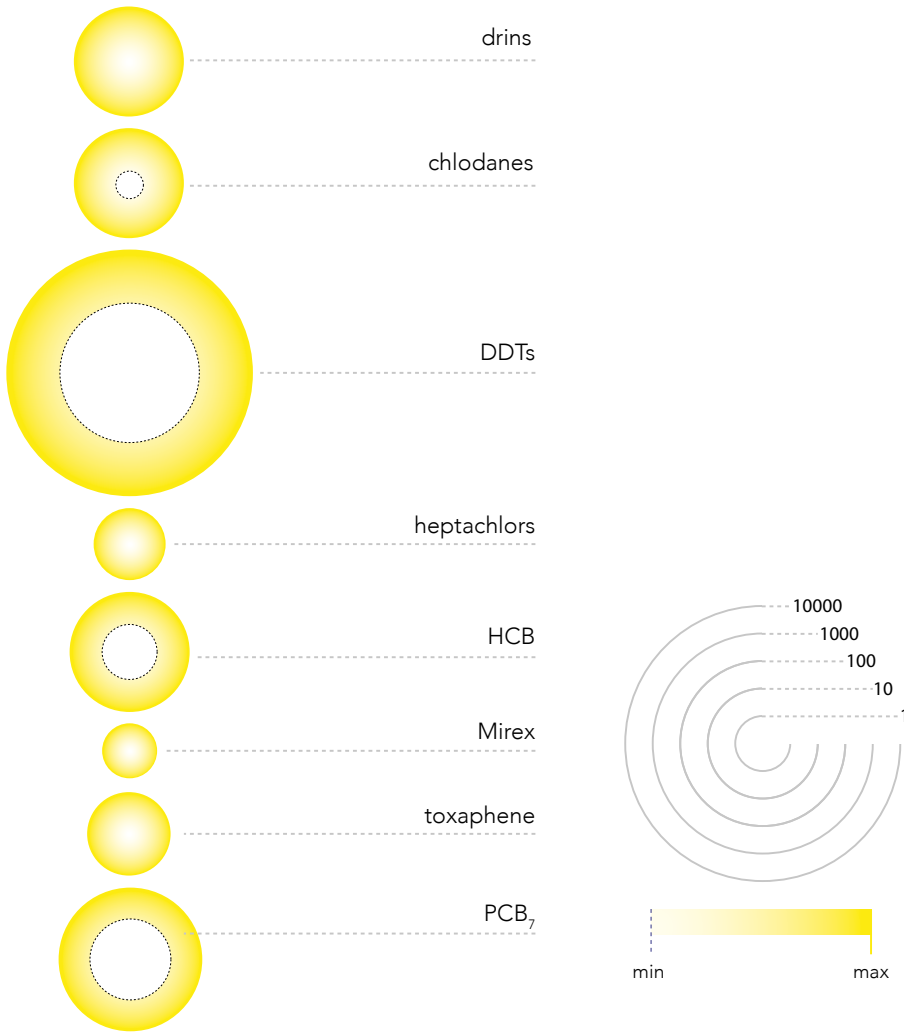
STUDY: UPPER EAST GHANA



Sources: DARA & the Climate Vulnerable Forum (2012)
 Credits: M.O. McKinnon (UNDP Geneva) and E. Tachie-Obeng (EPA-Ghana)
 Layout & design: Zoï Environment Network
 © UNDP 2015

Summary of results of 9 POPs in mothers' milk

UNIT → ng g⁻¹fat



**Persistent Organic Pollutants
in the Mothers' Milk**
UN Environment, 2012

Georgia and Azerbaijan

Total water resources 97,606 million m³ / year

Total water withdrawal 14,024 million m³ / year

Georgia

Basin limits

River length 391 km

River basin area 11,717 km²

Azerbaijan

Basin water resource

7,100 million m³ / year

Alazani / Ganykh basin

Georgia

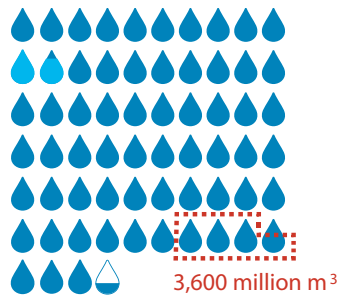
Azerbaijan

TOTAL RENEWABLE FRESHWATER RESOURCES

63,330 million m³ / year
 of which,
 water withdrawal:
 1,823 million m³

Agriculture 58.2%
 Industry 22.1%
 Municipal 19.8%

NB: national percentages
 (no data available
 at the basin scale)



34,680 million m³ / year
 of which,
 water withdrawal:
 11,970 million m³

Agriculture 84.4%
 Industry 12.8% (est.)
 Municipal 2.8% (est.)

NB: national percentages
 (no data available
 at the basin scale)



INSTALLED ELECTRICITY GENERATING CAPACITY & HYDROPOWER

4,308 kW
 of which, hydropower:
 2.6 million kW

Hydropower 61%
 Fossil fuel 39%



7,114 kW
 of which, hydropower:
 1.1 million kW

Fossil fuel 85%
 Hydropower 15%



AGRICULTURAL LAND

4,000 km²



19,000 km²

NB: no data available
 at the basin scale



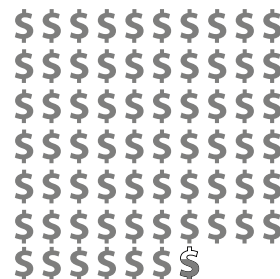
GROSS DOMESTIC PRODUCT

15,700 million dollars



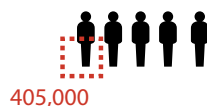
66,600 million dollars

NB: no data available
 at the basin scale



POPULATION

5 million people



9 million people





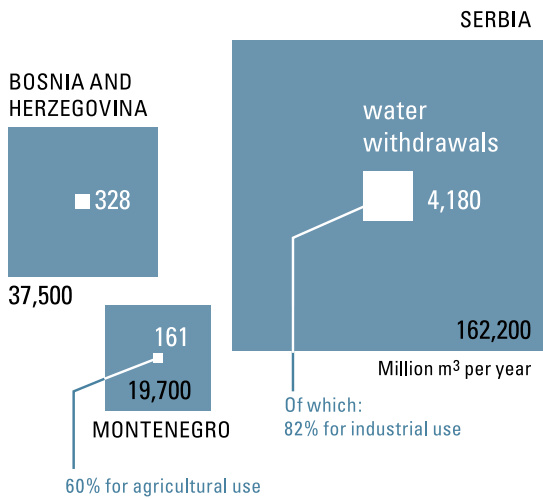
River length
335 km

River basin area
20,320 km²

Water use
74 million m³/year

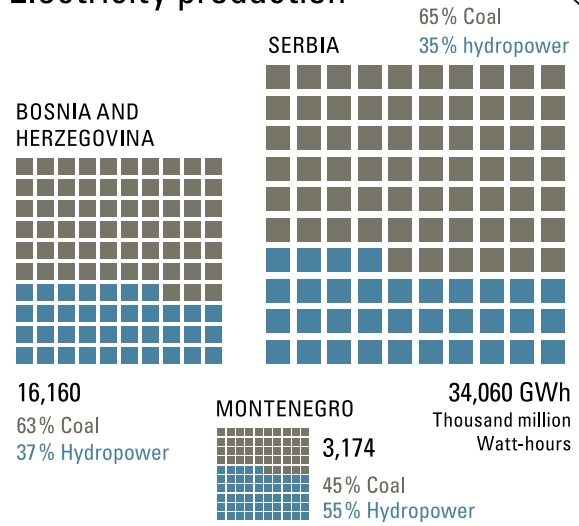
Drina Basin

Water resources



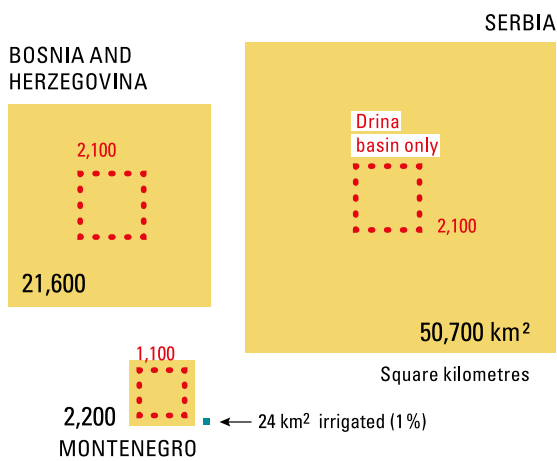
Source: FAO Aquastat, 2014.

Electricity production



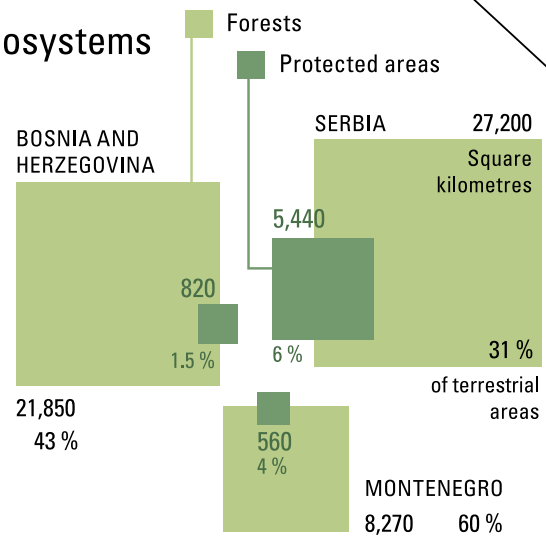
Source: US International Energy Agency, 2017 (data: 2014).

Agricultural land



Source: FAOSTAT, 2014.

Ecosystems



Sources: FAOSTAT, 2014; World Database on Protected Areas, UNEP- WCMC, 2016.