

AMAZON FISH FOR FOOD

2015-2018

Improving Food Security
in Bolivia



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Community members of Lago el Carmen and 27 de Mayo going to Flor de Octubre port (TIOC TIM II)





The Amazon Fish for Food (Peces para la Vida II - PPVII) Project's objective is to improve the contribution of fish to food security and poverty alleviation, particularly for women, children, and indigenous families in the Bolivian Amazon.

The Project is the first roundtable (platform) dedicated to the fisheries and fish culture sectors of Bolivia. It has provided technical and social information, generated interactive spaces for knowledge exchange, facilitated access to financial services, and strengthened productive value chains of fisheries and fish culture, primarily for the benefit of small-scale family enterprises.

PPVII is being implemented by six Bolivian and Canadian institutions:

The World Fisheries Trust (WFT, Canada), the University of Victoria (UVIC, Canada), the Centre for Promotion of Peasant Agriculture (CEPAC, Bolivia), Institute for Applied Research on Aquatic Resources (FAUNAGUA, Bolivia), Market Engineering Consulting (IMG, Bolivia), and Financial Institute for Development (CIDRE, Bolivia).



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AMAZON FISH FOR FOOD

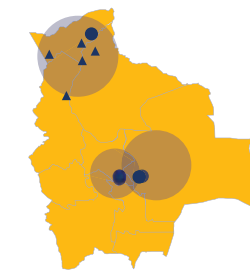
PECES PARA LA VIDA II

2015-2018

Amazon Fish for Food has been working to improve the emerging fisheries and fish culture sectors, contributing to food security and poverty alleviation, particularly for women and indigenous populations in Bolivia.

This second phase of the Project (PPVII) is scaling up the most promising solutions identified during the first phase of the project (from 2011 to 2014). It has focused on small-scale, family-based fish culture with female leadership in the sub-Andean zone of Bolivia (Departments of Cochabamba and Santa Cruz) and on the fishery of an introduced species, the paiche (*Arapaima gigas*), in the northern reaches of the Bolivian Amazon (Departments of Pando and Beni).

PPV II Core Area of Intervention



Area of indirect impact

Area of direct impact

Beni and Pando: Municipality of Riberalta, five Indigenous Territories (TIOCs) and one Protected Area (RNVS Manuripi)
 Santa Cruz: Municipalities of Yapacani and San Carlos
 Cochabamba: Municipalities of Puerto Villarroel and Entre Ríos

Ingrid Flores serving fish soup in her restaurant "El Buen Gusto del Pescado Amazónico" (Riberalta)

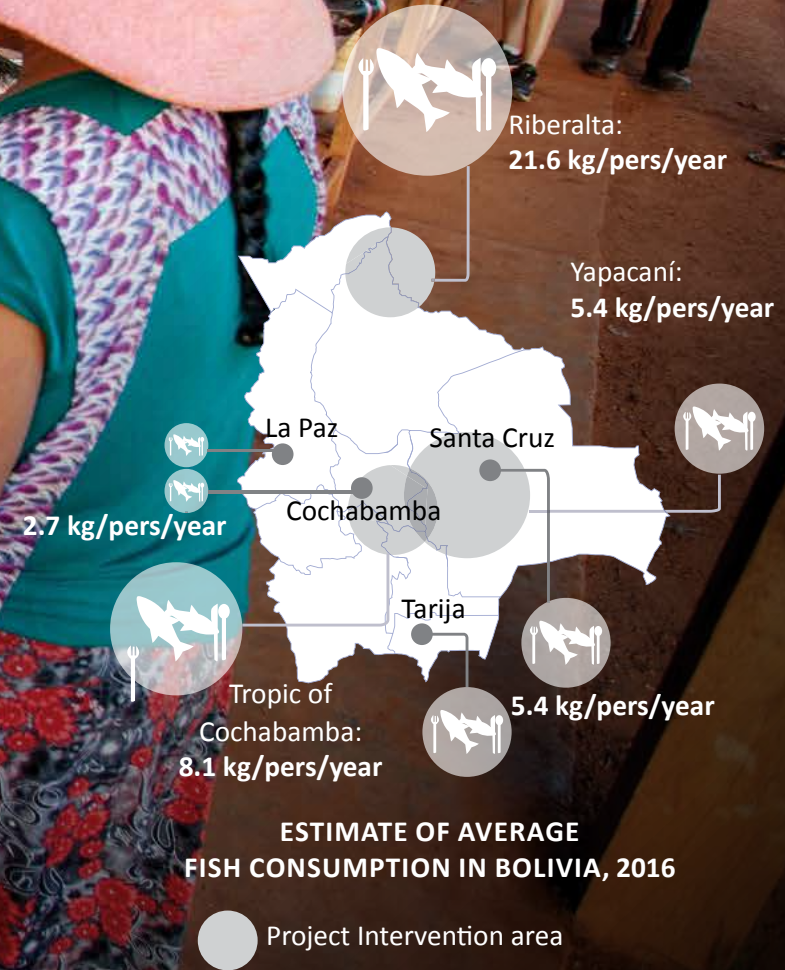




Abasto Market (Riberalta)

Recommendation by the
World Health Organization
12 kg/pers/year

Average
consumption in
South America
10 kg/p/year



IMPROVING FOOD SECURITY IN BOLIVIA

Fish is a highly nutritious food in the Bolivian diet, but its average national consumption is far below international recommendations (12 kg/person/year). At the same time, for many low income rural indigenous people, in areas with limited health and basic services, local fish may be the only source of animal protein.

Through its diverse activities, Amazon Fish for Food (PPVII) has endeavoured to contribute to food security in Bolivia, through improved income for fish producers and improved access, sales and consumption of high quality fish by the Bolivian consumer – all supported by improved public policies and gender equality.



Child of the TIOC Cavineño

More than 50% of households in the northern Bolivian Amazon are food insecure. The fisheries and fish farming sectors offer great potential to improve their food security and the quality of life of those involved in the fisheries and fish culture value chains.

Fish farmers harvesting fish in Puerto Villarroel, Ivirgarzama Municipality

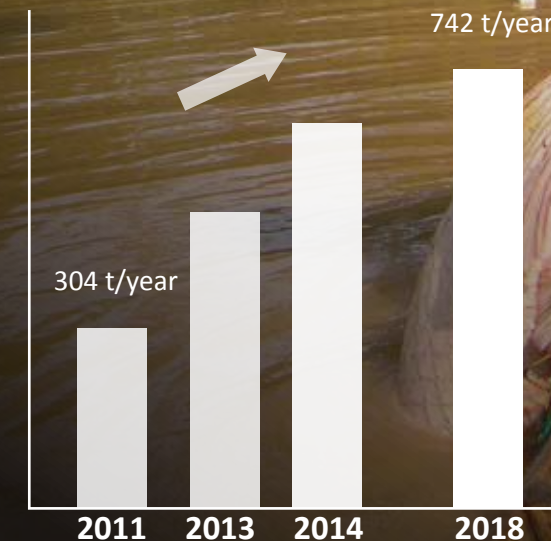
Paiche fishery in the northern Amazon of Bolivia

DEVELOPMENT OF FISH PRODUCTION AND FISHERIES

PPVII helped augment technical, organizational, and social capacities, including increased gender equality, and access to credit. This has helped double the number of families involved in fish culture.

The diversification of livelihoods and improved fish handling and processing protocols has increased income the income of fishing and fish farming families.

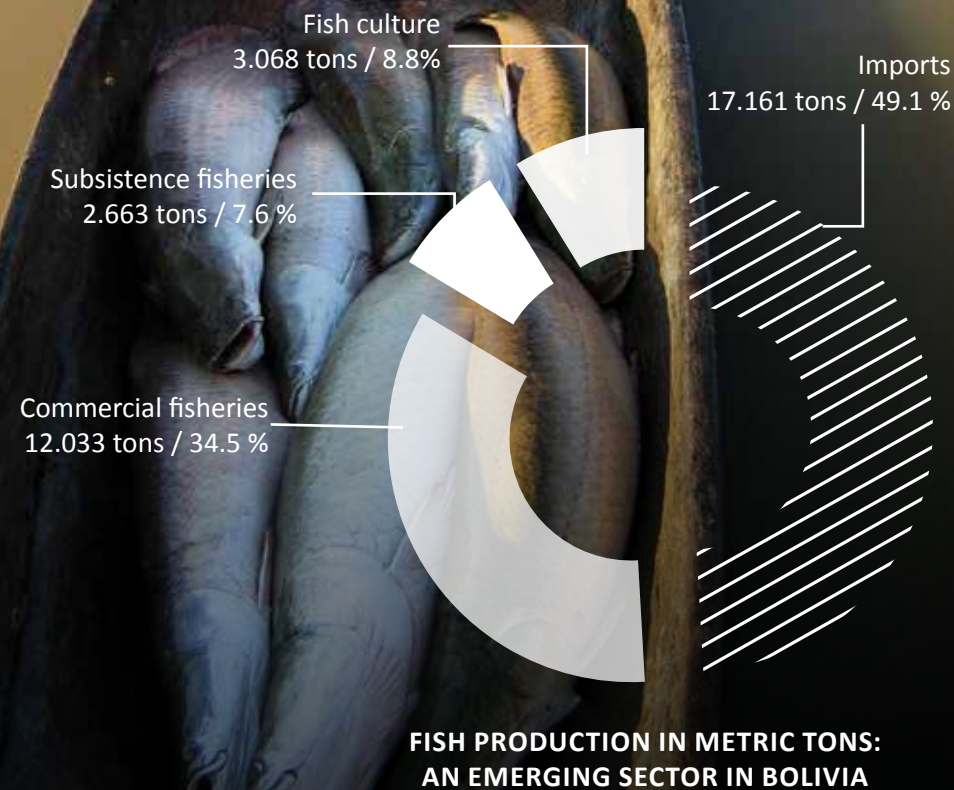
Participative processes, peer-peer learning, technical innovations, diversification of products, access to new markets, shared experiences, and contributions to public policies have been key to the success of the process and to a sustainable production of fish. The role of Canadian partners has been key in facilitating many of these aspects.



ANNUAL LANDINGS OF PAICHE
(commercial / urban fisheries
and indigenous / rural fisheries)



Wilfredo Chipunavi,
paiche fisherman (Beni)



BUILDING THE FISHERIES AND FISH CULTURE SECTORS

PPVII has recognized and valued local knowledge as a key contribution to social development.

The methodological focus is based on shared management and participation, horizontal peer-peer exchanges, partnerships, and the promotion of knowledge networks between Bolivian, Canadian and Brazilian men and women.

This has strengthened both sectors, utilizing innovative solutions to resolve key bottlenecks in the fish value chains and productive complexes, resulting in increased productivity, income, and food security.

Felicia Mamani and Juan Carrillo,
Fish farmers in the Municipality of Yapacani

DIAGNOSTICS



Value chain and
consumption levels

IMPROVED
MARKETING
OF FISH



Fisheries
in lagoons and rivers

IMPROVED
FISHERIES AND
RESOURCE
MANAGEMENT



Baseline of
the fisheries sector

IMPROVED
FISH CULTURE
PROTOCOLS

ORGANIZATIONAL STRENGTHENING

POLICY CONTRIBUTIONS (POLICIES, LAWS, REGULATIONS)

Modelling and mapping
risks and potential of
aquaculture and fisheries

STRATEGIC
PLANNING



Yaneth Lopez interviewing Paulina Lopez and Romelio Zelaya in the Municipality of Yapacani (baseline study on the state of fish culture and evaluation of economic viability)



Raul Lopez, Victoria Zelaya and Giovani Crespo measuring fish in their fish ponds (Puerto Chore, Yapacani).

GOOD SCIENCE BEHIND THE INTERVENTIONS

The success of sustainable development depends on the timely application of the best available and appropriate knowledge. Solid technical and social research have been a cornerstone of both phases of the Project. It has always been important to make decisions based on good science - from the biology and distribution of the paiche and the characterization of livelihoods and gender studies, to the surveys on markets and consumers.

Our research results have contributed to the participative development of a national fisheries and aquaculture law, pertinent sectorial policies, fisheries management plans, and improved fish culture protocols.

In addition, communication with and participation of key actors have been of great value in ensuring that research results contribute to people's and project objectives.



Fishermen of the indigenous community of Trindacito (Mentiroso Lake, northern Bolivian Amazon)

ACADEMIC ACHIEVEMENTS OF PPVII

SELECT PUBLICATIONS:

BASES TÉCNICAS PARA EL MANEJO Y APROVECHAMIENTO DEL PAICHE (*Arapaima gigas*) EN LA CUENCA AMAZÓNICA BOLIVIANA
Carvajal-Vallejos F.M., Salas R., Navia J., Carolsfeld J., Van Damme P.A.
Ed(s): INIAF-IDRC-Editorial INIA, Bolivia, 2017, 508 p.

GENDER TRANSFORMATIVE APPROACHES WITH SOCIALLY AND ENVIRONMENTALLY VULNERABLE GROUPS.
INDIGENOUS FISHERS OF THE BOLIVIAN AMAZON
Macnaughton A. E., Rainville T. K., Coca Méndez C. I., Ward E. M., Wojciechowski J. M., Carolsfeld J.
in Transforming Gender and Food Security in the Global South
Ed(s): Jemimah Njuki, John R. Parkins, and Amy Kaler Publisher: Routledge, IDRC, 2016, 312 p.

SMALL-SCALE AQUACULTURE IN THE BOLIVIAN AMAZON:
A CONTEXTUALLY-BASED SOLUTION FOR POSITIVE SOCIAL AND ECONOMIC OUTCOMES
Rainville T. K., Irwin S., Hinojosa V., Castellón C., Abastoflor W. in Sustainable Food Futures - Multidisciplinary Solutions.
Edited by Jessica Duncan, Megan Bailey. Routledge, 2017, 238 pages

THESES:

WELLBEING DYNAMICS AND THE CONTRIBUTION OF SMALL-SCALE FISHERIES - *Alison Macnaughton (PhD, UVIC)*
THE IMPACT OF CREDIT IN SMALL-SCALE FAMILY-BASED FISH CULTURE - *Ahmed Eid (Masters, UVIC)*
THE ROLE OF SMALL SCALE FAMILY-BASED FISH CULTURE IN FOOD SECURITY - *Sean Irwin (PhD, UVIC)*
GENETICS AND FISHERIES MANAGEMENT MODELS OF PAICHE - *Fernando Carvajal-Vallejos (Post-doc, WFT)*
ESTIMATION OF THE POTENTIAL FOR SUSTAINABLE FISHERY OF *Arapaima gigas* IN FOUR INDIGENOUS TERRITORIES OF THE DEPARTMENT OF BENI, BOLIVIA - *Sergio Villafán (Masters, FCyT / UMSS)*

DIVERSIFICATION AND VALUE-ADDED

PPVII has contributed to commercial diversification through more than 15 new fish-based value-added products, identifying new, accessible and equitable income opportunities. Supportive partnerships have been key to this success.

“Cooking for Social Change” supports female-led introduction of novel value-added, high quality culinary products to the market. It utilizes cooking as an entry point to address deeper issues and priorities with approaches that emphasize improved opportunities for women.

Fish leather production (using previously discarded fish skin) has resulted in improved handling and processing protocols, and reduced the environmental impact of rotting skins along the shorelines of lagoons. As of early 2018, 1240 kg of paiche skin have been collected and 1200 square feet of quality leather have been sold on the Bolivian market, benefitting 90 fishermen and women.

Access to credit and innovative financial products has been improved to support these initiatives.

Lidia Canamari, Degni Yarari, Hilda Aparicio and Modesta Sevilla of the ARAPAIMA association receiving training in the preparation of novel fish products



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©FAUNAGUA

Processing plant member of APIAT (Association of Amazonian Indigenous Fishers of Trinidacito)



©Bartay / IDRC

Ever “Chichi” Endara building boats for indigenous fishers



©J.M. Ledezma

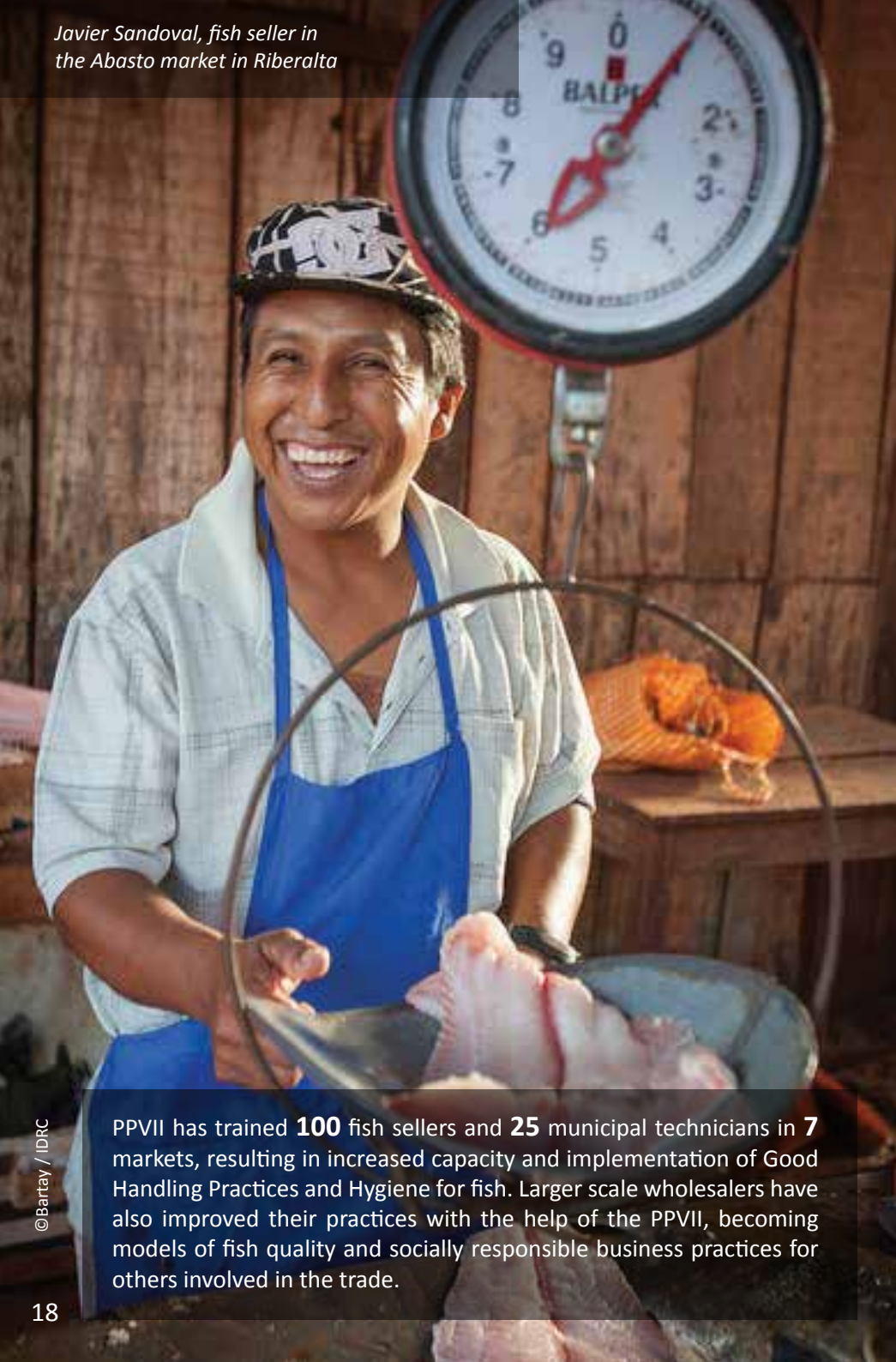
Artisanal products made of paiche fish leather (Curupaú, a family enterprise of Lincon Zapata)



©Bartay / IDRC

Artisanal fish leather products (Curupaú)

Javier Sandoval, fish seller in the Abasto market in Riberalta



PPVII has trained **100** fish sellers and **25** municipal technicians in **7** markets, resulting in increased capacity and implementation of Good Handling Practices and Hygiene for fish. Larger scale wholesalers have also improved their practices with the help of the PPII, becoming models of fish quality and socially responsible business practices for others involved in the trade.

PROMOTING GOOD PRACTICES

Quality is a deciding factor in a Bolivian consumer's decision to purchase and consume fish, as determined by PPII market surveys. Improving handling practices also reduces losses from fish waste, thus increasing the effective income of fish sellers. PPII has collaborated with SENASAG, the national agency responsible for food safety, to develop regulations and manuals on the Best Practices of Hygiene and Handling of Fish. This material will be used in their training courses for years to come.

Victoria Zelaya, fish farmer, demonstrating the quality of her fish



The implementation of best practices can be a challenge when infrastructure and services (such as the availability of clean water) are inadequate. PPII has emphasised the adoption of practical and easily implemented protocols at a fish seller level, while also lobbying for improved market conditions at municipal and national levels.

PPII's participative Economic Viability Assessment tool for social change has improved adoption of best practices by demonstrating their economic benefits in a fashion that makes sense to the sellers.

Chef Vicente Cuevas teaching about cooking with fish



Fairs and promotional events for fish consumption



FOR THE CONSUMER

Generally, the Bolivian consumer has reservations about the safety of fish products. To address this, PPII has focused on improving marketing through better knowledge and appreciation of the paiche fish, utilizing television and social media, meetings and visits between sellers and buyers, culinary innovations, and promotion of the nutritional benefits of fish. As a result, the demand for fish has increased significantly.

Kadyr Peralta Saavedra receiving clients in the CIDRE IDF agency in Riberalta



31 %

Fisheries and related activities



1.5 %

Production, handling and storage of fish products



7 %

Sale of fish products



60.5 %

Fish ponds and fish culture facilities



USE OF LOANS

For a total of 318 loans (US\$ 1,926,272)
(percentage of total loans)

FACILITATING ACCESS TO FINANCIAL SERVICES

The PPVII, through CIDRE IFD and a combination of public trust funds, has applied financial resources to the scaling up of production and harvesting of fish. Several innovative financial instruments were developed for this emerging market, especially for women and indigenous groups.

Between 2015 and 2017, more than US\$ 1,900,000 were loaned out, supporting primarily vulnerable groups and family enterprises. The average loan to small enterprises was \$US 6,000, while that for indigenous clients of the Bolivian Amazon was \$US 1,500.

Ana Aguilera, fish farmer and owner of the “El Palacio del Tambaqui” restaurant (Yapacani)



17 %

Female only clients obtaining credit for fish culture and fisheries

72 %

Women co-signing loans with their husbands

Family from the Takana-Cabineno indigenous territory



166

Loan operations in the fisheries and fish culture value chains in the Riberalta agency

150

Clients from the “Indigenous and Original Peasants” territories (TIOC) involved in fisheries

CREATING A FAVOURABLE ENVIRONMENT

The adoption and scaling-up of innovations and new practices are possible to the extent that the context and environmental conditions are favourable. For this, PPVII has used a two-way approach: from above and from below. Significant contributions have been made in strengthening organizations and strategic planning for the development of the sector at the local, regional and national levels.

The enactment of the Law (Nº 938) on Sustainable Fisheries and Aquaculture has been important to regulate and plan the fishing and fish farming activities in Bolivia. The norms regulate the use of paiche for environmental control purposes in indigenous territories and protected areas and considers the importation of non-native species for fish culture.



Fishermen (port of Riberalta)



PARTNERSHIPS WITHIN THE PPVII

10 Partner Institutions
32 Collaborators
7 Representatives of countries
1 300 People trained
403 Fishing families
1030 Fish farming families
25 Organizations strengthened
22 Fishing communities
4 Indigenous territories
Bolivia hosting **3** international conferences

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BUILDING PARTNERSHIPS

Diverse and vibrant partnerships have been key to the successes of PPV. This diversity has improved the project reach and impact, including collaborative contributions from partners in Bolivia, Brazil, Chile, Peru, Argentina, USA, and Canada. Of particular significance were the practical south-south involvements from Brazil and Argentina, organized by the Canadian partners.

At the local level, the creation of multi-stakeholder platforms (roundtables) in Cochabamba Department, and the support of the FEUPECOPINAB (Federation of Fishers, Sellers and Fish farmers of the northern Bolivian Amazon), has improved the capacity for leadership, management, and communication for the sector, through participative and inclusive processes.



RECOGNIZING AND STRENGTHENING THE ROLE OF WOMEN

The role of women tends to be under-estimated and poorly recognized in productive activities like fisheries and fish culture. Based on the initial level of gender equity, PPVII planned its interventions for change in:

- (i) Improving **equitable access** and control of resources,
- (ii) Supporting the participation of **women in decision-making** positions within their social organizations and activities,
- (iii) Supporting greater **rights for women** with improved power at organizational and policy intervention levels.



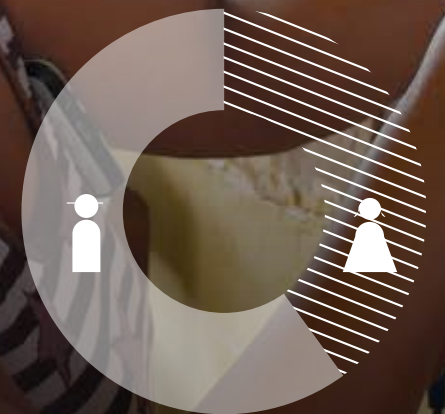
(i) Equity in access
Recognition of 341 out of 1030 **(33%)** women as owners of productive enterprises
972 people **(56% women)** and 77 Technical Assistants **(45% women)** trained




(ii) Participation in decision making
Women on the board of associations increased by **28%**



(iii) Exercising their rights
53% of the participants were women in the three leadership meetings for economic rights



40% of the board of fisheries and fish culture associations are women



“Among the things that motivate women in fish culture is the promotion of family union and participation. The whole family participates in feeding and harvesting. The availability of fish to eat also helps a great deal, especially when the rest of the family comes to share fish together”
Demetria Fuentes – fish farmer (AMPAAB/San Carlos)

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