PROPOSAL FOR GIAHS PROGRAM

A conservation system to maintain the genetic wealth and the cultural heritage of the native potatoes of the Archipelago of Chiloé – Chile

SUMMARY INFORMATION

a. Country and Location

Chiloé Island, X region, Chile. Mainly Rilán and Petanes sector and a community of Huilliches

b. Project Title/ name of the system

A conservation system to maintain the genetic wealth and the cultural heritage of the native potatoes of the Archipelago of Chiloé - Chile

c. Funding requested

US$ 75.000

d. Requesting agency

Centro de Educación y Tecnología (CET) Chonchi

e. Governmental counterparts and other partners

Universidad ARCIS Patagonia (UAPA), Instituto de Desarrollo Agropecuario (INDAP), Instituto de Investigación Agropecuaria (INIA), Bosque Modelo Chiloé (BMCH), Centro Internacional de la Papa (CIP)

f. Project duration

1 year

g. Summary of objectives and activities (max. 200 words)

The project objectives are: To encourage the public to recognize Chiloé as a source of culture, traditions and a wide genetic biodiversity, stimulate the sustainable development on the archipelago; and make the society aware of the importance of the protection and conservation af the biodiversity.

The first activity considers the articulation of institutions that promote this project, unifying criteria and adding human and economic recourses. Next, the activities are framed within three areas: Direct work with the communities (educative workshops about culture and native biodiversity, transference of production technologies and traditions associated with them, and training of teachers and secondary students); research and development of productive systems (reinforcement of CET as a research and development center that systematizes and keeps information related to the genetic material cultural, agronomic and commercial information, provides varieties to the farmers and gives technical support to them;

Promotion and creation of policies related to the Biodiversity (Organization of seminars and conferences, to promote the native varieties at national level and sensitize and inform the community, with the purpose of generating interest in the authorities to create a political frame that protects the cultural legacy and the existing biodiversity in the Archipelago).

DESCRIPTION OF THE SYSTEM

1. Description of GIAHS

The Archipelago of Chiloé, in the south of Chile, is a rich land in mythology, native potatoes, forests and other cultures. It is one of the few places of the planet where the virgin forest still exists, and it is distinguished by its exclusive biodiversity. It has been considered the home of many species of endemic flora and fauna in danger of extinction, being its biodiversity of global importance. For this reason, it is classified as one of the ecological regions of highest priority of Latin America.

The South zone of Chile is the one that presents the best comparative advantages in the country for the development of important cultures as potato. The deep grounds, of moderate acidity and the cold temperate climate favor the culture. To this, the existence of an ideal climate for the generation of seeds due to the absence of diseases and quarantine plagues is added.

Having the potato as much importance for the maintenance of the life in these remote islands of Chile, it is not surprising that related to their culture and great variety of uses ancestral social practices, beliefs and mythology were developed, many of which in the dawn of the third millennium are still in use.

The surface that the island farmers assign to the tubercle seedtime are 4,000 hectares, with a yield of 16.2 quintals per hectare and the production goes completely almost to self consumption, without having a greater stimulus than a subsistence agriculture, which is necessary to make it sustainable in the time.

Traditionally the indigenous communities and farmers of Chiloé cultivated native varieties of potatoes which reached from 800 to 1,000, cultivated before the agricultural modernization.

The native potatoes that exist at present are the result of the domestication process, selection and conservation made by ancient Chilotes. For the farmers, they have a special importance and they always reserve a space in their farms to plant them. This has happened on the basis of the culture and the deep familiar bows, maintaining therefore a relation with the atmosphere and the work made by the old habitants of Chiloé.

In some sectors of the archipelago, a total recognition to the value of the inheritance of a common past still exists, represented by the seeds that have been guarded from generation to generation, specially by old

women with the knowledge and wisdom not expressed in great texts, but that have allowed the development of a precious and totally effective agrarian culture; although, the native varieties of potatoes are not practically known in the market.

In the past the rural women have carried out the biodiversity conservation activities in the small plots of their family vegetable gardens. They are the source of this knowledge and the gathering of seeds of different varieties in their respective communities.

For different reasons, like the introduction of improved seeds, the pressure of technological transference programs, the appearance of diseases like the Late Blight (Phythopthora infestans), the lack of market and information of this genetic wealth within the Chiloé community, there has been a generalized erosive process of these materials, subsisting at the present time a very reduced amount of varieties in zones more and more isolated from the archipelago.

In Chiloé, there has been a constant extraction of genetic resources, mainly in the case of the potato, whose genes have been used in the development of improved varieties, that later have been introduced through technological packages, with high prices, which has happened in general in Chile due to the lack of information and diffusion in respect to genetic wealth.

The great variety of this genetic resource that can be observed partly in Annex 2 makes available to the community not only a food source, but other unknown properties they could have and which through a project such as this one can be developed to become into a viable and sustainable system in time.

2. Goods and Services provided by the system

From the environmental point of view, this system supports the biodiversity defense, maintaining the different varieties of native potatoes that exist in the islands, which are a great genetic wealth for this and future generations, in the search of characteristics that make them special and only in the world.

In relation to alimentary security, it is important to emphasize the diversity of varieties, which historically facilitated to the native population the selection of those more interesting ones for their culinary virtues, transforming the potato in the base of the daily diet, and in many cases the main food of the socially deprived. This could have been transformed into an alimentary routine; however, it was reduced by Chilotes with the invention of multiple preparations, adding value to the particular characteristics of each type of potato.

As a cultural element, the potato culture has strong roots in the identity of Chiloé, traditionally known as “the Chilota culture of the potato”, which has been inherited

generation after generation in spite of foreign influences. A series of social and cultural activities around its culture are generated, for example: “mingas”, an old tradition that reunites the community at the seedtime and harvests of the tubercle; the wide culinary product range derived from the potato; related mythology and legend.

On the other hand, with respect to the wealth of the local knowledge, a vast experience of the community exists about the different gastronomical uses of the native varieties, which only needs to be compiled and ordered to be spread to the rest of the community.

Finally, the potato culture, in relation to the agricultural production of the archipelago, is an important axis within the culture or rotation system used by the family in Chiloé.

3. Threats and challenges

Threats

The influence of traditional development policies, both social and agricultural, that lead to a loss of the identity of an island that has maintained through so many years its traditions, only by a so strong external pressure at the level of policies, technology and market among others, that can destroy therefore the wealth of what can become the reason of existing of the communities that conform it.

The escape of genetic material that finally does not benefit the community of Chiloé, who has maintained this tradition per years and that, is part of the sustentability and the alimentary security of the island. The industrial sector, through genetic engineering and the patents, has developed other introduced varieties of potato, thus controlling the genetic resources that assure a viable material in their production and stability in time.

With respect to the previous point, this obviously leads to the control and monopoly of industry of all the work of years that the community has done through the customs and the oral transmission of an ancestral practice, leaving chilotes aside of these resources.

That the loss of this genetic material finally happens because of the lack of importance that has been assigned to it by the same community for its production, having in mind that for the scientific community also they are of great interest because they have genes with characteristics (resistance to frosts, droughts, plagues and/or diseases) that can be used to improve the existing varieties.

The departure of young people and their lack of interest for the native potatoes, thus the tradition is being lost, in special in the case of children of the people with more knowledge about the matter.

Challenges

To convince to community of Chiloé: farmers, governmental instances and private sector, about genetic, cultural, historical and agricultural resources with which the same community as a whole becomes rich.

To find market for this resource that allows improving the community quality of life, also giving the chance to young people of staying and working in the field, convinced of the cultural and agricultural traditions of Chiloé.

To know in depth the physical, agro ecological, organoleptic, chemical and medical properties as much of potatoes varieties as of other genetic resources that are endemic to the island.

To maintain a germ plasma bank that it all the requirements of conservation, which is available to the communities require the seeds, assuring a quality seed.

To develop for each variety, botanical seeds that allow the development of clean of diseases culture that are generally transmitted by the tubercle seed.

4. Policy and Development Relevance

At present in Chile, at government level and the private sector there is more awareness of the need to invest resources in our culture and in the native flora and fauna, due to their overexploitation, as it is the example of the forest wealth, as well as the loss of cultural traditions that unite the community, and that gives to the country and to certain geographic zones an identity that makes them unique and attractive for the live history of the human being.

On the other hand, the nature of the international treaties that have been signed has forced the government to react to the necessity to have norms and laws that promote sustainable practice agriculture. At first, it was possible to observe clearly in the exporting fruit sector of Chile with the Good Agricultural Practices (GAPs) in which every time more professionals prepared in the area are being required professional, and the qualification is every day more abundant.

On the other hand, the impulse to organic agriculture at level of institutions like ProChile, for the exportation of these products, and the necessity of norms on the matter, in spite of being slow steps, have had to adapt to the necessities of our commercial partners at world-wide level.

Likewise, the traditions and the culture, together with a sustainable agricultural atmosphere, begin to be seen as an objective within the policies, in special at level of the Archipelago of Chiloé. The investments that have been made in the island, the tourism, and the attractiveness that the magical Chiloé has in its own, that has been maintained in its history in spite of all the external influence, is what makes it appear ad a point where many intentions from different institutions meet. Thus it is necessary to combine these efforts and ideals in a single line, that become an example for other zones as much within the country as towards Latin America, due to its innate leadership as country observed by its counterparts.

For that reason, it is of vital importance that a project of this spread will be considered at world-wide level as a departure point to the GIAHS that are to be consolidated; since the

many dispersed initiatives that exist need to be aligned under a common strategy that directly benefits the rural community from Chiloé as a whole.

Chiloé can thus become an example of protection and defense of the genetic resources, vindicating the right of the farmers to continue being owners of thier resources, obtaining benefits and recognition for the contribution that they have made with their work to the humanity.

Finally, Chiloé is the region in the world that gathers the greater number of favorable elements (natural, the historical past, customs, values, practices of work) to carry out a great project of cultural-productive character, considering that the culture of the potato is one of the components of the Chilote identity.

5. Global Importance

In relation to the GEF operational programs, it is very consistent with the OP13, which refers to the conservation and the sustainable use of the biological diversity and their importance in the agricultural system.

In this group of ancestral knowledge, associated to the wealth of the existent genetic material, the humanity has a vital resource to project their future development. It is of great importance to design politics of valuation and protection of these resources in which actions the rural and indigenous communities play an active role and be recognized as the main guarantors of the humanity's treasure.

Farmers benefited by this program will be able to advance considerably in the field of alimentary security, since they will have a group of varieties of great diversity at their disposal as much as agronomic as from the point of view of the alternative uses of the existent genetic material.

On the other hand, it is necessary to consider that the use of transgenic varieties whose use is already public, will no longer only be a danger in the genetic erosion and of the knowledge, but also the genetic contamination produced, which is a phenomenon of incalculable effects of which nobody responsibly assumes nowadays in the country.

This way, the importance of maintaining the knowledge and the original genetics of Chiloé within the same community and that their tradition be recognized, implies the urgent search for a concrete solution for this system that allows the sustainable development of the community.

It should be considered that in spite of the relevance of the topic, the rural communities possess a deep ignorance of the results of the scenario that is being configured in the world, and on the other hand the political and scientific sectors show passivity, to which is added the ignorance of the common citizen about these topics which threaten his own future security.

6. Major outputs

Within the action plan to be implemented for the development of this initiative in the community from Chiloé, aspects such as education and appraisal from both rural and urban schools will be considered, as a form of creating conscience of the wealth of the tradition stored per years. This with the purpose of making the youth themselves valorize what their ancestors have taken care for this and next generations and the value that these can have so much for the socio-cultural point of view, of alimentary security and that it is also agriculturally sustainable.

This same point of knowledge spreading extends to the advisers, consultants, so much to the government, as the private institutions, since they are in constant communication with the rural communities.

The University training carried out by one of the associate actors as it is the University Arcis Patagonia, will be enriched with the incorporation of the rural knowledge and the systematizing of different relevant aspects to the curriculum of the different disciplines that are offered, mainly Agronomy and Sustainable Rural Development and Pedagogy.

To make the government part to of these actions, protecting this way the state interest, made evident in the “national sovereignty". Also, to communicate with the private sector, making it partner of this activity, for the contributions of contacts and markets development, to develop a sustainable economic interest in time, based on an appropriate organization and a managerial point of view. This possibility to open markets, on one hand allows to stop the dynamics of disappearance of these varieties and obviously elevate the level of rural community profits, thus being able to improve their life conditions.

To carry out an agronomic development according to the customs and traditions of Chiloé, but that improves the practices for a healthy cultivation, of higher yields, based on a sustainable agriculture. For the development of the cultivation and in the keeping of the available original varieties to the future, to implement a germoplasma bank and the development of botanical seeds is basic.

Further below, the concrete activities to carry out for the objective of the project are detailed with more depth.

7. Justification of this System According to the Criteria for GIAHS Selection

The outlined system looks for revitalizing the culture of Chiloé and the effort that the communities of farmers and natives have carried out to conserve the local biodiversity, which has an incalculable value for the society, since it is impossible to advance toward the local development of a sustainable type without taking care of a basic good to this proposal which are genetic resources.

The historical base should be the language of the old inhabitants of these territories who have defended nature and the goods that has put at our disposal, based in the coexistence, the collaboration and not the competition, but instead that these goods end being a point of union for the community that also strengthen the organizations, so necessary in these times.

One of the relevant activities of this project is related to maintain and to expand the biodiversity conservation activity and the associate knowledge that the rural women have carried out.

The life histories of those caretakers of seeds and biodiversity should be reconstructed and this resulting knowledge will be used to pass on to the local society. This knowledge will be obtained and maintained for use of teaching at the University and the local schools. The method to do this is to incorporate the elders in the educational process. It is essential to recover this knowledge for the success of the project

The interaction between the seed caretakers and the university students is described below:

1. Integration of the seed caretakers as trainers for the Agronomy students so as to prepare them to recognize different native varieties, culture systems and possibilities of uses (medicinal, cooking and cultural).

2. Interaction of the seed caretakers with students of Primary School Teaching (rural teachers). Letting both professors and students know about this topic through visits to the farmers and their communities. Later on, the participants will attend workshops in CET to produce teaching material to help with the integration of this information in the official school syllabus. On the other hand, the development of didactic material for the rural schools of Chiloe (due to its importance as a tool to stimulate the preservation of this conservation system) also allows to develop awareness about the important biological and cultural patrimony that this means to both the country and the whole humankind.

3. The caretakers together with both professors and students of Journalism will work together in the reconstruction of life stories of those seed caretakers who have been more influential within communities, and in doing so, showing to the general public that Chiloe is a place where culture and biodiversity conservation are connected. Finally, one aim is to bring from different perspectives the local inhabitants into a more active system aiming at the protection of the biological and cultural patrimony.

Interaction between these two knowledge generation systems, the traditional agriculture and the university, can make possible a better transmission of the cultural aspects and biodiversity to the whole community, and also to professionals, technicians and even involving authorities, so as to legitimate and make visible what farmers have performed.

It is necessary to highlight that this is an experience in which agroecology is treated systematically at this university and as it delivered at undergraduate level, it becomes a long term process. In that approach, the farmer's knowledge about biodiversity and cultures really relevant and it is a challenge which in GIAHS framework has an even deeper sense.

For this reason, it is of vital importance to look for solutions to the particular conditions of each agro ecologic place and their communities, creating a system in which the topic is approached from the conservation of materials to local scale, the awareness of rural and urban communities in the area of the biodiversity and the protection of the resources, the education of the consumers, the exploration of the legal normative and the roads that allow to advance toward a form of legal protection of the genetic materials that are the farmers property.

The system of conservation of the cultivated biodiversity and their association with the maintenance of the local culture will be faced with a systemic approach. This way the program operation will allow contributing the conservation of the general biodiversity, especially the forest one whose effective protection also depends on the development of an alternative of subsistence, among those which the biodiversity conservation of the potatoes and the generation of profits are very important.

On the other hand this association of the conservation of the cultivated Biodiversity and the general biodiversity, especially the forest one, will allow maintaining the characteristics of the rural landscape.

The maintenance and conservation of the rural landscape, will contribute in the protection of the water sources, special sensitive element in the ecological system of Chiloé Island.

At local institutions and authorities level, the knowledge and the adhesion to a protection system of the cultivated biodiversity will be increased, allowing appropriate articulations to consolidate a better protection of this resource.

Again, it is important to highlight that to achieve a more sustainable development based on biodiversity it is necessary to carry out parallel economic activities that increase the interest of the farmers and in this way they keep the development that already historically has been going on.

Increasing the national and local population's knowledge about the relevance of Chiloé as a place for Biodiversity of world importance. This knowledge will stimulate the local consumers and the sector related to tourism to support through the preference in the market, the conservation and promotion of the native varieties of potatoes. On the other hand it will commit the local and national authorities in the development of new policies that encourage the legal atmosphere for the development of these initiatives.

Considering these fundamental aspects for the development of this initiative, they are the forms of contrasting the tendencies that at world level the technology and the demands of the market have made that both the culture as agricultural practice finish being faithful copies of what is made in the rest of the world impeding this way the development of the communities based on their history, that only needs to become polished technically and thus creating a place inside the globalized world without having the natural tendency to the disappearance.

ADDITIONAL INFORMATION

PROJECT RATIONALE:

A. Objectives

General:

A. Foment the public recognition of Chiloé as a center of origin of a culture, traditions and a genetic biodiversity of great importance for the world feeding.

B. Develop Chiloé sustainable in all its aspects.

C. Generate conscience in the society on the importance of the protection and conservation of the Biodiversity, through the formulation of a work plan considering the educational, scientific, economic objectives and civic participation.

Specific

- Ensure the participation of local communities recognizing the contribution that they have made to the conservation of natural resources
- Understand the importance of the biodiversity conservation and its relationship with the global environmental problems
- Generate reflection to advance in systems of legal protection of the biodiversity to local scale, creating systems that allow the rural communities to protect their resources
- Strengthen the discussion and the knowledge that allow to supplement and to enrich the national system of administration of the natural resources
- Develop training and promotion instruments of the services that the biodiversity can lend to the current and future generations
- Be informed about both the local and global threats to the diversity, since an objectively informed community guides in a better way its proposals to the protection of the biological resources
- Economic valuation of the biodiversity, besides valuing the other uses of the biodiversity that are lost with its non sustainable exploitation
- Introduce the varieties of native potato in the market, and therefore to obtain permanent sale sites during the whole year, apart from exploring new market opportunities
- Generate updated and opportune information, for the farmer organizations of Chiloé
- Insert native varieties in farmers productive systems supporting the improvement of the level of alimentary security of the families and the local valuation of this genetic and cultural patrimony of Chiloé

- Produce tubercle-seed of high fitosanitary quality, to restore the diversity lost by natural or social causes and to return them to the rural communities so that they continue reproducing them.
- Develop a wide program of recovery and protection of the potatoes genetic patrimony existing in the Chiloé Island, dedicated to the recovery and keeping in Seed Banks of around 200 varieties of potatoes
- Maintain and investigate about the Chilean germ plasma, allowing to develop the production of botanical seed that allows the cleaning of illnesses transmitted through the tubercle seed

B. Identification of Conservation and Development Needs

To create a communication net covering both the province and the country that demonstrates and educates the population in relation to the importance of the maintenance of the culture, the traditions, and the biodiversity that the nature has given to us.

To create the legal setting that prevents the deterioration of the existent genetic material in Chiloé, and together with this, to develop policies to encourage the care of the environment, and the flight of genetic material.

To be able to preserve the genetic material maintained per years by the chilotes, it is of importance the maintenance of a germ plasma bank in situ.

With the base of a bank of seeds, a promotion of the varieties can be carried within the communities, to maintain information nets with prepared technical teams.

On the other hand, to carry out agronomic, cultural and market research, to find the opportunities that each one of the varieties can have.

The system should be an economically profitable alternative and with perspectives to the future, to maintain the youth in the field contributing with new ideas and maintaining the traditions. Due to this, it is important to develop a commercialization net that makes the maintenance of the biodiversity sustainable in time.

Finally, to point toward both rural and urban schools in the province from the educational point of view, to enhance the importance of the ancestral traditions in their own lives, and for the humanity's wealth

C. Baseline

The existing activities in relation to this aspect are few for the span that means to maintain the system of conservation of the Biodiversity in Chiloé.

In spite of that, an important nucleus of farmers has subsisted, especially women that continue maintaining the cultivation of numerous varieties, and also the associate knowledge.

Different specific initiatives have been carried out in the last years, to support these farmers who are the main referent of the rich Chilote culture around this cultivation.

This, more than anything, justifies the support to this system, through a systematic effort that includes community education, and that can keep this conservation and conservation system in the archipelago.

At the moment, a project of CET and the AVINA foundation is being carried out, together with the University ARCIS, dedicated to strengthen the local net of caretakers of seeds. On one hand, the CET has worked for many years the topic of the conservation of the biological diversity in communities of Chiloé, getting an important degree of experience and credibility in the field of these initiatives, maintaining a bank of about 200 native varieties of Chilote potato, and it requires a contribution for a better implementation of this activity so it develops capacity to give good tuber-seed quality to the community.

The University ARCIS soon after this interaction experience with CET has incorporated elements of the sustainable development as part of its foundation axes.

D. Strategy

The strategy is based on emphasizing the cultural tradition and the social importance that the maintenance of the biodiversity has, since not only it is a genetic profit, but it is the base of the Chilote community subsistence through the years in spite of the external pressure that has been exercised upon it. This should also consider for a sustained development in time, the economic valuation of genetics, the culinary arts and their products, instead of insisting in the introduction of other cultivations and practices to the Chiloé reality.

To achieve the project success, two stages will be considered: in first place, a planning stage of the different components involved in the system that will be carried out starting with the formation of a multisectorial team who will have the mission to generate the work lines, focalized in three main axes: information, development of tools and action plans; later on, an execution stage will be carried out, in which the different points of view of all the actors involved in the system will be consolidated, so as to ensure their commitment during the project development.

ACTIVITIES

E. Description of Activities

One of the first activities implies the creation of an organizational structure of promotion of the project, since unified criteria and joint efforts are the key to the successful development of this proposal.

In general the activities are framed within three big areas:
- Direct work with the communities.
- Research and Development of productive systems.
- Promotion and Creation of Policies related to Biodiversity.

Work with the communities seeks first to carry out educational and informative workshops about the importance of the autochthonous culture of the area, and the keeping of the diverse existent genetic material existing up to now, thanks to the effort of the past generations. Second, to instruct the groups about the production techniques and ancestral customs associated to the cultivation, as well as the economic implications it can have. In third place, to approach a work guided to teachers, technicians and students of regional formation Centers, to allow the existence of a basic knowledge about the topic and therefore to create the capacity to implement and to collaborate in experiences of the same nature.

The creation of a research and development center responsible for the compilation, selection and cultural, agronomic and commercial systematization of the genetic material with the purpose of giving the community the opportunity to opt to better yields in a safer way and, on the other hand, make them be more attractive than the introduced varieties. The center will also be used as a source of supply of numerous varieties for the farmers involved in the production, for the self-consumption as well as for the commercialization. Likewise, this center will be in charge of giving the corresponding technical assistance to the farmers.

The third area points towards the promotion and creation of policies related to the biodiversity both at local and national level. This will be carried out through the generation of information and the organization of seminars and lectures that aim at improving the existing knowledge. Parallel to this, promotion activities will be carried out about the native varieties at national level, to allow the creation of a place in the market in which the society also participates in the protection process and conservation of these resources. In this way, the objective is to sensitize and inform both the urban and rural community regarding the topic, which also allows to generate interest of the authorities for the creation of policies that protect the cultural legacies of the chilota society together with the existent biodiversity.

F. Outputs

To obtain an action plan that allows the conservation and sustainable development of the system that involves the cultivation of the native potato in the Archipelago of Chiloé and the recognition of its importance for the humanity, of which the community is an active participant of its own development.

To achieve the commitment of most of the sectors involved to the system. To this, the signature of an cooperation agreement is expected in which the development of the system as a feasible local development alternative is stimulated.

To consolidate work with most of the communities, as for the flow of information from and towards them, generating nets of collaboration. To be informed about the degree of advance of knowledge, interest and valuation, through measuring instruments (interviews, surveys, among others) and appraisal what the communities perceive about the system.

To achieve better quality, yields, permanent and safe commercialization channels to stimulate the production in the rural communities. Through the registers managed by the research center, one will be able to know both the improvements that are generated starting from the seed selection that influence the development of a quality product and attractive yields for the farmers, and the traded volumes and their prices in the market.

From the registers originated from the participants to lectures and seminars regarding the topic, the universe of the population which has been involved in the process of awareness of the importance of the tradition and culture of Chiloé will be known, together with the biodiversity that has survived through time in this place.

G. Project Beneficiaries

The rural communities of the archipelago, represented especially by women and old people, will be benefited by the promotion of their traditions and customs that have identified them through the history, having the respect that they deserve, as well as their own youth's interest to maintain and learn about this legacy.

The rural communities (Rilán, Petanes and a Huilliche community) and organizations that request and receive volumes of seed of the varieties, necessary to begin a multiplication and production process will be beneficiaries of the project, since they will also have the possibility to access the consultantship and technological and commercial development that is developed along with the project.

Those farmers, professionals, students and technicians of Chiloé that participate of the developed training activities will also benefited.

The consumers that participate in the different project stages, for example in the education and sensitization about the topic, will be final beneficiaries, since through it they will have a wide possibility of access to information and to these native varieties, and they will be able according to their preference to participate in concrete actions of support to the maintenance of the biodiversity.

Finally, there will be a national benefit since a system of conservation of the local genetic resources will exist, implemented with wide participation of the community, which will increase the effectiveness and the sustainability of the conservation of this Biodiversity like a patrimony of the country.

H. National Agencies, Counterparts and Other Actors

Universidad ARCIS Patagonia (UAPA), Instituto de Desarrollo Agropecuario (INDAP), Instituto de Investigación Agropecuaria (INIA), Bosque Modelo Chiloé (BMCH), Centro Internacional de la Papa (CIP).

ANNEX 1. MAP OF CHILOÉ ISLAND – CHILE

ANNEX 2. SOME OF THE NATIVE VARIETIES OF CHILOTA POTATO

1	AMARILLA
2	AMERICANA
3	ANDINA
4	ARAUCANA
5	ASOBERANA
6	AUSTRALIA
7	AZUL PRIMERIZA, PURRANCA
8	AZUL, RIÑONA
9	BASTONEZA
10	BIZCOCHA NEGRA
11	BLANCA
12	BOLERA
13	BOLIVIANA
14	CABALLERA
15	CABRITAS
16	CARIBAJAS
17	CACHO NEGRA
18	CAMOTA
19	CALIFORNIA
20	CAUCHAO
21	CEBOLLA
22	CHAPEDA
23	CHAULINECA
24	CHELINA
25	CHIVATO
26	CHONAS
27	CIELO
28	CLAVELA BLANCA
29	CLÁVELA REDONDA
30	COLUNA
31	CORAHILA
32	CORDILLERA
33	COSTA
34	EUROPEA
35	FRANCESA NEGRA
36	FRUTILLA
37	GUADACHOS COLORADOS
38	GUAPA
39	GUICAÑA
40	HUALAYHUANAS
41	HUECAS
42	HUINCO
43	INDIANA
44	LATIGA
45	LIGERAS
46	LINGUES

47	LUJOSA
48	LLIÑE
49	MAGALLANES
50	MANTEQUILLA ROSADA
51	MAUDE
52	MAULLUILLAS
53	MECHAY
54	MEMICHUN
55	MICHUÑE AZUL
56	MICHUÑE BLANCA
57	MOJON DE GATO
58	MOLEJON
59	MURTA HUINCA
60	NANULUES
61	NATALINA
62	ÑIAMCU
63	ÑOCHA
64	OJITOS LINDOS
65	OROPANA
66	PATIRU-POÑI
67	PACHACOÑA
68	PEDÁN
69	PEHUENCHE
70	PICHUÑA
71	PILLICUME
72	PITA
73	PIRIHUAÑA
74	QUEHUEMBACA
75	QUETIPOÑI
76	QUILA
77	REDONDA
78	REINA
79	RIÑON
80	ROSADA
81	RAMA, AZUL POSTRERA, CORAZON
82	SEDA
83	SIETE SEMANAS
84	SOLDADA
85	TEMPRANA
86	UQUILDA
87	VIDOQUIN
89	VILLARROELA
90	VOYCAÑES
91	ZAPATONA

Gay (1836), Yusepczuk (1926), Castronovo (1949), Bukasov, (1971), Contreras (1975).

ANNEX 3. HISTORICAL AND ARCHAEOLOGICAL DESCRIPTION OF THE SYSTEM OR SITE

Todos los historiadores que se dedican al estudio de la papa, están de acuerdo en que esta planta es originaria de América. En lo que existe polémica, es en determinar que parte de este gran continente es su centro de origen. Otro motivo de discusión histórica–científica dice relación con la introducción de la papa a Europa.

A la llegada de los españoles, la papa existía como un cultivo desarrollado por los pueblos indígenas que habitaban Chiloé, al decir de los primeros cronistas con todas las apariencias de ser muy antiguo. En la memoria del pueblo chilote aun existe el recuerdo de papas silvestres que crecían a orillas de playas y de bosques.

Las primeras referencias de la presencia de la papa en Chile, esta en las cartas dirigidas al Monarca Carlos V por el Gobernador Capitán con Pedro de Valdivia (Zapater, H., 1973) quien dice "*que los indios se alimentaban con papas que iban a recoger a las colinas*".

La exploración del litoral chileno desde el puerto de Valdivia hasta el Estrecho de Magallanes, por dos navíos y un bergantín al mando del Capitán Juan de Ladrillero, es narrada en dos relaciones de los años 1558 y 1559. La del escribano Miguel de Goicueta y la del propio jefe de la expedición (Zapater, H., 1973).

En ambos documentos la Isla Grande de Chiloé, y especialmente Ancud, atrajo la atención de la expedición y en una de sus partes dice: "*de esta provincia de Ancud hay grandísima fama de su fertilidad, de mucha comida de maíz crecido e gran mazorca, papas e por otros quínoa... otro dato que proporciona es que protegían las tierras sembradas de papas con un cerco de cañas*".

En 1614, el Maestre de Campo Don Alonso González de Najera en su crónica Desengaño y reparo de la guerra de Chile señala: "*Nace en aquella tierra, la yerba que da raíces, que llaman los nuestros papas y los indios puñe, común sustento de todos los indios*".

Fray Vázquez de Espinoza en su Compendio y descripción de las Indias Occidentales, escrita en 1628 o 1629, se encuentra la primera relación detallada del cultivo de la papa en América. Las referencias que hace van desde Quito a Ecuador, Perú, Alto Perú (Bolivia), Argentina, Paraguay y Chile, donde llega hasta la ciudad de Castro en la Isla Grande de Chiloé. Afirma en este trabajo: que las papas son mejores que las trufas, y esto es mucho decir para un español que está catalogando un "*alimento de indios*".

Alrededor del año 1670 el jesuita español Diego de Rosales en los manuscritos de su Historia de Chile anota "*En Chiloé todo el mantenimiento de los naturales se reduce a unas raíces de la tierra, que se llaman papas... y de estas se siembran en gran cantidad para coger lo necesario y sirven de pan"*

Vicente Carballo Goyenechea en su Descripción histórico Geográfica del Reino de Chile hace algunos alcances respecto de las variedades que tendrían los indios de estas papas, las hace alcanzar hasta treinta y agrega "*con eso se lo pasan más del año, sin comer carne, porque los carneros los guardan para las fiestas, para cumplir con los parientes y de ordinario tienen tan poco ganado que no sufre tanto gasto. El ordinario comer las papas los araucanos es con un caldillo que hacen en agua y greda amarillas que se llama rag"* (Boldrini, 1989)

Alrededor del año 1750 el Maestre de campo don Pedro de Cordoba y Figueroa en su Historia de Chile asegura que antes de la llegada de los españoles las plantas y frutos en los que se basaba la alimentación indígena eran las papas, los frejoles, el maíz, la quinoa, la teca, el ají, el ñadi, del que extraían aceite; añade que estos vegetales eran de cultivo y también de producción natural.

El Abate Molina 1782 al describir la papa de Chile dice "*en efecto se produce en todos sus campos en forma espontánea y en gran número*"

En 1836 el gran sabio Francés Claudio Gay recolectó en Chiloé 45 variedades de papas nativas, luego agrega:
"*En Chile se cría esta planta en los lugares los más salvajes, en los desiertos, en las islas, y en las cordilleras se halla a veces en tan gran abundancia que un ramo de ellas ha recibido de los indios el nombre de este tubérculo, es decir cordillera de los poñis (1). Unas cuantas veces, al tiempo de gran escasez, estos indios han tenido recurso a sus cosechas y lo mismo lo hicieron los hombres de Pincheira en las misma ocasiones. Por otra parte cuando se incendiaron las selvas vírgenes de en provecho de las colonias alemanas, de todas las plantas adventicias que salieron, de resulta de estos incendios, la papa fue una de la más común*".

Al referirse a Chiloé dice:
"*Aunque la tierra del Archipiélago sea de calidad inferior, por ser su temperatura suave y el clima húmedo, lo que conviene perfectamente al cultivo de las raíces, las papas vienen muy bien y constituyen el principal alimento de los habitantes. Los chilotes tienen cuidado plantar las variedades por separadamente porque no tienen todas el mismo aprecio. Las unas, como la patirupoñi, son amargas, de mal gusto y sirven solo para engordar los animales; otras, como la huapa, dan doble cosecha sembrándola dos veces al año, otras en fin son más o menos aptas a un buen cocimiento, o bien como la reina tienen lugar de pan asadas en rescoldo. Sin embargo con frecuencia se siembran muchas variedades juntas y se da entonces a esta siembra el nombre de chahuen. Por cierto un tal cultivo ha de crear otras muchas variedades, sobretodo si se deja la planta florecer y fructificar*."

En 1926, el científico ruso JUZEPCZUK recorrió Chile estudiando y recogiendo especímenes en Santiago, Temuco y la Isla Grande de Chiloé. Es así como ese año tuvo sus primeros contactos con la papa chilota otro científico ruso y uno de los más grandes estudiosos de la papa chilota, S. Bukasov. Quién analizando el material chileno concluyó, después de estudios botánicos y fisiológicos que las papas chilotas presentaban un hábito de crecimiento y comportamiento fotoperiódico muy semejante a

las variedades europeas. De allí postuló la teoría que la papa europea proviene de la papa chilota.

O`Compley (1937) en su trabajo "*Papa chilota – oro chilote – riqueza chilena*" realiza una breve descripción de 54 variedades chilotas. Su finalidad fue promover el conocimiento de la riqueza de Chiloé en material de papas y la importancia que ésta tiene para su zona.

Alfonso Castronovo (1949) realiza una clasificación de 113 formas endémicas de papas recolectadas en Chiloé, reconoce la importancia de nuevas expediciones para evitar la pérdida de material que puede tener importancia futura.

En el año 1969, A. Contreras realiza un trabajo de clasificación de todo el material reunido hasta esa fecha en la Universidad Austral de Chile, sede Valdivia, estudiando 260 clones de los cuales reconoce 20 como originarios de Chiloé.

En 1977, Contreras, Negrón y Badilla, recogen 146 muestras de papas, recolectadas en la Isla Grande de Chiloé y Archipiélago de Los Chonos. Se determina que 26 de ellas corresponden a muestras de piel blanca, 35 a piel rosada, 30 a piel variegada y 55 a piel morada.

En el año 1989 el Centro de Educación y Tecnología (CET), Chiloé, inició la formación de un banco de papas chilotas en su sede de Notuco, Comuna de Chonchi. Este banco tiene en la actualidad alrededor de 200 accesiones de cultivares chilotes y un programa de trabajo con diversas comunidades de campesinos e indígenas chilotes destinado a salvaguardar este recurso, basándose en la comprensión y en la participación local en este proceso