Three challenges for tracking adaptation to climate change

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TRAC³
Tracking Adaptation to
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Three challenges of tracking adaptation

- Tracking is needed to address crucial questions: *Is adaptation taking place? If so, who is adapting and what types of adaptation are being undertaken? Are we adapting more over time? Which nations, regions, and sectors are leading on adaptation, and what factors determine this?*

- Adaptation tracking requires 4Cs: consistency, comparability, comprehensiveness, coherency
  - However, conceptual, methodological and empirical challenges exist

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2

1. Conceptual: What is adaptation?

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Dupuis, J., Biesbroek, R., 2013. Comparing apples and oranges: The dependent variable problem in comparing and evaluating climate change adaptation policies. Global Environmental Change 23, 1476–1487

2. Methodological: how to measure?

- beyond the descriptive and contextualized in search of approaches for standardization
- Indicators and proxies, testing hypotheses, identifying predictors of adaptation action, and constructing a baseline for analysis.
  - ND-GAIN, Maplecroft , TRAC3, GLOBE,...
- Outcome indicators are difficult (if not impossible) due to contributive effects of other (policy)actions
- Indirect, output and process orientated indicators,but...
  - Beyond counting adaptation actions
  - (im)possibility of scalable indictors (time, space, administrative levels)

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5

3. Empirical: What data to use?

- Data is rather poor in quality and quantity, too broad, or insufficiently tailored for longitudinal studies of adaptation or hypothesis-testing.
- Some comprehensive datasets exist but all have limitations in consistency, comprehensiveness, comparability and coherency
- Prerequisite for meaningful tracking

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6

3. Empirical: What data to use?

Methods	Description	Strengths	Weaknesses
Systematic web searches (of reports, governmental websites)	Use of search queries of online search engines (e.g. google) to identify relevant data from non-reporting entities (e.g. cities, provinces, regions) **OR** search for all possible documents on website of entity	• Real time access to data • Possibility of comprehensive assessment of documents on policies, visions, and strategies for particular. • Beyond documents and include webpage content • Feasibility (less time intensive) • Possibility to analyze adaptation in a variety of jurisdictions	• Not able to find does not mean it does not exist • Large variation in available data • Different languages complicate data extraction • Sometimes has to rely on deciphering language used to make inclusion/exclusion decisions
Systematic literature of peer-review	Use of search queries of online scientific databases (e.g. web of knowledge, Scopus) to identify relevant studies with valuable data sources Can be *complemented* with grey literature and or books	• Check of theoretical and methodological quality of data and findings is possible (peer reviewed suggests) • Feasibility (less time intensive)	• Secondary analysis does not always provide insights on topic under study. • Data is rapidly outdated (takes long before data/paper is published)
Assessment of self-reporting databases	Reports submitted (voluntary or requested) with broad guidance questions and criteria about current and past adaptation activities, submitted to a country or overarching authority	• Regular reporting creates longitudinal data, so comparable over time • Open access available (country) reports • Often broadly similar reporting structure	• Mostly reporting of new efforts, not ongoing or finished • Politically loaded content and purpose • Bias towards including successful examples • Not report all measures
Assessment of self-assessment	Reporting with specific guidance and predefined criteria aimed to evaluate past policy efforts, submitted to a country or overarching authority	• Specific questions allow to focus on specific topics • Often government agency who assesses rather than individual to ensure broad consensus of content/answers.	• Politically loaded content/process • Mostly reporting on recent activities and not long term changes • Over/under estimation of own progress due to lack of benchmark

3. Empirical: What data to use?

Methods	Description	Strengths	Weaknesses
Analysis of expert surveys	Incidental or recurring assessment of expert perception on various dimensions of adaptation policy within a specific context (country, sector, type of vulnerability)	• Specific questions allow for specific answers • Flexibility to implement in specific contexts and over times • Can be archived and implemented in multiple rounds to measure changes in perception • Critical perspective of 'external' experts	• Response rate per country is difficult to achieve as limited experts are working on adaptation • Particularly difficult to administer in low income countries • Perceptions of experts, rather than objective and measurable items • Often used incidental (cross-sectional data) rather than longitudinal data
Project progress documentation	Regularly reports submitted to (financing) authority to either approve project proposal or monitor project progress	• Detailed information about various aspects of adaptation implementation (e.g. investments). • Reporting frequency	• No direct correlation between project outline and policy output • Limited information focussed on specific dimensions and not necessarily relevant • Limited in scope and duration
Assessment of (internal) Policy reports	Policy documents and meeting reports accessible via specific requests for documentation (e.g. interservice consultations of European Commission)	• Detailed interaction information between agencies within government or between governments	• Not all data freely available and difficult to identify and access • Sensitive information is blacked out • Not always about content, often about politics and/or framing/language
Social media analysis (Twitter / facebook / instagram)	Systematic assessment of social media by making use of (learning) algorithms to capture particular aspects of adaptation (e.g. public opinions, early warnings, vulnerability assessment, monitoring and evaluation).	• Quick and real time data collection • Big data allows for advanced statistical analysis	• Link to policy and outputs not always directly visible • Highly sensitive to populism and extreme events • Privacy and data sensitivity issues