Assessment of climate change risks and vulnerabilities and development of adaptation measures in the area of health and wellbeing

SIA «Estonian, Latvian & Lithuanian Environment»

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Topics of presentation

- Expert team
- Current context
- Methodology and data
- Identified risks («cause – effect chains» and shortlisted risks)
- Further steps
- Cooperation and common risk analysis methodology
- Cost-benefit analysis approach

Project experts (permanent experts)

- Health expert – Indra Liniņa (public health and epidemiology)
- Social anthropologist – Kristīne Rolle
- Economist/project manager – Artūrs Caune
- Sociologist – Kristīne Vībane
- Project coordinator – Olga Meļņičenko

Sectoral experts (focus group)

- Ministry of Health
- Centre for Disease Prevention and Control
- Centre of Emergency and Disaster Medicine
- Health Inspectorate
- Riga Stradiņš University Institute for Occupational Safety and Environmental Health

Other health and wellbeing experts (interviews, brainstorm, etc.) – Ministry of Welfare, "Riga City Architect's Office", State Fire and Rescue Service, Riga Stradiņš University, insurers, social anthropologists, psychologists

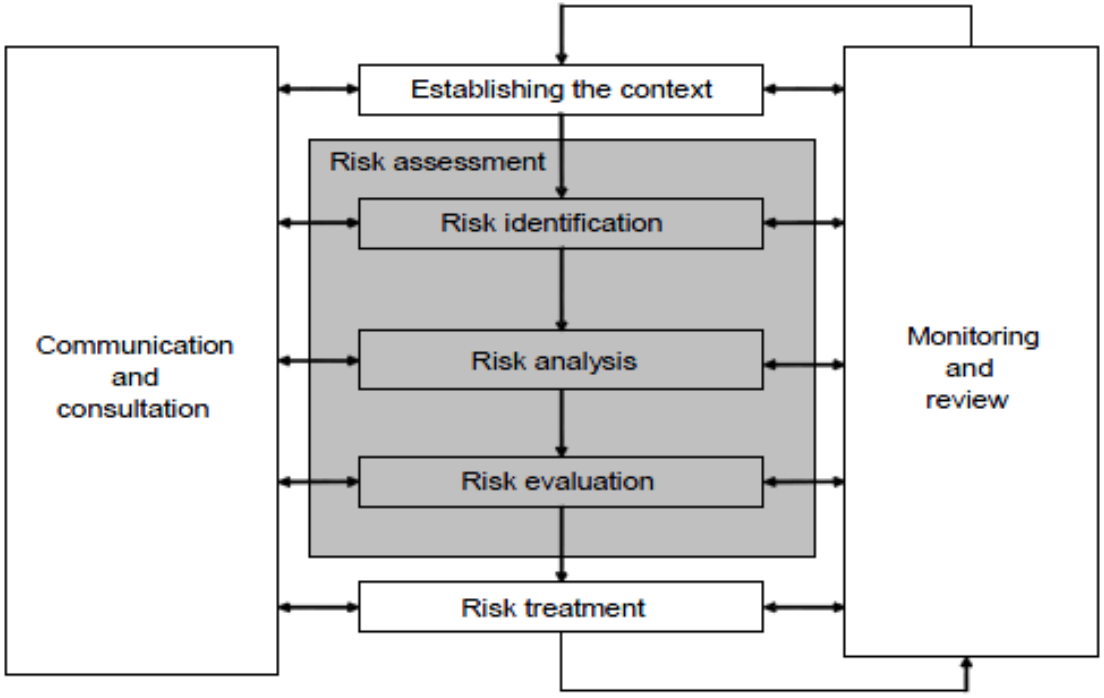
- According to the EEA estimates 150 000 deaths worldwide were caused by climate change in 2000.
- Extreme heat has impact on cardiovascular and respiratory diseases. Cardiovascular diseases is the most frequent cause of death in Latvia (57% of all deaths in 2014).
- According to estimates, the heatwave of 2003 caused 70 000 excess deaths in 12 European countries, mostly among older people (EEA).
- Increase in average annual temperature by 1° C combined with more frequent/longer heat waves mortality increases by 1-4% (EEA).

- Climate change and related diseases also affect the socio-economic state (individual and national), as well as mental health of affected individuals/their family
- Among vulnerable groups of society – elderly, children, low-income families
- Aging of population (Latvia – current and projected):

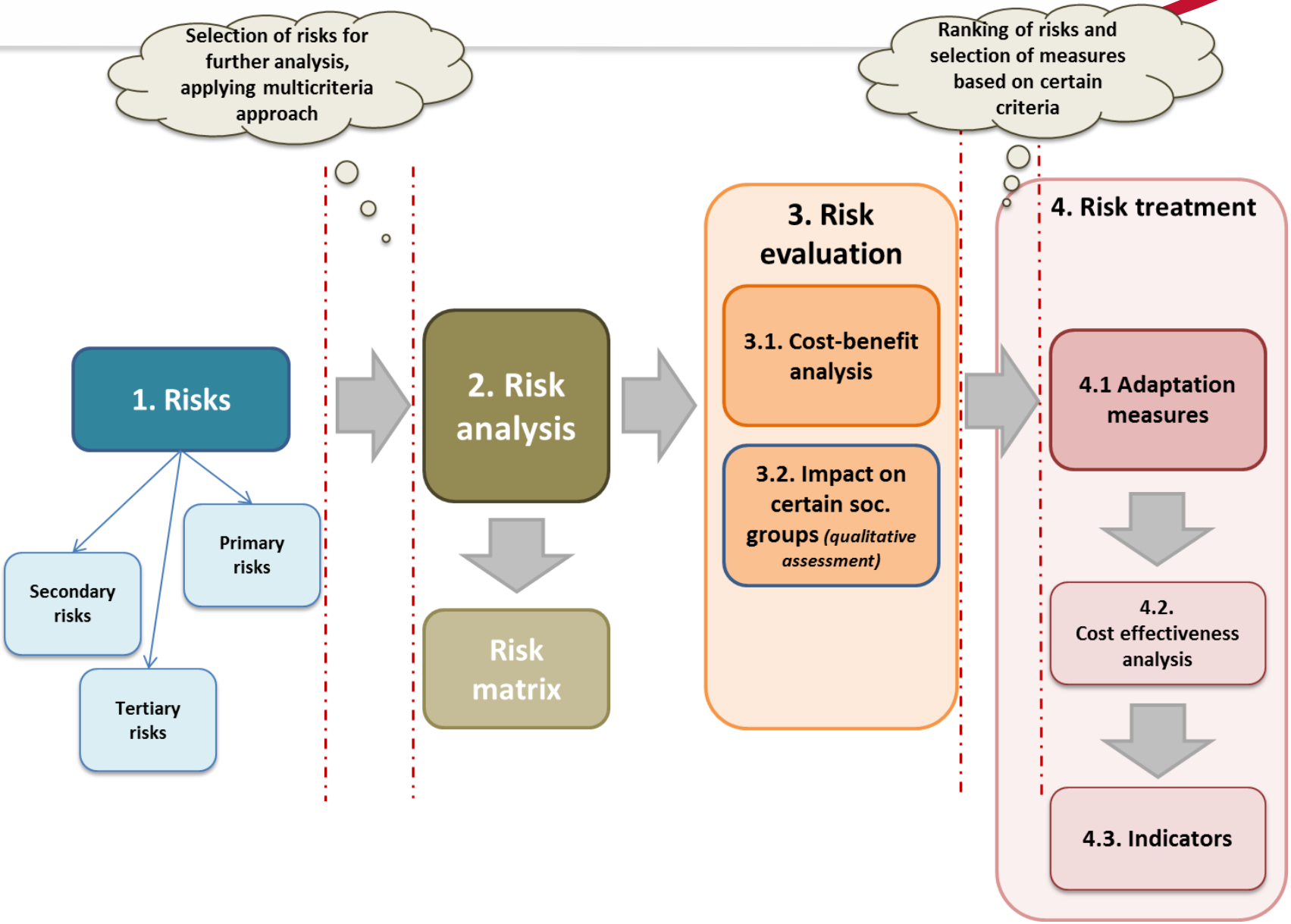
2015				2050				2100			
0-14	15-59	60+	80+	0-14	15-59	60+	80+	0-14	15-59	60+	80+
14,9	59,4	25,7	5	15,3	51,6	33,1	7,8	15,5	51,8	32,7	10,5

Source: UN

ISO 31010:2009 «Risk management – Risk assessment techniques»



Methodology – project chart

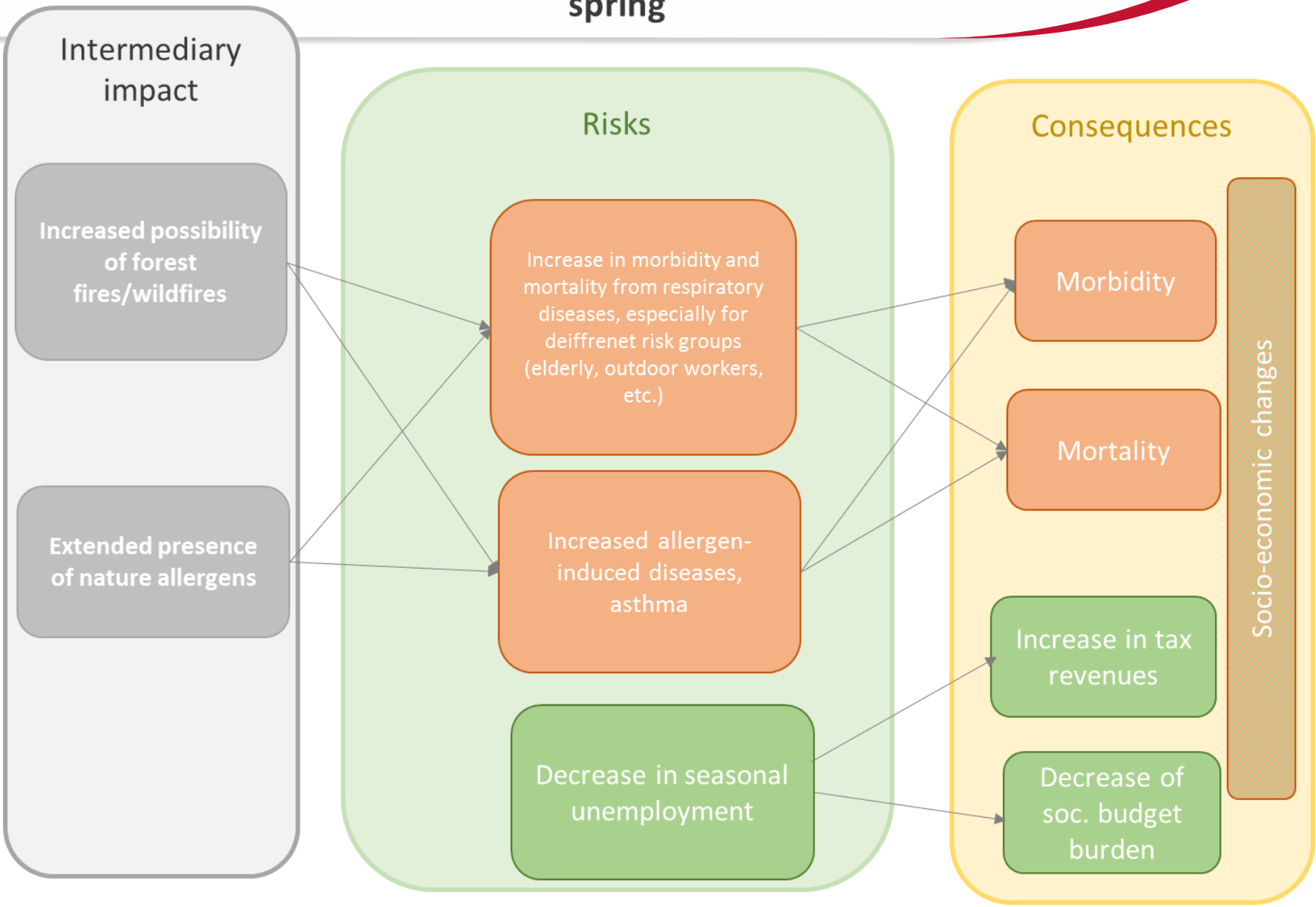


Data

- Historical meteorological data by LEGMC
- Climate projections (currently – LEGMC, EEA, project-based projections, e.g. on coastal erosion in Latvia)
- Statistics:
  - → Health statistics cover rather recent history (in some cases from 1990 in other – from 2005 (e.g. data on heat strokes), thus making it challenging to carry out statistical analysis
  - → In some cases data of required level of detail is not available (dealing with assumptions and expert opinions)
  - → When interpreting and analysing data external factors have to be considered (e.g. vaccination, improvement of health system)

Cause – effect chains (example)

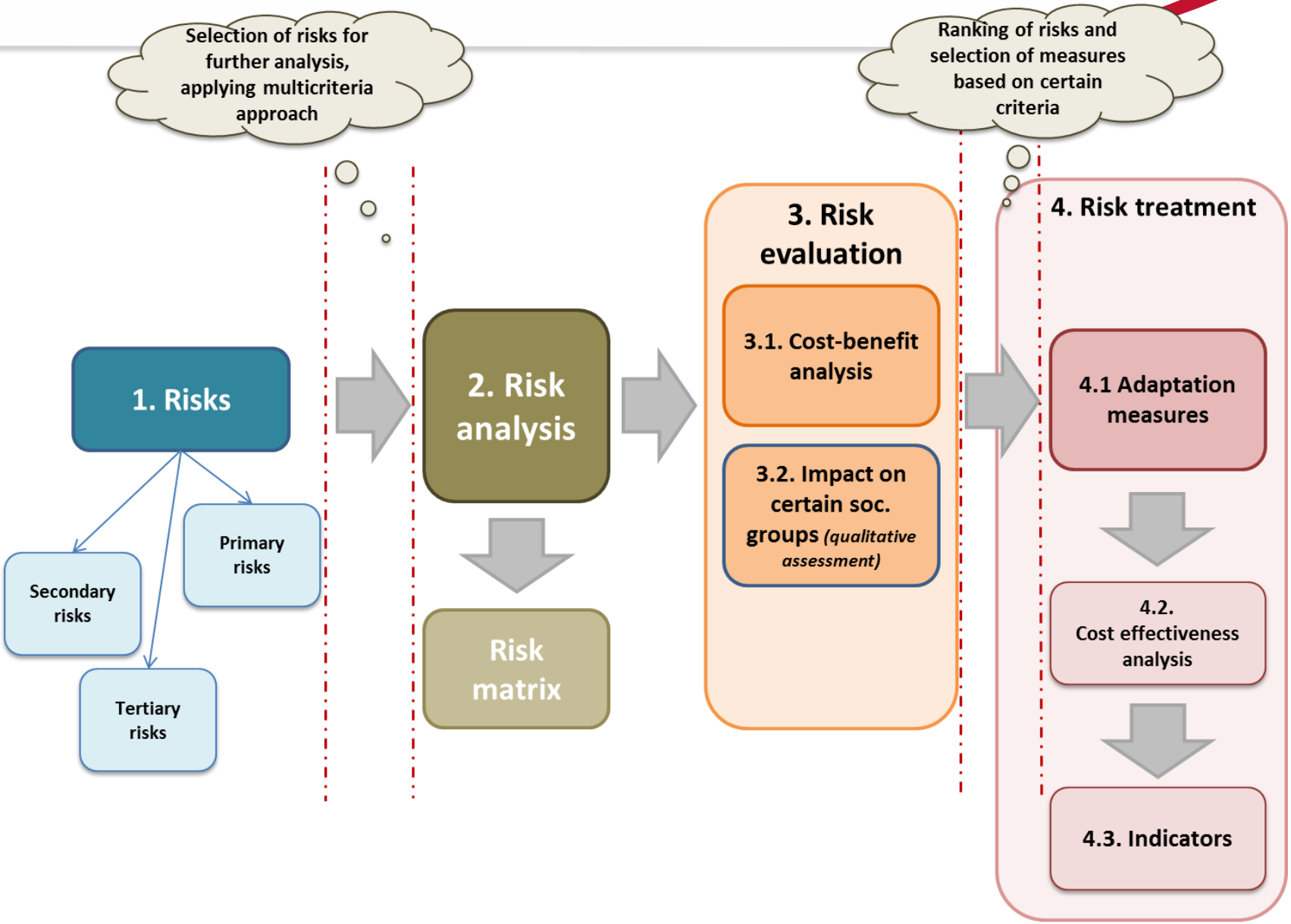
Longer meteorological autumn and spring



Shortlisted risks

- Increase in acute infectious gastrointestinal diseases
- Increase in chronical diseases (cardiovascular diseases, diabetes etc.)
- Increase in vector-borne diseases/certain diseases become endemic (e.g., tick- and mosquito-borne diseases)
- Increase in respiratory diseases
- Increase in heat-related mortality and morbidity (heat strokes)
- *Migration (climate migrants and internal migration)*

Project chart – further steps



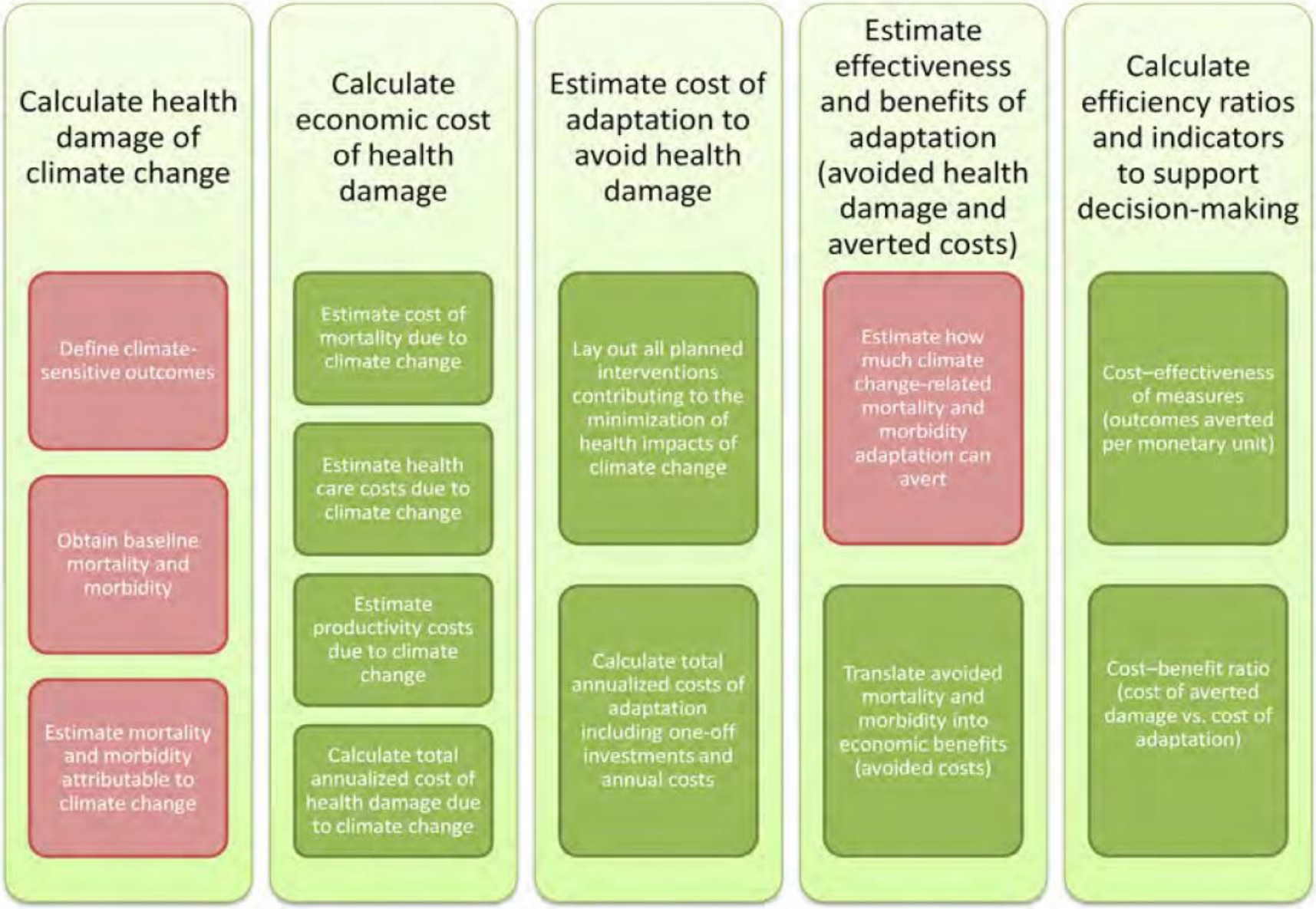
Cooperation and common risk analysis approach

- Meetings (inception) and communication via e-mails
- Common risk analysis method – probability/possibility and effect matrix

	Varbūtība ↓	Iespējamība ↓	Nenozīmīgs risks	Nozīmīgs risks	Vidējs risks	Augsts risks	Ļoti augsts risks
Ļoti augsta	97 - 100%	5	5	10	15	20	25
Augsta	71 - 96%	4	4	8	12	16	20
Vidēja	31 -70%	3	3	6	9	12	15
Zema	4 - 30%	2	2	4	6	8	10
Ļoti zema	< 3%	1	1	2	3	4	5
		Balles	1	2	3	4	5

Sekas →	*Maznozīmīgas*	*Nozīmīgas*	*Vidējas*	*Smagas*	*Katastrofālas sekas*
Ievainotie/cietušie	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	vairāk par XXX
Nāves gadījumi	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	vairāk par XXX
Materiālie zaudējumi	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	vairāk par XXX
Saslimušie	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	XXX līdz XXX	vairāk par XXX

Cost Benefit analysis



Source: WHO. Climate change and health: A tool to estimate health and adaptation costs

1. Calculate health damage

- **How many people will be affected from specific disease** (increased morbidity);
- **Who will be affected the most? Nature of the disease** (mortality rate (%), hospitalized (%), morbidity and mortality within age groups, length of hospitalization)

2. Economic cost of health damage

- Calculate **YLL** (years of life lost) and **YLD** (years lost due to disability)
- Calculate **costs of illness** (productivity costs + costs of hospitalization)
- Calculate **VSL** (value of a statistical life) **/ VSLY** (value of a statistical life year) - *what individuals and society on average will currently pay for any life-enhancing opportunities currently available, based on various risk and wellbeing scenarios*

Thank you!

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