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Fostering the Western Territory of Paraná State in Brazil: the ITAIPU/PTI innovation ecosystem strategy

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Fostering the Western Territory of Paraná State in Brazil: the ITAIPU/PTI innovation ecosystem strategy

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Summary

This paper introduces the current ITAIPU/PTI strategy to conduct sustainable development involving 64 organizations in 54 cities. IT concerns one possible understanding of the strategy issued from a case study methodology conducted during the last quarter of 2017. The strategy assumes that a regional innovation ecosystem is a competitiveness asset in the knowledge-based economy, fully or partially integrated within urban spaces, and capable of fostering regional and socioeconomic development. The strategy is constituted of five interrelated components: i) a strong commitment with sustainable development, ii) a common view for innovation ecosystems in Brazil, iii) a ground strategic level that focuses on the present needs of the region, iv) an upper strategic level, which aims to go beyond the current needs and focuses on new developments influenced by innovation capabilities, and v) technological platforms. The strategy intends to preserve the high commitment with the SDG, with special attention to Partnerships, Sustainable Cities and Communities, and Life and Land goals.

Introduction

The Brazilian government has made significant efforts to outline a public policy to promote innovation at national and local levels (De Negri & Kubota, 2008; Pacheco & Almeida, 2013). The policy has fostered the inclusion of the country and some regions in the global economy. The drive is based on the positive results that innovation capabilities have provided in the economy and in competitiveness and quality of the national production system (Arbix, 2007). Therefore, several regional innovation ecosystems have evolved and most of them grounded on Scientific and Technology Parks (STPs).

One indicator is the number of STPs. As state by the Brazilian Ministry of Science, Technology and Innovation (MCTI) and the Brazilian Association of Science Parks and Business Incubators, there are 94 STPs spread nationwide. They comprise about 939 companies and generate 32,237 jobs (17,630 Graduates). About US$ 1.93 billion was invested by the public and private sectors (MCTI, 2014).

Paraná State in the south of Brazil is pursuing the establishment of its own regional innovation ecosystem (Figure1). The existence of the biggest energy generation company in the world – Itaipu, and its Technological Park - the Parque Tecnológico de Itaipu (PTI) created in 2003, have provided a singular condition for the development of the western region of Paraná State. PTI is installed in the former accommodations of the workers, which built the Itaipu Power Plant. PTI occupies an area of 75.54 hectares and runs 49,822 m^2 built space. Based on an operation model, these spaces gave rise to teaching and research institutions, classrooms, laboratories, business incubators, government entities, private enterprises and society.

All these in favor of scientific and technological development, innovation, training of skills, technical qualification and the strengthening of productive activities of the territory. Every day, about 7 thousand people from more than 40 nationalities pass by PTI[1]. What makes PTI unique is its commitment with regional and sustainable development, involving 54 cities and 64 organizations. PTI focuses on sustainable technologies related to water, renewable energy and food production. This paper presents the current strategy of Itaipu and PTI (ITAIPU/PTI strategy) to conduct such development.

[1] Extract from ITAIPU Status Report, 2016.

Figure 1 – Itaipu and PTI general information.

The strategy

Sustainable development is a policy observed by the entire ITAIPU/PTI ecosystem. The commitment is expressed in Itaipu Strategic Planning[2] throughout 4 among 12 strategic objectives:

> ***Strategic Objective 3***: *To be recognized as a world leader in corporate sustainability. Developing the company's management process efficiently and effectively, meeting the principles of corporate sustainability (socially just, environmentally sound, economically viable, culturally accepted), seeking leadership based on certifications and recognition of the Brazilian and the Paraguayan societies.*
>
> ***Strategic Objective 4***: *Effectively contribute to the sustainable development of the areas under the influence of the power plant. Ensure that the direct actions of Itaipu in the areas under its influence are articulated and structured with the governments and societies of both countries, with a view to improve the quality of life and to provide a fair social and economic development, respecting the environment.*
>
> ***Strategic Objective 8***: *Promote research and innovation to energy and technological development, with an emphasis on sustainability. Research and support technological innovation initiatives and the development of renewable and clean energy sources, seeking energy efficiency and sustainable development for the area under the influence of the power plant.*
>
> ***Strategic Objective 10***: *To consolidate the process for social and environmental watershed management to conserve the environment and biological diversity, while integrating the community. To maintain and consolidate the precepts of ITAIPU social and environmental management programs, with a focus on the recovery and conservation of natural assets, on research and caring for the biodiversity of protected areas. To bolster community involvement in creating environmental awareness in society, promoting a change in our way of being, living, producing and consuming, while striving for food self-sufficiency through the sustainable generation of income and articulation with institutions in forming agreements and effective commitments.*

Several undergoing strategies seek to meet these goals, and one of them is the strategy to foster the innovation ecosystem, which is the focus of this paper. This paper concerns one possible understanding of the strategy issued from a case study methodology conducted during the last quarter of 2017 as suggested by Robert Yin (1984).

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[2] https://www.itaipu.gov.br/en/company/strategic-planning

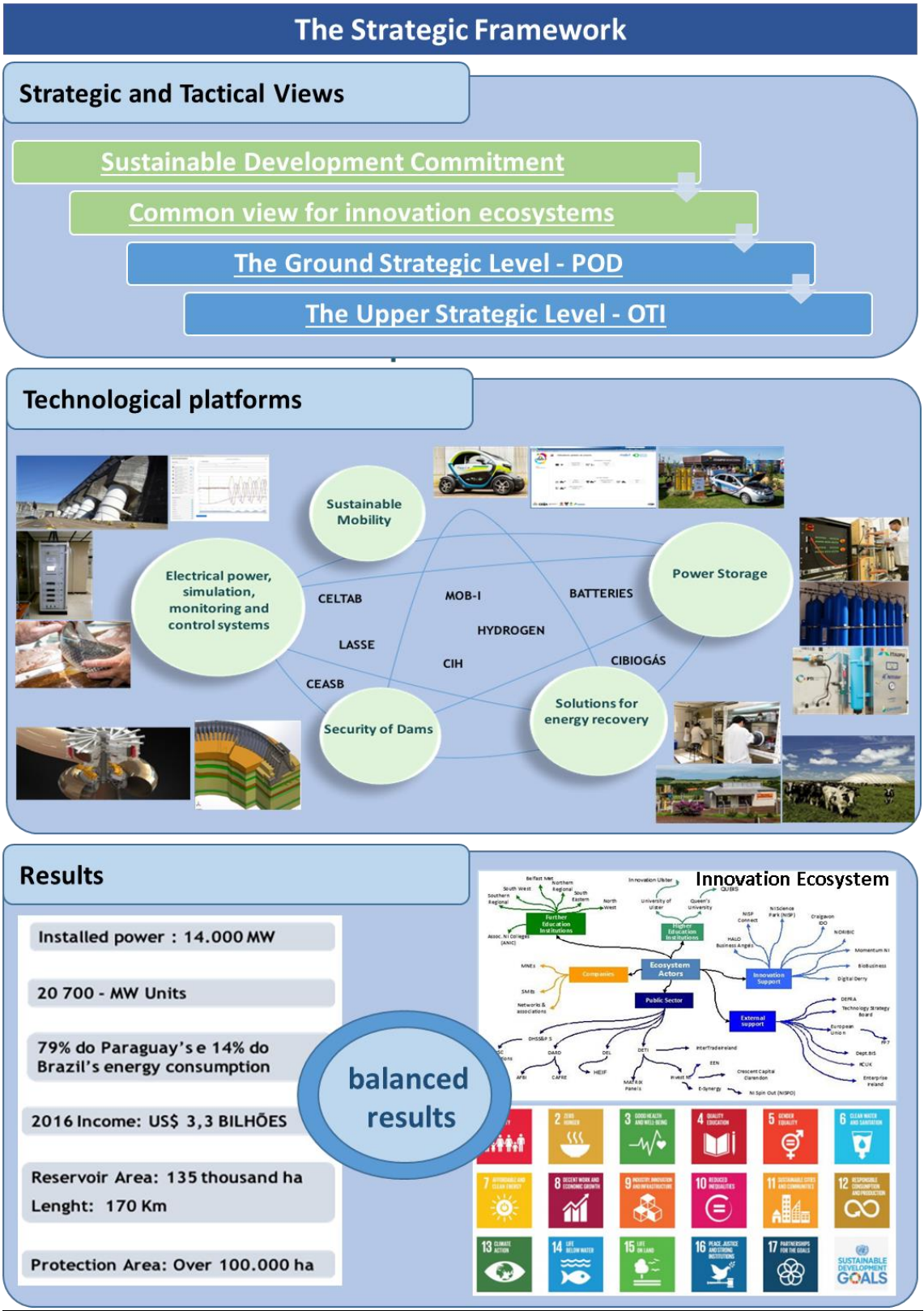

Figure 2 – ITAIPU/PTI strategic framework to foster the regional innovation ecosystem.

The strategy runs for the period 2017-2021 and is depicted in five interrelated components (Figure 2): i) a strong commitment with sustainable development, ii) a common view for innovation ecosystems in Brazil, iii) a ground strategic level, focusing on the present needs of the region, and iv) an upper strategic level, which aims to go beyond the current needs and

focuses on new developments influenced by innovation capabilities and v) the Technological Platforms. The first and second components combine an integrated strategic perspective, while the third and fourth components deal with the tactical perspective and the last component is the operational level of the strategy. The next paragraphs detail these components.

2.1 The Sustainable Development Commitment

ITAIPU/PTI adopts the most common concepts of sustainable development and sustainability advocated by international organizations. The term sustainable development appeared during a summit in 1987 with the publication of "Our Common Future" or the Brundtland Report (UN-WCED, 1987). The Rio 92 Conference defined sustainable development as development that meets the needs of present generations, without compromising the ability of future generations to meet their own needs (UN-SD, 1992).

Sustainable development is an ongoing process, an evolution in which people act towards a development that satisfies sustainability requirements. Missimer et al. (2010) argue that "sustainability is a state, and sustainable development points at processes towards or within that state of being." Sustainable development refers to meeting needs without overwhelming the rest of nature and society (Challenger, 2013), and is the maintenance of certain desired and necessary characteristics of people, their communities and organizations, and the surrounding ecosystem for a long period (Hardi & Zdan, 1997). Sustainability aims to maintain or increase human wellbeing. It is a balanced management of the relationships between people and the world around them. The idea is to foster both not at the expense of one over the other.

The Rio Conference also produced the Agenda 21 program (UN-SD, 1992), which introduced a wide range of assumptions and recommendations on how nations should act to change development and match acceptable sustainability levels. Agenda 21 is an action plan that covers the global, national, and local scopes adopted by governments and society. It embraces all areas where human actions affect the environment, and seeks to guide a new pattern of development.

ITAIPU/PTI assumes that sustainability and sustainable development concern a global awareness to preserve finite natural resources, to reduce the emission of pollutants, to search for social equality, and to foster economic growth. All these efforts need to take place without degrading the environment.

2.2 Common view for innovation ecosystems in Brazil

In a broader sense, ITAIPU/PTI strategy assumes that a regional innovation ecosystem is a competitiveness asset in the knowledge-based economy, fully or partially integrated within urban spaces, capable of fostering regional and socioeconomic development. There is a consensus that innovation ecosystems are specific to the context of the region wherever they arise. Their induction and consolidation must necessarily observe local, regional and national characteristics. In a country like Brazil, of many cultural and regional contrasts, we can have more than one setting.

Nevertheless, regional innovation ecosystems in Brazil can be characterized as: i) places for knowledge-based businesses and innovative entrepreneurship through continuous innovations development, ii) spaces for collective learning, exchange of knowledge and production practices, and for synergy among various innovation agents, iii) initially based on technological parks, scientific parks or technopolis, but not restricted to them iv) sometimes they are the cause, sometimes the consequence, of innovation policies issued by government action in order to encourage production, dissemination and use of innovations for socioeconomic development, v) environments of integrated effort from government, academia, corporations, and non-governmental enterprises, this latter being particularly important in Brazil, since they provide several specialized services for the public and private sectors (SPINOSA et al., 2015).

Some expected purposes of Brazilian regional innovation systems are: i) the promotion of the innovation culture, ii) the elevation of the competitiveness of enterprises and research institutions, iii) the enhancement and management the flow of knowledge and technology among universities, R&D centers, enterprises and their market, iv) the creation and consolidation of enterprises through incubation and spin-off processes, in addition to providing other aggregates to help with high-quality infrastructure; (v) the generation of synergy among the various actors identifying local and regional vocations, seeking economic and technological feasibility (SPINOSA et al., 2015).

Most innovation ecosystems in Brazil are fully installed inside or close to the cities, ensuing additional tasks for them: i) generate urban and environmental development, i.e., promote conservation, development, and integration of natural and built environments, ii) establish a strong spatial network relationship between urban development and knowledge clusters, iii) encourage the socio-cultural capital, i.e., increase the skills and knowledge of residents to improve individual and community development, iv) stimulate institutional development to democratize and humanize knowledge by means of interdisciplinary and collective learning processes in organizations, v) take into account decision-making on urban planning, public policy, environmental sustainability, social and technical network, among other factors, in order to organize and facilitate intensive knowledge means and activities and vi) operate as openly as possible in order to foster the flow of knowledge between the innovation ecosystem and the outside world, accelerating innovation and market distribution (SPINOSA et al., 2015).

2.3 The Ground Strategic Level

The ground strategic level is described and implemented by means of the Western Development Program (Programa Oeste em Desenvolvimento - POD). The goal is to promote the sustainable economic development, focusing on the western region of Paraná State, thanks to the synergy of institutions and integration of initiatives, projects and actions. At this level the strategy focuses on endogenous development, i.e. 'need-based development'. The main guidelines are:

1. Use the resources of the territory itself, such as social capital, technological assets, institutional and political assets and the economic potential of the region.
2. Strengthen the territorial identity through mobilization of society, integrated and participatory planning and defense of the interests of the region
3. Promote territorial competitiveness, seeking to increase primary income, develop new skills, build responses to the challenges of the region and generate opportunities for multiplicative activities.

The methodology to conduct the ground strategic level is based on: i) the structuring of a territorial governance, involving 54 municipalities and 64 institutions (companies, cooperatives, producers, city halls, trade unions and associations and development entities), ii) the mapping of propulsive chains (swine, milk, poultry, fish, grains, transport material and equipment for agribusiness and tourism) and iii) structural axes (energy, logistics infrastructure, environment, research and development and social capital and cooperation).

Some rationales of this level are[3]:

- Endogenous development is the priority. It is a process of economic growth, which strengths the local characteristics using available resources in the territory. It structures and sustains the improvement and the expansion of the capacity to generate and add value to local and regional production.
- The establishment of a regional governance that operates through a participatory process. As such, a formal governance was settled, considering the following spheres of decisions and actions: (i) an Economic Development Forum; (ii) a Coordination; (iii) an Executive Secretary (conducted by PTI), and (iv) several Technical Chambers. The governance fosters the cooperation between public and private actors for the planning

[3] http://www.oesteemdesenvolvimento.com.br/institucional/o-programa

and implementation of an integrated development roadmap to the territory. The governance structured in these levels intends to guarantee a broad participation and representation of the local society. In addition, it allows strengthening an integrated network of development. The levels are not an instance of power. Instead, they are an instance of core service to the region. Special attention is paid to the Forum. It is a representative and participatory environment and represents the main figure of the development process. The forum is composed of people representing public and private institutions and local society.

- The ground strategic level acts in technological and innovative structuring axes and propulsive chains. Data collection and analysis of the socioeconomic and demographic business profile of the region defines the axes and chains. The definition of both concerns the most relevant socioeconomic value chains able to promote sustainability in a long-term period. The improvement of small businesses and the quality of life are priorities for them.
- The precise delineation of the territory is important. It allows the adoption of strategies with greater possibilities of success. The delineation considers: i) the specific characteristics of the region, ii) the capacity to intervene, iii) the level of development of social capital, iv) the maturity of the institutional network and v) the existing of public policies. The delineation allows accessing the particularities, potentialities and aptitudes of the municipalities within the region. The municipalities share the assets to leverage the development, and local leaders are identified and motivated to work together. The delineation seeks to make the environment conducive to the creation and evolution of businesses in a sustainable way.
- PTI space is the innovation arena for the ground strategic level, however the dynamic is conducted by representatives of the 64 organizations. Inside PTI space, several entities co-exist, characterizing the place as an environment of connections and shared use. It encourages the exchange of experiences and the integration among people and institutions.
- A system of Regional Indicators follows the evolution of the ground strategic level. The indicators provide a regional database for diagnosis, mapping and planning of the territory. It is a relevant tool for knowledge management and mobilization of joint efforts.

2.4 The Upper Strategic Level

The upper strategic level is built on the previous level. The objectives are: i) the induction and mobilization of the region to enhance the innovation environment of the territory, and ii) the increasing of ITAIPU/PTI acknowledgement as a relevant international player on sustainable development. A program named Western Innovation Territory (Oeste Território da Inovação – OIT) is under definition to deal with the upper strategic level. The attention is on the potentialities of the region, going beyond the needs, i.e. a "development oriented to potentialities". The main guidelines of this level are:

1. Provide a Territorial Intelligence Model.
2. Provide a Territorial Innovation Model and disseminate it in Paraná/Brazil, as well as in the tri-national region, including Hernandarias/Paraguay, and Misiones/Argentina.
3. Strengthen the role of the ITAIPU and PTI in regional development.
4. Provide R&D for sustainable development, specifically on: 1) renewable energy, 2) water management and 3) food production.
5. Contribute to the development master plans of the 54 cities.

The methodology to conduct the upper level strategy employs a process of collective knowledge production (co-creation), involving the regional community, ideally the 54 municipalities of the ground strategic level. The knowledge emerges from the experience and contributions of the territory. At the end, the upper strategic level complements the Operational Plan 2017-2021 of the ground strategic level.

The following logic supports the upper strategic level:

- The Territorial Intelligence Model emerge from the concept of territorial intelligence. The concept has been worked by the European Network of Territorial Intelligence (GIRARDOT, 2002; DUMAS, 2004, YANN, 2004). Territorial Intelligence is a "multidisciplinary" approach, whose objective is the sustainable development of territories and local communities. Territorial Intelligence is based on a systemic view of the territory, including a geographic space, a community, its representations and behaviors. It emphasizes an inter-scalar logic (micro, meso, macro and meta), starting from the local to the global. It is a collective intelligence that is based foremost on the interaction between each human being and his / her environment and, on the other hand, in the relationships between people. It uses a powerful artifact of information and communication technology. In fact, according to Girardot and Brunau (2010, p.3), "Territorial Intelligence is the intensive use of ICTs to catalyze the co-construction of knowledge in all sectors of a given region, reinforcing the effectiveness of concentrated action for sustainable development ".
- It is critical the creation of a territorial governance dedicated to innovation issues. This governance relies on the concept of territorial intelligence and influences the behavior of individuals, organizations and communities. It is designed to involve all stakeholders and attempts to a balance between collaboration and competition, equitable and sustainable access to resources and the well-being and empowerment of everyone and everything. The governance of the upper strategic level is based on the governance of the ground strategic level. The difference between the two is a greater importance to the themes related to innovation in upper strategic level. This scenario aims to facilitate the integration of decisions taken for the development of propulsion chains (ground level) with decisions to develop the potentialities (upper level).
- The Territorial Innovation Model emerges from co-creation process performed by the stakeholders. To guide the process there is a methodology founded in a mixed approach involving design thinking, world café and new public services. The concept of design thinking was created by Rolf Faste[4] at Stanford University in the United States, and popularized by David M. Kelley[5], founder of IDEO[6]. Design thinking aims at solving problems with the design of products and services based on a collective and collaborative effort. It finds innovative answers, focusing on the real needs of the market. Word Café is a creative process that values the collective and collaborative participation of stakeholders. It deals with diversity and complexity of point of views thanks to an intense interaction among the participants. It guides a set of dialogues within the groups and at the end produces a set of collective perceptions and learnings. World coffee is suitable for complex and non-linear relationships, giving rise to systemic and emerging results. (BROWN & ISAACS, 2005). New Public Service is a movement dedicated to democratic citizenship, community and civil society, and organizational humanism and discourse theory. Denhardt and Denhardt (2000) gives 7 principles of new public services: 1) serve rather than steer, 2) public interest is the aim not the by-product, 3) think strategically and democratically, 4) serve citizens not customers, 5) accountability isn't simple, 6) value people not just productivity, 7) value citizenship and public service above entrepreneurship.
- It is desirable a link between the Territorial Model for Innovation and the present Brazilian urban policy. By federal law in Brazil, the cities with a population greater than 20,000 inhabitants need to carry out a Municipal Master Plan. It is an instrument to direct the development of the Municipality in its economic, physical, social dimensions. Thus, it involves the organization of public and private spaces, the use of the land, buildings, streets, squares, and urban equipment, as well as the providing of people with housing, work, health, education, culture, leisure, and transportation, among others. The

[4] https://en.wikipedia.org/wiki/Rolf_Faste

[5] https://en.wikipedia.org/wiki/David_M._Kelley

[6] https://www.ideo.com

Territorial Model for Innovation intends to provide this link involving the police makers of the Municipalities in the described governance. Specific world café sessions deal to such end.

- The traditional technology policy theory focuses on economic development. Today, economic growth and industrialization are not synonymous of development. Regional development imposes a broader development overview, such as those advocated by sustainable development, going beyond economic development and enhancing sociocultural, environmental and institutional development (SPINOSA et al., 2018). The upper strategy needs to focus on capacity building and critical mass formation, requesting public policies to go beyond the economic perspective and thus consider sustainable development. The challenge is not to have these perspectives as consequences of economic development. Instead, they need to be correlated.
- For most regions, it is impossible to be a 'global leader. A more valid and realistic option to be 'good follower' or 'leader in a specific niche'. Two main reasons support this choice as the most promising one. First, it is very high the amount of investments to have a consolidated and cutting-edge R&D system (regional or national), and thus be a global leader. Most of the regions does not have such volume of investments. Second and consequence of the first point, the amount of capital must be carefully directed/limited to specific and strategical sectors, which usually do not comprise a whole innovation chain and/or innovative activity. It is smart to identify pieces of a global value chain in which the region can have a distinguished position – higher added value. Just in few sectors it can play a leader role in a global value chain, most of the time due to exceptional natural resources, such as those perceived in ITAIPU/PTI.
- Mobilization of local assets to build synergy and achieve competitive advantage will not suffice. The region has to increase its ability to join wider spatial networks and thus develop alliances, partnerships and opportunities with outside firms and investors, as well as science parks and incubators, universities and research institutes.

2.5 The Technological Platforms

The Platforms aim to put in place the strategic and tactical levels before described throughout research and developments. The use of the platforms is not exclusive to the upper and ground strategies presented here. They are shared with others strategic proposals of Itaipu, namely with those dedicated to energy generation. The challenge is to obtain results in a balanced way, involving the high-quality power generation, the fostering of the innovation ecosystem and the objectives of sustainable development.

The main R&D resources composing the Platforms are:

a) CEAPE – the Center for Advanced Studies on Protection of Strategic Structures aims at guaranteeing safety through searching methodological, structural and systemic solutions.
b) CEASB – the Center for Advanced Studies on Dam Safety works as a center of applied research directed to the Itaipu´s dam safety.
c) CELTAB – the Latin American Center for Open Technologies performs open software research aiming at innovation and generation of solutions to meet Itaipu´s needs.
d) CIBiogas – the International Renewable Energy Center on Biogas executes projects emphasizing the promotion of sustainable development of biogas chain.
e) CIH – the International Hydroinformatics Center develops solutions and hydroinformatics tools for the sustainable management of water resources.
f) EIITEC – the Office of Intelligence and Technological Innovation is the support space of many activities of scientific and technological developments and innovation, regarding intellectual property.
g) LASSE – the Laboratory of Automation and Simulations of Electrical Systems is focused on meeting the demands of energy area.
h) MOB-I – the Center for Sustainable Mobility supports the management and operation of pilot projects for electric vehicles.

i) NUPHI – the Hydrogen Research Center performs studies about the use of hydrogen as an energy vector.
j) SODIUM BATTERY – the researches on nickel chloride and sodium batteries aims at mastering the scientific and technological processes in order to enable the future of national production of the battery.
k) BUSINESS INCUBATOR – the Santos Dumont incubator and the Business Condominium aim at disseminating the entrepreneurial culture.

The ITAIPU/PTI strategy and the sustainable development

The strategy depicted in this paper puts in evidence the need to achieve the Sustainable Development Goals (SDGs). Figure 3 illustrates an assessment of the commitment of ITAIPU/PTI with the SDGs. The assessment concerns the perception of the managers of the Platforms. It does not capture the perception of the entire stakeholders of the region.

Figure 3 – ITAIPU/PTI commitment with Sustainable Development Goals.

The main findings are: the commitment of ITAIPU/PTI covers all the 17 SDG with an intensity changing from 30% to 100%; the highest commitments are with G1 - Industry, Innovation and Infrastructure and G8 - Decent Work and Economic Growth (100%), and G7 – Affordable and Clean Energy (85%); even the lowest commitment is meaningful (more than 30%) and considers the G14 – Live Below Water, G15 – Life and Land and G16 – Peace, Justice and Strong Institutions.

It is expected that the strategy, mainly the Upper Strategic Level, will mostly improve the following goals: G17 – Partnerships for the Goals, G11 – Sustainable Cities and Communities and G15 – Life and Land. Also, the strategy will preserve the high benchmarks for G1 - Industry, Innovation and Infrastructure and G8 - Decent Work and Economic Growth and G7 – Affordable and Clean Energy.

Conclusions

We described a strategy that contributes to foster an innovation ecosystem in Paraná State in a systematic way. The achievement of Sustainable Development Goals is a persistent assumption. The strategy has been successfully conducted to meet the endogenous development ('need-based development'), thanks to the Ground Strategic Level. The Upper Strategic Level is under construction and partially under execution to go beyond the endogenous development, i.e. a "development oriented to potentialities". The main outcomes are in the areas of: i) water management (hydro-computing center and tools for water management), ii) renewable energy (hydroelectricity, bioenergy, solar photovoltaic, hydrogen, sodium battery), and iii) food production (no-till farming).

The innovation ecosystem will impose a significant collaborative network. The principles adopted for the Governance, the Territorial Intelligence Model, the Territorial Innovation Model and, mainly, the involvement of 64 organizations converge for the joint effort. Significant benefits are expected (SPINOSA & QUANDT, 2003):

- Access to new markets and marketing strategies;
- Access to capital: integrated access to services such as financial planning, support for obtaining grants, opportunities for access to venture, development, and seed capital;
- Expansion of inter-firm linkages: a networked approach is ideal for maximizing the impact of programs and projects, such as partnerships, alliances, and linkages to outside suppliers;
- Technological support: better access to services such as technology assessment and forecasting, assistance on technological choices, marketing assessment of innovative projects and access to outside technical information;
- Technology transfer opportunities: networks may be used to stimulate investment in Science & Technology (S&T), Research & Development (R&D), technology transfer and spin-offs;
- Access to talent and know-how: networks may help in the process of identifying and hiring skilled people across regional boundaries. Labor markets are essentially place-based, yet virtual technologies may boost the development of human resources in more remote locations through training centers, distance education, career planning, virtual job markets, and support business development through the establishment of virtual entrepreneur schools;
- Strengthening local governance structures: the establishment of linkages with other clusters enables a better understanding of stakeholder needs and markets and improves organization methods. Such arrangement can disseminate best practices in business incubation and improve the performance of firms in each cluster; and,
- Optimizing and sharing facilities: the operational support infrastructure may be optimized and many facilities could be shared over the network, including incubators, prototype centers, pilot plants, online library, test laboratories, and online conferencing facilities.

Some challenges must be faced (SPINOSA et al., 2015):

- A more harmonious and extended policy-mix. The term policy-mix usually refers to the balance and interactions between monetary and fiscal policies. The extended notion adds a social development dimension, which gains significance in Brazil due to the need to include the lower economic classes into the country’s development process. This extended notion covers the need for a more equitable regional and urban development.
- There is also the need to further explore the relationship between innovation ecosystems and the urban and regional environments. It is necessary to better understand this relationship and encourage the city to become a relevant promoter and organizer of a knowledge chain capable of supporting the innovation chain.
- Innovation culture is critical for the performance of innovation ecosystems. The challenge on how to create, induce, and improve an innovation culture is a topic for current discussion. The appropriate approach to dealing with this challenge can have a positive

impact on the causes of most of the problems faced by businesses, the public sector, and the academia, resulting in a real mobilization towards innovation.

- There is a need to better manage innovative practices within the innovation ecosystem to achieve the best results and to minimize risks, and it should be conducted in a professional and high-standard manner. The dare is how to conduct innovation in a systematic and continuous manner, ensuring the strategic choice of the organizations.

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