

# 8

DECENT WORK AND  
ECONOMIC GROWTH



**PROMOTE SUSTAINED,  
INCLUSIVE AND  
SUSTAINABLE  
ECONOMIC GROWTH,  
FULL AND PRODUCTIVE  
EMPLOYMENT AND  
DECENT WORK FOR ALL**

## CASE STUDY: ITAIPU AND SDG 8

Activities by Itaipu Binacional supporting implementation of the Sustainable Development Goal 8 (SDG 8) of the United Nations 2030 Agenda for Sustainable Development



Alexandre Marchetti

# 8



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## Itaipu Binacional

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# WHERE WE ARE



Integration that generates Renewable Energy and promotes Sustainable Development



## ITAIPU BINACIONAL AND THE UNITED NATIONS 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Itaipu is a binational entity created in 1974 by Brazil and Paraguay in order to utilize the Paraná River, along the border of the two countries, to generate hydropower. Today, the Itaipu Hydropower Plant is the largest generator of renewable power in the world (ITAIPU, 2018 a). By the end of 2018, Itaipu had generated a total of over 2.6 billion Megawatts-hours (MWh) since the beginning of its operation, in 1984 (ITAIPU, 2019 a).

Since its conception, Itaipu Binacional has followed sustainable development principles as reflected by its strategic objectives and integrated actions and programs, supporting social well-being, economic growth and environmental protection, contributing to regional prosperity in Paraguay and Brazil. Itaipu's activities in the region have been recognized as excellent examples of "Best Practices" in the effective implementation of the United Nations 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) (ITAIPU, 2019 b).

Itaipu's vision for 2020 is to be "the generator of clean, renewable energy with the best operating performance and the world's best sustainability practices, promoting sustainable development and regional integration" (ITAIPU 2018 b).

Itaipu Binacional is governed by the Itaipu Treaty of 1973. Accordingly, the company ownership and management are equally shared by the Brazilian and Paraguayan Governments, respectively represented by the companies Centrais Elétricas Brasileiras (Eletrobras) and Administración Nacional de Electricidad (ANDE). As a binational institution, Itaipu is run by the two countries. All company management decisions are the product of understanding and consensus between representatives from Brazil and Paraguay.



## SDG 8. PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

**Target 8.1** Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries.

**Target 8.2** Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.

**Target 8.3** Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.

**Target 8.4** Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.

**Target 8.5** By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.

**Target 8.6** By 2020, substantially reduce the proportion of youth not in employment, education or training.

**Target 8.7** Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms.

**Target 8.8** Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.

**Target 8.9** By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products.

**Target 8.10** Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.

**Target 8.a** Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries.

**Target 8.b** By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization.

Source: United Nations, 2015.



ITAIPU Binacional

## ITAIPU AND THE SDG 8

For Itaipu, sustainable economic growth is a major commitment intrinsically linked to its management system, constituting one of its most important missions in its different lines of action. Itaipu follows policies and practices that promote prosperity and contribute to improving the well-being of the population in many communities, in both Paraguay and Brazil. The organization represents a powerful force in the advancement of sustainable regional development, helping to build more responsible, equitable and solidary societies. In Brazil these actions have taken place mainly in the area of influence of the Reservoir. They extend to many municipalities in the western region of the state of Paraná. In Paraguay, many of the actions have national coverage and benefit different regions of the country.

Within the economic dimension of sustainable development, activities by Itaipu are designed to create jobs, reduce poverty, foster better education, develop tourism opportunities and promote equality with respect to gender, age, disabilities, race, religion, ethnicity and economic status. They also promote

income generation, protection of children and adolescents, respect for human rights, conservation of biodiversity, and sustainable means of production and consumption. These activities are part of the Itaipu's Business Plan, which includes the corresponding programs and actions fully linked to strategic objectives and organizational policies and guidelines (ITAIPU, 2018 c).

Itaipu has been and continues to be a major pillar of the local and regional economy of Brazil and Paraguay. At the height of its construction, Itaipu employed up to 40,000 workers. Itaipu started electricity production in April 1984. Its balance sheet for 2018 shows fixed assets in the amount of US\$ 17.5 billion (ITAIPU Binacional, 2018 d).

Itaipu operates 20 generating units of 700 MW each for a total of 14,000 MW of installed capacity. With continuous maintenance and modernization, Itaipu's annual electricity generation exceeded 100 million MWh in 2016. In 2018, Itaipu provided around 15% of the electricity consumed in Brazil, and 90% of the

electricity consumed in Paraguay. In accordance with relevant studies, the power plant has an expected working life of over 180 years. Together with the other hydropower stations in Latin America, Itaipu enables public and private industrial and household consumers to receive clean, renewable electricity at comparatively affordable rates. The environmental benefits of avoided air pollution and greenhouse gas mitigation are also vast. Thus, the economic benefits derived from Itaipu are widespread and far reaching.

Expansion of electric power supply has been a major driver of economic growth throughout Latin America, particularly in Brazil and Paraguay. Itaipu has been a leading contributor to the economic growth in the region.

Brazil's economy experienced a remarkable expansion, in particular between 1990 and 2012. Large segments of the population were lifted out of poverty, but income inequalities did not end. Between 2013 and 2017, Brazil experienced a recession caused by, among other factors, a decline in export commodity prices and a sharp increase in public and private debt service costs (World Bank, 2019 a). Following various policy reforms, economic recovery has already started and is expected to accelerate in the future (OECD, 2018).

Paraguay also has achieved impressive economic growth and shared prosperity over the past 15 years. According to World Bank data, the economy grew at 4.5% per year on average (2004-2017), faster than other countries in the region. This growth has been accompanied by poverty reduction. Income of the bottom 40% of the population grew by an average 4.2% during the period of 2003-2017 (World Bank, 2019 b). Net revenues from Itaipu's electricity sales have continued to support the economy in Paraguay, which otherwise also faced many challenges, including large dependency on agricultural production, small domestic markets, and comparatively high transport costs resulting from the country's landlocked geographical location.

SDG 8 calls for promotion of sustained, inclusive and sustainable economic growth, full and productive

employment, and decent work for all. Itaipu has demonstrated its commitment to enhancing the achievement of this goal. Its Sustainable Development Strategy includes a comprehensive set of policies, measures and initiatives that are lined up with SDG 8 and its 12 related targets concerning decent work and economic growth.





1.

**HYDROPOWER PLANT  
TECHNOLOGY  
UPGRADING AND  
INNOVATIONS**



Alexandre Marchetti

## Objective and description

Strategic maintenance and periodic upgrading of technical equipment is essential to ensure reliability and continuity of Itaipu's operations and high performance. It is a structural resilience measure aiming at the optimization of energy production and operational safety. Technological update is a structural adaptation measure for climate change that will allow increased functionality and better use of hydrological potential during extreme weather events and alleviate climate uncertainties. The Itaipu Hydroelectric Power Plant already has been in operation for more than 35 years, during which time regular maintenance and technology upgrades have been performed. However, some of the main control systems of the plant are still based on analog equipment and technologies, dating from the time of the original construction and the start-up of the generating units. Some of these systems are at the end of their useful life, demanding a systematic and structured modernization, guided by the evolution of technology and new international standards.

In order to ensure and enhance reliability and productivity, Itaipu is now preparing for a comprehensive technological update and upgrade of its power plant and substations. This process is expected to include the assessment and systematic substitution of equipment and systems used for supervision, control, protection, regulation, monitoring, and measurement, as well as their respective interfaces with the generation processes, substations, spillway, and auxiliary equipment of the dam and powerhouse. Heavy equipment such as turbines and generators have a longer life cycle and are not objects of this upgrade. The estimated duration of the work is 14 years, and the cost is estimated at about US\$ 660 million.

Technical assessments and strategic planning for the implementation of the technical upgrades began in mid-2013. This involved various preparatory studies and comparative technical and economic reviews of alternative modernization options.

Between 2016 and 2018, the basis of the Technological Update Project was executed, formulating guidelines and technical specifications for the tendering process. During that stage, two workshops were held with all interested parties from both countries, Paraguay and Brazil, clarifying the characteristics of the project, and receiving suggestions to be analyzed by the Itaipu teams.

The first stage of the technological update was carried out during the second half of 2018, including the pre-qualification of the parties interested in participating in the execution of the project. Brazilian and Paraguayan companies and consortia which may take part in the bidding process for the technological update have been identified.

## Related Targets

The Itaipu Technical Directorate is in charge of the upcoming technical upgrade and modernization, which is consistent with Target 8.2 which calls to “Achieve higher levels of productivity in economies through diversification, technological modernization and innovation, including through a focus on high value-added and labor-intensive sectors”.

## Challenges

Planning and implementation of the power plant upgrade and modernization is technically very challenging. It needs to be conducted in partial and sequential steps while the plant remains in operation. Itaipu provides a great share of Brazilian and Paraguayan electricity demand, and thus cannot be temporarily closed down.

## Lessons learned

Integrated long term technological planning is a very important task considering climate uncertainties and fast technological innovation. It requires the participation of specialized professionals from different areas of knowledge.

Preparation of the power plant modernization is a major task that requires large-scale investment and integrated coordination and participation of many offices and people. In line with the statute of Itaipu, all concerned governing bodies and relevant corporate departments need to consent to and support the upcoming modernization plans.

## Results

Itaipu is preparing for the installation of a 100% digital energy production and control system within the next five to ten years. It is expected that the modernization will lead to lower operational costs, higher outputs, and increased productivity in the future (ITAIPU, 2019 b).



Alexandre Marchetti



# 2.

## **PROMOTION OF DIVERSIFICATION, TECHNOLOGY AND INNOVATION**



Caio Coronel

## Objective and description

The management of Itaipu places great emphasis on promoting education, technical and entrepreneurial skills, and training. Greater local and regional engineering and entrepreneurial skills mean greater human capital, easier access to local tailor-made technical solutions, and greater independence of foreign suppliers.

The Itaipu Technological Park (ITP) was thus created in 2003. The ITP has two campuses, one on the Brazilian side and one on the Paraguayan side of the Paraná River, and uses several of the buildings that were once the lodge for engineers and workers during the period of the construction of the dam. In order to start the Technological Park, Itaipu invested more than \$19.5 million of its own resources and Brazilian federal grants to redevelop the site. Today, the ITP is a well-known teaching and research center, dedicated to education, science and technology. It covers an area of more than 50,000 square meters and accommodates more than 2,000 people, including Itaipu's employees, researchers, teachers and students. The ITP includes a University Campus and an entrepreneurship incubation center. It is an investment in the development of intellectual and

engineering skills and human capital. With the ITP, Itaipu is establishing itself as a hub of scientific and technological development in Brazil and Paraguay.

Itaipu's Technological Park includes a "Business Development Arena" to encourage the creation and establishment of technology-based companies. The Business Development Arena comprises the Entrepreneur Factory, the Santos Dumont Company Incubator, and the Business Condominium. At the Santos Dumont Company Incubator, new projects in the area of software development, internet pages, communications, geoprocessing, and environmental education get support and assistance for their development during their incubation period. The Business Condominium houses companies that are already consolidated and that provide services and products in the areas of technology, tourism, environmental management, and education. At the ITP, companies have access to technology, research, and innovations, besides enjoying market visibility. The Entrepreneur Factory is a pre-incubation center where professionals and trainees acquire training and experience to later create their own companies and join

the Company Incubator.

The Itaipu Technological Park also provides a joint teaching environment dedicated to human resources training and education, bringing together students and teachers in technical, undergraduate and graduate programs. To that end, it houses the Unioeste University Engineering and Exact Sciences Center campus, in Foz do Iguaçu, where classes in Computer Science, Electrical Engineering, Mechanical Engineering, and Math programs are available. The ITP also hosts the distance-education student support center of the Brazilian Open University, which offers two undergraduate programs and three at graduate level. Students, teachers and researchers have 15 classrooms at their disposal, in addition to chemistry, metallurgy, metrology, industrial automation, robotics, process control, circuit, industrial electrical installations, industrial machinery, physics, math, and computer labs, among others.

The ITP also supports research groups working at its facilities, like the Power Electrical Systems Analysis and Control Group; Bioinformatics Lab; Electricity Generation, Conveyance and Distribution Simulation Lab; Materials Lab; Education-Applied Technologies Development Group; Computer Network Study and Research Group; Industrial Automation Group; and Free Software Study and Research Group.

## Related Targets

The Itaipu Technological Park pursues multiple objectives and thus relates to several of the SDG 8 related targets, including Target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensives sectors; and Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through the access to financial services. ITP also hosts several tourism-related facilities and attractions, and its establishment thus also relates to Target 8.9 concerning the promotion of sustainable tourism.

## Challenges

One of the challenges for the management of the ITP and its entrepreneurship incubation center is to determine the precise needs and the time period for which business start-ups require motivational, technical or financial support.

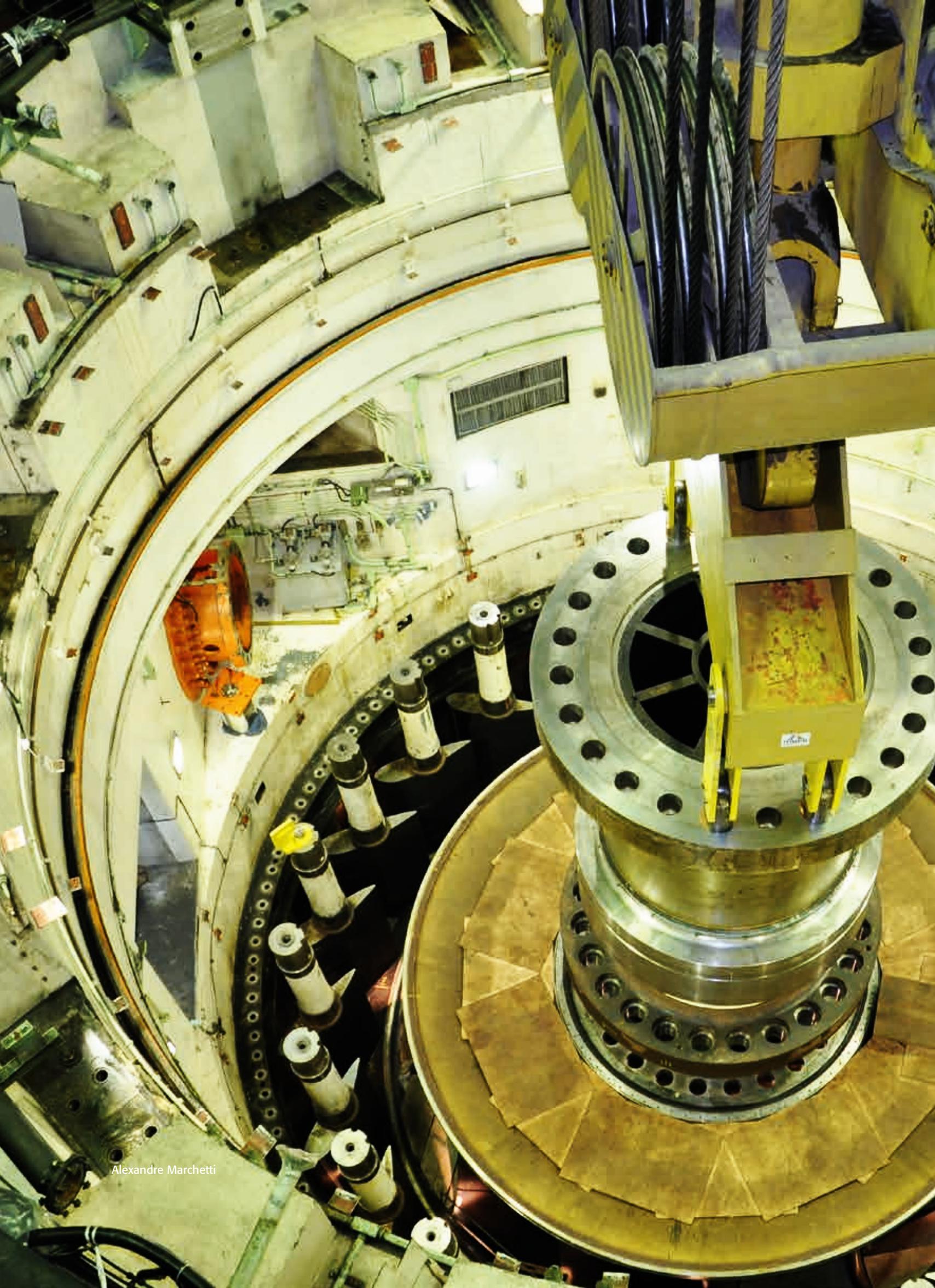
Another challenge is trying to maintain high quality training for both students and teachers, as well as trying to attract both the best student candidates and teachers.

## Lessons learned

The ITP, through its extensive partnership network of universities, public and private organizations and technical center, is ensuring a very rich knowledge environment, which has been proven very valuable for the people of the region. Scholarships and training represent very effective tools, and the professional training that is offered at the ITP often results in its participants being able to move successfully into new, higher-paying labor markets.

## Results

The ITP offers a very large variety of education and capacity building programs to many people, including those in socially vulnerable groups. The Institute has proved to be a strong platform for training, education, R&D and technical innovation in the region, in Brazil and in Paraguay. A large part of the ITP's efforts is directed at enhancing the local and regional capacities in areas that are priorities for the region, such as agriculture, environment, energy, engineering, information technology and tourism.



Alexandre Marchetti



**3.**

**SUSTAINABLE RURAL  
DEVELOPMENT**



ITAIPU Binacional

## Objective and description

The purpose of this action is to promote sustainable rural development, support productive activities and rural employment and help reduce the use of contaminants in the water runoff areas of the Reservoir and other relevant areas of Itaipu. The program represents an important effort for the promotion of regional sustainable economic growth and productive employment in agriculture-related activities.

Itaipu supports the diffusion of agro-ecological or sustainable production systems through the Technical Assistance and Rural Extension (ATER) network, providing free technical guidance to family farmers in the region who are interested in participating in the productive and commercial chain of the organic products market. Itaipu also has other regional partners and supports the initiatives through contracts and agreements.

Such initiatives aim at developing agricultural research as well as encouraging and strengthening organizations – whether family farmers' associations or cooperatives – by integrating them into the value chain of producing, marketing and consuming healthy food.

The Sustainable Rural Development program promotes the dissemination of the benefits of organic production

to the population, seeking the creation of social, environmental and commercial direct links, both for rural and urban locations. In practice, the activities take the form of lectures in schools, participation in events with promotional materials, and sales of organic products from family farms. Therefore, the program allows the creation of sustainable jobs and the enhancement of family businesses through capacity development and marketing activities.

The promotion of sustainable agriculture takes into account technical and economic aspects for the development and continuity of family farming. Thus, the program encourages the diversification of production and the improvement of land management (ITAIPU, 2014).

The implementation of the activities started in mid-2002 and has been improved and extended up to the present. The program is available to all municipalities in Itaipu's area of influence, and counts with active participation in 36 municipalities of Western Paraná, in Brazil. The results are monitored through monthly reports sent by the managers of the current contracts and agreements, by comparing these to the pre-established goals, and correcting possible obstacles to the success of the work. In addition, Itaipu managers

monitor the activities in the field, verifying the quality of the service. The project also has an active Steering Committee, which meets every 60 days, where organizations representing the civil and public sectors contribute to the construction of guidelines and actions and carry out program assessments, ensuring the legitimacy of the results achieved.

There are various strategies of regional action that foment the economic and social development as well as the creation of jobs. The efforts are concentrated in the following areas:

- Incentive to diversification of production, reducing the risks of the Production System;
- Guidance regarding the plantation of crops and/or products with higher added value;
- Encouraging organic or agro-ecological production, reducing external dependence on inputs and adding value to products;
- Fomenting the agro-industrialization of products, increasing the availability of products, overcoming the seasonality of crops, and increasing the profitability;
- Strengthening family agriculture by way of Associativism and Cooperativism, as ways of facilitating transformation and gaining scale in the acquisition of inputs and in the commercialization of products;
- Development of direct consumer marketing strategies through open farmers' fairs, direct to home sales, on-site marketing, institutional programs (Food Acquisition Program - PAA and National School Meals Program - PNAE), and producer markets, in order to promote short marketing cycles, providing food security to the local/regional community, and contributing to food sovereignty.

## Related Targets

The strategies are in line with **Target 8.3** that seeks to *"Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services"* and **Target 8.4** that calls to *"Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple*

*economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production ..."*

## Challenges

Among the challenges faced were organizing the target population for project development at the regional level and stimulating the development of a business vision, always taking ownership into account as a family business unit, and the agro-industrialization process as one of the ways to add product value. There was also the challenge of balancing organic food production and consumption, which was critical to the success of the action given the project's focus

## Lessons learned

One of the main lessons learned in structuring a complex program with a regional dimension is that there should be a continuous planning of activities and actions, with periodic review and monitoring, ensuring the participation of all the actors involved.

## Results

Since the beginning of the project, there has been a significant evolution in the quality, quantity and variety of products. In addition to placing their products in the market, participating organizations have also sought to invest and expand their agro-industries and retail outlets. Although there were only 188 beneficiaries at the start of the program, the initiative currently serves approximately 2,500 families, including indigenous farms. In 2018, 3,539 technical advisory service visits were conducted on rural properties, along with 169 group training activities with the participation of 2,666 farmers. Furthermore, 16 farmer associations with 1,452 participants were advised, and 110 group activities were carried out.

The effort has allowed the development and enhancement of family-owned enterprises and the creation of many sustainable jobs in the economic area of agriculture, which is key to the sustainable development and prosperity of this region and its people.

# FEIRA VIVA SUSTENTÁVEL



**Aproffoz**  
ASSOCIAÇÃO DA AGRICULTURA FAMILIAR





# 4.

## **WORK INITIATION AND INCENTIVE PROGRAM (PIIT)**



Alexandre Marchetti

## Objective and Description

Since 1988, the Work Initiation and Incentive Program (PIIT) has been promoting personal and professional development of adolescents from Foz do Iguaçu and Curitiba, creating conditions for them to develop the values of responsibility, attendance, organization, honesty, and others that – from childhood and even more so in adolescence – contribute to the formation of a model human citizen. The purpose of this initiative is to promote the right to professionalization of adolescents who are members of families in situations of vulnerability or social risk. In order to implement this action, PIIT was founded in accordance with Brazilian law related to the admission of young workers in companies that include more than five employees. The Program monitored the legislation regarding the relationship between children and adolescents with issues related to education, work, family, and society in general. The program was legalized by the 1988 constitution of Brazil, and specified in the Statute of the Child and Adolescent (ECA) in 1990.

PIIT offers two types of participation:

1. Apprenticeship – Professional Learning Program
2. Beginner – Professional Technical Training Program

Students between the ages of 15 and 17 who are attending basic or high school and come from low income families participate in the program. The length of attendance in the program is up to two years, and the adolescent receives a monthly allowance in the amount of a current minimum wage, life insurance, transportation voucher, food stamps and medical and dental assistance. In 2017, the program offered more than 329 young people their first job, as well as courses, workshops and lectures in the areas of education, culture and leisure. More than 6,000 adolescents have participated in the program.

At Itaipu, the adolescents work four hours a day on average, for up to 24 months. In addition to the Learning Course, a series of workshops are offered to adolescents following learning cycles. The workshops total approximately 170 hours, distributed over 18 months of work, and are seen as complementary actions to the daily life of adolescents. Some examples of these workshops are: sexual education; environmental education; socio-emotional skills; interpersonal communication; drugs, adolescence and current consumer contexts; and professional orientation.

## Related Targets

The PIIT program promotes the right to professionalization of adolescents who are members of families in situations of vulnerability or social risk, living in Foz do Iguaçu or Curitiba, both cities in the state of Paraná. By implementing this action, Itaipu is supporting the objectives of achieving full and productive employment for young people (Target 8.5) and reducing the proportion of youth without jobs which is the aim of Target 8.6. It is also providing and implementing an effective strategy for youth employment, which is related to the objectives of Target 8.b.

Through its content and practices based on UNESCO's Four Pillars of Education and the Life Skills program of the United Nations Children's Fund (UNICEF), PIIT supports adolescents in building their identity, in the conquest of their autonomy and in their process of interaction with other adolescents and co-workers, with the family and the community.

Through the implementation of this program with a group of public and private entities involved in the defense of adolescent protective rights, it is possible to promote the participation of adolescents in the world of labor and their access to quality health, education, leisure, culture, information, and social and political participation. The action reduces the potential for forced child labor which is an objective directly linked to Target 8.7.

## Challenges

It is important for the PIIT program to be able to operate in local communities in order to promote the municipal network of social protection of children and adolescents. Networking is fundamental so that the program can, from this insertion into the working environment, guarantee an integral development of the adolescent and consolidate in the adolescent a right to a dignified life. Therefore, it can be challenging to find a suitable workplace environment or local community in

which the PIIT program could operate in an effective manner.

The program could not be carried out without strategic support of the supervisors, who have the role of encouraging, motivating, and supporting the adolescents in order to develop their maturity and responsibility, self-trust, continuation with their studies, and the competence to set targets for the future along with the ability to realize them. As a result, having a quality supervisor who can actively participate in this initiative can sometimes be a challenge as well. Supervisors are supported by a multidisciplinary team with professionals specialized in psychology, social assistance, and the relevant pedagogy. The multidisciplinary team must also act as a mediator and facilitator of the municipal protection network and be a partner of other supervisors.

## Lessons learned

As this is a program of initiation and incentive to work, where most of the workload is focused on work activities, it is fundamental and strategic to continue developing and implementing activities that promote the advancement of professional competencies in an integrated manner. The program needs to consider the adolescents' interest in learning, their level of education and knowledge, the work environment in which they are placed, and the role of the person supervising them.

The Work Initiation and Incentive Program (PIIT) is directly connected to the Brazilian Child and Adolescent Rights Guarantees System and thus it must support the implementation of public policies aimed at adolescents, focusing on the promotion of the right to professionalization. To this end, it is part of the Child and Adolescent Protection Network, with the support of its partners. Through this network and its partners, in addition to the watchful eye of the supervisor, monitoring can take place and a space for dialogue can occur for the development and improvement of activities.

## Results

The initiative resulted in Itaipu earning the Child-friendly Company title, which was awarded by the Abrinq Foundation. Since 1988, the PIIT program has served more than 6,000 adolescents from the municipalities of Foz do Iguaçu and Curitiba. Many of these participants have found productive and decent jobs enhancing their opportunities to improve their well-being. Twenty young former participants were approved for jobs through Itaipu's external selective processes. In addition, PIIT alumni are now students or teachers at the Itaipu Technology Park Foundation (FPTI) and other institutions, such as SENAI (National Industrial Learning Service, in Brazil). There are also participants employed as technicians and engineers in large companies, such as Petrobras, Copel and Banco do Brasil. Many enter as trainees at these enterprises, upon completion of the PIIT Program. With the PIIT program, there is an average increase in per capita income for the adolescent's family of approximately 60%.



Nilton Rolin



# 5.

## **WORKPLACE SAFETY MANAGEMENT SYSTEM (SGTS)**



Alexandre Marchetti

## Objective and Description

The main objective of this action is the reduction of accidents and incidents related to work, through the strengthening of a culture of prevention and interdependency in terms of health and work safety.

Itaipu recognizes the need to seek continuous improvement in the reduction of work-related incidents and accidents, and of promoting safe and secure work environments for all workers. Since 2016, Itaipu has been supported by a consulting firm specialized in the development and implementation of occupational health and safety management systems oriented to the electricity sector, with the focus on the system of barriers for control of dangerous energy-related situations. This system has the objective of verifying the procedures and routines developed by Itaipu and assisting in their improvement through the implementation of modern techniques for the management of risks that exist in activities and environments in its hydropower plant.

Initially, an assessment of the management system used by Itaipu was carried out, identifying the points that could be improved. To carry out this initial assessment, the best international practices in force in terms of health and safety at work were taken as a basis, respecting the

laws, particularities and cultures of both Brazil and Paraguay.

After completing this assessment, it was possible to design a work plan to achieve the main objectives. Continuous investment in updating security procedures and internal standards has been necessary, as well as the training of employees to carry out the tasks in the safest way possible. Specific works are being developed together with the maintenance team of the organization, mainly through the adoption of a new health and safety policy. A program of observations for "Safe Work" as well as the dissemination of safety information, through training and safety meetings, is being implemented helping to strengthen a culture of prevention and interdependency in terms of health and work safety.

The plan is for the action to be implemented in all the activities and operations undertaken by the organization. Maintenance activities of the plant were defined as the initial scope of implementation of the SGTS. After the consolidation of the system in this area, the actions and programs will be deployed to all the other areas of the organization.

This action is being implemented bi-nationally in an integrated fashion since 2016.

## Related Targets

The action is directly related to Target 8.8 that seeks to “Protect labor rights and promote safe and secure working environments for all workers...”, with the aim of reducing work related accidents and incidents, and of the improvement of safety conditions in work environments, mainly through the strengthening of a culture of prevention and interdependence in terms of workplace health and safety.

## Challenges

One of the biggest challenges was the choice of a management model that acknowledges the unique characteristics of the organization, making it possible to respect the cultural differences between Brazil and Paraguay, while guaranteeing improvements in risk management and reduction of accidents.

## Lessons learned

Investment in continuous training has proven to be an important task for strengthening a preventive culture in relation to risk management. This training, along with safety meetings and continuous observations of work environments, has helped in the dissemination of safety information and, consequently, in advances in the reduction of accidents at work. It was also verified that there were significant improvements in work safety conditions when employees are involved in the identification and development of the solutions.

## Results

With regard to training, almost 5,000 hours were provided to employees in 2017, and 3,280 hours of internal training modalities in 2018, reaching 410 people in the maintenance area.

A total of 318 observations on workplace safety were also made in 2018 in activities carried out by the maintenance team, and since each observation has 9

verification items, Itaipu analyzed almost 3,000 items related to health and safety. These verifications resulted in 389 improvements that are being implemented towards the goal of effective accident reduction. All these observations are being made by the employees themselves in the maintenance area, who received specific training for this purpose.

By the first quarter of 2019, 82 observations of workplace safety (738 verification items) had already been made by the maintenance team, resulting in 73 improvement opportunities. It can be observed, through the verification items, that there was an improvement in the safety conditions during the performance of the activities.

Regarding security meetings, a total of 55 were held in the first quarter of 2019. The importance of these meetings can be measured through results, such as the improvement of safety conditions in the performance of activities and the reduction of the number of accidents at work.

Itaipu also achieved improvements in workplace accident indicators with the implementation of the SGTS. The accident frequency rate, which is defined as the number of accidents over the number of employees, improved in the maintenance area of the plant, which corresponds to the initial scope of the system. The accident frequency rate went from 14.00 in 2017, to 10.76 in 2018.

Finally, given these findings, it can be seen that the development of a workplace safety management system (SGTS) as applied to the maintenance activities of the plant has strengthened the culture of forecasting and interdependence in terms of workplace health and safety, contributing to the achievement of the objectives of sustainable development.

The monitoring of the results is carried out through the verification of compliance with safety procedures and standards, as well as through quantitative indicators, especially training hours, number of items that need improvement, and reduction of related indicators in occupational accidents.



Alexandre Marchetti



# 6.

## **SUPPORT FOR INLAND FISHERIES AND AQUACULTURE**



Alexandre Marchetti

## Objective and Description

Freshwater reservoirs offer tremendous opportunities for fishing and aquaculture. However, many of these opportunities have remained rather underused. In spite of its large potentials, production and consumption of freshwater fish are still comparatively low in many Latin American countries, including Brazil and Paraguay. According to the United Nations Food and Agriculture Organization (FAO), the region could become one of the world's largest freshwater fish producers in the future. In fact, the west region of the Paraná State, where Itaipu is located, holds the largest Tilapia (*Oreochromis niloticus*) farming production in Brazil, accounting for 123,000 tons of fish that represents 32% of the Brazilian Tilapia production (IPARDES, 2019; Anuário do peixe, 2019).

Over the past two decades, Itaipu has been engaged in the promotion of freshwater fish farms on the Itaipu Reservoir, where only small-scale subsistence fishing had been undertaken by impoverished families. Itaipu assisted and mobilized the various stakeholders to join a participatory management committee. The Committee invited and included representatives of the

fishing colonies and associations, as well as representatives of Emater (Brazilian Entity for Technical Assistance and Rural Extension), IAP (Environmental Institute of Paraná), Ibama (Brazilian Institute of Environment and Renewable Natural Resources), Ministry of Fishing and Aquaculture, Ministry of Agriculture, Itaipu, universities, unions, and city administrations. The government-supported freshwater aquaculture and fish production initiative became known as the "More fish in our waters" program. It aims at community empowerment and the supply of fingerlings and floating net cages, as well as investments in technical assistance actions to add value to the commercial production. Itaipu provided start-up equipment for modernized fish farming to interested lakeside communities. Equipment included 500 net-pens for raising fish, machines for fish-processing and deboning, equipment for cold-storage and for live transportation of fish, as well as computers, printers and training materials. Itaipu and the related municipal authorities also facilitated the provision of fresh water and electricity to designated fishing points to ensure adequate hygienic conditions.

The Pacu, *Piaractus mesopotamicus*, is one of the fish species grown by the local fish farmers in the region. Pacu is a very tasty fish, but it has a lot of bones. To try to solve this problem and in order to promote consumption and increase the commercial value of the fish, Itaipu purchased a machine capable of separating the bones from the meat. The fish processing machine can process 1,000 pounds of fish per hour.

In 2019, an action plan, supported by Brazil and Paraguay, was initiated to modify a decree which prohibits the introduction of non-native species, such as the tilapia, into the Itaipu Reservoir. Based in extensive scientific documentation, Itaipu's Brazilian Coordination Board and the Paraguayan technical team prepared a technical note supporting this initiative which corroborates the viability of the tilapia cultivation in the Reservoir, taking into account that this exotic species was introduced in the Reservoir more than 30 years ago and didn't establish significant population nor caused impact on native species.

## Related Targets

The activities to support the development of fish farming and aquaculture are related to Target 8.3: Promote development oriented policies through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors.

## Challenges

There are multiple challenges in the introduction and dissemination of new methods and technologies to inland freshwater fish farming and aquaculture. One of the main challenges is to build understanding and trust on the part of the various stakeholders involved, most notably the fishing communities themselves. Development of fish farming also requires a comprehensive and integrated approach, which includes (a) provision of start-up equipment, (b) training of fishermen and concerned community, (c) continuous monitoring of freshwater quality, (d) review

and establishment of adequate rules and regulations, and (e) provision of adequate water and energy infrastructure on land.

Two other challenges are related to the development of fish farming in the open and deeper areas of the Reservoir, which will request more investments for net-pens anchoring and for the expansion of environmental monitoring efforts to constantly estimate the carrying capacity of the aquatic environment.

## Lessons Learned

Itaipu's project "More fish in our waters" unexpectedly also faced some difficulties in product marketing. Fish provides a nutritious and healthy source of protein. However, the consumption of fish in Brazil is considerably low compared to other countries. Consumption is estimated at about 15 lbs/year, which is well below the world average of 33 lbs/year. In order to increase consumer interest and demand, Itaipu and concerned Ministries also implemented a public awareness and information campaign under the title "More fish on our tables".

## Results

Today, there are a growing number of designated fishing points along the Itaipu Reservoir. An estimated 700 previously poor fishermen and their families as well as people from indigenous communities have been able to improve their livelihoods. Most of them operate between Foz do Iguacu and Guaira. Freshwater fish farming and the sustainable development of aquaculture is expected to continue to grow in the future, providing more people with better incomes, and more consumers with greater choices in highly nutritious foods.

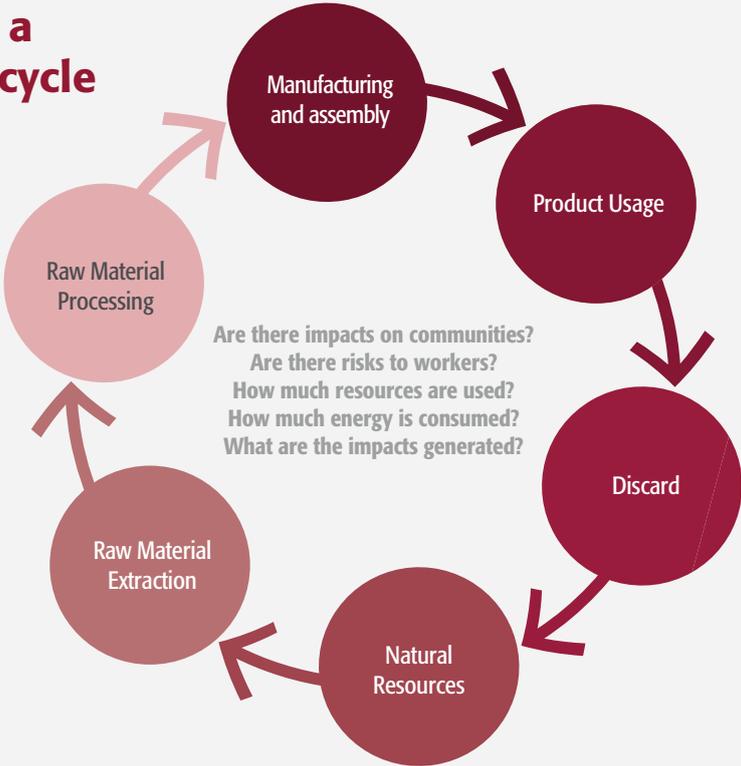




# 7.

## **SUSTAINABLE PROCUREMENT POLICY AND PROGRAM**

## Illustration of a product's life cycle



### Objective and Description

Itaipu has joined other environmentally and socially concerned public institutions and private companies in reviewing their procurement policies with a view to include sustainability concerns and life-cycle considerations in their supply chains. Sustainable procurement requires that not only product prices, but also other quality considerations be considered when supplies and inputs are selected and purchased.

The adoption of these criteria starts with a detailed analysis of the objects to be acquired. Wasteful resource consumption, pollution and other environmental impacts, as well as health, social, and labor issues are all important when it comes to the sustainability of supply chains. The evaluation of the product life cycle (from production to disposal), the total cost of ownership and the applicable laws should also be considered for the definition of sustainability requirements, which may be included in the product specifications for the subsequent selection or qualification of suppliers and contracts. With this practice, an organization contributes

to improving the efficiency of the contracts and at the same time uses its purchasing power to generate greater environmental, economic and social benefits.

Since Itaipu has launched its Sustainable Procurement Program, many goods and services have been evaluated under strict sustainability criteria before being acquired. A sustainable procurement implementation plan has been formulated, and a flexible matrix of evaluation criteria has been established to enhance transparency and facilitate the implementation.

### Related Targets

Itaipu's Sustainable Procurement Policy and Program is meant to encourage micro-, small-, and medium-sized enterprises to take part in the bidding and procurement process. This effort thus seeks to advance implementation of SDG Target 8.3.

Itaipu's Sustainable Procurement Policy and Program also advances Target 8.4, because it seeks to enhance global resource efficiency in consumption and production. It strives to decouple economic growth from environmental degradation, in accordance with the United Nations 10-Year Framework of Programs on Sustainable Consumption and Production. Itaipu's procurement policy is no longer guided only by product availability and low prices, but also by sustainability and complete life cycle assessments.

By eliminating products that may have been produced by forced labor, child labor, or other questionable conditions, Itaipu's Sustainable Procurement Policy and Program contributes to achieve Target 8.5 (achieve full and production employment and decent work for women and men, including for young people and persons with disabilities, and equal pay for work of equal value), Target 8.7 (to eradicate forced labor, end modern slavery and human trafficking, and ensure the prohibition and elimination of the worst forms of child labor), and Target 8.8 (Protect labor rights and promote safe and secure working environments for all workers).

## Challenges

Procurement policies and procedures need to be rational, efficient and transparent, in particular for public institutions and high-value purchases. Translating qualitative sustainability concerns into clearly measurable criteria can pose considerable challenges. Hence, establishing new procurement criteria and procedures for procurement is often quite contentious and could be opposed by some stakeholders.

## Lessons Learned

The experience of Itaipu with the introduction of sustainability concerns in procurement points to a number of important lessons learned. As a first step, it is important to develop a comprehensive company-wide sustainability culture. Involving senior company management and securing buy-in and senior

management commitment is also crucial. In Itaipu's experience, maintaining a flexible information structure makes the transition to more sustainable procurement easier. Furthermore, the formulation of a communication plan will make internal and external consensus building and decision making easier. Finally, participatory decision making will be easier and more productive, if Sustainable Procurement Committees are established.

Operationalization of sustainable procurement will require a periodic review of applicable product specifications, as well as other rules and regulations. Wherever possible, regulations that can be regarded as outdated or obsolete should be cancelled. Attention should focus on a limited number of priority items. In the case of Itaipu, some 55 items (out of a total of 30,000) have been identified as priority items. The establishment of a matrix of classification criteria can help conduct rational risk assessments that include life-cycle evaluations, assessments of total life-cycle costs of ownership, and the review of applicable legislation. Finally, the publication of internal Manuals can help to facilitate operations, continuity, and transparency.

## Results

Itaipu's Sustainable Procurement Policy urges candidate suppliers to ensure that not only the economic, but also the environmental and social quality and sustainability of their products and services can be guaranteed. Itaipu's Sustainable Procurement Policy will directly and indirectly contribute to: (a) higher product quality, (b) lower levels of waste and emissions, (c) more efficient water and energy consumption, (d) lower levels of greenhouse gas (GHG) emissions, (e) preferred procurement from local suppliers, and (f) strict adherence to labor rights and labor standards.





8.

**JOB CREATION FOR  
THE YOUTH / ATELIER  
CITIZENSHIP (ATELIER  
CIDADANIA)**



ITAIPU Binacional

## Objective and Description

Sustainable development is only achievable if socio-economic integration of disadvantaged social groups can be advanced. Itaipu has the capacity and is fully committed to making not only its economic and environmental contribution, but also its social contribution.

Since 2010, the Atelier Cidadania (Atelier citizenship) project is an integral part of Itaipu's Program for the Protection of Children and Adolescents (PPCA), focusing on the protection, promotion and defense of the rights of children and adolescents. The main objective of the Atelier Cidadania Project is to ensure comprehensive, inclusive and continuing education for children and adolescents in situations of social vulnerability, between 6 and 17 years of age, outside school hours, through individual and group socio-educational activities of professionalization that focus on concepts of employability and citizenship.

The PPCA promotes various sports, education, culture and leisure activities via continuous and structured activities, through partnerships with specialized local institutions. These initiatives seek to develop and

strengthen personal skills and social values that are important for the formation of healthier, happier and more supportive individuals. In the case of Atelier Cidadania, the project is carried out in partnership with the local social entity Sociedade Civil Nossa Senhora Aparecida, through its Center for Integral Attention to Adolescents (CAIA). Registrations are held twice a year, prioritizing residents in the Porto Meira region, one of the poorest in the municipality of Foz do Iguaçu. Children are characterized by high personal and social risk and vulnerability, belonging to families with per capita income below a minimum wage.

## Related Targets

The project is more directly linked to Target 8.5 (achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal time), Target 8.6 (by 2020, substantially reduce the proportion of youth not in employment, education or training), and Target 8.7 (take immediate and effective measures to eradicate forced labor, end

modern slavery and human trafficking).

This social integration initiative supported by Itaipu selects youth and adolescents who are in a situation of personal and social vulnerability, with fragile family ties, and thus more exposed to diverse risks as regards to the violation of their rights. Their families have low income and are in the search for better income opportunities. Many children end up being victims of child labor in informal and illicit activities, complicating the process of completing formal education and later integrating into the formal job market. Teenage pregnancy is also among the main barriers faced by girls and young women to continue their studies and professionalization.

## Challenges

The biggest challenge is to keep young people in the project. Due to poverty and the disparate search for an alternative source of income, children and youth can become victims of exploitation and child labor, and can be used in illicit or criminal activity, including smuggling and drug trafficking. Poor children and youth are also particularly vulnerable to sexual exploitation.

## Lessons learned

Social integration initiatives are typically more successful if they include measures that strengthen family ties. Individual social programs and initiatives may have greater success if they use referral systems. Some programs can only assist younger children. With referral systems the same vulnerable children may receive some additional education or vocational or other training, as they reach the age of 15 or grow older. Social support programs and their beneficiaries can benefit from inter-institutional integration or from Networks for the Protection of the Rights of Children and Adolescents, which coordinate local or regional plans.

## Results

Itaipu's social engagement for youth and youth employment provides a model for other public or private institutions, not only in Brazil or Paraguay, but also other countries. Over the years, the project has greatly benefitted the most vulnerable, disadvantaged local youth groups.

Since 2010, the project has expected 400 participants annually; nevertheless, the number of participants has been constantly higher. In 2011, for example, 800 young people participated in the program and in 2015, the number was 600.

In the first quarter of 2019, the project had 510 participants attending classes in the morning and afternoon. During this period, there were 40 complementary school activities, 589 social activities, 19 orientation meetings, 1 cultural and sports event, 113 sports and cultural workshops, 31 home visits and 8 school visits.



Alexandre Marchetti



# 9.

## **LABOR PRACTICES AND HUMAN RIGHTS IN THE SUPPLY CHAINS**



Alexandre Marchetti

## Objective and Description

Brazil and Paraguay are both signatories to the International Labor Organization (ILO) Conventions on Child Labor, including Convention Nr. 138 on the Minimum Age for Admission to Employment and Work (entry into force 1976), and Convention 182 Concerning Prohibition and Immediate Action on the Elimination of the Worst Forms of Child Labour (entry into force 2000). However, as periodically reported by non-governmental and media organizations, child labor and sexual exploitation of children are still major social problems in several Latin American countries.

As a leading corporation, Itaipu upholds all national and international laws and conventions concerning labor practices and human rights.

Launched in 2005, the National Pact for the Eradication of Slave Labor in Brazil is a multi-stakeholder initiative involving Ethos Institute, the Social Observatory Institute, the International Labor Organization, and NGO Reporter Brazil. As a signatory of the Pact, Itaipu is committed to maintaining its supply chain free from slave labor.

Itaipu also has been committed to the Universal 10

Principles of the United Nations Global Compact since December 2008. Itaipu has regularly submitted its Annual Sustainability Reports and it has actively participated in several of the Global Compact initiatives and events, in particular with regard to the empowerment of women.

Furthermore, Itaipu has established a Supplier Code of Conduct (ITAIPU, undated). Thus, suppliers that appear in the National Registry File of Companies Not in Good Standing of the Federal Comptroller General's Office are not contracted. In order to sign contracts, suppliers are required to confirm their compliance with national and international labor laws and standards. The Supplier Evaluation System (SAF) analyzes contractors based on criteria and sustainability aspects contained in ISO 14000 and 26000, OHSAS 18001, SA 8000 and the Women's Empowerment Principles (WEPs).

Itaipu has also signed the Pact against the Exploitation of Children and Adolescents on Brazilian Highways, and the Declaration of Corporate Commitment to Confront Sexual Violence against Children and Adolescents, as established by the National Secretariat for Human Rights.

## Related Targets

Itaipu's commitment to labor practices and human rights in the supply chain is directly related to Target 8.7 – Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms, and Target 8.8 - Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.

## Challenges

It is challenging to monitor child labor, slave labor, and human trafficking activities since they are illegal activities and typically occur in informal and criminal settings. Only law enforcement entities have the authority to investigate and to intervene.

## Lessons learned

Collaborative voluntary initiatives involving public and private sectors can have a significant impact on combatting child labor, slave labor, and human trafficking.

## Results

Itaipu has been successful in maintaining its supply chains free of child labor. It has strengthened the moral authority of interventions to combat these forms of exploitation. Itaipu has strengthened and effectively supported the national and international campaign in this area.



Alexandre Marchetti



**10.**

**SOCIAL ENGAGEMENT IN  
IMPROVED SOLID WASTE  
MANAGEMENT**



Rubens Fraulini

## Objective and Description

Since 2003, Itaipu has pro-actively engaged to improve the waste collection and waste management systems, not only in the city of Foz de Iguaçu, but also in some 55 other municipalities in the vicinity. Among other public health and environmental issues that are also addressed, Itaipu's social engagement is primarily aimed at improving the lives and working conditions of the local very poor, who try to make a living as garbage pickers.

The objective of Itaipu's initiative is to contribute to the improvement of the quality of life of collectors of recyclable waste, providing a more sustainable and safe working environment, promoting income, and disposing of waste correctly. Itaipu works directly with concerned municipalities, as well as with the relevant formal and informal associations of garbage pickers and recyclers. The Itaipu project seeks to strengthen garbage picker associations and the organization of their workers. It provides basic but essential tools, builds sheds, provides very basic infrastructure, as well as training. These interventions help to reduce the health hazards, improve logistics, and help the garbage pickers

to improve their income from the sale of recyclable materials.

## Related Targets

Itaipu's social engagement is directly related to Target 8.8 - Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.

## Challenges

The main challenge of this initiative lies in the social organization and the mobilization of collaborative action of the various actors and stakeholders, including regulators of municipalities, waste management and recycling companies, and, especially the garbage pickers and their organizations themselves. Building sufficient mutual trust in an informal milieu can provide a key to address the underlying challenges.

## Lessons learned

This project has been successful in particular due to the formation of a participatory Steering Committee in which representatives from the trash collectors and recyclers participate democratically along with the city administrations and other partners. Local steering committees have also been set up in other municipalities which have also implemented garbage collection and recycling improvement projects. The organizations that have joined local committees include: Government Department of Labor, City Halls, the NGO Trash and Citizenship Institute, the Environmental Recyclers Association of Foz do Iguaçu (ARAFOZ), and the National Movement of Trash Recyclers (MNCR).

Project initiatives have greatly benefitted impoverished garbage pickers. In Foz do Iguaçu, the project initially benefitted some 600 people. Informal trash recyclers who used to earn in the past only between \$30 and \$50 could increase their income to up to \$190 every month. In Foz do Iguaçu alone, there are presently nine sheds where trash recyclers of the Environmental Agents Co-op of Foz do Iguaçu (COAAFI) gather more than 240 tons of recyclable materials per month and reach an income ranging between \$90 and \$140 per member.

In the past, most of the informal trash recyclers had to borrow or rent their carts from middlemen. Without their own equipment, their earnings were very limited. This motivated Itaipu to manufacture and distribute for free their main tool for working. Another important point was the distribution of uniforms to the trash recyclers. A fundamental element that has contributed to the commercial success of the project was providing storage and processing centers. Equipped with presses and scales, these facilities provide the garbage pickers and their associations with the tool needed to measure the weight and volume of their collected materials, and to increase their productivity.

## Results

Itaipu's successful intervention in the improvement of the garbage picking and recycling project has been replicated multiple times all over Brazil. The recycling system in Santa Terezinha de Itaipu became a model, and more than 1,200 technical visits to learn from this project have taken place to date. In recent years, new waste sorting and recycling technologies are also being tested and applied. A variety of training courses and related curricula have been developed, including on conflict management and teamwork. The western Paraná is also much cleaner today than it used to be in the past, due to efficient informal waste collection and recycling systems.



Rubens Fraulini



**11.**

**PROMOTION OF  
SUSTAINABLE TOURISM**



Nilton Rolin

## Objective and Description

All around the world, inland lakes, rivers and waterfalls are great tourist attractions. With 4,880 km (3,030 miles) in length, the Paraná River is the second longest river in Latin America. Together with the cities of Foz do Iguaçu, in Brazil, and Ciudad del Este, in Paraguay, the Itaipu Reservoir and Hydropower Dam form a major tourist destination. The region is also distinguished by the immensely scenic adjacent Iguaçu waterfalls and the Atlantic forest national parks. Today, the Itaipu Tourist Complex (CTI) hosts many popular attractions, draws increasing numbers of domestic and international visitors, generates significant revenues, provides important local employment opportunities, and thus forms a major center of tourist economic activity shared by Brazil and Paraguay.

Itaipu was designed and built in the 1970s and 1980s as a strategic and sustainable large-scale hydropower station. At first, tourism had no important economic role to play. However, the number of visitors attracted by the site continued to grow year by year. In response to popular demand, the Itaipu Hydroelectric Plant started to offer guided tours early after its inception. Over the past 35 years, an estimated total of 16 million visitors

have come to see the operations of Itaipu from both Paraguay and Brazil.

In 2003, a comprehensive study was commissioned by Itaipu Binacional to explore opportunities for a more systematic and sustainable use of local tourism potentials. The Itaipu Tourism Complex (CTI) was subsequently established in 2007. Itaipu's Technological Park Foundation Brazil (ITPF) was selected as a partner for the management of the tourism services.

Itaipu established its tourism development program with a view to: (a) disseminate Itaipu's work and its social and environmental actions; (b) generate local employment and income opportunities; (c) increase the number of tourists in the region; (d) increase tourist stay time; (e) ensure economic sustainability of the operation; (f) foster cooperation with the local trade association and the community; (g) ensure participation and representation in tourism entities; and (h) promote innovation, excellence, and continuous improvement of services. Itaipu initiated tourism promotion also with the objective to generate revenues for other economic, social and environmental projects.

Since 2007, the Itaipu Tourism Complex and the managing Itaipu Technological Park Foundation (ITPF) provided a not-for-profit model for sustainable local tourism development. In the Brazilian side, ITPF recovers all tourism related investment and operational costs by way of charging visitor entrance fees and by collecting commissions from the selected on-site tourism business operators. A significant portion of Itaipu's revenues from tourism are then used to finance local development projects. In 2011, CTI Paraguay implemented a Pilot Management Program that attracted more visitors and allowed them to extend their visits for longer periods of time. It is important to note that the Itaipu touristic attractions in the Paraguayan side are free for the public. Although the objectives of the Paraguayan touristic program are the same as the ones of the Brazilian side, the program is managed and operated in a different manner, responding to the specific needs and realities of Paraguay.

Itaipu CTI has earned praise for its innovative sustainable approach. Between 2007 and 2016, the Itaipu Tourism Complex received some 5.42 million visitors, realizing aggregate tourism revenues of over US\$ 51.2 million. The ITP Technology Fund supports education, technology, innovation, culture and entrepreneurship projects of the ITP Foundation.

In 2016, the World Tourism Organization gave an award to Itaipu for its tourism program in the Innovation in Research and Technology category (UNWTO, 2015). In the same year, Itaipu CTI also received the Certificate of Excellence from Trip Advisor. This award recognizes those institutions of the tourism sector and hotel management that are rated highly for the quality of their services, according to their clients' evaluation. Itaipu CTI operations are also ISO:9001 certified.

In 2016, the Itaipu Tourism Complex provided direct employment for some 140 employees, and an estimated indirect employment of some additional 150 jobs (ITAIPU, PTI, 2019 b). However, tourism related services in the cities of Foz do Iguaçu (Brazil) and Ciudad del Este (Paraguay) have continued to grow, and more and more hospitality-related services are being provided. The establishment of a comprehensive tourism satellite account (TSA) may well determine a higher level of economic importance of tourism in the entire cross-border region.

At present, the Itaipu Tourism Complex offers a combination of tourist attractions, and several companies have been commissioned to provide on-site catering, tours, photography, souvenir sales, and other services. It also offers a variety of tour options, including the following:



Alexandre Marchetti

### 1. Panoramic Visit:

Tours are conducted in double-decker buses with stops at strategic points for best views and photo taking (e.g. the central observatory). Buses offer greater accessibility to people with special needs and facilitate photography and filming. Before the end of the tour, a documentary on Itaipu is shown at the Visitor Reception Center. The visit lasts approximately one and a half hours. The tours are available departing from both the Paraguayan and the Brazilian side.



### 2. Special Circuit:

Tours include visits to the interior of the dam and a bus tour around the site. In recent years, Itaipu also introduced electric buses to avoid pollution from on-site tourist transport. Prior to the trip, visitors watch a documentary film about Itaipu. Services are provided in different languages. The tours are available departing from both the Paraguayan and the Brazilian side.



### 3. Dam Lighting:

In the evening, the dam is lit by a complex set of reflectors and lamps. Visitors watch the spectacle from the central observatory. In recent years, musical performances and fireworks have been added to make the "Brighten Itaipu" show even more attractive. This attraction has access from both the Paraguayan and the Brazilian side.



### 4. Reduced Model of the ITAIPU Dam:

The 1:100 scale model of the ITAIPU Dam consists of a structure that replicates the Hydroelectric Power Plant, part of the Reservoir and foot of the dam, as well as part of the Paraná River course and its closest tributary rivers (Acaray, Yguazú and Monday).



## 5. Wild Animal Research Center:

The Wild Animal Research Center (ICSID) is a specialized unit that aims at maintaining representative groups of native animals, developing education and research on the management of wild animals in captivity and semi captivity. The center is also a touristic attraction that promotes recreation through the use of the natural resources found in the area and allowing the appreciation of the richness and diversity of wildlife on the Paraguayan margin of Itaipu.



Victor Azcona

## 6. Itaipu Promenade:

The first stage of the promenade is open and offers the public an outdoor space with several alternatives for recreation. It includes a bike path, road, playground and gym equipment, covered rest area of 500 square meters. Free Access.



Victor Azcona

## 7. Costanera Beach:

The first stage of the Costanera Beach is open and offers a space of 450 meters and 80 meters wide. The place has the basic amenities such as toilets, controlled parking, security service, nurses and lifeguards.



Alexandre Marchetti

## 8. Itaipu Tierra Guaraní Museum:

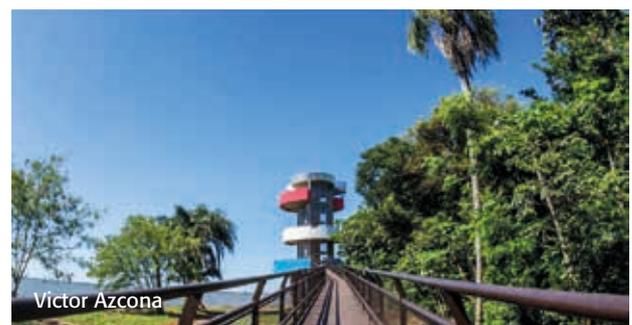
“A walk along the Paraná River through time and its nature” The Itaipu-Tierra Guaraní Museum demonstrates the interest of the Binational Itaipu in keeping alive the memory of regional culture, for present and future generations.



Victor Azcona

## 9. Tati Yupi Biological Sanctuary:

It is located in the Upper Paraná Ecoregion, 3 kilometers north of the city of Hernandarias. The place is ideal for spending a serene day with nature. It is an important touristic and research point, with several recreational activities such as bike rides, sulki, canopy and zip line.



Victor Azcona

A large number of additional tourism businesses have emerged in and around Itaipu. In 2007, Itaipu joined other local public and private sector partners to form the campaign: Foz do Iguaçu – The World’s Destination. In addition to Itaipu, Foz do Iguaçu City Hall, the City Board of Tourism, The Convention Bureau, Sindihotéis, ICMBio, Instituto Polo Iguaçu, and other entities representing the tourist trade joined this campaign. These tourism businesses and services provide for different activities and interest groups, and include the following visitor attractions and services:

1. Boat cruise on Itaipu lake:

Based at Kattamaram Port, a 35-meter long cruise boat with a covered deck and capacity for up to 200 passengers offers scheduled cruises along the Itaipu lake, during daytime as well as evening hours.



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2. Chauffeur-driven and self-driven vehicle rentals (including electric vehicles):

Vehicles may be rented for tours to view the Piracema Canal, the central and the spillway observatories, the dam site, and other attractions. Visitors are informed on Itaipu’s electric vehicle projects.



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3. Ecomuseum of Itaipu:

The Ecomuseum of Itaipu has permanent and temporary exhibitions. It depicts the history of the Itaipu dam, and the social and ecological history of the area through pictures, panels, historical pieces and interactive models. The museum also provides an outdoor recreational area. Visits are free of charge.



Rubens Fraulini

4. Casimiro Montenegro Filho Astronomy Hub :

is operated by the ITP and also part of the Itaipu Tourism Complex. This facility features a science center with a focus on astronomy-related activities for education, research and tourism. It has a planetarium, an observatory, and a teaching and conference facility. Between 2009 and 2016, the Astronomy Hub trained some 1,300 teachers and 72,000 students and was visited by 45,000 tourists



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## 5. Bela Vista Biological Sanctuary :

Is an animal protection unit created by Itaipu in the 1970s to provide a home for the animals displaced by the flooding of the reservoir. It is a center of fauna and flora research, including studies on the reproduction of wild animals in captivity and the production of forest species seedlings. At the sanctuary, visitors can walk along trails through the middle of lush forest, with a close-up look at animals like jaguars, tufted capuchins, and opossums, native to the region of the reservoir. Visitors can also see native forest species.



## 6. Lakeside beaches:

In the municipalities of Foz do Iguaçu, Santa Terezinha de Itaipu, São Miguel do Iguaçu, Itaipulândia, Missal, Marechal Cândido Rondon and Santa Helena, there are artificial beaches which are very popular in the summer. The Santa Helena tourism terminal is the largest of all, with 87 hectares of beaches, forests, docking areas, an expo pavilion, restaurants and camping areas. Kiosks for visitors are also added in the summer.



## 7. Hiking and fishing:

Itaipu Reservoir is surrounded by 17 municipalities. The Development Agency for the Tourist Region of the Iguaçu Waterfalls and the Itaipu Lake Routes (ADETUR) provides the public with information on hiking and fishing opportunities.



## 8. Parque das Aves (Bird park):

Created in 1994 by Dennis and Anna Croukamp, the Bird Park is a zoo specialized in birds. Visitors can see some 130 species of birds, as well as other animals, some of them at risk of extinction. Visitors can enter some of the aviaries. The Bird Park, besides catering to visitors, develops and supports a series of research projects aimed at the reproduction of species in captivity, as well as those in the wild.



## 9. Iguazu river boat safaris:

Macuco Safari is an adventure trip along the Iguazu River, taking tourists to within a few meters of the spectacular waterfalls. An electric jeep carries visitors along the Iguazu National Park to the river edge. Some part of the Atlantic forest can also be traversed on foot. Tourists can board speed boats to travel some 4 kilometers up-river to the waterfalls. Boats can carry up to 25 passengers.



The construction and sustainable operation of the Itaipu Hydropower Dam and the subsequent creation of the Itaipu Tourism Complex has had a great impact on the cross-border economic development of the region which is now also firmly placed on the global tourism destination map.

## Related Targets

The development of the Itaipu Tourism Complex (CTI) is directly linked to Target 8.3 related to sustainable tourism and Target 8.9, that promotes policies supporting productive activities, job creation and entrepreneurship. For the past several years, Itaipu already has implemented policies to promote sustainable tourism that create jobs and promote local culture and products. The tourism activities also promote safe and secure working environments for workers, which is the objective of Target 8.8.

The Itaipu Tourism Complex aims to promote education and culture, research and innovation, generation of employment and income, improved health and quality of life, environmental preservation, and the establishment of development partnerships and inter-institutional relations. Itaipu is fully committed to being not only a tourist attraction, but also an enterprise able to leverage the local economy, promoting sustainable development of tourism and the territory as well as environmental protection and regional integration. The tourism activities also promote cultural heritage, history and traditions of the native people of the region.

The Itaipu Tourism Complex aims to deliver excellent services and also to create and promote its own tourism

brand. It also strives to provide good working conditions for its management and staff, including good salaries, protection of labor rights, and a safe and protected work environment. The CTI strives for a high quality of life for all of its employees.

The ITP Foundation also serves as a business incubator by providing start-up support and counseling services to enhance innovation, local tourism product development and entrepreneurship. The sustained generation of tourism revenues and their use for local socio-economic development will provide an important contribution to enhance the integration of disadvantaged groups.

## Challenges

Over the years Itaipu has become an important tourist attraction. It has received and hosted many visitors, but the more comprehensive changes implemented in 2007 involved various challenges.

Changing the power generation business model to include tourism services required dedicated investments and posed some problems particularly in

areas involving safety and security. Power generation facilities and processes needed to be operated efficiently, while the safety of the growing numbers of visitors also needed to be guaranteed.

Seasonal fluctuations in visitor arrivals and tourism demand is another of the challenges typically faced by tourism service industries. Most visitors to Itaipu are from Brazil or Paraguay, and also from Argentina and other Latin American countries.

Another challenge is the implementation of a more integrated binational model for tourism activities that could support better coordination and the realization of synergies between Paraguay and Brazil efforts.

## Lessons learned

International cooperation and coordination between Brazil and Paraguay has greatly facilitated the development of the regional tourism economy. National and international visitors can cross borders easily to enjoy the many tourist attractions of the region. Itaipu's Tourism Complex and its outreach to local and regional development partners can provide a positive model for the implementation of similar projects and initiatives in other regions.

Successful development of a local tourism economy greatly benefits from coordinated and collaborative initiatives of local governments and public and private sectors. The quality of the tourism services and the continuous attention to all the attractions are important factors that need to be taken into consideration in order to ensure the growth of the tourism industry in the region surrounding Itaipu.

International tourism is an increasingly competitive service industry. Uniqueness of tourist attractions, protection of local environments, high quality of services, adequate infrastructure and accessibility, tourist safety and security, and competitive pricing are all important factors and essential preconditions for successful tourism development.

## Results

The Itaipu Tourism Complex has achieved important economic benefits. Since the adoption of its local tourism development program, the number of visitors has continuously increased.

According to recent Itaipu visitor statistics of 2018, the number to visitors has rapidly increased in recent years. In Paraguay, the number of visitors was close to 743,000 in 2018, and during the 2004-2019 periods more than 6.4 million people have visited the Itaipu Tourism Complex. This site represents the touristic destination with the largest number of visitants in Paraguay. The region surrounding Itaipu, including the Alto Paraná and Canindeyú, benefits directly from touristic activities including special events, touristic fairs and relevant expositions. More than 1 million people visited Foz do Iguaçu and the Itaipu Tourism Complex in 2018 (ITAIPU, 2018 d). With increased revenues from tourism, the contribution to the ITP Technology Fund has also increased steadily.



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**12.**

**STRENGTHENING AND  
DEVELOPMENT OF  
MICRO-ENTREPRENEURS**



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## Objective and Description

The objective of this activity is to attract, select and support micro-entrepreneurs in technical and financial areas. The project is a joint action between Itaipu and the Paraguayan Industrial Union, which is an organization with national coverage.

The project seeks to strengthen the entrepreneur's profile through general and specific knowledge about the components of Business Management Education. The action includes analysis of presentations of sustainable business plans prepared by participants. The presentations are subject to an important selection process performed via contest. The project is aimed at strengthening those entrepreneurs of small and medium enterprises who have an entrepreneurial culture that requires skills and maturation.

The selection process seeks to enhance, improve or expand ventures that are economically and socially viable and that have local and / or international scope.

The action promotes citizen development through the advancement of strategies that try to generate job opportunities and economic initiatives, which will strengthen the development of the entrepreneurial culture. The program includes the selection of 40 micro-entrepreneurs during two stages of a contest based on the sustainable business plans. The planned financing is close to US\$ 572,000, and the implementation time is 28 months. The program started in December 2018 and has national coverage.

## Related Targets

The action is directly linked to Target 8.3, mainly in terms of promoting the training and growth of micro- and small businesses. In addition, it is related to Targets 8.2 and 8.3 regarding the promotion of innovation in processes, services and products.

## Challenges

The initiative is very appealing to many entrepreneurs but planning and implementing the rigorous selection process has been a challenging task. The final selection of the winners has been challenging given the large number of outstanding proposals received during this first cycle.

## Lessons learned

The experience shows that this type of initiative generates tremendous motivation and interest inspiring creativity and innovation. The contest is a valuable mechanism that allows the strengthening of entrepreneurial skills and supports economic growth and sustainable development.

## Results

About 860 people participated in the workshops conducted to describe and explain the characteristics of the project in 2018 and 2019. Some 480 entrepreneurs entered their business plans in the contest. Subsequently, 25 projects were chosen, and 20 micro-enterprises finally won the contest. The program is monitored through the corresponding project work plan.



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# Our actions in the SDGs

Our approach - Integrated actions in the territory

The interlinkages between sustainable economic growth and employment related activities (SDG 8) and other SDGs are vast. The strongest interlinkage relates to energy (SDG 7) and water (SDG 6), since energy and water related activities generate very valuable economic growth and a lot of employment for the region and for Paraguay and Brazil. Itaipu also has a strong record of continued commitment through economic initiatives to end poverty in all its forms everywhere (SDG1). This is evident by all the activities that are being conducted by Itaipu and that are directly designed to support people and communities with lower incomes and affected by poverty. By helping low income communities in some social job generation programs, such as the Solid Waste Management, Itaipu establishes good results related to the SDG3, by decreasing the risks of Dengue Fever outbreaks as a result of eliminating the garbage related mosquito habitats. The activities related to SDG 8 also promote quality education (SDG4), through programs that promote technologies and innovation and by the extensive program of scholarships and partnerships with academic institutions. As a large bi-national corporation, Itaipu continues to play a key role in the Global Partnership for the Sustainable Development Goals (SDG17) through economic related partnerships at all levels. The partnerships at the community and local levels are particularly important for their role promoting regional economic growth that brings prosperity and sustainable development.





Alexandre Marchetti

Itaipu is a major source of prosperity and an important economic force supporting sustainable development throughout the tri-national border area of Southern Brazil, Paraguay, and Northern Argentina. Itaipu is the largest world generator of renewable energy in the form of hydroelectric power. In 2018, Itaipu supplied 15% of electricity needs of Brazil, and 90% of electricity needs of Paraguay. Itaipu has been operating continuously with high productivity and exceptional reliability for 35 years. For decades to come, Itaipu will most likely remain the main economic engine of the local and regional economy.

Itaipu has made outstanding contributions to achieving SDG 8, Decent Work and Economic Growth, in the entire region. Itaipu continues to make a very significant contribution to local and regional employment, not only at the Hydropower Plant itself, but also in the many associated departments, research institutes, and companies. Itaipu's indirect impact on employment generation in the region cannot be overestimated. Itaipu has shown its innovation efforts and it has lent its

support to the successful development of tourism in the region, and stands as a beacon for social, economic, environmental, educational, and cultural engagement which goes far beyond its core business mandate of power generation. The Entity has shown great vision and considerable financial support in its active efforts in the engagement of the local poor, and the physically, socially and economically disadvantaged groups. This way, its work has brought about significant advancements to all of the SDGs and to the implementation of the UN 2030 Agenda for Sustainable Development.

# INFOGRAPHIC

## SDG8 ECONOMIC GROWTH AND EMPLOYEMENT

### SUSTAINABLE RURAL DEVELOPMENT

**2,500**  
Families benefiting from the sustainable agriculture

**ITAIPU TECHNOLOGICAL PARK**  
More than **2,000 active people** as researchers, students and professors

### TECHNOLOGY UPGRADING

**US\$ 660 million**  
investment for hydropower plant upgrades

### ENERGY, WATER AND SUSTAINABLE AGRICULTURE

**FISHERY AND AQUACULTURE**  
**700** fishermen and families with improved jobs and well being

**ITAIPU EMPLOYMENT**  
More than **3,000 people** directly employed by Itaipu



### SUSTAINABLE INDUSTRIES

**TOURISM**  
In **2018**, more than **1.7 million** visit the Itaipu Tourism Complex in Brazil and Paraguay  
Over **US\$ 50 million** in total aggregate tourism revenues from 2007 to 2016

**LABOR PRACTICES AND HUMAN RIGHTS**  
Itaipu committed to the **10 Universal Principles of the United Nations Global Compact**

**SOLID WASTE MANAGEMENT**  
**More than 1,200** trained in solid waste management Center for technical training on solid waste management created in Santa Terezinha de Itaipu.  
**More than 1,200** technical visits for training purposes on solid waste management to Santa Terezinha de Itaipu.

**MICRO ENTREPRENEURS**  
**860 people** participated in the workshops in 2018-2019  
**20 micro-enterprises** won contest for 2018-2019 period

**PROGRAM ATELIER CITIZENS**  
**400 to 800** participants annually since 2010

**PROGRAM FOR INITIATION AND INCENTIVE TO WORK**  
More than **6,000 adolescents** have benefitted from the program

**WORKPLACE SAFETY MANAGEMENT SYSTEM**  
Over **8,000** of training hours provided to employees



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# 8

DECENT WORK AND  
ECONOMIC GROWTH

