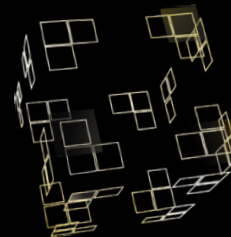
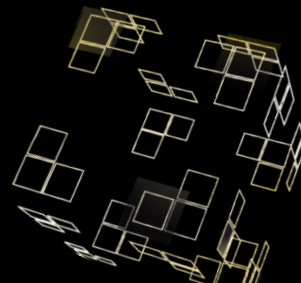
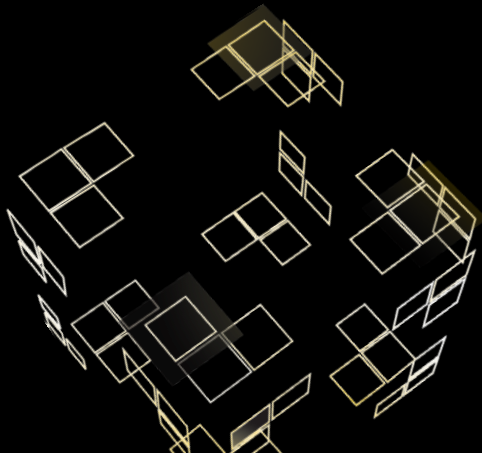




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**In which ways could sociotechnical imaginaries enrich innovation policy
instruments for them to be transformative**

Ernesto Andrade Sastoque Phd (c)
Dr. Gonzalo Ordonez Matamoros
Prof. Dr. Stefan Kuhlmann
BMS Faculty / STePS Department



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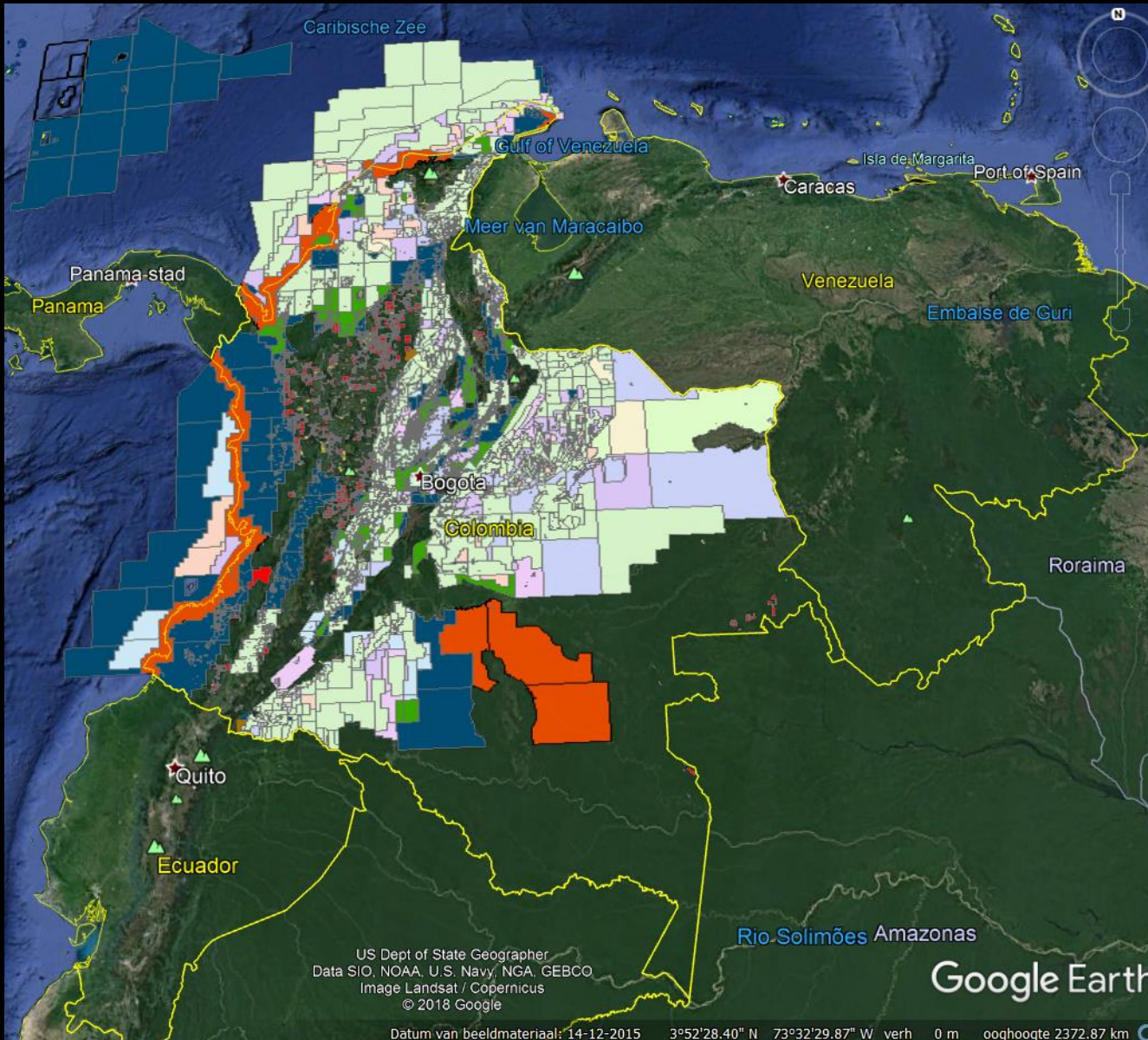
OUTLINE

The background features a series of white, wavy, horizontal lines that flow from the left side towards the right. On the right side, there is a cluster of 3D geometric shapes, including triangles and pyramids, some of which are shaded in light green and grey. Scattered throughout the background are several clusters of small, yellow-outlined squares and rectangles, some of which are arranged in a grid-like pattern.

1. EXTRACTIVE REGIMES TRANSFORMATION AMBITION
2. RESEARCH QUESTION
3. CONCEPTUAL CLARIFICATION +
4. METHODOLOGY
5. RESULTS
6. DISCUSSION

1. EXTRACTIVE REGIME TRANSFORMATION AMBITION

Colombia
Total Hc: 114'174. 800

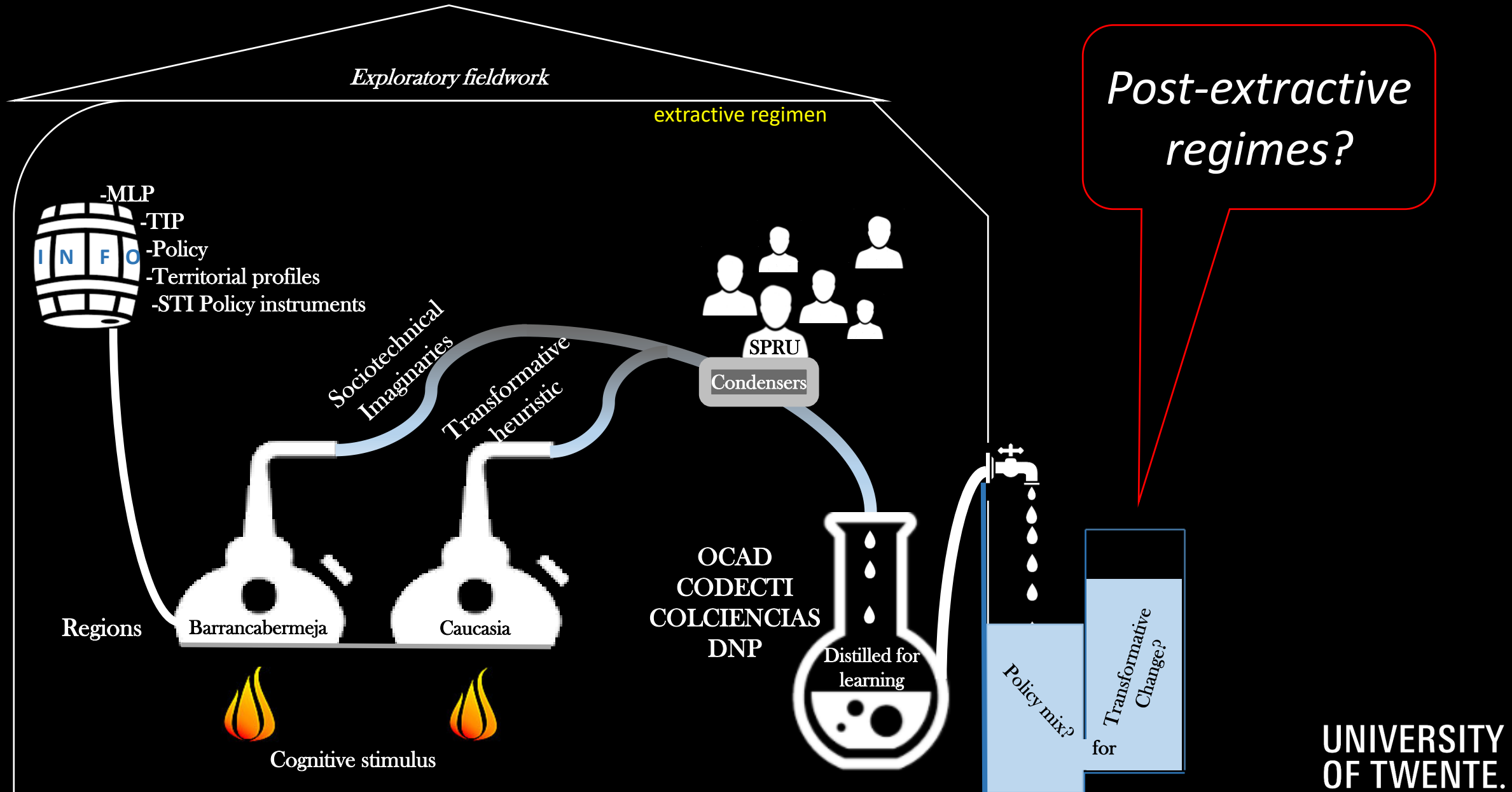


OIL BARRELS (2017): 62'196.226
OIL EXTENSION: 23'678.397 Hc
20,74% of National territory

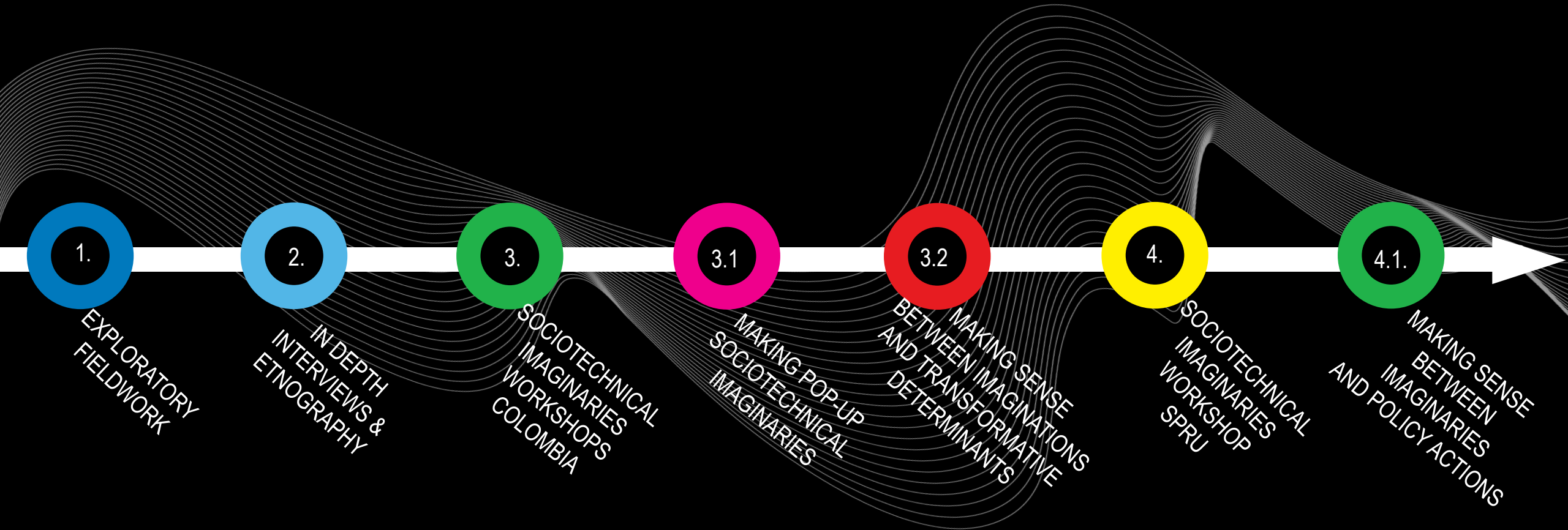
GOLD Kg (2016): 62.507
ORES EXTENSION: Non available yet

*In which ways could
sociotechnical
imaginaries enrich
innovation policy
instruments for them
to be transformative in
extractive economies?*

3. CONCEPTUAL CLARIFICATION + EMPIRICAL FRAMEWORK



4. METHODOLOGY



4. METHODOLOGY



MAKING POP-UP
SOCIOTECHNICAL
IMAGINARIES



MAKING SENSE
BETWEEN IMAGINATIONS
AND TRANSFORMATIVE
DETERMINANTS

A social order and economy based in research and innovation activities in **gastronomy, hospitality and tourism**. **Material and immaterial infrastructures for training in multilingualism; chemistry; mechanical, electronic, electric and environmental engineering, biotechnology; architecture and landscaping** etc. as well as a market and governance where **small-scale palm-growers-associations and other oilseed holds a preponderant role**. A fair market **network** controls the supply and value chain and some target groups are retirees, international and national tourists, pharmaceutical, detergent and lubricant companies, and food producers.

There are fiscal incentives for R&D in oleochemistry, biofuels, landscaping and water management, and a strong governance for landscaping soils and subsoils; and for water treatment, potability and availability of water where **citizenship and communities are 100% covered**. The atmosphere is essentially rustic.

A social order and economy based on STI activities of *Tourism of biochemical oil products*.

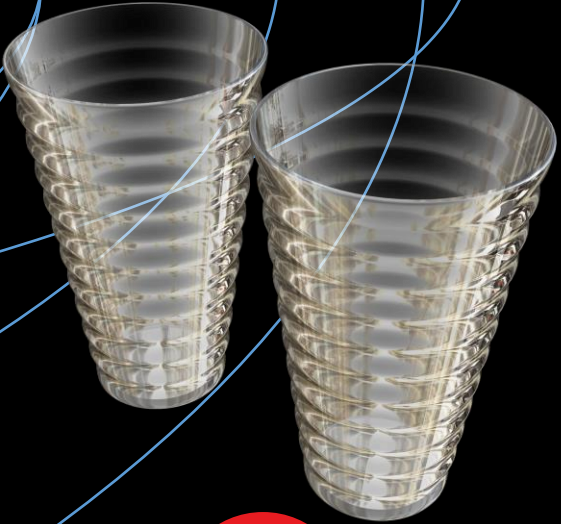
A social order and economy based in research and innovation **activities in ecology, tourism management, rural development, and sustainable livestock and agriculture**. **Social movements and civil associations** play a preponderant role in market and governance. The coordination of research and innovation activities as well as the different services, products and technologies **take place and offered by CEDRA** (Spanish Achronim for Ecotourism Center for Rural, Agriculture and sustainable Livestock – Imaginary-) which is **funded mainly with public resources, and is administrated by a collective of public-private parties, included several municipalities of the region**. The main target group of the productive activities are local communities and tourist. There are no place for illicit activities as in the past and activities as “ corralejas ” does not exist anymore. Miners contribute highly to local public treasury via taxes and there are other policies oriented to discourage mining activities.

There are proper infrastructures for fauna and flora conservation, environmental culture and conservation of cultural heritage.

A social order and economy based on STI activities of *livestock ecotourism*

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Sociotechnical Imaginaries by categories



4.3.2

METHODOLOGY
MAKING SENSE
BETWEEN IMAGINATIONS
AND TRANSFORMATIVE
POTENTIAL DETERMINANTS



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Sociotechnical imaginaries workshop with TIP scholars SPRU



METHODOLOGY
MAKING SENSE
BETWEEN
IMAGINARIES
AND POLICY ACTIONS

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5. RESULTS

Zoom by categories of Sociotechnical imaginaries

Bajo Cauca Region

Actors



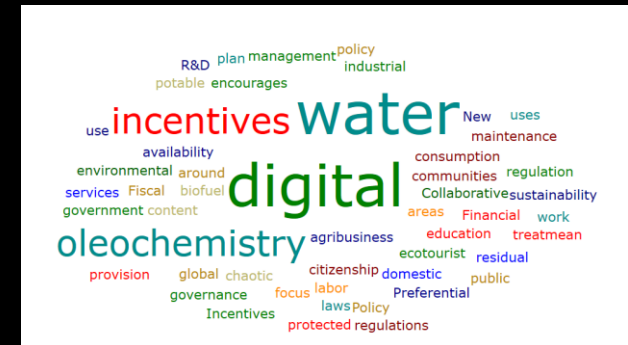
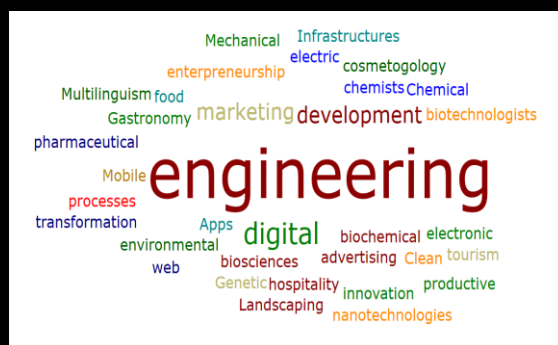
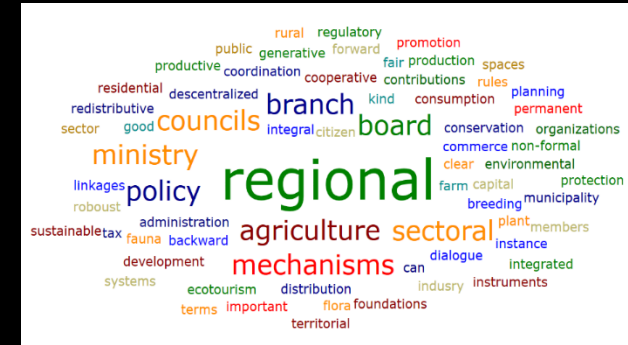
K.& Tech.



Market



Governance

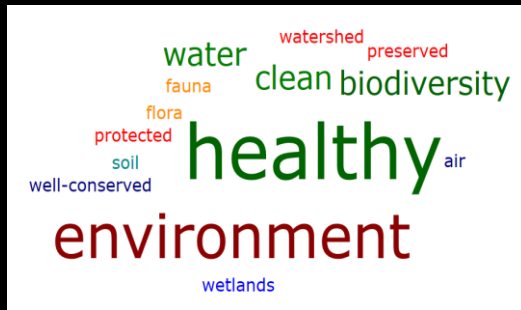


Barrancabermeja

Zoom by categories - Sociotechnical imaginaries

Bajo Cauca Region

Ecosystems



Avoidable



Cultural values



Past cognitions



Barrancabermeja

KNOWLEDGE PEARLS	Collective bodies	Environmental management	International Market	Regional governance	Healthy environment	Taxation as negative incentive	Environmental responsibility	Territory as cognition
Inclusion, subjectivity and situatedness of knowledge	7	1	2	8	3	2	3	4
Transdisciplinarity, ancestrality and epistemic diversity	2	7	2	1	4	3	7	10
Dislocation of racism, classism and patriarchalism	3	6	3	1	7	3	4	5
Dislocation of anthropocentrism	9	3	8	8	6	8	8	6
Modularity and flexibility	2	2	5	5	5	3	4	3
Appropriateness and glocal thinking	3	2	4	1	2	3	1	1
Deliberative anticipation	5	8	3	2	4	5	4	1
Learning and experimentation	3	2	2	4	3	4	4	2
Transformation of socio-technical systems ambitions	2	4	6	6	3	5	2	2
Mobilization of resources for capabilities	3	5	5	4	3	4	3	6

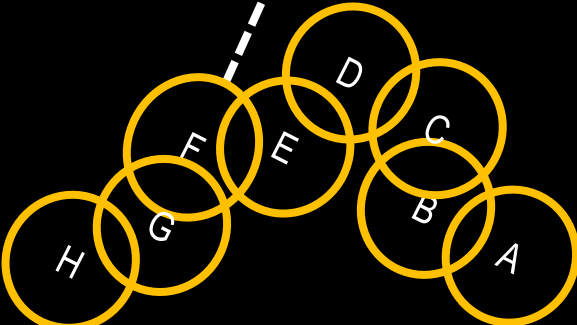
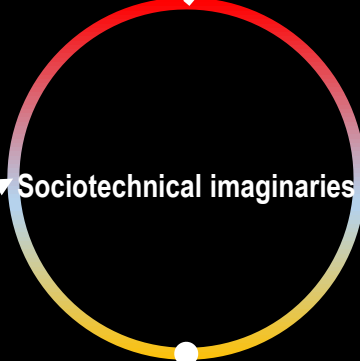
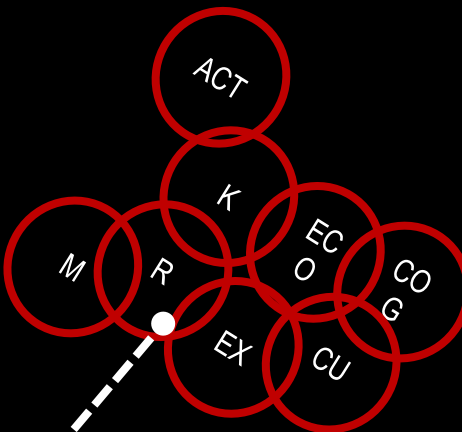
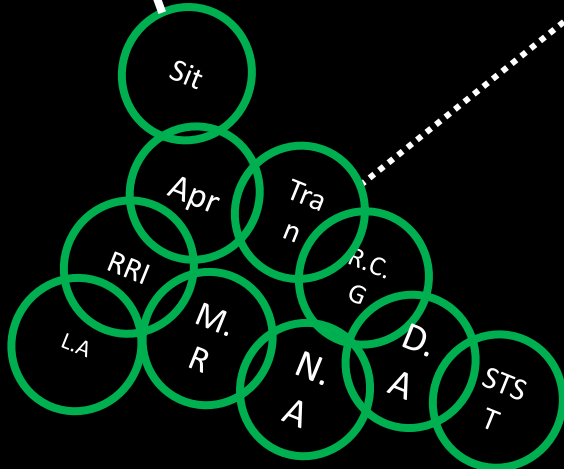
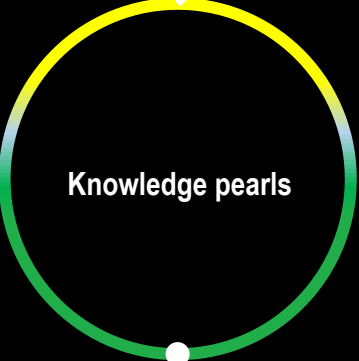
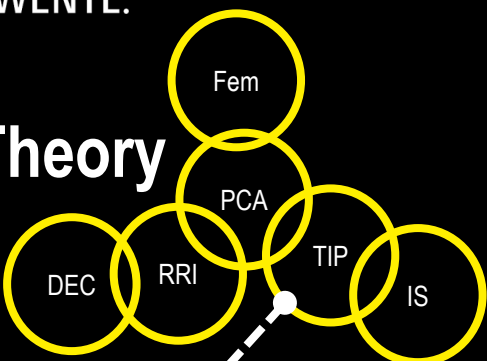
KNOWLEDGE PEARLS	Producer associations	Engineering	Marketers as a central actor	Digital water governance	Contamination governance	Big, high elites	Environmental care	Undertemined common cognition
Inclusion, subjectivity and situatedness of knowledge	8	4	8	5	2	4	3	2
Transdisciplinarity, ancestrality and epistemic diversity	7	4	3	3	4	4	6	7
Dislocation of racism, classism and patriarchalism	3	1	1	1	2	8	1	2
Dislocation of anthropocentrism	4	3	2	0	6	3	1	4
Modularity and flexibility	3	3	5	8	4	8	5	3
Appropriateness and glocal thinking	2	4	4	6	4	2	7	5
Deliberative anticipation	4	3	3	3	1	3	2	7
Learning and experimentation	4	8	7	5	6	2	7	4
Transformation of socio-technical systems ambitions	2	2	3	3	4	3	2	2
Mobilization of resources for capabilities	3	8	4	6	7	3	6	4

THEN:

*In which way could
sociotechnical
imaginaries enrich
innovation policy
instruments for them
to be transformative in
extractive economies?*

HEURISTICS FOR TRANSFORMATIVE INNOVATION POLICIES

Theory



Policy re-design

Focused heuristics useful: **for Extractive Sociotechnical System discontinuation and transformative niche creation**

Transdisciplinarity, ancestrality and epistemic diversity.	0,36
Anthropocentrism dislocation	0,56
Resources mobilization for building up capabilities	0,33

The “ancestral”, and **knowledge of indigenous communities are fundamental for innovations**, as well as their worldviews. Innovation reject individual action and interests.

Innovation processes pay special **attention to non-human beings**. It means, innovation is not focused just on satisfying human needs (economies or human health etc.) but also other entities (forests, water bodies, fauna, etc.) needs. This element promote life and community projects caring the integrity of the local habitats.

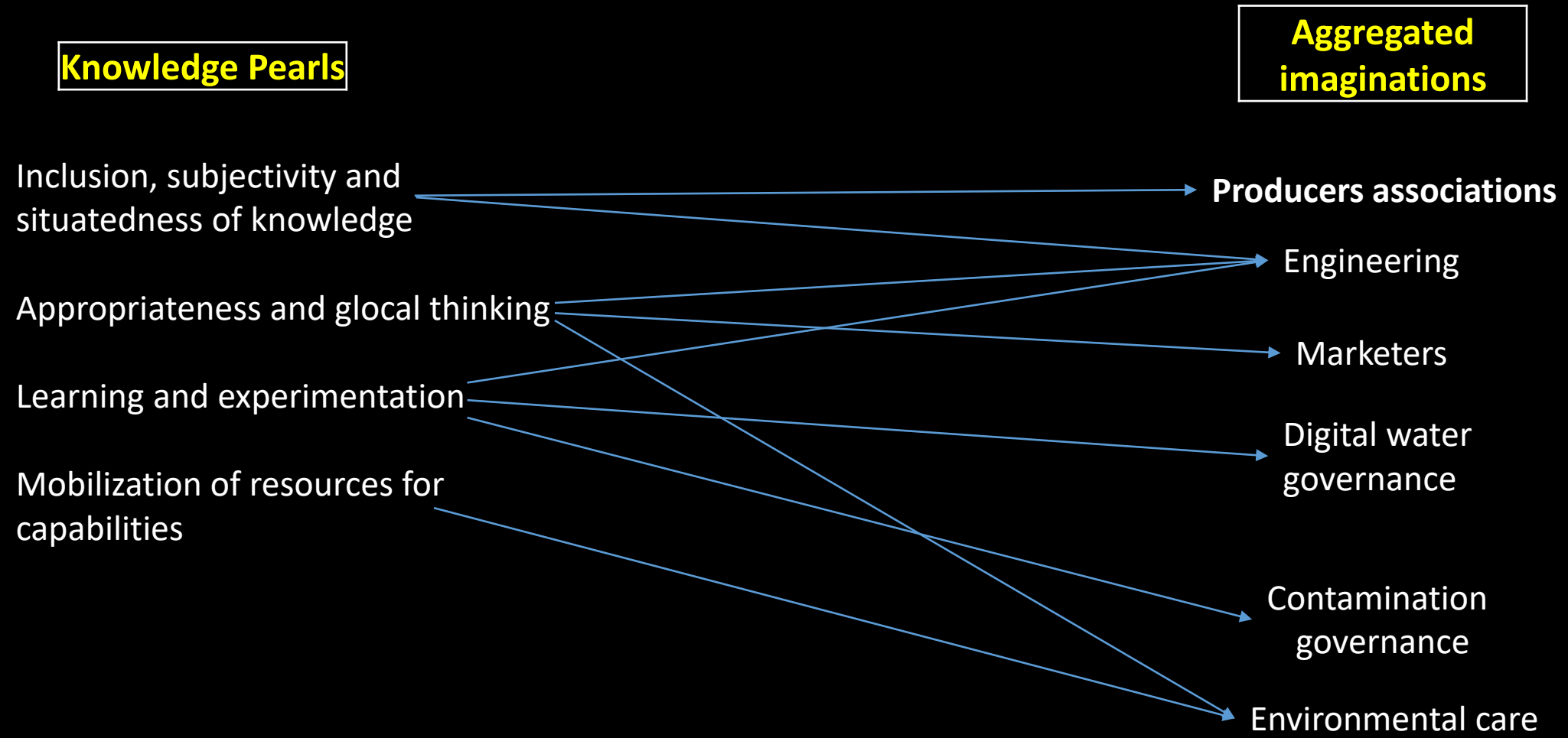
Human, technological, natural, financial resources are efficiently mobilized to make knowledge production possible, and self-financing for knowledge-capacity-building

Bajo Cauca example– Potential determinants

for transformative change

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Expanded heuristics useful: **for Extractive Sociotechnical regimen discontinuation and transformative pathway anticipation**



SPRU-TIPC SCHOLLARS POLICY THINKING ON BAJO CAUCA & BARRANCA

KNOWLEDGE PEARLS

Appropriateness and local thinking

Stimulate social movements and research groups to strengthen capabilities around communitarian tourism and sustainable agriculture.

SOCIAL MOVEMENT LEADING KNOWLEDGE, RESEARCH AND INNOVATION ACTIVITIES AND GOVERNANCE.

Dislocation of anthropocentrism

Gastronomy festival that involves the whole community with a local competition.

FAMILIAR UNION AND TERRITORIAL ROOTNESS

Transdisciplinary, ancestry epistemic diversity

Funding international conferences of ecotourism, and chemistry network supporting.

?

Local communities exportation oil fund.
(Indicator of circularity of local wealth production)

?

?

Gastronomy fests between different communities opening kitchens and cookery training run by grandparents

GASTRONOMY AND HOSPITALITY

?

Development of Cruise-solar-electric ship along the Magdalena river run by a local cooperatives

NON ELITE CONTROL

ACTUAL SOCIOTECHNICAL IMAGINARY ELEMENTS

5. DISCUSSION – SO WHAT?

The so-called STI-Royalties Fund, is a finance scheme that uses fiscal revenues from oil and ore extraction for investing them in the development of Science, Technology, and Innovation (STI) activities. We assume that this scheme is a kind of *De facto innovation policy instrument* because it is a mean that works for the materialization of public interventions to encourage the diffusion and generation of innovation, but it was not consciously designed in the frame of a strategic long-term plan of development, neither in the frame of a well-delineated innovation policy with minimum criteria (knowledge, political will, and resources) to be considered as such.

- Sociotechnical imaginaries and heuristics can be a good source of improving innovation policy (instruments) for them to be transformative.
- Using this methodology, specialized and extended strategic planning for socio-technical systems and regime transformations via STI investment could be more accurate and compensatory to those regions where environmental passives and externalities are not internalized.
- Policy experimentation for transformative change must explore more in-depth cognitive dimensions, specially the notions of sociotechnical imaginaries and transformative heuristics.

**ST
IMAGINARIES**

**TRANS.
HEURISITCS**

Sources of
learning

**Policy learning
in the national
level**

Sources of
learnig

Thank you for your attention!

e.andradesastoque@utwente.nl