

The EO-MINERS process and experiences:

How to provide suitable integrated EO products for environmental and societal impact assessment of mining activities?

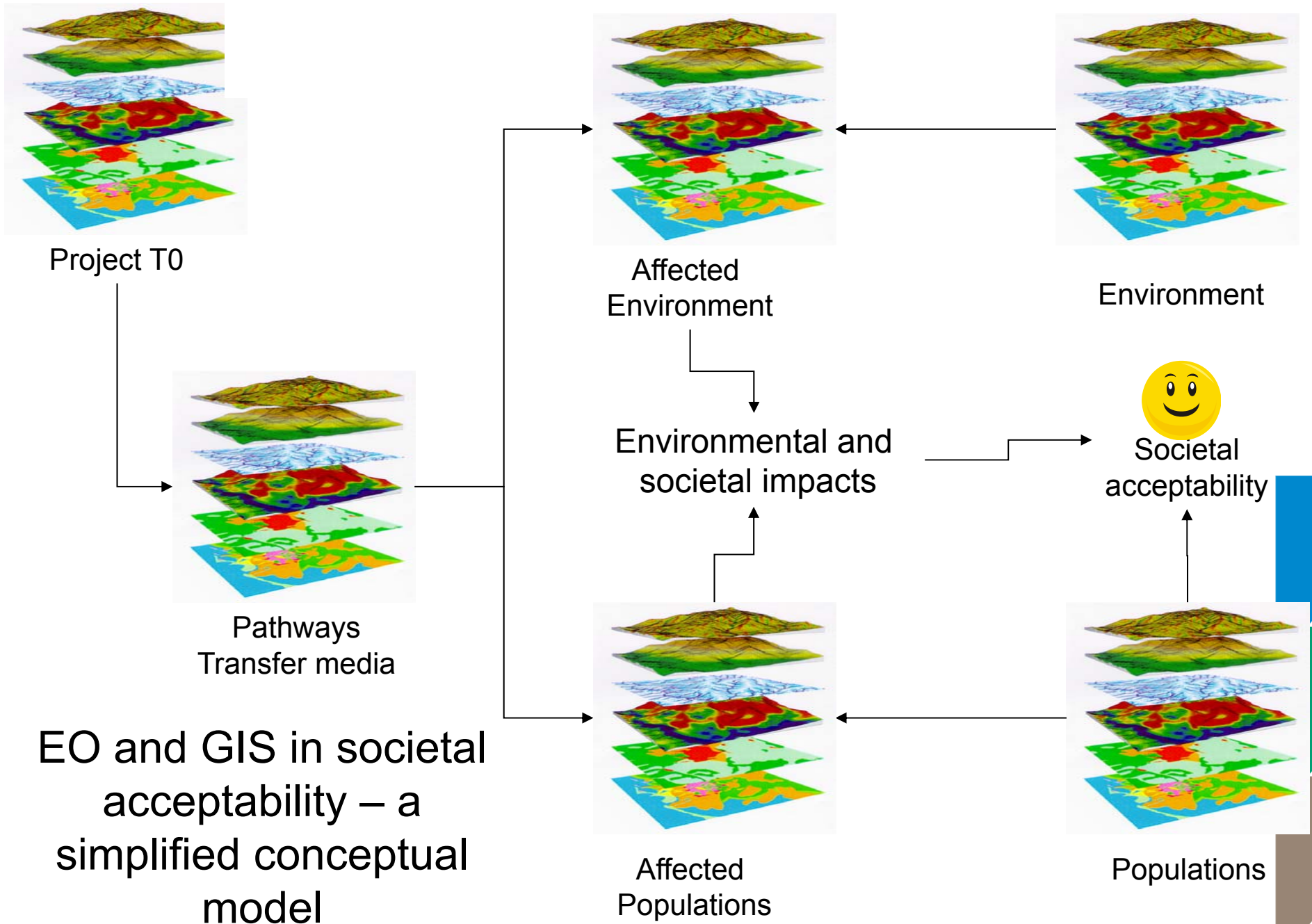
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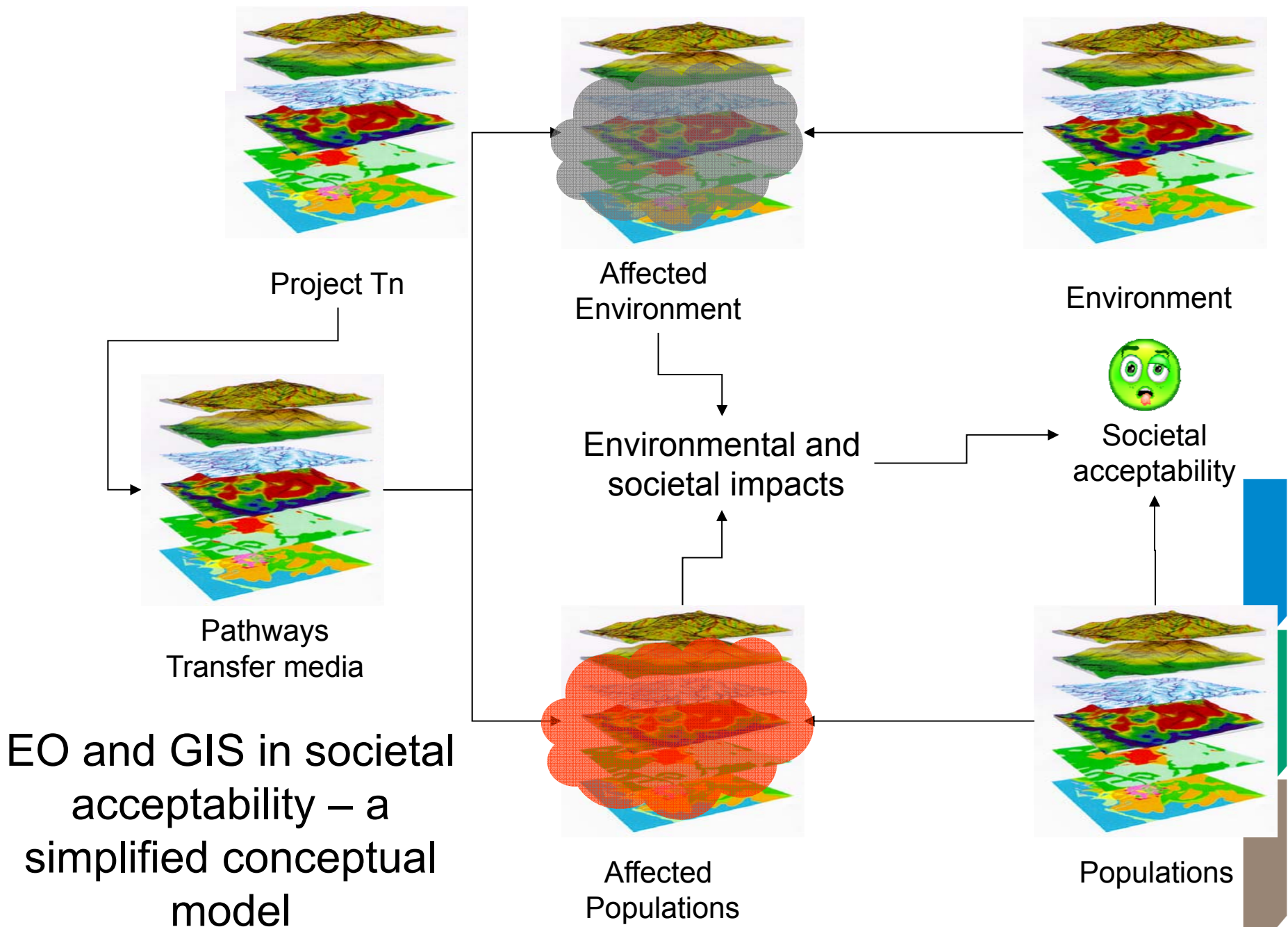
Social license

- The Social License has been defined as existing when a project has the ongoing approval within the local community and other stakeholders, ongoing approval or broad social acceptance and, most frequently, as ongoing acceptance.
- Social License is dynamic and non-permanent because beliefs, opinions and perceptions are subject to change **as new information is acquired.**
- Social license depends on the extent of the **social, environmental** and economic **impacts** of a project

Source : <http://sociallicense.com>



EO and GIS in societal acceptability – a simplified conceptual model



EO and GIS in societal acceptability – a simplified conceptual model

The EO-MINERS view

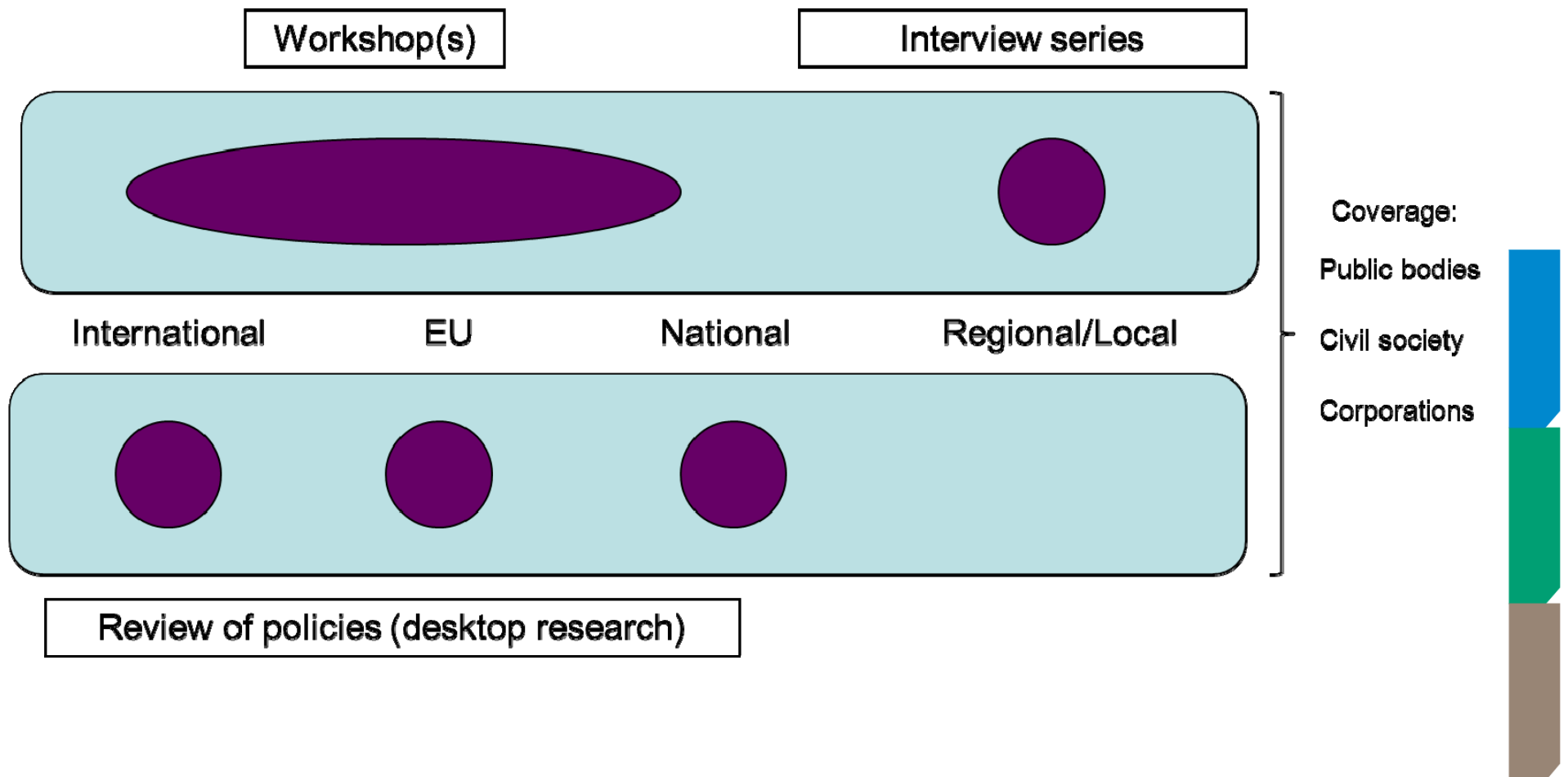
- Challenge in a societal acceptability perspective
 - To define tools "opposable" during discussions between the parties
- = Mutually accepted documents dispassionately depicting the status and impact(s) of a project
 - Need for objective, reliable, affordable and reproducible methods to identify, observe, characterise, measure and map these impacts and monitor them along time
 - Based on protocols and standards that guarantee their "quality and objectivity"

Why indicators for mining impact ?

- The impacts of mining operations can be complex.
- The effects of decisions made by the different actors are difficult to assess and predict.
- The absence of reliable and objective site data may complicate monitoring and assessment.
- Meaningful information on complex issues can often be more easily understood in the form of indicators.
- Indicators measure the state of complex systems, or
- Indicators allow to follow trends, when observations are repeated over time

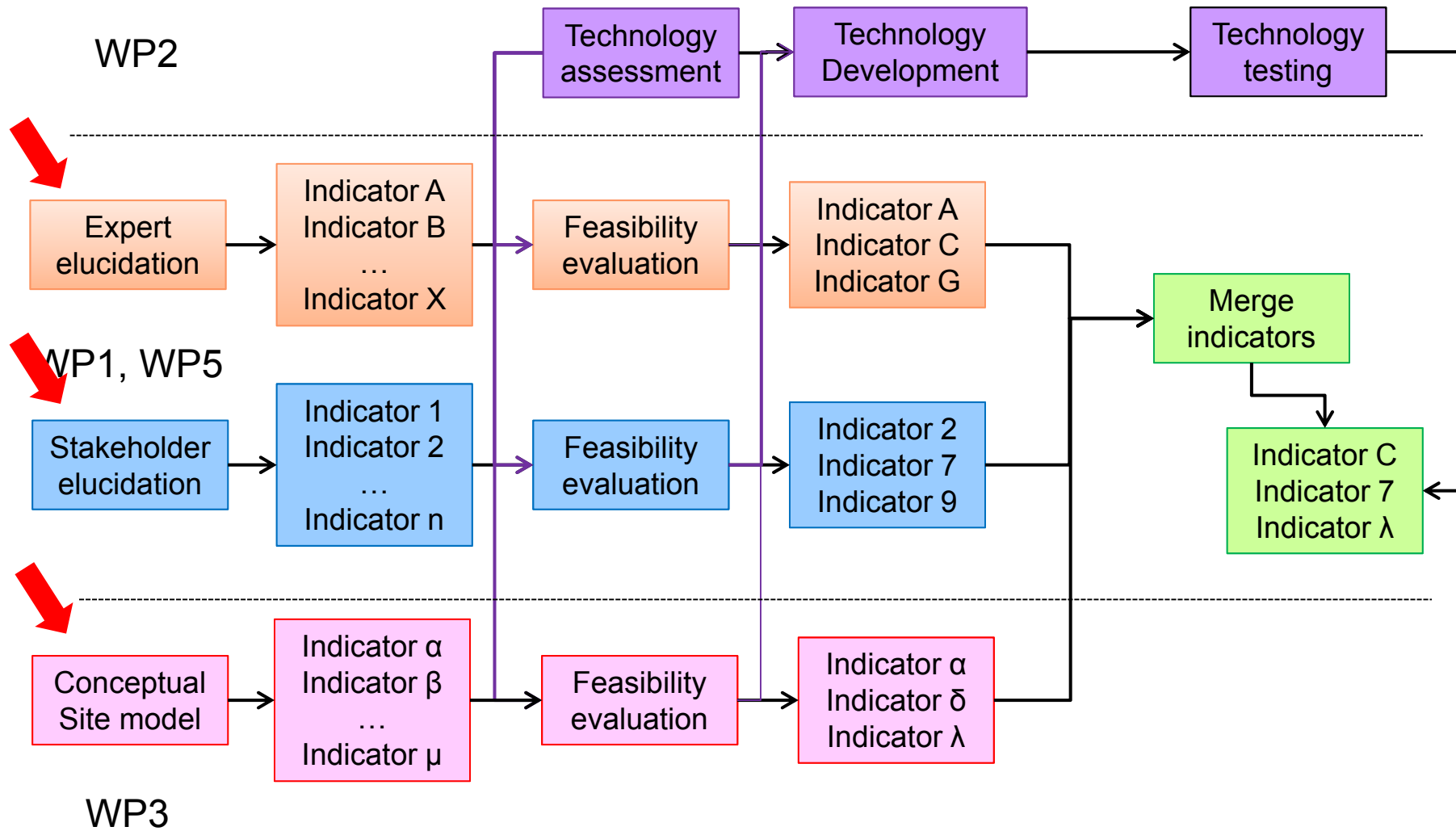
- **The development of meaningful indicators is a social and not an engineering process**
- **The social process defines what to indicate for whom and why**
- **We have to evaluate, whether a proposed indicator can be related to quantities measurable by EO**
- **Therefore, the development of indicators is a process iterating between **stakeholder expectation** and operational feasibility**

Defining information requirements by stakeholders



Interview of Chet Bulak village authorities, Kyrgyzstan



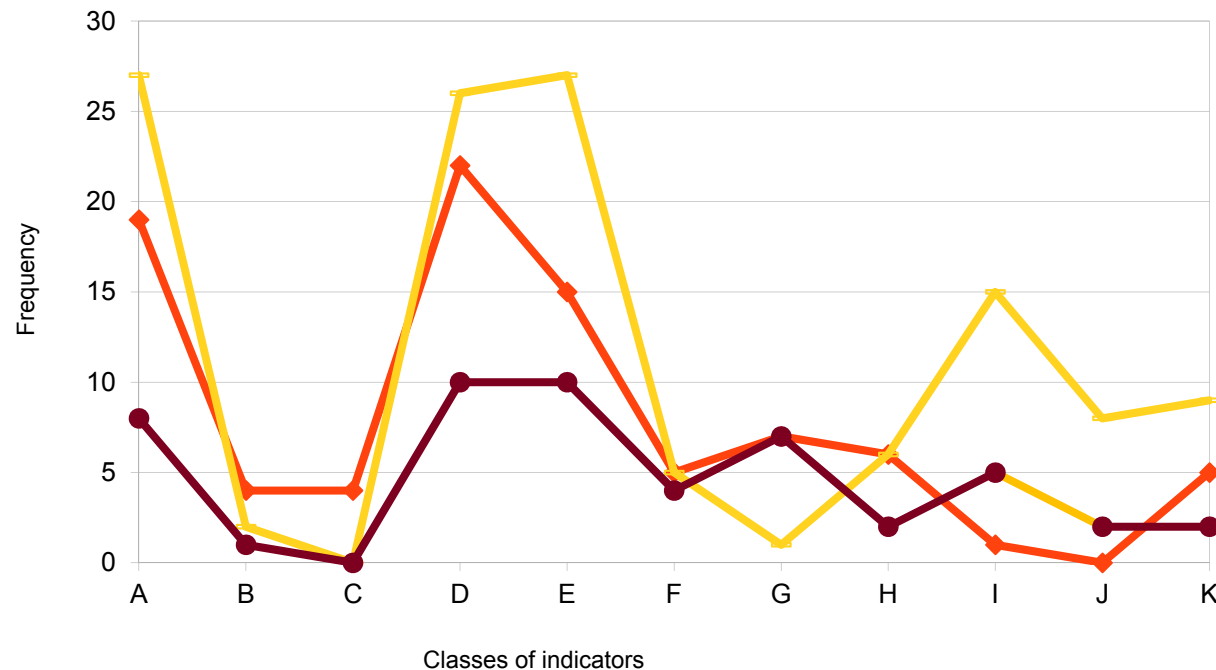


- On-site interviews with stakeholders over the first two years to understand their mining-related concerns
- These concerns have been grouped to identify their priorities
- Indicators include




- | | |
|---------------------------------------|------------------------------------|
| A. Land-use | B. Mass and energy flows |
| C. Soil quality | D. Air-quality and other nuisances |
| E. Water quality | F. Transport |
| G. Geotechnical hazards and accidents | H. Industrial and other accidents |
| I. Social impact | J. Regional development |
| K. Economic vulnerability/resilience | |

Stakeholder most important issues

Frequency of thematic areas (groups of indicators)

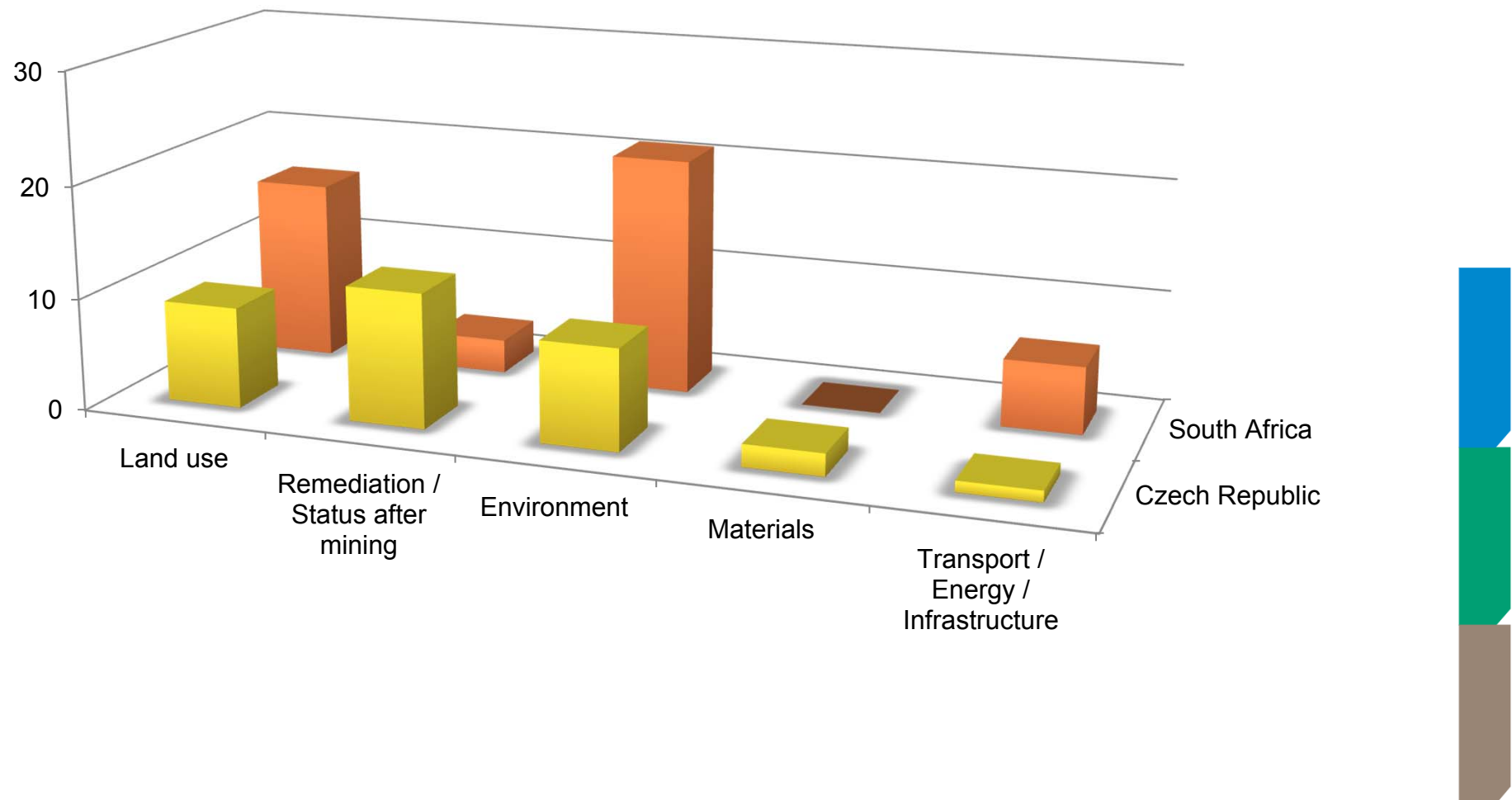


A: land use
D: Air quality
E: water quality
F: transport
G: geotech hazards
I: social impact
J: regional dvpt
K: economical vulnerability

 Government
 Civil Society
 Industry

- Only indicators that could be measured using EO techniques have been retained for product development
- The priority indicators vary from study site to study site

Themes covered by information requirements of local/regional stakeholders



A major challenge ⇒ Need for a neutral attitude

- Stakeholders with very different concerns vs. environmental and societal issues
 - Establishing confident relations with mining companies
 - Reluctance to deal with environmental and societal impacts
 - Reluctance to put data in the public domain
 - Do not like we work with other stakeholders
 - Working constraints (security, ...)
 - ⇒ Need for a better engagement of the mining industry
 - Get acquainted with local communities concerns and demands
 - Lack of information, rumours
 - Economical dependence (jobs, contribution to the community, infrastructure development, ...)
 - Looking for compensations...