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Evaluating Foresight – The Colombian Case

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PREST / Manchester Institute of Innovation Research (MIOIR), MBS, The University of Manchester

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Purpose

This brief introduces the evaluation framework designed by the Manchester Institute of Innovation Research (MIOIR) for the evaluation of the Colombian Technology Foresight Programme (CTFP). An assessment of the First Cycle of CTFP (2002-2004) carried out by PREST (now MIOIR) produced the *2004 Recommendations to CTFP* report (Popper and Miles, 2004) that was used to reshape the objectives and activities of the Second Cycle of CTFP. The current evaluation framework is a follow-up of these activities.

Building up Broad Competencies in Foresight

Foresight practices in Colombia began in the late 1970s, however, it was not until the late 1990s when capacities were installed in some universities and regional research and technology development (RTD) centres (see also Medina and Ortégón, 1997). In the early 2000s the country already had over 50 experiences in a wide range of topics and sectors with different territorial scope, e.g. international, national and sub-national. In parallel with these events CTFP has been involved – either as main sponsor/organiser or contributor/supporter – in around 30 studies since 2000. Today, CTFP is among the most interesting experiences in the Latin region. There is a mix of national and sub-national studies on sectors, themes and territories, thus making CTFP widely known and respected in Latin America. CTFP has also become a reference point in the Andean countries and experiences are comparable with that of more industrialised countries in the region, e.g. Argentina, Brazil, Chile, Mexico and Venezuela (Popper and Medina, 2008).

From the scientific and technological perspective the Colombian Foresight experiences have been closely related to the developments of the Colombian Office of Science and Technology (COLCIENCIAS). Such interest dates from the early 1970s with projects such as “Colombia Operation” and has persisted in time with the promotion of several activities focused on the role of S&T for the development of the country. Also important have been the efforts COLCIENCIAS has made in order to: (1) understand global S&T and social challenges affecting the world and, at the same time, (2) build national competences capable of developing nationally beneficial responses to global challenges.

In the 1980s and the 1990s COLCIENCIAS promoted different types of future-oriented initiatives. Among these projects are: “Where is Colombia going?” and the Strategic Dialogues (dealing with challenges proposed by the Global Dialogues of the 2000 Hannover World Fair). Later, in 2002, COLCIENCIAS joined UNIDO’s Technology Foresight initiative and subsequently the CTFP was officially launched under the sponsorship of COLCIENCIAS and CAF. Since its creation, CTFP has gone through various phases or cycles (see Table 1).



Table 1: Cycles of the CTFP

Phases	Sponsors / Organisers
Incubation (2001-2002)	UNIDO and the Ministry of Development organised some initial awareness building activities for different types of stakeholders.
First Cycle (2003-2004)	COLCIENCIAS; the Ministry of Commerce, Industry and Tourism; and the Andean Development Bank (CAF) created the CTFP and funded its first working plan.
Second Cycle (2005-2007)	COLCIENCIAS and SENA (National Training Service) funded the ongoing agenda of activities and the knowledge platform

Evaluation Focus: on Vision Building, Capacities, and Regional Development

CTFP has three high-level objectives:

- to contribute to the development of a national vision in the transition to a knowledge-based economy,
- to conduct foresight and technology watch exercises in strategic sectors,

- to build foresight training capabilities and absorptive capacity for the appropriation of foresight results.

These are complemented with lower level objectives from the various individual activities that have been carried out in the various cycles of the programme. And given that the evaluation focus is the Second Cycle (2005-2007), the evaluation framework was designed around the three specific objectives of the Second Cycle:

- to build strategic visions – in order (1) to help create a long-term vision for the country; (2) to help to identify national STI priorities; and (3) to identify opportunities and competitive areas for Colombia in the global scene;
- to build foresight and strategic thinking capacities – in order (1) to create forward-looking capacities in higher education and other institutions, thus increasing the impact of the CTFP; (2) to strengthen human (expertise) and technological (tools and software) resources supporting foresight-related activities; and (3) to support the creation of a solid foresight and futures thinking culture;
- to support regional development and innovation – by (1) promoting and supporting regional foresight activities; (2) promoting the creation of industrial clusters; and (3) supporting the creation of regional innovation systems.

Ex Post Evaluation

Some of the well-known expected outcomes of CTFP are: the elaboration of public policies; multiplication effect and multi-level presence; institutional development of foresight; promotion of public debate; articulation and appropriation of foresight knowledge; collective learning; intellectual production; foresight culture and development; increase in foresight productivity with experience; among others. These are (1) rather general and require further elaboration and (2) perhaps not the ultimate objectives. For that reason, the evaluation framework aims to provide answers to questions about *appropriateness*, *quality and efficiency*, and *impacts*.

There are several questions about the *appropriateness*:

- What are the programme ‘theories’? What theories of learning and capacity-building are implicit in CTFP design and delivery? How sophisticated are these theories and are they well-founded and appropriate for Colombia? To what extent does the programme’s perspective correspond with the expectations of other actors, particularly the sponsors and participants of the projects?
- Are the programme theories around CTFP appropriate given the overall conditions in Colombia and the institutional context of COLCIENCIAS and the other sponsoring agencies? How do they compare to programme theo-

ries found in foresight exercises across the Latin American region and in other parts of the world?

- Do expected outcomes tally with programme objectives? And do programme activities tally with objectives and expected outcomes? In other words, is the CTFP internally logical? Given the breadth of activities and their varying objectives, these sorts of questions need to be asked for each type of activity, as well as at the level of the overall CTFP.

In addition, *quality and efficiency* questions include:

- How were methods selected and used? What types of support tools (e.g. software) have been used? How well have these tools been used? Have the tools and exercises been adapted to local and regional contexts in which they have been used?
- What are the main products and outputs? What is the level of novelty and originality of these outputs? What is the level of access to CTFP products? Have CTFP products complemented or strengthened other governmental programmes? If so, which ones?
- How well was the management of the second cycle of the CTFP? To what extent did programme managers learn from the First Cycle review? (Popper and Miles, 2004) How flexible were the activities? Was CTFP capable of

involving policy-makers and other stakeholders in its activities?

As for the impact and effectiveness of results, four generic challenges should be highlighted (OECD, 2006, p.179):

- **Timing** – have expected effects come about already? This will take into account that a large part of the evaluation is being conducted in real-time rather than *ex post*. Therefore impacts will be focused on, for example, learning, policy recommendations, etc. Given that many impacts will not yet have materialized, several alternative indicators would need to be developed in order to measure whether things are moving in a desirable direction.
- **Attribution** – can we confidently assign outcomes to the intervention being evaluated? In other words, is CTFP solely responsible for the observed and reported effects? If not, what contribution has it made? The main challenge here is that people often underestimate the impact of activities like foresight due to difficulties in acknowledging intangibles.
- **Appropriability** – where should we look for effects? Given that learning and capacity building have been the central objectives of CTFP, there is a need for looking across a broad array of stakeholders. And for the identification of policy impacts there is a need for an overall appreciation of the policy systems in the country and studied sectors (e.g. pluralistic, hierarchical, etc.), as well as the periodicity of policy cycles.
- **Inequality** – in general a programme’s effects tend to be seen as the aggregation of its various projects, where some are more successful than others. For this reason, as well as for other resource- and time-related limitations, the evaluation approach is based on a handful of case studies, guided by CTFP team members’ knowledge of where the greatest impacts are to be found.

Bearing these challenges in mind, the main way forward is the creation of a logic chart for CTFP. A logic chart is a powerful instrument for mapping the linkages between activities, outputs and impacts that need to be assessed (e.g. proposed directions for strategic sectors and technologies, proposed policies and strategies for the transformation of studied sectors and territories, proposed scenarios and visions, etc). This often includes not only the production of reports and the like, but also learning effects, networking, development of critical mass of competencies, formation of trainers (the so-called social appropriation of foresight knowledge), other measures of behavioural additionality, collective learning, promotion of public debate, development of a national and regional visions, and so on.

The identification of these impacts is only the first step of the evaluation process, given that the use of indicators for assessing whether impacts occurred and their quality would be a major second step.

Real Time and Ex Ante Evaluation

CTFP will continue in 2008, with a division of labour between COLCIENCIAS and the new foresight unit in one university in Cali (UNIVALLE). A possible model would be the one where COLCIENCIAS sets the overall objectives and UNIVALLE will act as the implementation agency. Having the future of CTFP in mind, two levels have been proposed for the evaluation of ongoing and future activities: (a) evaluation of the future CTFP structure and (b) evaluation of key stakeholders’ perception of the future of foresight in Colombia. The data collection will be mostly through interviews where a couple of questions on this topic should be included. In addition, an Evaluation Forum has been proposed (see evaluation methodology below) as an instrument capable of providing a discursive space for the sponsors and main stakeholders to come together to think about the future of foresight in Colombia.

Evaluation Methodology

The methodological approach for the evaluation of CTFP is based on a mix of methods and activities.

- **Documentary analysis** – this requires ‘open access’ to documents held by COLCIENCIAS and other agencies involved in the second cycle exercises.
- **Logic chart and indicators** – (as described above) this requires the identification of linkages between activities, outputs and their possible impacts.
- **Surveys** – these are designed for various types of stakeholders, for example, a survey targeting co-organisers of sensitivity workshops, an online survey open to all participants in CTFP, an possibly a survey of unsuccessful bidders has also been considered.

- **Interviews** – there are around 50 interviews planned. Most of these have been designed in Spanish to be carried out via telephone, internet and face-to-face meetings. Target interviewees are key organisers, COLCIENCIAS and UNIVALLE; other sponsors (representatives from international organisations such as UNIDO, CAF, CAB, ECLAC, etc.); influential stakeholders (e.g. ministries, chambers of commerce, regional governments, etc.); executors of Second Cycle projects, i.e. project managers, plus executors from a selection of first round projects; and a small number of co-organisers of sensitivity workshops.
- **Case studies** – confined to the second cycle only, with one project chosen per type of exercise.
- **Benchmarking** – through international comparative analysis.
- **Evaluation forum** – supported with virtual and face-to-face activities of national and international expert panels.

Appropriateness, Quality and Impact

Since the early 2000s, the Colombian Technology Foresight Programme (CTFP) has been described as a policy instrument with a large mixture of focuses, from economic development, to higher education development, to regional S&T development, to industrial development, to capacity building and support to science, technology and innovation policies. However, as any policy instrument, CTFP consumes both time and resources, and for this reason it may be logical to expect that CTFP should be subject to evaluation of a comparable rigour to other similar instruments (see also Popper, 2006).

The evaluation of a foresight programme should be designed in a way that it helps to assess issues around the three main criteria (Georghiou and Keenan, 2008) described above:

- **appropriateness** of activities,
- **quality and efficiency** of implementation,
- **impact and effectiveness** of results.

One major finding from past foresight evaluations has been the importance of aligning foresight with the implementation environment, that is, the policy- and decision-making communities. This is not to say that foresight should not be disruptive, but rather that its impact is strongly dependent on how well stakeholders have been engaged and the processes established for delivering results into the policy- and decision-making arenas. Assessing those linkages represents a significant part of the research approach for evaluating the Colombian Pro-

gramme sponsored by COLCIENCIAS. Finally, it is important to emphasise that the evaluation approach looks at foresight as a process with five interconnected phases (Miles, 2002; Popper, 2008):

1. **Pre-foresight or design phase** where general and specific objectives are defined, the project team assembled and the methodology designed;
2. **recruitment phase** where key stakeholders and individuals are identified and invited to support and contribute to the project activities;
3. **generation phase** where ‘new’ knowledge and visions are produced from (a) elucidating emerging issues or (b) amalgamating existing knowledge;
4. **action phase** where prioritisation and decision-making may speed up innovation and change through the promotion of particular policies, strategies, technologies, instruments, etc. – or to changing attitudes and lifestyles;
5. **renewal phase** where constant monitoring and evaluation are required in order to assess whether the foresight process has contributed to achieve initial objectives and how far outcomes are being acted on.

Understanding how different exercises conducted by CTFP have carried out each of these phases is a core implicit component of the evaluation framework. However, identifying good practices and learning from possible impacts of CTFP on society as whole are among the most important expected outcomes of the evaluation, given that these will determine the focus, scope and structure of the immediate future of foresight in Colombia.

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