Science and Innovation in North Patagonia Argentina

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***Abstract*- This paper shows preliminary results from a study of the Scientific-Technological System (CTS) located in Río Negro y Neuquén at north of Patagonia, in Argentine. Actual report includes first step of the analysis over Río Negro, particularly Bariloche´s region.**

In broad outlines our aim consists in building a characterization of local CTS, identifying the organizations it includes (those belonging to the state, publics ones and private enterprises), their innovative activities and networks with local and regional productive structure.

Main questions aimed to answer are:
¿What significant institutions and organizations can be found as a part of SCT in those State's territory?
¿What kind of innovative activity they perform?
¿How can be those activities related to other regional and local organizations as enterprises, government, No Profit Organizations (NPO) and other possible constituents of the CTS)?

In our work we applied different techniques:
- **Interviews with key scientific, policy makers and managers**
- **Financial information from organization's accountability**
- **Series from Science, Technology and Innovation Ministries from federal and states governments**
- **Journalistic information from "Río Negro" newspaper files.**

Conceptual framework includes the following ideas and categories:
- **Innovation Systems (IS), which names different institutions and interaction between them and determines innovative performance of firms, universities, government, educational institution and social organizations).**
- **"Regional Innovative Systems (RIS)", shaped by Strengths and Weaknesses of local business webs and technological supplies/demands (the explicit and implicit ones)**
- **"Milieu" conceived as "innovative territorial neighborhood" taken from works of GREMI (Group for European Research on Innovative Environments)**
- **"Human Development Technology (HDT)". This approach drives relationship between Science, Technology and Society to special objectives: life quality, basic essentials, and broader opportunities to access to commodities and services plus fair deal distribution of wealth.**
- **"Social innovation". An invention traditionally defines as a creative and insight process to solve troubles. Complementary, innovation reshapes inventions and transforms them in products and services with some utility. Consequently, one can distinguish two steps in technological development, which are qualitatively different: invention first and development as commodity afterwards.**

There is a less conventional approach which conceives innovations as changes in social practices. Along those practices, social actors create, perform, decode and owner technologies.

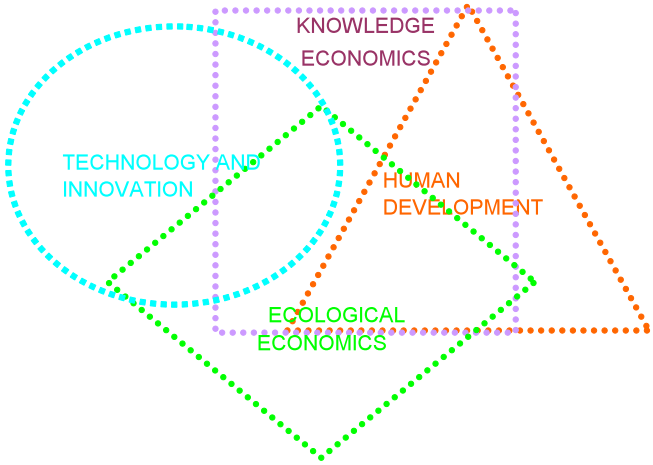
Preliminary findings show a diversified institutional and organizational structure at Bariloche, that concentrates significant investment in Scientific and Technological Activities (STA) over territory under study. Although we also found warning signals: concentration in a few productive sectors and organizations, not enough links with micro, smalls and medium enterprises and lack of connection with regional economy.

Institutional web appears with features of duality, in the sense that includes exports of products and processes with scientific value added, as nuclear power stations, and also straightforward techniques with high social impact.

I. INTRODUCTION

The analysis of SCT settled in north of Patagonia (Argentina) rests in a conceptual framework with ideas belonging to four fields: Human and Sustainable Development, Innovation and Technology, Knowledge Society and Ecological Economics, as can be seen in the following diagram.

We are particularly interested in organize and distinguish economic, social, environmental and institutional aspects of scientific and technical processes. Innovations have different sources and aims: human development, social experiences or environmental protection.



II. HUMAN DEVELOPMENT INNOVATIONS EXPRESS SCIENCE – TECHNOLOGY -SOCIETY RELATIÓNSHIP

The line of thinking known as Science – Technology – Society (STS) arise as a kind of academic reaction to the traditional idea of Technology and its three ways of interpretation: the "intellectualist" one, pointing applied science as fundamental feature, the instrumental approach resting in tools and machines, and the autonomous version embedded of its own logic of efficacy. Its conventional lineal statement that begins with **SCIENTIFIC PROGRES** crosses → **THE TECHNOLOGICAL PERFORMANCE** and ended in → **ECONOMIC AND SOCIAL DEVELOPMENT** was replaced for a mutual influencing relationship between Technology and Society. Technology co - evolves and is embedded in Society.

As a parallelism, "human development" concept appeared renewing the issue now inside a *constructivist, subjective and inter-subjective, normative and endogenous* framework**.** The change **i**mplies an evolution in the direction of a future conceived with human as a biological but also a spiritual being. The concretion of this depends on collective auto confidence in mobilize existing resources and create new ones, working from the own territory in cooperation and solidarity[1] [2].

From this view Human Development Technology (HDT) matches with CTS relationship, driving it to a long term target: increasing quality of life, more satisfaction and broad opportunities of getting material and no – material wealth going beyond nowadays inequality.

Lundvall´s Innovation System provides "the elements and relationships interplaying in production, spreading and application of new and economically useful knowledge "[3]. The HD vision conceives each component of the system with a particular role to play and also certain relationships to article.

Innovation is the key stone to face fundamental constrains and unbalances at regions and cities: potential and useless resources, traditional production's falling of competitiveness. New commodities, processes and tools have to be tried and own human skills and knowledge revalued. Besides, government private enterprises and each kind of organization have to guide its objectives to build a whole innovation's context.

The so called "regional innovation systems" refers fundamentally to creation of integrated systems based on localizations plenty of human and technological resources.

III. INNOVATION AS SOCIAL PRACTICE

Nowadays innovation is perceived not only as an economic process, but as a social phenomenon influenced by a multiplicity of connections between social actors. In this sense, is possible to make a difference between innovation and invention[4].

A certain kind of orthodox thinking deal with invention as an insight, hardworking and creative process oriented to solve a trouble. The possible consequent innovation is seen as this new idea's recreation and transformation in useful objects. From this sort of classical view a subject, an object and a creative instance can be easily distinguished. Technological development includes two qualitatively different phases: invention and its consequent development as a product.

From a very different point of view "new" technologies are decoded and owned by actors in their practice's context in an active way.

Therefore innovation means a change in social practices and emerges only when "the way of doing things" really changes. As a consequence, policy makers, promotional activities, even generation and diffusion of technologies, play minor roles. They can detect necessities and problems and they may even contribute to find solutions, but users are who truly decide and applied. Sensitive useful of technology is rooted in social practice, and is based on "collective common sense". Sensitive use of technology is inherently a social phenomenon related to social practices[5].

III. NEUQUÉN AND RÍO NEGRO: SCIENCE AND TECHNOLOGY MAP

Down in the map of States of Río Negro and Neuquén, can be localized those cities or geographic places that concentrates Scientific and Technical Institutions (STI). The expression STI is applied in a broad sense, including universities (Comahue National and National Technological), public and privates organizations.

These "nodes" are Zapala, Cutral Có – Plaza Huincul, San Martín de los Andes, Neuquén, Bariloche - Pilcaniyeu, the so called high valley from Río Negro to Cinco Saltos - Villa Regina, Choele Choel, San Antonio Oeste and Viedma. The map is not a complete one, because it doesn't cover the totality of science and technology's institutional expressions. We had selected a brunch taken into account "significant" formal organizations considering output of innovations generated.

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PROVINCIA DE MENDOZA
PROVINCIA DE LA PAMPA
PROVINCIA DEL NEUQUÉN
PROVINCIA DE BUENOS AIRES
CORDILLERA DE LOS ANDES
Chos Malal
El Huecú
Loncopué
Las Lajas
Zapala
Aluminé
Las Coloradas
Junín de los Andes
San Martín de los Andes
Piedra del Aguila
Picún Leufú
Añelo
NEUQUÉN
Cipolletti
Cinco Saltos
Grl. Roca
Villa Regina
Chichinales
Catriel
25 de Mayo
Puelches
Cuchillo Co
Grl. Acha
Guatraché
Bernasconi
Macachín
Limay Mahuida
Río Colorado
La Adela
Choele Choel
Darwin
Lamarque
Pomona
Grl. Conesa
Guardia Mitre
Carmen de Patagones
VIEDMA
San Antonio Oeste
Valcheta
Sierra Colorada
Los Menucos
Maquinchao
Igr. Jacobacci
Pilcaniyeu
Comallo
San Carlos de Bariloche
Villa La Angostura
Ñorquinco
El Bolsón
El Cuy
Sierra Grande
Golfo San Matías
MAR ARGENTINO
OCÉANO
Río Limay
Río Neuquén
Río Negro
Río Colorado

In the atlantics region are two cities: Viedma (capital of Rio Negro State) and San Antonio Oeste. In this node outstand as scientific institutions: "Comahue National University" (UNC), the "Lower Valley Agency" of "Farming Technologic National Institute" (INTA), "Medicinal Drugs Center Production and Laboratory" (PROZOME) managed by Río Negro State Public Health Ministry, "ALTEC" (an informatics firm, property of the state government) and "TECNOACCIÓN" (a private enterprise). The Marine Biology Institute "Almirante Storni" (IBM) placed in San Antonio Oeste works as advisor of the "Horizontal Cooperation between Developing Countries Fund" (CDCF) from the "Americans States Organization" (OEA), owns the first Laboratory and Oyster Bed in Argentina, an important Sea Resources Laboratory also and becomes a leader organization in planning and evaluation of Fishing Resources.

In San Carlos de Bariloche a very important technological area had consolidated. We refer to it as Bariloche Technological Development Area (ADTB). Five different spaces can be distinguished inside this "technologically geographic center", according historic, institutional and also technological criteria.

- "Bariloche Atomic Center" (CAB) – "Balseiro Physics Institute" (IB) – "Applied Researching" (INVAP) – Bariloche Non Profit Association (FB)
- "High Technology" (ALTEC) and TECNOACCIÓN enterprises
- Bariloche Electric Energy Cooperative (CEB) – Web Bariloche (BER) TELECOM – Health Services (SEAS) – "Angostura Via Cable Television" (AVC)
- "Farming Technologic National Institute" (INTA) Bariloche Agency
- "Comahue National University" (UNCOMA)

III-1. CAB – IB – INVAP - FB

BARILOCHE ATÓMIC CENTER – BALSEIRO INSTITUTE

In the beginnings of 1950 a physicist called Ronald Richter, who was President Peron's government advisor in nuclear issues, pointed out that the Aeronautical Institute's settings, workshops and equipment, placed in Córdoba, were not isolated and secure enough to going on Argentinean nuclear energy research activities, programs and tests.

As a consequence, federal government created the "National Atomic Energy Commission" (CNEA) and installed an important set of laboratories at the "Huemul" Island on Nahuel Huapi Lake at Bariloche, a beautiful mountain city near the Andes. But two years after that a group of prestigious scientific produced a report concluding that those activities were not still scientifically worthy. CNEA concludes that project, though the laboratories remained in that southern place, near Andes Mountains Range.

Huemul´s experience showed that Argentina was in great lack of physicists. In April 1955 government created there two scientific institutions: "Bariloche Atomic Center" (CAB) and "Balseiro Physics Institute" (IB) both managed by CNEA and Cuyo University (Mendoza). The second one has a school objective: teach and train students in physics: Argentina had begun its experience in nuclear physics and national technology generation to produce nuclear reactors.

CAB and IB activities are driven by general atomic policy instrumented by CNEA. We summed them up as following:

NUCLEAR TECHNOLOGY

Generation of new reactors for research and energy
Nuclear fuel and its cycle for reactor's feed
Alternatives for radioactive waste final disposition
Medical use of radioactive material (radioisotopes) in diagnosis and therapy

NEW ACTIVITIES

New materials

Special alloys
Materials Design with specific properties: metals, glasses, ceramics, magnetic materials and superconductors
Surfaces

New energy sources

New energy's generation, transform and store methods. Hydrogen

Complex Systems

Numerical Simulation
Local and far processes control and instruments
Mecatronics

Technological Support to Argentinean Nuclear System

Technologic catching up and nuclear life's extension
Technical and economic optimization of fuel's cycle
Researching reactors optimization
Technology transfer to use in new researching reactors
Radioactivity uses in industry, environment and research

Between 1962 and 1971 research equips consolidated. Activities increased and CAB - IB and prestige grown as a consequence of quality in products, services and foreign performance of graduates from IB. In 1972 one of those engineers took the initiative and began an Applied Research Program; an important innovation in scientific policy of CAB-IB. Program aims to deal with practical issues to help not only CNEA but all Argentinean industry. These work increased and a new enterprise was born "Applied Researching" (INVAP SE).

"APPLIED RESEARCHING" INVAP SE

INVAP, an enterprise property of the Sate of Río Negro was born in 1976, by an agreement between CNEA as representative of the Argentinean federal government and Río Negro Sate government. The firm is a truly public - private institutional complex itself, internationally competitive in following areas:

- Nuclear
- Spatial
- Industrial (INVAP Engineering SA)
- Medical Equipment
- Defense
- Fiscal Control
- Broad spaces monitoring

INVAP develops, produces and exports:

- Cobalt therapy Equipment
- Nuclear control technology, equipment and systems
- Industrial plants and prospects automation equipment and systems.
- Spatial technology. Argentinean enterprise qualified **NASA** for spatial projects. Know how in design, building, tests and manage of satellites.

Inside INVAP three work areas can be distinguished: Nuclear, Spatial and Industrial.

Nuclear area has developed reactors: RA-6 (CNEA, 1985), RA-8 (CNEA), RP-0, RP-10, NUR (Alger), ETRR-2 (Egypt) and OPAL Australian Nuclear Commission. INVAP also built radioscopy factories CELCA- PIE (Ezeiza Atomic Center), CENTIS (Cuba) e INSHAS (Egypt). Future prospects in this area include Central CAREM (unique original nuclear project wholly developed in Argentina), Up keeping and maintenance of nuclear power stations (by commanded tools) and supply of ASECQ System of dry storing of fuels.

INVAP produces nuclear medical equipment: cobalt bomb TERADI 800, universal simulation equipment UNISIM and attachment for cobalt unities.

INVAP also specialized in advisement, building of ray therapy services with vacant possession and Ray Therapy Units, special advisement in specification and selection of radiotherapy equipment. INVAP had expertise in treatment bunkers design and building.

Besides, INVAP is sells representative of ELEKTA ONCOLOGY SYSTEMS, Gamma Sonics Pty, de Treatment Planning Systems PCTR Physical Ray Techniques (Spain).

Spatial area develops scientific satellites as Astronomic SAC-B (1996) applied to test energy optic systems, control and drive, SAC-C (2000) designed to harvest appraise, geographical papers, constant checking of natural emergencies as forest fire and flooding. SAC-D is a signal satellite in process of building.

Spatial INVAP is also developing three geostationary satellites for communication. Probably they will be operating in 2012, 2013 and 2014. In Córdoba city is located a special unit: the Earth Station for satellite nexus.

This area's out put includes defense and safety technology Integral Communications System and joint equipment (SICEA), Navy Pilots Training System named MELIPAL, el special storing for Hercules Helicopter, Data Campaign Processor (PDC) and Share - purpose Transport equipment Ara Hercules.

INVAP's industrial section design small wind energy engines, robots, commanded tools applied in industrial factories repairing inside physically and chemically aggressive environment, dangerous industrial waste treatment's plants. Liofilization factories and equipment applied in food industry, ammoniac absorption columns, engines for oil wells, wind engines IVS 4500, zirconium sponge production in pilot scale. INVAP industrial team is working on projects about different processes: metallic titanium, enriched uranium, heavy water alternative method and treatment and elimination of industrial wastes.

Finally, other developments include drilling and protection systems for oil extraction, atom smasher, mass spectrograph and optical magnetic design.

BARILOCHE NON PROFIT INSTITUTE (FB)

FB was born in 1963 from an initiative of a group of engineers working in CNEA. Nowadays is a prestigious scientific and technologic organization developing BASIC AND APPLIED RESEARCH - TRAINING – TECHNICAL ADVISE basically in the following fields: ENERGY – LIFE QUALITY – PHILOSOFY and ENVIORMENT.

FB includes in its structure the "Energy Economics Institute" (IDEE) with a special energy research program that includes issues like:

- Energy Policy
- Energy and Environment
- Specific methodology for requirements, needs and demand's estimate.
- Studies of energy supply and financial of energy plans
- Methodology of economic, technical and environmental researching in oil, natural gas, electric energy, mineral coal, new and renewable energy sources, and bio-fuels.
- Development of methodology for integral energy research (nation, regions, and states).
- Studies about energy in specific economic sectors.

The IDEE/FB has been financially supported by national governments and multilateral organizations, for instance:

- Inter American Development Bank (IDB)
- Economic Commission for Latin-American and Caribbean (ECLAC)
- Regional Electric Integration Commission (CIER)
- Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)
- Food and Agriculture Organization (FAO)
- Global Environment Fund (GEF)
- Latin-American and Caribbean Integration Institute (INTAL)
- International Atomic Energy Agency (IAEA)
- International Development Research Center (IDRC-Canada)
- Organization of American States (OAE)
- Latin-American Energy Organization (OLADE)
- United Nations el Development Program (PNUD)
- United Nations Environment Program (UNEP).

Some of significant advices developed are:

- Integral studies in energy at Peru, Dominican Republic, Argentina – national, regional and states areas- and Southern Cone (OLADE´s requirement).
- Analytical models of medium and long term energetic prospect (LEAP), used as support of energy's policy and planning in Argentina, Honduras, (UNDP) and Uruguay (ESMAP and IAEA).

- Energetic inventories in Peru, Dominican Republic, Uruguay, and north east, Mendoza, Buenos Aires in Argentina.

Since 1994 FB develops the Life Quality Program (LQP) for theory and measuring of "population life excellence's degree". This Program was applied in some Argentinean cities, Germany, Brazil, Chile, Peru, Spain, Italy, Portugal and Uruguay. Housing and habitat, Territory's arrangement, Sustainable Development, Poverty (lack of goods and lack of opportunities), Differences and Inequality, Life's and environment quality, restoring of old quarters of cities, Internal Migration, Urbanization's management of touristic cities, Governess and Environment, Strategic Planning, Local application of the "21 Datebook" stated at UN Río Assembly. LQP is financially supported by Science and Technologic National ministry and Council (CONICET) from federal government multilateral and international organizations.

Relatively recent Environment and Development Program (EDP) (1994) treats economic issues derived from global climatic change, particularly social consequences and heterogeneities at potential regional impact, costs and benefits from mitigation greenhouse's effects policies. Basically EDP has the objective of build an own national and regional datebook to decode challenge and chances of an international regimen's bargaining.

III-2. ALTEC – TECNOACCION

ALTEC SE is an enterprise from the state. Río Negro Sate is the unique shareholder. Structured in 1985 the firm had developed as a technology supplier. In 1986 had the access to PC IBM Compatibles and set an assembly factory. As a result ALTEC obtained and sold first designed and produced Argentinean PC (PC 100). In 1990 a new model (PC 150) was imported from USA.

Since 1991 the firm business diversified and grew in automatic coupon playing in various states from Argentina: Río Negro, La Rioja, Neuquén, Tierra del Fuego, Corrientes and Catamarca.

ALTEC sells informatics services to important offices from the national government: Social Security Agency (ANSES), International Commerce Secretary, Telecommunications Commission and supplies digitals webs to the Justice Supreme National Court. Another business area the firm has developed is design and production of control parking special systems for cities. Bahía Blanca, Bariloche, La Rioja y Neuquén bought it. In 2005 equipment of this kind was exported to Spain.

ALTEC output includes working day time table's special clocks, workers enterprises management systems, traffic and transportation systems, electronic identification, MOBILE communications technology, paid public parking systems services and electronic government.

Other developments are services linked to technology, electronic government advise, strategic planning in Informatics Technology adapted to state offices, Solutions for Road traffic jams at local government, IT Business Targets Alignment, Technological Standards, Data Center Design and building, Network Operation Center, "in door" and "out door" Data Web Design and Building, Processes Engineering, IT special training, Electronic Vote Systems, Public Offices Financial Control Computerization.

TECNOACCION is a private join stock company located at Bariloche whose out put includes computerized bet electronic systems, selling bus-tickets machines, equipment for internet control and watching of trucks, buses and ships in long distance transport and informatics' solutions linked. It can be considered a "forging ahead" enterprise and had won prizes for its technology.

Is the only in Argentina which produces and operate smart computer terminals itself, used in bet's capture all around Latin America, plus linked business management, marketing and communication services.

A group of firms (TECNOACCIÓN, Capital Markets Argentina, PC Express and SMART SA) integer Capital Markets Argentina Corporation, carrying out activities in finance and informatics fields. Their directives were Argentinean Credit Bank and Argentinean Central Bank's officers.

The firm was closely linked to ALTEC SE and their "business society" prospers, though formally the firm's directories are different. TECNOACCIÓN works as ALTEC´s supplier in its services to Río Negro Sate, cities' and other state's governments. Both firms were suspected of corruption in the press. That is the reason for having finished formal economic links.

In 2007 TECNOACCIÓN was bought by a group conformed by INTRALOT SA (a Greek enterprise that is world leader in automatic sports and games of chance´ bets), Palermo Hippodrome SA and Casino Club SA.

III-3. BARILOCHE ELECTRIC COOPERATIVE (CEB)

CEB is a communal non-profit enterprise born in the middle of the XX century from an initiative of citizens facing a serious lack of electric energy.

As the system had almost collapsed (generation and wiring) Bariloche City Hall bought the power plant to the private company named Río Negro Public Services.

Later the electric factory was handed to the new Cooperative. The whole process lasted since 1953 to 1957. Nowadays the firm has 36.000 clients for three engines and is a substantial parte of BTC with deep institutional links emerged from new projects with international communications leaders.

Quickly fitting to new telephone's laws, in 2000 brought a wide web called "Bariloche Web" that turned the city in the first "smart" Argentinean one.

The innovation is about an optical fiber line that reaches houses and enterprises. This technology (HFC web) is for telephone and video. The "team" CEB-Telecom also built alliances with "Argentinean Airports 2000".

Another middle –scale local firm Angostura Video Cable SA (AVC SA) joined the "undertake" reaching another mountain city called Villa La Angostura (Neuquén).

III-4. BARILOCHE UNIVERSITY REGIONAL CENTER (CRUB)

As a part of National Comahue University (UNCOMA), CRUB is the fourth branch of ADTB our research could distinguish. This institution develops teaching graduate and post graduate activities, basic and applied research and technologic services. CRUB is a prestigious institutional web itself, with outstanding human resources, international links and multiple financial sources.

To begin with, let's name its laboratories:

- Environmental Quality Analysis Regional Lab (LACAR).
- Bio-indexes and Lichenological Lab (Bio-Lich)
- Applied Microbiology and Biotechnology Lab (MABB)
- Photobiology Lab
- "Ecotone" Lab (specialized in Ecology, inter phased with Animal Behavior, Anthropology, Evolution, Biogeography, Paleontological - ecology, Genetics, and Vegetal Physiology).
- Experimental Water Culture Lab

CEB is built upon its researching groups:

- Soil's Studies.
- Ecology and Biology of Vertebrate at Patagonia.
- Assessment and Manage of fishing resources.
- Water Quality and Resources (GCAYRA).

III-5. Farming Technology National Institute (INTA)

INTA-BARILOCHE institutional web has explicit targets: sustainability and social development as key stones of farming activity. Its tools include basically direct action jointly with peasants and farmers, applying suitable and available technology to solve social and productive troubles. In this paper we include a scheme to a better comprehension of the issue.

- RESEARCH

ANIMAL PRODUCTION

- Animal Sanity
- Genetics and Reproduction
- Animal Feed and Production Systems
- Textiles and Woods Laboratory
- Experimental Farm "Pilcaniyeu"

This sector Study small ruminants (sheep, goats), specially thread production (wool and mohair) and meat's production alternatives. INTA Bariloche had developed production and selling's technologies as for instance: before birthing shearing, quality wool classification, genetic improvement methods and animals health planning.

INTA is international advisor in improving wool fiber projects used in Peru, Chile, Uruguay and some other countries.

NATURAL RESOURCES

- Natural Resources assessment
- Ecology and wild animals management
- Pastures management and improving
- Animal Feeding Production Systems

Its outstanding developments includes

- Fodder assessment
- Stockbreeding planning
- Capacity Land for Timber activity
- Suitable technologies used in production searching a better quality of life for farmers and breeders.
- Land recovering by native foddering.
- Patagonia species captivity rearing: rhea and "guanaco".

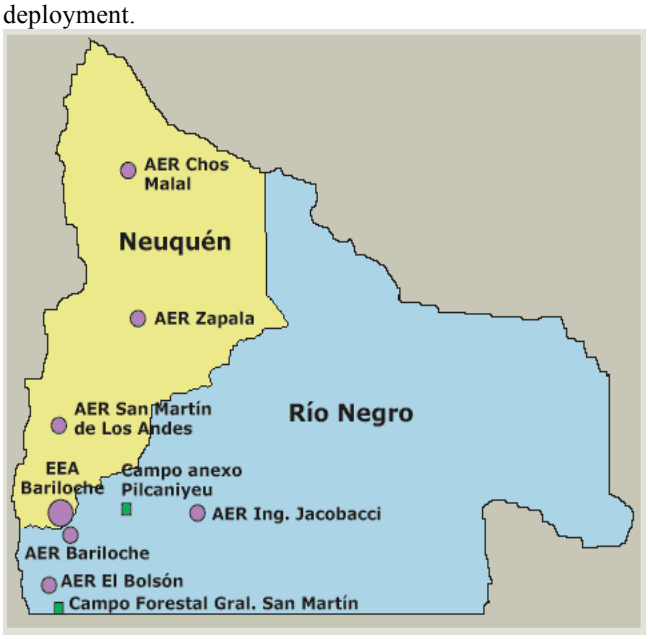
FOREST

- Forest Ecology
- Forest Genetic
- Insect Ecology Laboratory
- Forestry

SPREADING AN FARMING DEVELOPMENT

FARMERS AND BREEDERS DEVELOPMENT

Bariloche INTA is organized in Spreading and Experimentation Unities working to solve troubles with suitable and available technology. Communication processes and farmers, students, workers and professional's training are the key stones of INTA task by means of tests in experimental areas. The map helps to have a view of wide INTA deployment.



COMUNICATIONS SECTOR

Training and diffusion videos

- Rural and environmental education

- Special training Tools kit
- Institutional diffusion material
- Lectures and workshops
- Press material
- Specific Journal named “Presence”
- Radio Program: "INTA in Patagonia"

INFORMATIVE SECTOR

FORMATIVE AND TRAINING SECTOR

- **INSTITUTIONAL LINKS**

The core of these activities is a formal one: agreements and contracts with: state governments (Neuquén, Río Negro) National Protected Areas Administration, city halls (Bariloche, Ing. Jacobacci, Pilcaniyeu, Comallo, Ñorquinco, Chos Malal, Zapala, Villa La Angostura y Epuyén (Chubut), Universities, Farmers and Breeders Cooperatives (Federative Cooperative South Region Organization (FECORSUR), non-profit organizations and enterprises.
There is an institution that outstands because of its continuity and social impact: “South Line Development Corporation (Río Negro)”. Born by the law in 1994, was conceived to promote this region, the “falling behind” area of Río Negro. By some projects like Production of “Angora from the North Patagonia Goat” – Genetic Improving Program. Summing up INTA Bariloche is a basic component of the scientific-technological local system promoting a better life for people in the rural environment.

CONCLUSION

Inquiring about innovative and change’s processes from Human Development plus Science - Technology - Society point of view necessarily turns to some of these issues:

- Superior education research and scientific institutions, as core of regional scientific-technologic system.
- History and social events contribute largely to innovation system’s profile in different and lonely geographical settings.
- Institutions structural shape and social actor’s participation.
- Process’s features and the specific form of invention, application and diffusion steps.
- Designers, workers, professional Business man and their role in the whole process.

This paper has the intention of showing this kind of issues at a specific regional innovation system; that developed and localized in Bariloche city. We consider it a weak system base don the observation that it doesn’t appear that links between components being stronger and powerful that those inside the organizations individually considered.

From this experience we are planning for the near future work on the rest of the institutions of North Patagonia.

Till now, the analysis shows science and technology activities surprisingly diverse, high level and heterogeneous.
Actually, history of the country and its events like the evolution of physics and CNEA determined CA y el IB location at Bariloche. Federal State played an essential role, but initiatives and actions of the scientific community must be also underlined. This fact is notorious for instance in development of INVAP and Bariloche.

Finally studying INTA Bariloche helps us to distinguish four different sources inside the birth and growing processes of scientific technological institutions.

In the group conformed by CAB-IB-INVAP-FB the core is basically academic, opening opportunities for the State and private enterprises using this knowledge in high technological density industries and services.
Duet ALTEC-TECNOACCIÓN´s evolution is interesting as a particular matching of private firm – state enterprise. The innovation process around informatics comes together with a patron of links apparently supported in private benefits extracted form public budget.
CEB scheme, originally cooperative and form the “neighborhood”, reached a highly positive performance in communications as a consequence of partnership with transnational leaders.

INTA shows a clear axis: local production, being specially stroking its nearness to farmer, breeders and technology “customers” in general. The experiences showed that this institute’s action is very close to the idea of “social and joined innovation”.
Finally, for UNCOMA, environment and natural resources are the keys of the organization’s mission.
The evolution of local developments, settings and links is totally necessary to a better understanding of innovative processes and its actual objectives: national strategy, equality and equity or business earnings.

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