ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

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SALDO – a simple-to-use xls tool to evaluate adaptation options

The Social costs of Adaptation: approaches for an evaLuation of aDaptation Options

Adaptation…

- …has specific regional/sectoral needs, constraints and cross-sectoral/cross-regional effects
- …might work as
  - Autonomous or induced by policy
  - Anticipating or responsive
- Might come as grey (technical, 'concrete' --> mostly expensive), green (enhancing/maintaining ES) or soft (e.g. through spatial planning or fiscal measures)
- …might be tough to implement due to
  - various political scales involved
  - complex institutional setting
- …might be costly and measures – once they have been set up as options e.g. in NAS – may have to be prioritised/scheduled

⏭ **…clearly needs easy-to-handle + flexible DS tools to facilitate implementation and get a feeling for alternatives and their impacts**

SALDO objectives

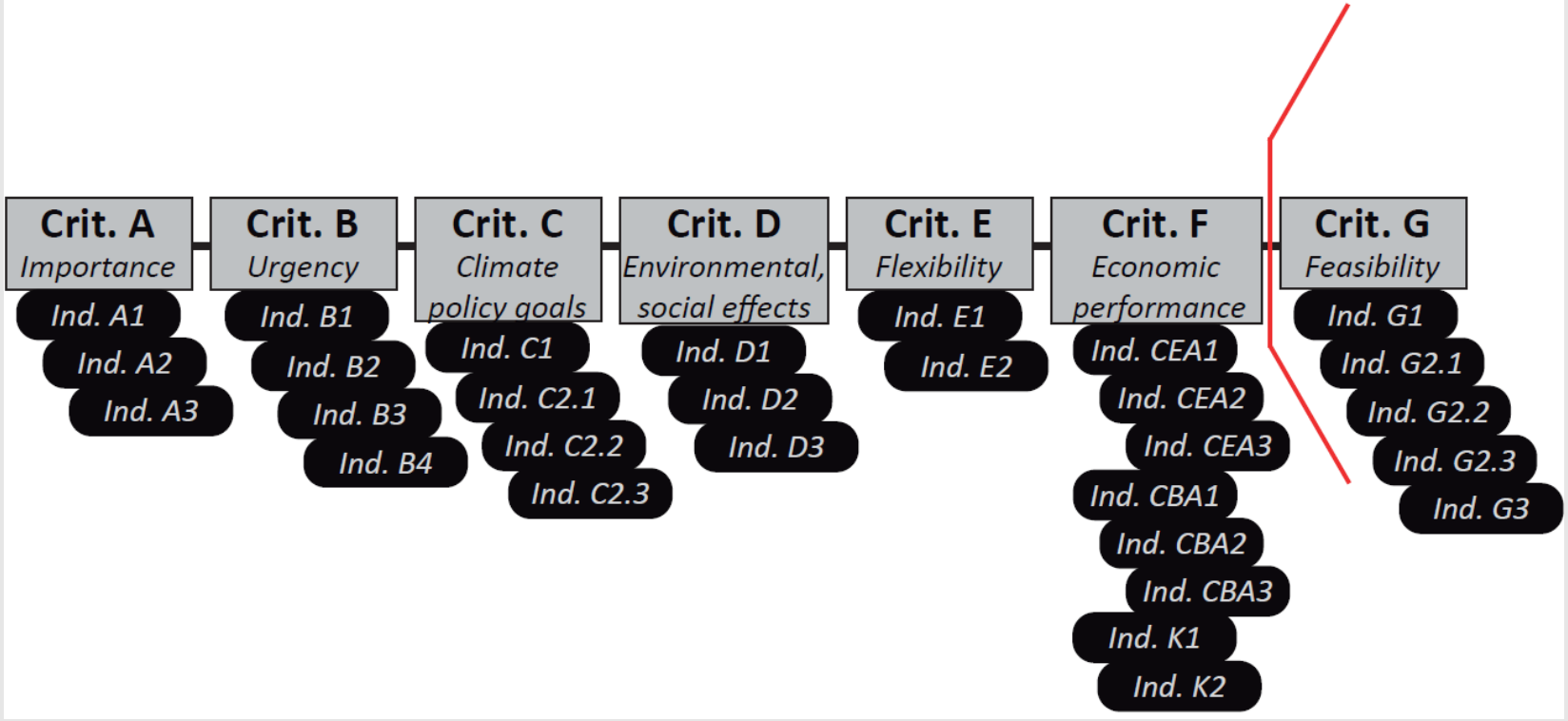
- Setting up an evaluation tool for adaptation options
  - At this stage: to support the action plan/implementation phase of the Austrian NAS
    - Should help to find the most robust measures for certain sector‘s adaptation goals
    - Should be able to compare measures across sectors and with different adaptation goals
    - Planned: application down on the ground i.e. at regional/municipal or company level
- We evaluated different options for assessing adaptation options and found...
  - ...some benchmarks: UKCIP/adaptation wizard, Dutch Routeplanner, German DAS/Klimalotse
- ➢ Development of Criteria and subordinated indicators
  - **SALDO = Excel-based easy MCA for adaptation options**

indicators

- Economic indicators:
  - Cost/Benefit of adaptation options, damage costs
- Non-economic indicators:
  - E.g. synergies/trade-offs with environmental and social impacts, mitigation targets, adaptive capacity, flexibility
- Rough guiding principles for handling uncertainty:
  - Go for No-Regret measures, Win-Win options, measures triggered by urgency, focus on robustness of measures against range of plausible climate futures

❖ NOTE: SALDO has been a 10 months/20.000 EUR project, so we had to be pragmatic

Structure of the SALDO tool



Criteria are measured by (semi-)quantitative and qualitative indicators (owing to acceptance and user-friendliness)

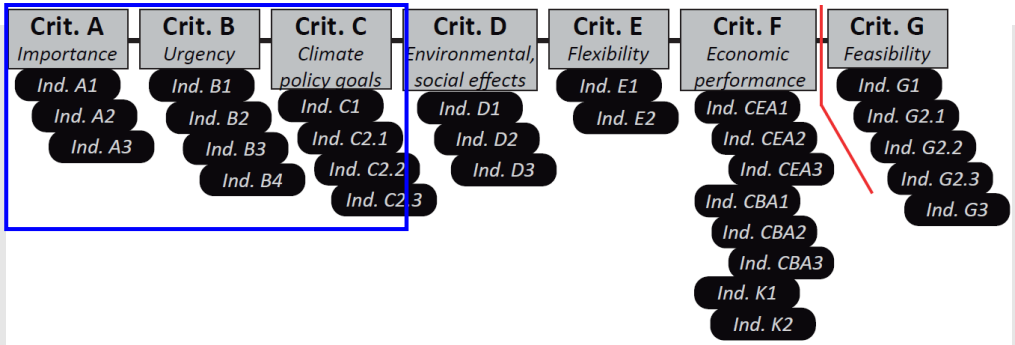
Criteria weighting

- At indicator level the weighting is given
- At criteria level we have four settings:
  1. economic bias with a strong 20% weighting at Importance/damages (crit. A) and economic performance/CBA (crit. F)
  2. ecologic bias (stronger weight for crit. D),
  3. uncertainty bias (stronger weight for crit. E) and
  4. standard/equal setting)

  but also the possibility to set individual weightings

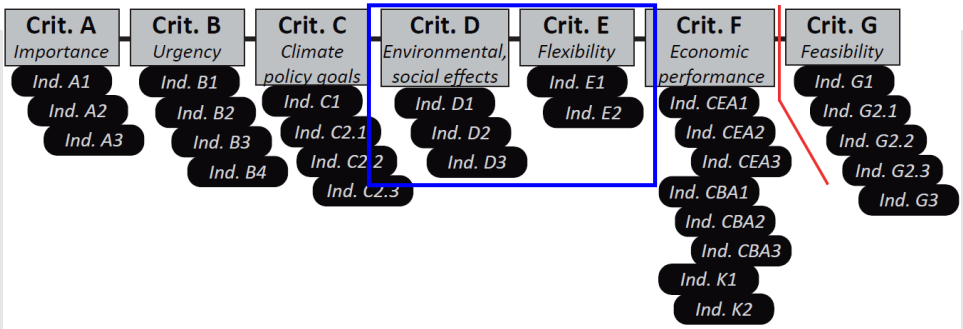
↗ We see a common weighting of the criteria as a task for a stakeholder process and will aim at bringing the yet four alternative settings down to one standard setting

Criteria



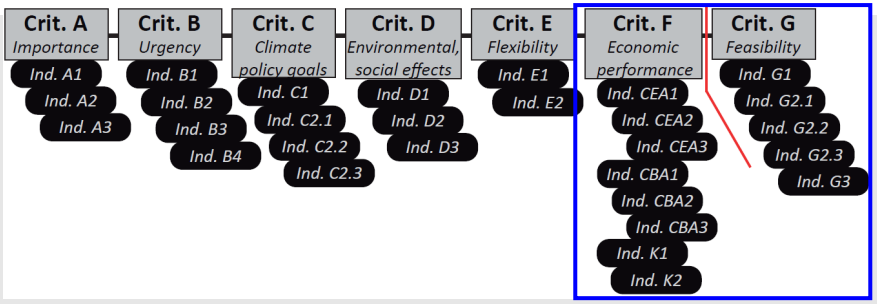
- Crit. A: IMPORTANCE
  - <A1> sector specification (not weight, but important as it activates sets of climate sensitivity parameters throughout the further run of the tool)
    Measure may (not) avoid <A2> significant monetary damages and/or <A3> non-reversible/non-monetary damages (A2 and A3 → Go-indicators)
- Crit. B: URGENCY
  - <B1> Damages happened already or <B2> are expected sooner/later; <B3> Measure has short/long handling time; <B4> measure has short/long endurance.
- Crit. C: CLIMATE POLICY
  - <C1> Measure implies positive/negative effects for mitigation or <C2> other sectors'/regions' adaptation goals ("win-win/win-loose").

Criteria



- Krit. D: ENVIRONMENT AND SOCIAL EFFECTS/IMPACTS
  - Measure implies <D1> positive/negative impacts on ecosystem compartments, <D2> protected/sensitive goods/areas (for example conservation areas, water protection areas, red list species → <D2> is a potential NoGo indicator) as well as <D3> on social aspects such as fairness and security

- Krit. E: FLEXIBILITY/UNCERTAINTY
  - <E1>Measure is (not) suitable for a wide range (ranges for narrow, medium and wide range of uncertainty for sector-specific climate parameters are given) of future climates; <E2> measure can (not) be modified/reversed/removed and adapted to late-breaking developments at reasonable costs.

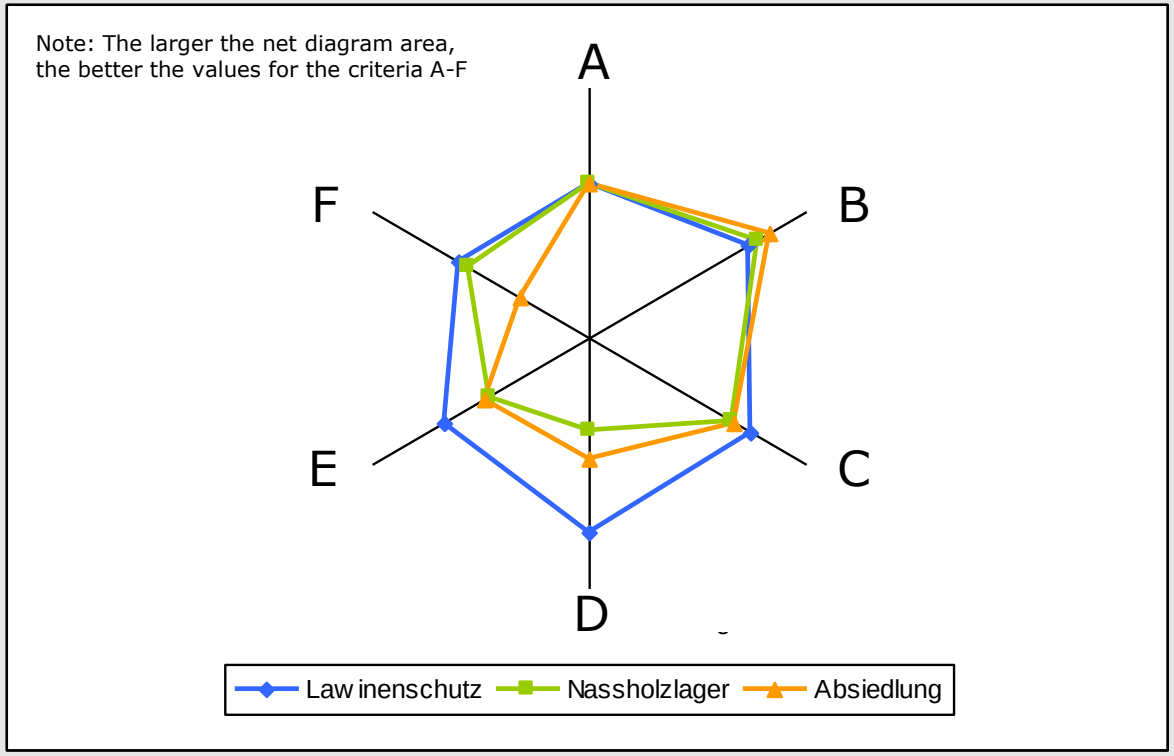


Criteria

- Crit. F: ECONOMIC PERFORMANCE
  - Societal benefits assumed to exceed costs of the measure across (how many?) climate scenarios
  - Three 'choices': i) CEA for comparing inner-sectoral measures with the same adaptation goal <F CEA1> for low, <F CEA2> for moderate and <F CEA3> for strong climate change signal, ii) CBA for economic bias setting <F CBA1> for low, <F CBA2> for moderate and <F CBA3> for strong climate change signal iii) a small rough cost assessment (if no sufficient data is available) <F K1> investment costs, <F K2> maintenance costs

- Crit. G: FEASIBILITY AND POLICY FRAME
  (no weighting (yet))
  - <G1> Technical and institutional feasibility of the measure
  - <G2> Complexity of the decisions necessary for measure implementation (for example positive: mainstreaming potential; negative: many policy scales involved), political relevance and societal acceptance

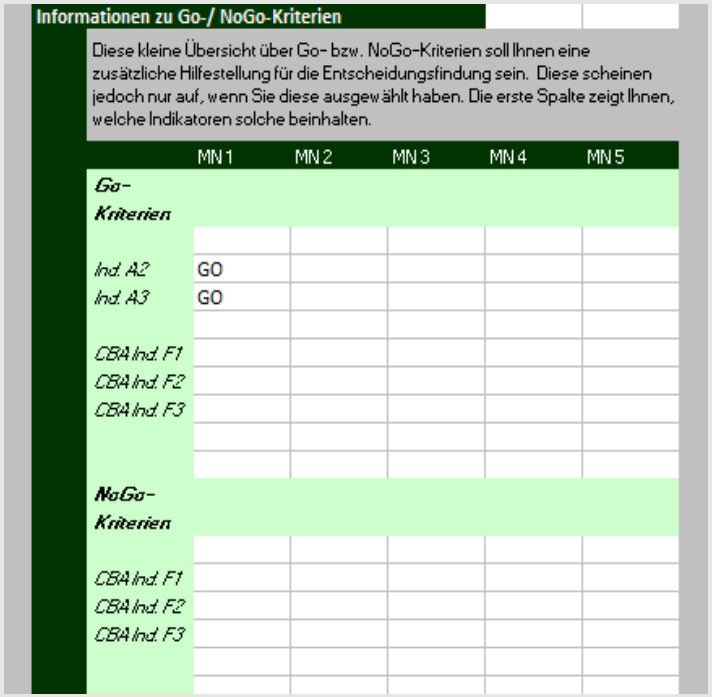
SALDO cross-sectoral output example



- ✓ **Desettlement** (orange) shows high social impacts (cf. D) and high costs (cf. F), which might be justified with high urgency (B) & importance (A; high damage avoiding potential)
- ✓ **Avalanche protection** (blue) is flexible and show low environmental & social impacts (D) and high flexibility (F; if protection forests are incorporated)
- ✓ **Wet timber deposits** (green) show high ecological impacts (D; e.g. water demands)
- ✓ All three measures comply with mitigation targets (C)

Additional result output

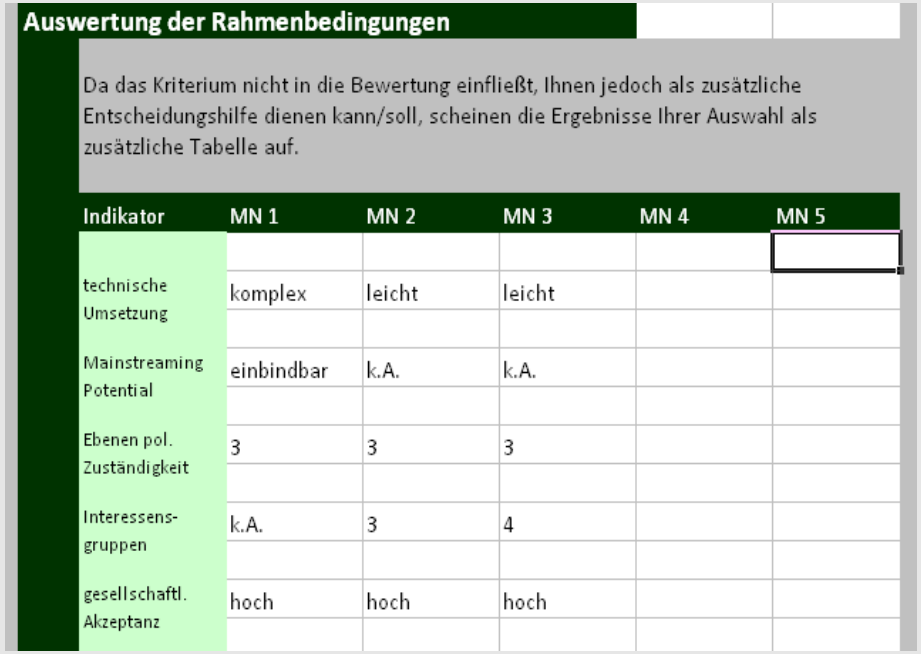
- Go-/No Go indicators/criteria



Informationen zu Go-/ NoGo-Kriterien

Diese kleine Übersicht über Go- bzw. NoGo-Kriterien soll Ihnen eine zusätzliche Hilfestellung für die Entscheidungsfindung sein. Diese scheinen jedoch nur auf, wenn Sie diese ausgewählt haben. Die erste Spalte zeigt Ihnen, welche Indikatoren solche beinhalten.

	MN 1	MN 2	MN 3	MN 4	MN 5
Go-Kriterien					
Ind. A2	GO				
Ind. A3	GO				
CBA Ind. F1					
CBA Ind. F2					
CBA Ind. F3					
NoGo-Kriterien					
CBA Ind. F1					
CBA Ind. F2					
CBA Ind. F3					



Auswertung der Rahmenbedingungen

Da das Kriterium nicht in die Bewertung einfließt, Ihnen jedoch als zusätzliche Entscheidungshilfe dienen kann/soll, scheinen die Ergebnisse Ihrer Auswahl als zusätzliche Tabelle auf.

Indikator	MN 1	MN 2	MN 3	MN 4	MN 5
technische Umsetzung	komplex	leicht	leicht		
Mainstreaming Potential	einbindbar	k.A.	k.A.		
Ebenen pol. Zuständigkeit	3	3	3		
Interessens-gruppen	k.A.	3	4		
gesellschaftl. Akzeptanz	hoch	hoch	hoch		

- Sketching the results for feasibility and the policy frame (Crit. G)

SALDO Tool can be downloaded as simple (yet only German speaking) xls-file at

- http://www.klimawandelanpassung.at/anpassung-an-den-klimawandel/bewertungstool-fuer-anpassungsmassnahmen/

Thanks for listening!

NL Routeplanner

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- weights „Importance“ highest (40%), followed by „Urgency“ (20%), „No-Regret“ and „Ancillary Benefits“ (15% each) and Mitigation Effects (10%); costs are put seperatly

ADAPTATION OPTIONS	Weighted sum	Importance (40%)	Urgency (20%)	No-regret (15%)	Ancillary benefits (15%)	Mitigation effect (10%)	Complexity	Net present value cost (million €)	Net present value benefits (million €)
More space for water	4.9	5	5	5	5	4	4.4		
Risk based allocation policy	4.9	5	5	5	5	4	4.4		
Risk management as basic strategy	4.9	5	5	5	5	4	3.2		
New institutional alliances	4.9	5	5	5	4	5	4.0		
Integrated nature and water management	4.9	5	5	5	5	4	4.2		
Integrated coastal zone management	4.9	5	5	5	5	4	4.2		
Make existing and new cities robust - avoid 'heat islands', provide for sufficient cooling capacity	4.8	5	5	4	5	4	3.0		
Construct buildings differently in such a way that there is less need for air-conditioning/heating	4.7	5	4	5	4	5	2.6		
Change modes of transport and develop more intelligent infrastructure	4.7	5	5	4	4	5	4.0		
Regional water system									
- Regional water system								19000	Unknown
- Improving river capacity								>7000	Unknown
Risk based allocation policy								0-10	Unknown
Make existing and new cities robust - avoid 'heat islands', provide for sufficient cooling capacity								65-65€/m²	>2200€/m²
Construct buildings differently in such a way that there is less need for air-conditioning/heating								23000	Unknown
Design and implementation of ecological networks (The National Ecological Network - NEN)								7000	>7000
Increasing genetic and species diversity in forests								0.43/ha	>0.43/ha

Interested in further developing the tool?

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