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Presentation Outline

- The Venezuelan Experience
  - Basic info
  - STI Foresight Policy Formulation
    - Background
    - Scoping
    - Strategies
    - Challenges
  - STI Foresight Policy Implementation
    - Challenges

- The Colombian Experience
  - STI Foresight Policy Evaluation
    - Challenges

- Mapping and Prioritising Grand Challenges
  - iKnow project (Interconnecting Knowledge) www.iknowfutures.eu
Venezuela
Basic info

- Area: 916,445 km² (33rd)
- Population: 29,105,632 (40th)
- GDP per Capita: USD 9,773
### OPEC Proven Oil Reserves

*Updated by the speaker based on recent certification of 86.41 billion b.*

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<th>Country</th>
<th>OPEC</th>
<th>Non-OPEC</th>
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<th>115.0</th>
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<th>97.8</th>
<th>46.4</th>
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<th>25.4</th>
<th>12.2</th>
<th>9.5</th>
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<th>Venezuela</th>
<th>26%</th>
<th>23%</th>
<th>12%</th>
<th>10%</th>
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<th>9%</th>
<th>4%</th>
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The National STI Plan 2005-2030

Background (1 of 2)

- In the year 2000, the government launched the National Plan for Economic and Social Development (PDESN) which conceived the development of the country on the basis of five equilibriums:
  - Economic
  - Social
  - International
  - Territorial
  - Political

- However, in 2004 a longer-term vision for the country’s STI policies was still required and MCT embarked on a process aimed at answering two key questions:
  - What STI was needed?
  - What type of development?
In order to analyse the type of desired development that was embodied in the Constitution (CRBV, 1999), MCT created:
- an expert panel
- a strategic team

MCT decided to design and formulate a National STI Plan using foresight to create shared visions on endogenous, sustainable and human development (MCT, 2005).
The National STI Plan 2005-2030
Scoping (1 of 2)

Key Objectives of STI-Plan 2005-2030

1. To develop S&T for **social inclusion** where social actors actively participate in the formulation of public policies

2. To promote S&T independence and achieve higher levels of **technological sovereignty**

3. To generate higher **STI capacities**
The National STI Plan 2005-2030
Scoping (2 of 2)

**Phase One** aimed at defining strategic directions for 2030 with experts and public consultations.

Over 2,000 people participated in various activities organised by MCT with the support of other STI actors.

**Phase Two** focused on the definition of specific strategies and goals based on contributions from nearly 1,350 people...

+ further analysis of Phase One consultations as well as interviews with key stakeholders of the STI system.
The National STI Plan 2005-2030

Engagement (Phase 1):
Strategic Directions

- Key methodological steps:
  - A public perception survey;
  - Seven visits to different States;
  - A methodology validation workshop;
  - A survey on the role and SWOT of regional foresight agendas;
  - A capacity-building workshop for regional technical teams;
  - Interactive focus groups with community stakeholders;
  - Several meetings with the central administration.
A total of 1,921 strategies and goals were generated and later clustered into six categories, namely:

- strengthening the STI system;
- promotion of research;
- sustainable development;
- endogenous development;
- Ibero-American integration;
- S&T visibility and culture.
The National STI Plan 2005-2030
Mapping clustered strategies against objective 1

To promote Social Inclusion

1. Bottom-up identification of problems and S&T solutions
2. Integral social welfare for young researchers (housing, working incentives, etc.)
3. Incorporating new actors in evaluation and certification process
4. National inventiveness and innovation (from childhood)
5. Networks (University-Business-Community-Government)
6. Endogenous development and socio-cultural networks
7. Technological platforms for public information/services
The National STI Plan 2005-2030

Mapping clustered strategies against objective 2

To promote S&T for sovereignty

1. Pharmaceutical industry
2. Seed production
3. Energy sector (PetroSur)
4. Open source & strategic ICT systems (TeleSur)
5. Innovation capacity of SME and cooperatives
6. IPR of indigenous people’s knowledge
The National STI Plan 2005-2030
Mapping clustered strategies against objective 3

To promote S&T Capacities

1. New research centres
2. Young researchers and postgraduate students
3. Short training courses in strategic areas
4. Infrastructure for social promotion of S&T (museums-infocentres)
5. Promoting PhD and Masters programmes
6. Training basic education professionals
7. ICT training
8. S&T networks on national priority
9. Mapping potentialities for endogenous local development
The National STI Plan 2005-2030
17 key challenges (1 of 3)

- **Ch-01**: “By 2010”, increasing S&T expenditure to 2% of GDP
- **Ch-02**: “By 2010”, increasing by 50% students in S&T related careers
- **Ch-03**: “By 2010”, increasing by 500% the number of PhDs in priority areas, then 50% annual increase to achieve 12,000 researchers in 10 years and sustain investments until 1 researcher per 1,000 economically active worker in the country is reached
- **Ch-04**: Creating technological parks supporting 10 enterprises producing medicines with local technology, etc.
- **Ch-05**: Migrating public administration systems to open software systems until full substitution is reached in all public technological platforms, preferably by 2010
- **Ch-06**: Creating at least 4 institutions capable of certifying information network systems at national level
The National STI Plan 2005-2030
17 key challenges (2 of 3)

- **Ch-07**: Creating an integrated and interconnected public network including projects providing access to internet, voice, data and video

- **Ch-08**: Creating a technological park capable of scoping, producing and commercialising validated prototypes in the area of basic electronic engineering

- **Ch-09**: Supplying 90% of seed production for agricultural products considered key for the country’s food security

- **Ch-10**: Funding strategic research lines that benefit researchers as well as research centres and networks (e.g. knowledge sharing, mobilisation and S&T cooperation initiatives)

- **Ch-11**: Supporting at least 120 research networks per year.

- **Ch-12**: Strengthening centres producing embryos in vitro

- **Ch-13**: Increasing national innovation capacities (society-and private sector-driven) in terms of research, adaptation and new products/processes design
Ch-14: Strengthening and creating research and technology development (RTD) groups working on alternative energies (e.g. geothermal and wind), petrochemistry, active surfaces and catalysts, and oil production

Ch-15: Creating national capacities to absorb new technologies, generate new knowledge and promote national technology development

Ch-16: Improving and updating national libraries and information centres in universities and research institutions (including both bibliographic material and shared databases)

Ch-17: Increasing research activities oriented towards the preservation and protection of biodiversity and the collective property of knowledge of indigenous groups
How to achieve targets such as “2% of GDP investment in STI” when GDP is so volatile in Oil-rich countries?

How to successfully implement the STI Plan in such a turbulent socio-political and economic environment?
The Colombian Experience

STI Foresight Policy Evaluation

- Colombian evaluation we have measured 10 common criteria used in European Foresight evaluations. These are:
  - Criterion 01: Appropriateness and level of achievement of objectives.
  - Criterion 02: Performance of management and funding mechanisms.
  - Criterion 03: Justification of the programme in terms of value for money.
  - Criterion 04: Effectiveness and efficiency of organisational structure.
  - Criterion 05: Effectiveness and efficiency of approaches and methods.
  - Criterion 06: Effectiveness and efficiency of implementation and aftercare.
  - Criterion 07: Level of capacities and Foresight culture achieved.
  - Criterion 08: Level of national, sub-national and international presence.
  - Criterion 09: Level of commitment of participants.
  - Criterion 10: Level of novelty and impact of projects.

- In addition, with the aim of aligning Foresight with the implementation environment (i.e. the Colombian STI system), we have included five criteria to evaluate STI-related impacts:
  - Criterion 11: Impact on public and private policies and strategies.
  - Criterion 12: Impact on the agendas of STI programmes and institutions.
  - Criterion 13: Impact on the consolidation of research groups.
  - Criterion 14: Impact on the consolidation of S&T capacities.
  - Criterion 15: Impact on international projects.

- Finally, five generic criteria are used to evaluate other key impacts in terms of CTFP’s contributions to Colombia’s knowledge society vision in the areas of:
  - Criterion 16: New products and services (publications, courses, etc.).
  - Criterion 17: New policy recommendations and research strategies (agendas).
  - Criterion 18: New processes and skills (management, implementation, support).
  - Criterion 20: New players (sponsors, supporters, collaborators, institutions).
S = Situation-bounded

discontinuation

ing / new

future

emerging / new

assessment

horizon scanning 2.0

www.iknowfutures.eu

level of uncertainty

distance

to the unknown

past

We

Popper (2011)
References and further reading

**The Handbook of Technology Foresight (2008)**
Luke Georghiou, Jennifer Cassingena Harper, Michael Keenan, Ian Miles and Rafael Popper (Eds)

**Evaluating Foresight (2010)**
Rafael Popper, Luke Georghiou, Michael Keenan and Ian Miles

**Challenging Europe's Research: ERA Rationales (2009)**