JAPAN INTERNATIONAL COOPERATION AGENCY

JICA BOLIVIA OFFICE

POST PROYECT EVALUATION

"BEEF CATTLE IMPROVEMENT PROJECT"

MARCH 2005

Consultant
Ing. M.Sc. Marcelo Endara A.

INDEX.

ABBREVIATIONS.

ADEPLE	= Association of Milk Producers.
ASOCEBÚ	= Bolivian Association of Zebu Breeders.
CAO	= East Agriculture and Livestock Industries Chamber.
CETABOL	= Agricultural Technological Center in Bolivia.
CIABO	= Cattle Artificial Insemination Center, (1987 to 1994)
CDP	= Pondering Development Capacity.
CMGBC	= Beef Cattle Improvement Center (1996 to 2001).
CNMGB	= National Beef Cattle Breeding Center.
CORDECUZ	= Santa Cruz Development Corporation.
FEDEPLE	= Federation of Milk Producers.
FEGABENI	= Federation of stockbreeders of Beni.
FEGASACRUZ	= Federation of stockbreeders of Santa Cruz.
FMVZ	= Schools of Veterinary Medicine and Zootechnics of the Universities.
GDDP	= Daily Weight Gain.
IA	= Artificial Insemination.
JICA	= Japan International Cooperation Agency.
LIDIVET	= Veterinary Laboratory of Research and Diagnose.
MACA	= Ministry of Rural and Agricultural Affairs.
MAGDR	= Ministry of Agriculture, Cattle and Rural Development.
PDM	= Project Design Matrix.
PMGB	= Cattle Improvement Project (1987 to 1994)
PMGBC	= Beef Cattle Improvement Project (1996 to 2001).
PTDI	= Detailed Tentative Plan of Implementation.
R/D	= Summary of Discussions.
SEDAG	= Department Service of Farming.
SENASAG	= National Service of Farming Health.
UAGRM	= Autonomous University, Gabriel René Moreno – Santa Cruz.
UTB	= Beni Technical University.

SUMMARY SHEET

1. Outline of the Project	
Country: Bolivia	**Project title:** *As per the R/D.* BEEF CATTLE IMPROVEMENT PROJECT.
Issue/Sector: Genetic Improvement	**Cooperation scheme:** *As per the R/D,* Technical Cooperation
Division in charge:	**Total cost** 588,000,000 yen.
Period of Cooperation From July 1996 to July 2001	**Partner Country's Related Organization(s)** *As per the R/D,* Ministry of Rural and Agricultural Affairs.
Extension: From July 2001 to June 2003.	**Supporting Organization in Japan** *As per the R/D,* Forest Agricultural and Fishing Ministry of Japan
	Related Cooperation

1-1. Background of the Project:

There are more than 6 million cattle head in the Republic of Bolivia; they are breed with a traditional non systematical method under an extensive system of production. The productivity of these cattle is low and must be improved. It is important for Bolivia to increase the beef cattle productivity in order to improve the nutrition of the population that has one of the lowest protein consumption in Latin America.

It is under these circumstances that the project was executed through the project type technical cooperation scheme.

1-2. Project Overview:

The Project was aimed to improve the productivity through the improvement of beef cattle and the stabilization and improvement of income of ranchers. The project had an institutional strengthening and a superior beef cattle brood provision component.

According to agreements, Ministry of Agriculture, Cattle and Rural Development (MAGDR) is the entity responsible of the project, the executing institutions are the Autonomous University, Gabriel René Moreno – Santa Cruz (UAGRM) and the Beni Technical University (UTB). Besides the participation of the Prefectures of Santa Cruz and Beni, Federation of stockbreeders of Santa Cruz (FEGASACRUZ), Federation of stockbreeders of Beni (FEGABENI), Bolivian Association of Zebu Breeders (ASOCEBÚ), Association of Milk Producers (ADEPLE), Federation of Milk Producers (FEDEPLE), Veterinary Laboratory of Research and Diagnose (LIDIVET) and the Agricultural Technological Center in Bolivia (CETABOL). The Santa Cruz center and the Beni Sub Center were installed and the Cattle Improvement Center (CMGBC) was created. It later became the Beef Cattle Improvement Project (PMGBC) in order to perform scientific research and extension.

The actors have different perceptions of the project. For the cooperation, the project was about transference of technology from Japanese experts to Bolivian professionals; for the national counterpart, the project was intended to improve the productive index and benefit economically to the cattle sector; for the productive sector it was a veterinary service project.

At the end the project is extended for two years in order to apply and transmit the researches. The CIABO and CMGBC centers were united to create the present "National Beef Cattle Breeding Center" (PMGBC) in order to perform scientific and extension research.

(1) Overall Goal: The cattle productivity has been improved, this way the beef cattle supply has been increased in the Republic of Bolivia.

(2) Project Purpose: The techniques related to breeding (improvement), reproduction and the handling of cattle feeding, mainly Nelore, has been improved through the systematic introduction of breeding facilities with superior genetics and strengthening of the implementation system of related activities.

(3) Outputs

- The productivity of meat was improved due to the systematic use of genetic improvement, for the tests of central behavior of weight gain.
- The genetic improvement of fatting cattle is accelerated due to the transference of technology in artificial insemination and embryo transference.
- A quarantine system for the introduction of animals was established with an easy and available technology.
- A yearly growth system was introduced to intensify the use of the electric fence.
- The productivity of pasture and the handling of forage have improved with the shepherding technology, for the establishment and maintenance of pasture.
- The cattle's feeding conditions have improved due to the transference of technology and conservation of minced hay.
- The technology transference manual has been elaborated.
- The improved C/P technology allows training new technician in relation to meat industry.

(4) Achievements:

- Improvement of meet productivity by 6 central behavior tests of weight gain in Santa Cruz and 5 in Beni.
- Accelerated cattle fattening genetic improvement by the artificial insemination. Embryo transfer was not use.
- The use of electric fences was diffused locally and with a little group of shepherds.
- The pasture productivity and use of forage with shepherding techniques was partially improved, not extensive.
- Four technology transference manuals about the four investigation topics were elaborated.

Inputs (as of the Project's termination)

Japanese Side:

Input	Period
Long-term Expert	12
Short-term Expert	16
Trainees received	13
Equipment (Yens)	401,824,000
Local Cost (Yens)	58,877,000

Bolivian Side:

Input	Period
Counterpart	16
Equipment	NA
Land and Facilities	Bolivian Government
Local Cost (Yens)	68.150,000
Others	NA

2. Evaluation Team

Members of Evaluation Team	JICA Bolivia Office Independent Consultant: Ing. Marcelo Endara A	
Period of Evaluation		**Type of Evaluation:** Ex-post Evaluation

3. Results of Evaluation: From July 1996 to July 2001

3-1. Summary of Evaluation Results.

The objective from the point of view of the Japanese counterpart was achieved, the transference of technology was assimilated and adapted by the centers of Santa Cruz and Beni, but not the national approach that aimed to technically and economically benefit to cattle producers. The cattle productivity improved but the coverage was not meaningful. It only benefited 13% of the shepherds, an elite class in the chain of beef cattle.

The sustainability of the Project is not guaranteed, its continuity does not depend on a priority of development of the sector, but on a political aspect at university level. The active presence of the Cooperation is still important at this moment. This lack of economic and institutional sustainability endangers the technical sustainability that was achieved.

The project has achieved a greater efficiency in the stage of post project, not due to a self effort but due to the lack of resources that obliged to improve the use of available resources.

Internal factors such as communication and follow up of activities and results reduced the impact of the project, while others such as the andrologic analysis improved the performance of the project.

(1) Impact

The objectives of the project are being partially achieved. There is an improvement in beef cattle productivity, achieving slaughtering weight in two or two and a half years. It normally took from three to five years. But this impacts only on the group of shepherds that participated in the central tests. Some techniques such as artificial insemination use animals selected through central tests have been improved; there are other practices that required further research, such as the use and feeding of cattle, specially in natural pasturage.

The second part of the objective has not been fulfilled in the post project stage because the systematic introduction of animals with superior genetics has not continued.

A non expected positive impact has been observed, it is the andrologic analysis which has achieved important economic repercussions for the individual rancher and for the national economy. These proven animals are introduced into cattle herds improving the productivity index, such as the increase in fecundity and calving percentage a greater weight increase and reduction of reproduction costs.

The lack of a follow up to the centers´ improvement actions has reduced the real impact of actions and has created an environment of distrust of the cattle sector towards the research of the centers.

There was a **lack of communication** to increase the impact of the research in the cattle sector.

A negative aspect that was observed is the dependence of the CNMGB towards the universities, which avoids a real and effective participation of other sectors in the project, specially the private sector; therefore, they do not share the technical, economic or organizational responsibilities. It becomes an easy position, without responsibilities but with rights and benefits.

An important indicator of the empowering of the project's results is the fact that two breeding huts of Nelore race in the department of Santa Cruz implement the technique of central behavior test under the supervision of the center. Changes caused by the intervention of the project.

In summary, the impact of the project was important because it helped to the genetic improvement beef cattle at national level. It would not have been possible without the active participation of CNMGB.

(2) Sustainability

The institutional sustainability of CNMGB will depend fundamentally on the political currents that direct the universities, especially the UAGRM, this situation is of high risk while the CNMGB has an economic dependence on them.

Considering the organizational structure and the financing dependence, it becomes a very vulnerable institution, especially without the presence of the cooperation. This institutional and economic vulnerability may affect the continuity of the technical results that were achieved.
At technical level, it was possible to adapt and replicate the techniques that were developed. It caused the continuity of the strategies and lineaments of research that were formulated
The techniques and practices that were transmitted are ingrained only in part of the elite beef cattle sector. It is necessary to extend this benefit to the majority of the cattle sector.
The post project stage has been characterized by continuity and complementation of the practices performed during the project, such as the brood test, semen extraction to tested bulls selected in the central tests, sale and auction of bulls as well as semen and andrologic tests that rebound in the improvement of economic income of a group of shepherds.
At institutional level, there is an opening move towards CNMGB in this stage of the post project, strengthened by the results that were obtained during the project stage.
At financial level, a budget decrease has been produced from the institutions that are involved, which has forced to a more efficient management of the centers, but there is a latent risk of budget diminishing furthermore, which puts in doubt the continuity of the CNMGB.
The measure taken by the CNMGB to look for the economic and institutional sustainability, is the approval of a Law of the State that insures financing and guarantees the institutionally. This sustainability approach runs the risk of turning the center into an institution with state efficiency and effectiveness indexes. Therefore, the diversification of the counterpart and the financing will give it a greater degree of sustainability.

3-2. Factors that have promoted the project:
From the year 2004 the investigation complements itself with the Test of Offspring (DEPS), which evaluates the transmission of the characteristics of gain of weight to the children of selected animals.
The extraction and processing of semen of animals selected in the tests of central behavior, destined to the sale and to the artificial insemination, promotes the impact of the Test of Daily Profit of Weight (GDDP).
The sell and finish off of young bulls proved from the central test and the semen extraction, increases the commercial value of the animal, improves the prestige of the cabin and increases the economic revenue of the shepherds.

3-3. Factors that have hindered the project:
The negative effect that diminished the impact of the centers is the **lack of communication**. There was a lack of dialog, coordination, concertation and persuasion of the project's actions. It is added up to the different perceptions that did not allow to improve the impact and sustainability because each participant looked for different results out of the project therefore the center did not integrate completely to the cattle sector.
The lack of definition in the role of the counterpart weakened the project, the benefits, responsibilities and attributions were assumed according to own interests.
A more direct interaction of CNMGB with ranchers and a more fluid relation between associations and cattle federations with prefectures and other state organizations is very important.
The centralization and dependence towards the universities avoids a real and effective participation of other members of the project, that do not share technical, economic or organizational responsibilities, but they attributed the right to demand, to protest and criticize the action of the centers.
The established relationship between "**CNMGB and ranchers**", through FEGABENI and FEGASACRUZ and ASOCEBU, does not allow a total participation of the ranchers in the central tests, hiding the genetics of those who do not take an active part of the unions.
The attitude of the shepherd that participates on the central tests is fundamental for the impact of the centers. They do now provide their best animals for the test.

3-4. Conclusions:
- As a conclusion the project has executed its activities in a satisfactory way. This qualification is based on the reports from the carried out activities and not on their quantity. The single fact of having been executed the action corresponds to a satisfactory action.
- The first stage of the project, (year 1996 to 2001), was intended to lay the foundations of the genetic national improvement, to motivate and to stimulate the action of the ranchers. The second stage (years 2001 to 2004) allowed to consolidate the institution in his investigations and to show the first fruits of the tests that were performed. This stage had more beneficiaries but this population is still not important or representative at national level.
- The objectives of the project were ambitious for a relatively short time, with a complex topic and an important coverage.
- At institutional level, it is concluded that there is a lack of a planning, follow up and evaluation system in the CNMGB, there are no correctly formulated indicators, there is not a base line nor a follow up of the results of the project.
- The sustainability of the centers is not guaranteed due to the risk of political and economical instability.

3-5. Recommendations:

- It is essential to provide connection and concertation spaces and mechanisms to strengthen the sustainability out of the technical aspect in order to improve the communication among the different participants. So it is important to establish meetings with the participants in order to agree on the operative and strategic aspects of the project.
- We recommend to CNMGB the definition of a planning, follow up and evaluations system for the institution. All the actions, decisions and financing must be conditioned to a planning system that includes a correct logical framework.
- To consider as soon as possible strategic matters like the continuity of the center, the economic and operative dependence and the participation of the different involved actors. We recommend planning workshops with all the actors, including the cooperation to take strategic decisions in relation to the continuity, sustainability, roles of the actors and beneficiaries, the amplification of the project towards the extension and internal planning matters.
- We recommend coming to a consensus on a Logical Framework out of the different perceptions of the project, besides fitting to the present conditions of CNMGB and the new policies of the Japanese Cooperation.
- We recommend CNMGB to continue with the research of the Nelore race until all the subjects related to the production are developed and benefit to all the producers.
- We recommend emphasizing the research of cattle handling, feeding, breeding, reproduction in order to achieve an integral development of the sector and improve in this way the impact and sustainability of the project.
- Considering that the techniques and practices that have been taught are ingrained only with the elite beef cattle, it is necessary to extend this benefit to all the producers in the different levels of the chain.
- We recommend analyzing the approach of productive municipality as an alternative for the financing and execution of projects.
- We recommend to sign an agreement directly with the Prefectures of Santa Cruz and Beni, taking advantage of the decentralization process and the election of regional governors in Bolivia to heighten the development of the sector as a priority in both departments.
- Due to the organizational and institutional vulnerability of the institution, the active presence of the cooperation is recommended for an additional period.
- Due to the great demand of services that requires the cattle sector, the continuity of CNMGB becomes essential, but with an equitable participation of the private and public sector.
- It is necessary to construct an instance specialized in extension and diffusion of technology to get to the different levels of the productive chain, where small, medium and big ranchers find answers to their technological requirements and approaches to do ranching.
- The CNMGB must define scientific indicators of improvement that show the advances achieved at genetic level and not only actions that lead to improvement.

3-6. Learnt Lessons:

- The participative planning of projects must be a fundamental requirement for the Japanese Cooperation in order to engage the co-responsibility and to involve to all the participating sectors of the project.
- It is important to define with total clarity the role of the participants and beneficiaries in the design of the projects.
- It should also be a pre-requirement for the execution of the project, a planning, follow up and evaluation system of the executing instance in order to guarantee the execution of actions and the attainment of objectives.
- The projects must have an equity participation from the state and the private sectors, in the economic aspect, the decision making and the execution of actions. This balance is fundamental for the sustainability.
- The tendency of the regional decentralization that is under discussion at national level must also be taken into account in the conformation of the structure of the projects. The directorates must be conformed regionally with regional authorities but with national policies established by the head of the sector.
- Any project, for its execution, must contemplate a base line study.

1 GENERAL ASPECTS OF THE EVALUATED PROJECT.

1.1 ANTECEDENTS OF THE PROJECT.

The Japanese cooperation for the improvement of cattle in Bolivia starts in 1983. A Japanese expert supported the registration of the zebu breed, besides the design of the original proposal for the "Project of Cattle Artificial Insemination" during two years, along with the Bolivian Association of Zebu Breeders (ASOCEBU). Later, three experts arrived to the country in order to work I detail with the plan of the project.

The Project of Cattle Improvement (PMGB) as well as the Cattle Artificial Insemination Center started in September, 1987. The Cooperation, with nonrefundable funds, contributes to the construction of infrastructure, installation of laboratories, donation of equipment, machinery, transference of dairy cattle and training. This project lasts seven years.

The Project called "**Beef Cattle Improvement Project**" (**PMGBC**), is prepared between the years 1994 and 1996, called from now on the aimed "Project", which is the objective of the present post evaluation. The project starts by signing the Minutes of July, 1996, with a length of five years, finishing the same year 2001.

1.2 SUMMARY OF THE PROJECT.

The Project is implemented thanks to the Minutes of Discussion signed between the Governments of Japan and Bolivia in 1996. This project is intended to improve the beef cattle production, in order to increase the provision of beef cattle in the country.

The binational agreements establish that the Ministry of Agriculture, Cattle and Rural Development (MAGDR) will be the entity in charge of the project through the Departmental Office. The executing institutions are: Autonomous University, Gabriel René Moreno in Santa Cruz (UAGRM) and the Beni Technical University (UTB).

It also has the participation of the former Corporation of Development of Santa Cruz (CORDECRUZ) that is part of the Prefecture of the departments of Santa Cruz and Beni, at present. The private productive sector is represented by the Federation of stockbreeders of Santa Cruz (FEGASACRUZ), FEGABENI, ASOCEBÚ, the Association of Milk Producers (ADEPLE) and the Federation of Milk Producers (FEDEPLE).

Other actors in the Project are the Veterinary Laboratory of Research and Diagnose (LIDIVET), the Schools of Veterinary Medicine and Zootechnics of the universities (FMVZ) and the Agricultural Technological Center in Bolivia (CETABOL).

The responsibility of the Bolivian government was the designation of counterparts for the preparation of lands, buildings and facilities., while the responsibility of the Japanese government is, the assignation of experts, training of counterparts in Japan, provision of equipment and machinery and the cooperation to construct laboratories and other facilities.

We received grants consisting on equipment and materials for artificial insemination (IA), reproductive sanitation, scholarships for technicians to Japan, short term training by Japanese experts and third countries and besides a cycle of IA workshops for 5 years (1999 a 2003).

The Santa Cruz Center was installed as well as the so called Beni Sub Center, with all the needed infrastructure (Annex No 1: Project Geographic Cover). Both institutions constituted the Beef Cattle Improvement Center (CMGBC). Organizational structures, responsible for programming and operation, were defined for the centers. A superior instance with the Board of Directors and the Presidency was also structured, This instance was in charge of the strategic level of the project.

The Rector's Resolution No. 191-98 of UAGRM, dated August, 1998, established the consolidation of CMGBC and PMGBC aimed to perform scientific research and extension for the university and the country. This resolution clarifies the functionality of CMGBC.

A two-year extension (2001 - 2003) is requested at the end of the project, in June, 2001. This stage is defined as "**Application and Broadcasting of the Project**" hereafter called the "post project". One of the important actions of this stage was the unification of the centers CIABO and CMGBC by means of Ministerial Resolution of MAGDR and the "**National Center of Cattle Improvement**" (CNMGB) is created with its Main Operative Center called from now on "center" located in Santa Cruz and the "sub center" in Beni. The present organization chart is presented in Annex No 2.

The post project period was characterized by an effort and initiative of national technicians. Only one long term expert, two volunteers, one third country expert and two short term experts were assigned, as observed on Annex No 3.

At the end of this stage in June, 2003, the centers start to project a new stage called "**extension stage**", which is being developed until the present time.

1.3 PROJECT'S INDICATORS PROPOSAL.

We start from the fact that the Logical Framework of the project (Annex No 4) was elaborated after the activities had commenced. The indicators where not well formulated; the amount, quality, starting point, place and aimed group details that corresponded to the different project execution levels were missing.

The lack of a reference base line makes the concretion of indicators more difficult, and it does not allow to measure the real advances of the project. We have used statistic data of the national cattle to sustain this analysis, that in some cases includes the specific Nelore race and the regions of Beni and Santa Cruz.

1.3.1 Indicators of the project's objectives.

Based on the objectives defined for the Project, which refer to the "**improvement of breeding, reproduction and handling of food for cattle through the systematic introduction of breeding facilities with superior genetics and the strengthening of the implementation system of related activities**", the following group of indicators is proposed. They are the reference for the evaluation of the post project of CNMGB.

1. Transference of the techniques developed in the following divisions: genetic improvement; transference of embryos and reproductive sanity; handling and breeding; pasturage and forage, from the Japanese technicians to the Bolivian ones for its yearly implementation after the conclusion of the project.
2. One “Central Behavior Test” a year, with the participation of selected animals, with the index of Weight Development Capacity (CDP) above the average registered in ASOCEBÚ and, achieving the participation of 50% of the shepherds registered in ASOCEBÚ.
3. Yearly improvement of the GDDP average of the national central tests of the Nelore race (average in Santa Cruz and Beni), exceeding the accumulative average of the previous year. Present average 629 gr/day.
4. Results of the tests of embryos transfer and reproductive sanity; management and breeding; grasses and forages executed annually. Without current information.

1.3.2 Indicators of results.

Based on the achievements during the periods of the project and post project, the following indicators are formulated for the center and sub center, respectively:

Santa Cruz Center (Beginning of activities: August, 1996)

- A central test executed annually. Current data, three central tests executed during the project and three central tests post project, total: six central tests. (chart 1 and Annex 5).
- The amount of cabins and participating animals in each annual test increases until achieving their maximum capacity. Current average data for Santa Cruz: 11 cabins and 34 bulls. (chart 1 and Annex 5)
- Yearly improvement of the average of GDDP as a result of the central tests. Current average accumulated: 671 gr/day, GDDP during the project 698 gr/day and GDDP post project 671 gr/día. (Chart 1 Annex 5, Graph 1).
- Yearly improvement of the maximum GDDP of the central tests. Current maximum 887 gr/day of the fifth test. (Chart 1 Annex 5, Graph No 2)
- Yearly increase of (Number of bulls) the quantity of bulls that enter to the power station of production of frozen semen. Current data: 179; during the project 97 and post project 82. (annex 6).
- Yearly increase of frozen semen production (%), for the regions of Santa Cruz and Beni. Current data: 231,972 straws of frozen semen; during the project 116,618 and post project 115,354 straws. (Graph 3 and Annex 6).
- Increase of the average quantity of semen extracted per bull. Current data: maximum quantity 15,650 straws a year, Pólux te bull of Sausalito hut (Annex 6).
- Quantity of training events carried out annually, specified per area, with follow up information at the conclusion of the project. Current data: 106 events in the topics of artificial insemination, management and breeding, animal sanitation, genetic improvement, forage conservation, rectal palpation, handling of pastures and andrologic analysis.
- Quantity of manpower formed annually in these matters, different professional levels, with follow up information at the conclusion of the project. Current data 1,812.
- Quantity of student of the FMVZ that have carried out their pre professional and directed practices annually, with follow up information at the conclusion of the project. Current data 72.
- Quantity of manuals produced and diffused during the project and post project with follow up information on the destination and use of the manuals at the conclusion of

the project. Current data: 4 manuals on the topics of: Transfer of embryos (2001); animal Sanity (2001), Test of Central Behavior (2001); Introduction to the shepherding (2002). Each manual with an edition of 1,000 copies.

- Quantity of technical visits received annually in the productive units with the assistants' qualified information. Current data during and post project, 1,500 producers.

Beni Sub Center (Beginning of activities: August, 1997).

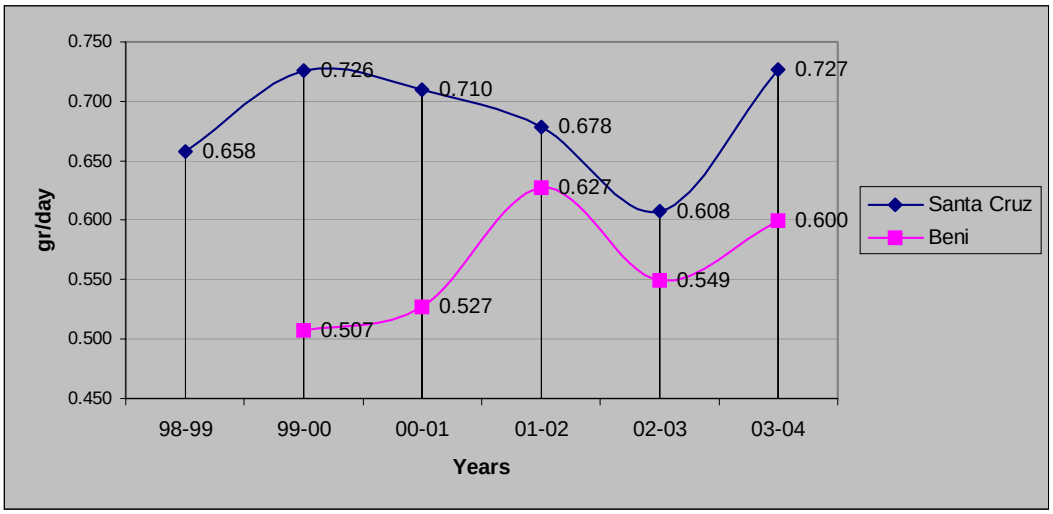
- A central test executed annually. Current data: five central tests executed; two during the project and three during the post project. (chart 1 and Annex 5).
- Increase in the quantity of cabins or huts and participating animals in each annual test until achieving the maximum capacity. Current data for Beni: 5 cabins and 18 bulls. (chart 1 and Annex 5).
- Yearly improvement of the average GDDP as a result of the central tests. Total accumulated average: 562 gr/day, GDDP; during the project 517 gr/day and GDDP post project 592 gr/day. (chart 1 Annex 5, Graph 1).
- Yearly improvement of the maximum GDDP as a result of the central tests. Current maximum: 745 gr/day, as a result of the fourth test, bull “Pororó”, property of the center Beni. (chart 1 Annex 5, Graph 2).
- Quantity of training events carried out annually, specified per area, with follow up information at the conclusion of the project. Current data: 84 qualified personnel in the topics of artificial insemination, management and breeding, animal sanitation, genetic improvement, forage conservation, rectal palpation, handling of pastures and andrologic analysis.
- Quantity of manpower formed annually in these matters, different professional levels, with follow up information at the conclusion of the project. Current data 972.
- Quantity of student of the FMVZ that have carried out their pre professional practices and guided works annually, with follow up information at the conclusion of the project. Current data; 49.
- Quantity of technical visits received annually in the productive units with the assistants' qualified information. Current data during and post project, 1,000 producers.

1.4 RESULTS OF THE PROJECT.

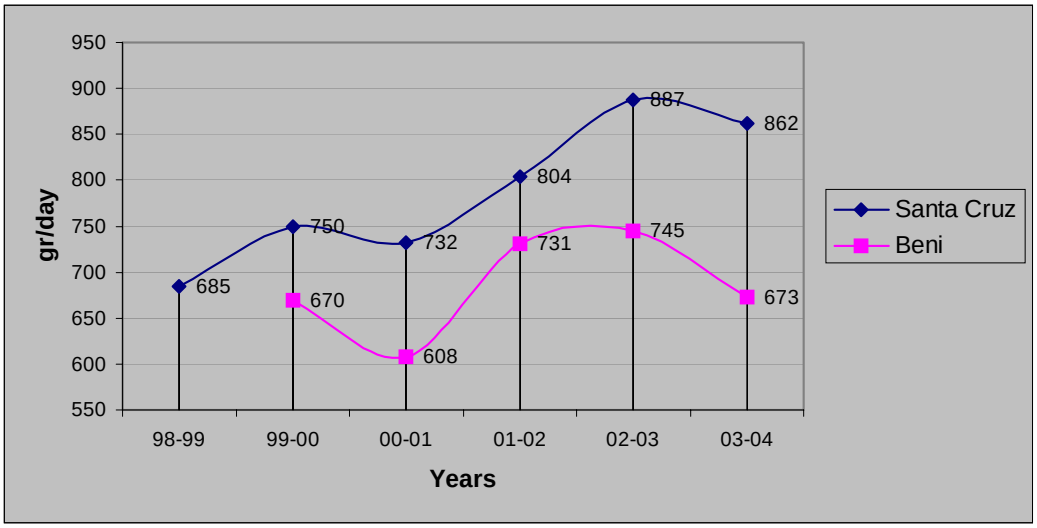
The most important result is still the central behavior test that showed a noticeable development in the weight gain of animals during the post project stage. As observed in Annex No 5, Beni improved 0.075 gr/day of additional weight gain compared to the periods (pre and post project), changed from an average of 0.517 gr/day during the years 1999-2001, to an average of 0.592 during the years 2001-2004. On the other hand Santa Cruz (Annex No 5), the additional average decreased in 0.027 gr/day, starting from 0.698, during the period of the project, to 0.671 during the post project period. It means that the test in Beni, gained efficiency during the last years and increased in 15% its average of production. While in Santa Cruz decreased 4%.

According to the East Agriculture and Livestock Industries Chamber (CAO), the average of daily weight gain is 302 gr/day per animal, with a carcass production of 46% and the slaughter age is from 3 to 5 years, under the controlled pasturage system. Therefore the results that have been obtained in the centers, in the central behavior test excel in more that 100% the departmental average, it shows the existence of a great potential of the test for the selection of improving animals.

Graph No 1: Average tendencies of GDDP. Santa Cruz and Beni (gr/day in years)



Graph No 2: Maximum tendencies GDDP, Santa Cruz and Beni



Graph No 3: Quantity of bulls and semen production.

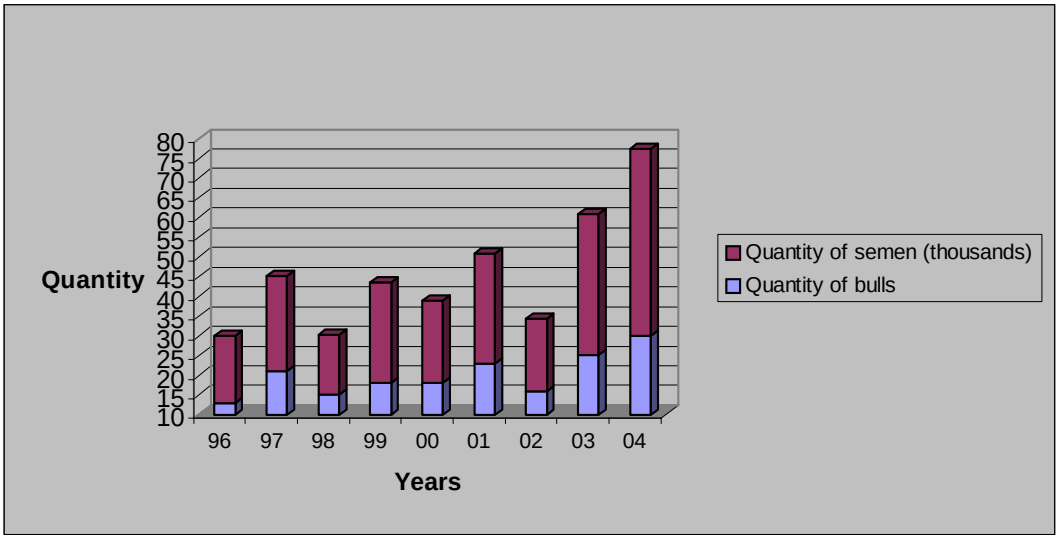


Chart No 1:
Comparative results of central tests GDDP, Santa Cruz and Beni.

Center	Execution Period	Number of tests	Number of Shepherds	Number of bulls	Ave. Weight gain	Maximum gain
Beni	99 – 04	5	7	91	0.560	0.745
Santa Cruz	98 - 04	6	11	205	0.684	0.887
TOTAL		**11**	**18**	**296**	**0.629**	**0.887**

Six behavior tests were achieved in the Santa Cruz center, three during the project and three after it, while in Beni only five tests were achieved, two during the project and three during the post project.

On the average, the number of huts that participated was greater in Santa Cruz, with 9 per test, while in Beni only 5 participated per test, this data is the average of huts per test and not the total of huts, since most of them participate again in later tests. There are 105 registered huts until September 30, 2004, according to ASOCEBÚ, it means that the centers had influence only in 13% of the cattle breeding shepherds.

For terms of evaluation beneficiaries of the project have taken 15 interviews to cattleranchers both of Santa Cruz and of Beni, of a whole of 18 cattleranchers, which represents 83 % of the participants. Chart No 2.

In relation to the number of tested bulls, the participation of Santa Cruz was 100% over the one of Beni, but the total number of tested bulls barely reaches 299 in the pre and post project. This amount does not represent even 2% of the requirement of bull to replace the Nelore race at national level. According to the data obtained by ASOCEBÚ, it is required around 16,500 bulls to replace this race.

ASOCEBÚ also affirms that the artificial insemination in beef cattle has many limitations, that is why only 1.5% of the population of females is covered by this technique. In this sense the use of natural procreation process with improving bulls will be, for a long time, the most used genetic improvement method by the beef cattle.

Chart No 2.
Size of simple of interviewed shepherds per department.

Department	Total shepherds	Shepherds beneficiaries of CNMGB	Interviewed shepherd	Percentage of sampling
Santa Cruz	81	11 (14%)	8	73%
Beni	24	7 (29%)	7	100%
TOTAL	**105**	**18 (17%)**	**15**	**83%**

Source: ASOCEBÚ, shepherds registered until September, 2004.

2 APPROACH OF THE EVALUATION STUDY.

2.1 Objectives of the evaluation study.

The objectives of the evaluations study are the following:

1. A posteriori evaluation of the *"Beef Cattle Improvement Project (1996 to 2001)"*, from the point of view of efficiency, impact and sustainability, three years after the conclusion of the Japanese cooperation in the Project.
2. Assimilation of learnt lessons, so that JICA improves its country programs, especially to plan similar projects.
3. Outlining of recommendations aimed to counterpart agencies, to improve the continuity of the Project.
4. Sharing or results with MACA, Prefectures of Santa Cruz and Beni, UAGRM and UTB, CNMGB and the recipients of the project

2.2 Responsible of the evaluation.

The study was carried out by the individual consultant, Eng. M.Sc. Marcelo Endara A., responsible of the formulation of the evaluation proposal, the field data acquisition in the departments of Santa Cruz and Beni, and the later systematization of information and elaboration of the corresponding reports.

2.3 Period of Evaluation study.

The study started on November 15, 2004, and ended on March 9, 2005.

2.4 Methodology for the evaluation study.

The evaluation has accepted as official documents the Summary of Discussions (R/D) and the Detailed Tentative Plan of Implementation (PTDI).

The methodological procedure has three stages that involved the requirements detailed in the Terms of Reference. These stages are the following:

Stage 1: Design of the Study.

The Evaluation Grid (Annex No. 7) was elaborated based on a revision of secondary information, detailing the necessary information for the stage of data acquisition. This document was agreed with the representatives of JICA Bolivia.

Stage 2: Information Collection and Analysis.

Every center was evaluated according to their functions established in the Summary of Discussions, written between the Japanese Teem and the national authorities, the detail is the following:

CNMGB - SANTA CRUZ:

- Development and improvement of techniques related to the genetic improvement; transference of embryos and reproductive sanitary control; handling and feeding for beef cattle; pasture and forage.
- Development and improvement of practical techniques for the production of beef cattle.
- Strengthening of the technical guidance in order to promote and disseminate the techniques and knowledge developed by the project.

CNMGB - BENI

- Development and improvement of beef cattle production based on the regional needs.
- Idem through the technicians of corresponding organizations.

The techniques used for the procurement of information were prepared in this stage. They consisted on personal interviews, polls of results of the received training, meetings and interviews with focal groups, discussions with the personnel involved in the project and the forms. The techniques were aimed to the counterpart institutions, herdsmen, stockbreeders, veterinaries and other people and institutions related to the project.

Interviews to focal groups, small and medium herdsmen of Santa Cruz were performed. Interviews with authorities of MACA, Prefectures of Santa Cruz and Beni, Universities, CNMGB; leaders of cattle producers such as FEGASACRUZ, FEGABENI, ASOCEBU Santa Cruz, ASOCEBU Beni, AGANORTE were held. The detail is presented in Annex No. 8.

There were interviews with great herdsmen in order to decide the sustainability of the techniques that were introduced, by means of the comparison.

There were also interview and questionnaires for the counterpart of the project that benefited from the transference of technology. The poll with the four stages of the Kirkpatrick model was used.

The Centers of Santa Cruz and Beni were visited in order to gather specific information on the technical, social, administrative, financial and institutional aspects required as a basis of information for its evaluation

Stage 3: Preparation of conclusions and final document

After obtaining and analyzing the information, recommendations were prepared and lessons learnt from the Project. These recommendations detail specific suggestions and practices to improve the project that is being evaluated.

On the other hand, the lessons learnt are specific suggestions to formulate projects with similar context in the future.

Indicators objectively verifiable were formulated, so that they are used to measure the changes of the project and the factors that positively or negatively contributed to the changes determined.

3 RESULTS

3.1 GENERAL CONSIDERATIONS

Considerations on the project:

The role and functions of each center is not clearly defined in the formulation of the Project, but a list of actions established in the R/D and the Tentative Plan of Implementation of Technical Cooperation, that also includes the associated organizations and demonstrative facilities. Therefore is becomes confusing to establish the contribution of each center in the achievement of the objectives of the project and post project.

It is not clear in the project the links of neither the beef productive chain nor which have been influenced during the project and the post project.

The Nelore breed is in the link of the shepherds, that are 105 in total. They have the task of producing elite animals or fair champions and that work with high technology and infrastructure. The link of the cattleranchers, who breed and multiply cattle that is the cross of creole and cebú, use from medium to low technology and have basic infrastructure, there are about 10,000 cattleranchers distributed in the different territorial associations of Santa Cruz and Beni, that are divided into small, median and big, and that are affiliated to FEGASACRUZ or FEGABENI. Finally, the cattle weight gainers that buy adult cattle for slaughtering do not have infrastructure or technology, they only have lands with natural pasture. It is difficult to quantify them because they are confounded with one level of cattleranchers.

The Project and post Project have a different conception in each participating sector, the project was conceived in the Cooperation with the idea of **transferring technology** from Japanese experts to national technicians, it is appreciated in R/D and the Minutes of Discussion. The national counterpart of the project has a **productive approach**, with direct beneficiation of the cattle sector, as perceived in the logical framework elaborated after the project started. Finally, in the cattle sector, the project is seen as a **veterinary service** project, where the centers must attend each of them, this is verified in the different interviews that were held.

Considerations on the beneficiaries:

The Project and post Project together, called from no won CNMGB, has developed four important actions thank to which it is possible to identify the aimed group:

- National technicians, functionaries of CNMGB, direct beneficiaries of the first period of the project, for the transferred technology by the Japanese experts

- The central behavior tests where shepherds of Nelore breed participated, become direct beneficiaries of CNMGB.
  The subject of genetic improvement requires some technological and infrastructure level to handle improved animals, such as clamps, corrals and special sheds for animal sanitation, artificial insemination, transference of embryos and other techniques, that most small or medium ranchers do not have.

- The courses benefited directly to veterinaries, people responsible of huts, ranch administrators, foremen and students of universities. As you can see on Chart No 3, 586 participants benefited from the project, out of which 63% correspond to the

department of Santa Cruz. There was a lack of monitoring on this training process to see if the members of the course benefited big or medium ranchers.

Chart No 3.
Participants in the courses of Artificial Insemination and Reproductive sanitation Centers BENI and SANTA CRUZ (1997 – 2001)

Depart ment	School of Veterinary and zootechnics	Ranchers, administrators and herdsmen Trinidad	Ranchers, administrators and herdsmen Provinces	TOTAL
Santa Cruz	104	116	149	369 (63%)
Beni	70	73	74	217 (37%)
TOTAL	**174**	**189**	**223**	**586**

According to the final evaluation report of the "courses of artificial insemination for cattle" (1999 - 2003), Chart No 4, that reinforced the work of the project. Out of the 303 participants in all the country, 119 belong to the departments of Santa Cruz and Beni.

According to the follow up realized to the qualified ones, only 50 work in cattle inseminating and 17 in the handling and breeding of animals. It is equivalent to say that of the whole of 119 qualified ones, only 56 % (67) works in cattle ranching. This quantity is not significant to induce the wished change in the sector.

Chart No 4.
Participants of the course of Artificial Insemination, handling and breeding.
Centers BENI and SANTA CRUZ (1999 – 2003)

Depart ment	A.I. practice	A.I. Theoretical	Handling and Breeding	TOTAL
Santa Cruz	37	13	21	71 (60%)
Beni	27	9	12	48 (40%)
TOTAL	**64**	**22**	**33**	**119**

Source: Report and Final Evaluation of the Course of Artificial Insemination for cattle in the Republic of Bolivia. March 2003. CIAT.

- The sanitary tests and the lab services offered by the centers benefited directly to a group of ranchers, located in the proximities of the two centers, as the integrated area of the north in Santa Cruz and its association with AGANORTE.

  In interviews held in the provinces Cercado, San Borja, Rurrenabaque, no beneficiaries of this services were found. The situation is defensible because there are geographic limitations in Beni and limitation of capacity in both centers.

All in all, CNMGB has not benefited to small or median producers, that, according to the statistics, represent more than 90% of the national cattle (Charts No 5). They do not have the conditions of infrastructure to adopt techniques developed by CNMGB. They continue with the same techniques, with the selection of improving animals based on phenotypic characteristics, without andrologic analysis, animals bred in natural in natural pasture and with a basic sanitary program.

Chart No 5.
Statistics of national cattle.

Depart.	Number of heads (thousands)	%	Total cattlemen	Small producers <500 cab	Medium producers 501 to 2,500	Big Producers >2,500 cab.
Santa Cruz	3,972.5	58%	6,800			
Beni	2,929.4	42%	4,000	2,000 (50%)	1,760 (44%)	240 (6%)
TOTAL	**6,901.9**	**100%**	**10,800**			

Source FEGASACRUZ 2000

3.2 IMPACTS OF THE PROJECT

CNMGB has definitely assimilated and has embraced the research of transferred techniques. These techniques are routinely implemented in the post project period without the presence of experts. The progressive improvement of zootechnica index obtained in the CNMGB is notorious, after the cooperation is finished. It can be verified in the chapter of project indicators.

The permanence of an expert that is responsible for the institutional strengthening of CNMGB during the post project period, has guaranteed the continuity of strategies and lineaments formulated originally by the cooperation in the period of the project.

An important indicator of the impact and empowering of results is the fact that the breeding huts of the Nelore breed, in the department of Santa Cruz: El Sausalito and Las Madres, implement the test of central behavior in their cattle herds, under the supervision of the center.

3.2.1 Political aspects.

The Project has had an important political impact at the beginning, when the execution agreement was signed, because it has made possible to join all the state and private sectors that are involvement of the beef cattle development in order to deal the subject of genetic improvement at national level. But its great weakness has been not to capitalize this agreement during the execution of the project, to strengthen it as a fundamental instance and a reference for the national genetic improvement.

The technical issue lacked political treatment, the superior levels lacked the capacity to dialogue, conciliate and coordinate with the sectors that were involved, specially the private one, so that the become an active part of CNMGB and commit decidedly to impulse the continuity when the cooperation finished.

3.2.2 Technical Aspects.

The technological impact of CNMGB cannot be measured on the national cattle sector because the result growth of his research was not achieved.

The lack of follow up to the technical actions developed by CNMGB, such as the follow up of animals that won in the tests of central behavior, brood of these animals, the training results, the product of artificial insemination and others, did not allow to

measure with exactitude the technological impact of the project. This aspect generates mistrust in the productive sector.

A small sector of shepherds was benefited with the technique of central test, Nelore race breeders, who have participated in the test and have obtained GDDP indexes that show a high genetic value in their huts, and that can be comparable at international level, as seen on Chart No. 6. This high genetic level in the country is the result of a combined effort of the project and the private sector that have introduced genetic material of high value, hard to differentiate due to the lack of follow up information.

These animals with high weight gain potential, transmit to their generations these characteristics of reducing the fattening time until the reach a slaughtering weight. The fattening time has been reduced from four to two years and a half according to the shepherds who were interviewed. This improvement is thanks to the techniques developed by the centers, such as the artificial insemination and use of elite animals of animals selected out of the centrals tests, as well as other practices of handling and breeding of cattle that are complementary to the genetic improvement.

Chart No 6.
Comparison of weight gain indicators in neighboring countries.

Country	No of heads (millions)	Registered Race	Average GDDP	Information Source
Bolivia	5.8	45,590	629 gr/día	CNMGB
Brazil	157.0	2,030,541	421 gr/día	Fagenda Experimental de UNESP
Paraguay	7.9	S/i	433 gr/día	Asociación Rural de campo

The technique of andrologic analysis, adopted since the year 2001 in the fairs and sell of improved animals, has been dully capitalized by CNMGB, that has become the official executor. This technique echoes economically in the rancher, because it introduces tested breeders to cattle herds, therefore, the infertile females are discarded, improves the productivity indexes, increases the percentage of fecundity and calving, reduces costs in production, increases the weight of animals. All in all, that may increase the provision of meat to the national market on the long term.

The judging work of CNMGB in fairs and animal auctions, enhanced the fair and improved the price of tested animals. Therefore, the test tends to consolidate its continuity in the future. It was important for CNMGB because showed its capacity in the field.

3.2.3 Development aspects.

During the period of the Project, the centers were not able to be integrated to the cattle sector in the regions, the factors that hindered this relations were mainly: the lack of **communication** of the center to the sector to inform on the objectives and actions and; the lack of **leadership** and **coordination**, to lead the sector at national level and involve definitely other state and private institutions. This situation generated distrust and criticism of the sector towards the actions that were developed, obliging involuntarily to the technical teams and the centers to take an attitude of self-defense and preservation of their works.

The post Project stage was characterized by a strong political party interference and group interests that jeopardized the continuity of CNMGB and their actions. This situation hindered even more the relation of the centers with the participating institutions.

In spite of the polarization of the participants, the post project period of the centers start to show the first results of the central tests and the artificial insemination courses. These results motivate the interest of some groups that see in the infrastructure (laboratories), the logistics (teams and machinery) and the capacity of research of CNMGB, important input material for their development, therefore, the relation of the centers with the cattle sector and the users improves partially.

3.2.4 Sociocultural aspects

The cattle in Beni is traditional and conservative, with deep-rooted practices, with a low investing mentality, short term benefit and no effort, that may summarized as natural cattle. During the last years, this cattle starts to look for technological improvement that allow them to become competitive in the market, where Santa Cruz is the greatest opponent. It is important to receive these messages from the productive sector, to meet their needs in order to increase the impact and improve the relations.

The Beni center has encountered a problem of mentality of the local rancher. They underestimate the regional production and research and have Santa Cruz as a reference. This situation has diminished the effort of Beni center to achieve a greater impact of the project.

It must be taken into account the fact that the environmental conditions in Beni are more extreme than the ones in Santa Cruz, therefore the Beni center makes efforts to select a biotype totally adapted to the ecosystem and that responds with indexes that are comparable to the ones obtained in Santa Cruz.

3.2.5 Administrative and institutional aspects.

The lack of an institutional planning, follow up and evaluation system is critical to measure the performance of CNMGB as well as the achievement in the different projects. This tool generates trust and credibility and may be the instrument to negotiate the financing based on results.

3.2.6 Economic and Financial aspects.

The introduction of superior breeding facilities to the country has not been kept. The opinion of the technicians of CNMGB, as well as shepherds, ranchers and professional in the field is that the national genetic level is comparable with Brazil, a country of reference in the genetic improvement of the Nelore race. They also affirm that Bolivia has surpassed the genetic quality of other countries such as Paraguay, a country that five years ago had better indexes that the national ones (Chart No 6). But it does not seem to be the reason why CNMGB stopped introducing superior breeding facilities, the reason is the economic shortfall they are facing.

3.3 SUSTAINABILITY OF THE PROJECT.

The sustainability of CNMGB will depend fundamentally on the political currents that lead the universities, specially UAGRM. This situation is very risky while CNMGB has an economic depends on them, as shown on Chart No 7.

3.3.1 Political aspects.

The sustainability of the Project as for the political aspect, faces an egalitarian participation of the public and private sectors that are involved in the national cattle development and that participate of CNMGB. This equality must be in obligations as well as in rights.

The new national approach of the productive municipality allows opening a door of negotiation with regional state instances that may be an important alternative for the continuity of the project.

3.3.2 Technological Aspects.

Although, at technical level, CNMGB has been consolidated in the post project period, this continuity will depend mainly of the institutional security that the university may provide, therefore the technological development becomes dependent upon the university political tendencies.

The research performed by CNMGB has set the basis for the development of various techniques, such as the daily weight gain, that thanks to yearly repetition may obtain constant improvement. It means that particular instances may continue with the routine marginally of the continuity of CNMGB. Therefore the technique does not depend exclusively of CNMGB.

The continuity of other tests, Dutch as the andrological analysis, has to do with the economy. It was detected in the fairs that 20 to 25% of the bulls had reproductive problems, discarding these animals generates an important economic saving for the producer. Therefore, the test will be used marginally to the institutional continuity.

3.3.3 Development aspects.

The department of Beni has the natural conditions for cattle development, but technologically is laggard because the biotype of the animal that is used does not allow improving the levels of weight gain. 95% of the ranchers perform indiscriminate crossbreeding of the Creole of the Nelore. This characteristic gives perspectives of continuity to the development of the race in the department

Santa Cruz has had an earlier genetic development, his geographical conditions and of entail with the Brazil they have allowed him major contact and technological influence. On the other hand the conditions of regional productivity (better ways, transport, technology, infrastructure, etc) and those of environment have been fundamental to achieve major levels of development in the genetics and the managing of the cattle Nelore.

3.3.4 Sociocultural aspects.

An important factor for the genetic improvement in the department of Beni is the impulse to an integral formation of professional veterinaries, with a productive profile that helps in the effort of CNMGB and that assumes responsibilities in the practice application continuity, especially in the absence of CNMGB.

This training received in Japan by the national counterpart has been a fundamental factor for the continuity of the results of the project, of a whole of 22 professionals qualified in the Japan (Annex No 9) 10 of them were interviewed by means of the methodology of Kirkpatrick, of the gipsy languages, 72% of the people interviewed using the Kirkpatrick method affirm that the received knowledge was implemented in a 75%, while 18% affirms that the Japanese customs and habits such as punctuality, responsibility and attitude towards work were assimilated. It allowed increasing productivity of the centers. The remaining 10% is not part of the centers, therefore their learning is not applied to their works.

The Chart No 7 proves in general the received formation has been satisfactory for the majority of the participants, the average of the qualification is of 3, which it means that it has had a "**impact of moderated to medium**". This received formation has been fundamental to learn and to implement the results in the organization, as it appears in the level IV of the method, where the divide equally the qualification is 3, being the learning of "**medium impact** " in the organizations where it was implemented.

The lowest qualifications was 2, but the most transcendental thing is in the level III, where they think that there were no changes of attitude what it they did not allow, they applied the learned to these persons. Cost benefit of the learning has not been evaluated because does not arrange of the sufficient information about expenses of the received training.

It is important to clarify that the method includes several forms of evaluation that become in different stages of the learning. This evaluation was done in an alone epoch, and after some time of received the training, which that reduces accuracy to the obtained information. In the matter one recommends to realize this valuation, immediately after concluded the stages. The form of evaluation shows itself in the Annex No 10.

Chart No 7.
Evaluation of the training assimilation degree, Kirkpatrick method.

No	LEVEL	No	QUESTION	FINAL
I	Reaction to the received training.	1	Appraisal of training	3
		2	Appraisal of training methods	3
		3	Satisfaction of training	2
II	Learning of training	4	Learning degree	3
		5	Appraisal of learning jeans	2
III	Later behavior	6	Use of learning	3
		7	Changes due to learning	2
		8	Application of learning	2
IV	Results in the organization	9	Satisfaction of learning application	3
		10	Change of behavior in the organization	3
		11	Effects of the application in the organization	3
		12	Benefit cost of learning	

Qualification system:
Value 1 = Without impact;
Value 2 = Moderate impact;
Value 3 = Medium impact;;
Value 4 = High impact.

3.3.5 Administrative and institutional aspects.

The state institutions that participated, MACA, Prefectures of Santa Cruz and Beni, UAGRM and UTB, have kept their support for the continuity of CNMGB during the period of the project, it has guaranteed institutionalism of the centers.

MACA's participation in the definition of national policies as for the development of national cattle, and specifically the genetic improvement is inconsequential. There was no position on this subject during the development period of CNMGB.

The sense of property and dependence of the centers, towards the university, felt by the other state and private institutions, weakens the participation that may be fundamental to neutralize extreme situations of political intervention. The presence of international cooperation, through JICA and its experts has handled the situation and inspires a sense of security. The continuity of the center at present is guaranteed until the end of the present administration of the university. After this, it will be necessary to coordinate its continuity.

The centers have, at present, the capacity of self administration, but face the problem of incapacity to generate their own economic resources. The economic sustainability is impossible by them, therefore they must find allies that ensure economic stability and continuity.

In the CNMGB, its continuity is seen as something mainly economic and of financing, where the determining factor is the approval of a new State Law that guarantees a long term budget. This approach is biased because CNMGB, with all the strengths it possesses, should become a creditable and guaranteed institution where the private sector competes to keep it. It means to finance its own merits.

3.3.6 Economic and financial aspects.

The Project did not face a budget shortfall risk because the State compromised and contributed as a counterpart of the Cooperation.

The compromise of contribution diluted during the post project period and a budget reduction is produced. The Chart No 8 shows the financing structure of the post project, where the contribution of the university is fundamental for its functioning, specially in the case of Beni.

In the case of Santa Cruz, the self contribution achieved is outstanding; this economic resource must become a negotiation tool with other financial instances so that the continuity has a great internal dependence. This is fundamental for its sustainability.

It is worrying the contribution of the productive sector, which in the case of Santa Cruz is insignificant (Chart No 8), being the private sector that benefited from this service.

As for Beni center, the economic resources have been smaller during the post project period. The General Treasury of the Nation compromised its economic support and did not comply because there wasn't a signed agreement. They only disbursed the amount they debited the year 2000. In the same way the Prefecture of Beni reduced its contribution in 19% and compromised a support for operative expenses the years 2001 to 2006.

Chart No 8.
Evolution of financing sources, post project period in percentage

SOURCE / CENTER	**Santa Cruz**		**Beni**	
Year	01-02	02-03	01-02	02-03
TGN – VIPFE	0.0%	0.0%	0.0%	0.0%
Prefecture	2.6%	5.6%	20.9%	19.6%
Universities	**47.8%**	**47.3%**	**59.6%**	**62.6%**
Productive Sector	1.5%	0.1%	12.2%	10.5%
Own Resources	41.3%	39.8%	7.3%	7.3%
JICA	6.8%	7.2%	0.0%	0.0%
TOTAL	100.0%	100.0%	100.0%	100.0%

Source: Extracted from the Final Evaluation Report, Dr Hideo Tominaga, 2003

3.4 ANALYSIS OF IMPACT AND SUSTAINABILTY FACTORS.

3.4.1 Factors that promoted the impact and sustainability.

A process that complements the researches performed during the project is started since the year 2004. It is about the brood test DEPS, that intends to evaluate the transmission of weight gaining characteristics in the offspring of the selected animals.

It is also important the semen extraction process of participating animals in the tests of central behavior. Pororo, the winner of the 4th test in the Beni center (year 2002) and CETABOL bull, were the pioneers in the extraction of semen and straw processing, intended for the sell and artificial insemination. This action promotes the impact of the GDDP test.

The sell and auction of bulls, resulting from the central test and the extraction of semen, increases the commercial value of the animal, improves the prestige of the hut and increases the economic income of the shepherd.

3.4.2 Factors that hindered the impact and sustainability.

There is an effect that diminished the impact of the centers in the cattle sector, **communication**, there was no dialog, conciliation, arrangement and convincing capacity in the actions of the project. People do not know the functions, activities and results obtained by the center. Therefore it is logical the criticism towards performance.

The different conceptions of the participants on the project, it is the most important factor that disables the impact and sostenibilidad of the same one, being all other consequences of this approach.

The textual opinion of the counterpart is "**the project has been conceived with a very narrow door, where only the university may pass**", any opinion or proposal of the parties, aimed to improve the development of the sector of centers is not taken into account, there is centralization and dependence towards universities. The centralization and dependence towards the universities avoids a real and effective participation of other members of the project, which assumed a comfortable position not to share technical, economic responsibilities not organizational, but they attributed the right to demand, to protest and criticize the action of the centers.

The action of the board of directors has also been fundamental in the development and the achievements of the project; its functioning during the post project period has not been optimal. It has been attributed to decisions at programmatic and operative levels that have decreased the strength. The treatment of technical and yearly planning subjects should be the responsibility of managements and centers, while the long term institutional strategies are the responsibility of the board of directors.

A negative factor that affects the Project is the lack of coordination between the cattle sector of Beni, FEGABENI and the authorities of the departmental Prefecture, the opposite interests of both sides have deteriorated the work rate and have hindered the procurement of better results. It must be established that above sector interests is the development of the cattle sector in the department.

A relation of the "centers with the ranchers" has been established from the beginning of the project through their higher organizations such as FEGABENI and FEGASACRUZ, but not through the same territorial organization, that are composed by the producers. This situation covers high value genetics because it does not allow the direct relation with the research center.

The same situation happens with ASOCEBU, that endorses the active member as the one that paid his installment and economic obligations and has the right to participate of the records and central tests. At present, Beni has only 15 active members out of 24 registered. This situation does not allow to select animals of greater genetic value for the central test. Therefore the results of the central tests has a high margin of potentiality to improve the weight gaining and selection of elite animals.

The attitude of the shepherd that participates in the central tests does not help to improve the impact of the test because they do not present their better animals, speculates with the value of his animal in the cattle fairs and lacks confidence towards the center's procedures.

In the technical aspect, although there have been advancements in the genetic selection techniques, the investigation on the cattle handling and feeding has not been enough, specially in the subject of natural pasture, this matter added to the handling and breeding are complementary to develop the genetic potential of the selected animals.

3.5 CONCLUSIONS.

In short, the aim of the Project was not understood until the end, therefore, we understand that the objectives of the project that were different for each sector, were ambitious for a period of five years and 2 additional ones. It is added up to the complexity of the subject and the national coverage that was intended. "**Therefore the project was the promoter, catalyst and impeller of the genetic improvement of the Nelore race in Bolivia"**.

The transference, adaptation and appropriation of techniques were achieved satisfactorily, specially the central behavior test which is executed satisfactorily in the present time. These tests were adjusted to the conditions and environment of Santa Cruz and Beni, mechanisms for the execution were established and the technology of the Japanese experts was transferred to the national experts.

The satisfactory execution qualification of the project, during the period of Cooperation of the Japanese Government as well as during the post project stage, is based in the reports of the activities performed and not by their amount and quality. The fact of performing the actions corresponds to a satisfactory qualification.

Having analyzed the achievement in detail, we may conclude that the first stage of the project, 1996 to 2001, was to set the bases of the national genetic improvement, to motivate and stimulate the genetic improvement, to make the center work, develop and adjust the techniques and tests in the conditions of the local environment, even different between the departments of Santa Cruz and Beni.

At level of the cattle population, the conception of the project was different; they consider the centers as particular service benefit centers, similar to the veterinary service. While inside the project there is an vision of research and intermediate transference center. This difference of views, due to the lack of information and clarification resulted in a critical opinion towards the action of CNMGB.

The second stage performed during the years 2001 to 2003, was to consolidate the institution in his research work, the first results of the central behavior test are seen, weight gain indexes are obtained; it is important as a result of the first period and the information is being transmitted, it means that the second period showed a greater benefit for the cattle population, specifically for the shepherds. But these results do not benefit an important and representative population; therefore the continuity of CNMGB is fundamental in this moment.

See the extension process as a third stage intended to transmit the achievements of the research, through the same centers, it does not seem to be the most adequate and feasible option, because the tasks of CNMGB, that has limited resources, get diversified. It requires a new specialty of extension, does not have professional trained in this field. The center has shown, during the 9 years of work, the lack of knowledge transmission. All these reasons added up to the vulnerability of CNMGB to political influences of the university, oblige to deepen the treatment of the matter.

In the institutional aspect, we infer that there is a deficiency in the planning, follow up and evaluation system of CNMGB. At project level, there are no indicators correctly formulated, there is not a base line that becomes the reference to measure the

advancement during and after the cooperation and there is a lack of follow up to the actions that were performed to corroborate the advancement towards the objectives.

The practices and the means used to transmit the research to the cattle sector were not enough, that is why the credibility of the center was low during the period of the project. The growth is due to the results shown in this second stage.

The research on genetic improvement requires long and sustained research processes; therefore, a solid, credible and with long term projection institution is fundamental. The continuity of the national genetic research without these conditions is at risk.

At institutional level, managerial capacity to politically coordinate with the sectors participating in the project so that they have a participation and a greater responsibility in it was missing.

The sustainability of CNMGB politically and economically depends strongly on the university, which believes is the owner of the center. It is fundamental the cattle private contribution so that they may counteract this dependency. It is also fundamental a change of attitude inside CNMGB so that the research that is performed becomes a tool for their self-sustainability.

4 RECOMMENDATION AND LEARNED LESSONS.

4.1 RECOMMENDATIONS.

Due to the great demand of services and the needs of the beef cattle sector in Bolivia, it becomes a requisite the continuity of operation of CNMGB, but with a more egalitarian participation of the private sector and a prioritization of public sector.

It is necessary to conceive and to structure a specialized instance in extension and transmission of technology, within or independently of the structure of CNMGB, which could come to the different links of the productive chain, where small, medium and big ranchers find answers to his different requirements of technological levels, with different characteristics, conceptions and approaches to do ranching.

We strongly recommend to CNMGB and to the Japanese Cooperation the definition of a planning, follow up and evaluation system for the institution, so that they may project a work aimed to the perspective of continuity of CNMGB. We also recommend the parallel execution of the project's base line study that sustains the advancement.

An event of strategic decisions must be carried out as soon as possible. It should discuss the continuity of the center, its economic, operational dependency, and the participation of the different involved sectors. This event must be open to the participation of all the national cattle sector.

We recommend coming to a consensus within the logical framework that retrieves the different conceptions of the project. This must be adapted to the present conditions of the center and the new policies of the Japanese cooperation.

We recommend to CNMGB to continue its tasks of research with the Nelore race until it benefits all the members of the beef cattle sector, so that it really affects the improvement of productivity and increases the provision of meet in the national market.

We recommend CNMGB to emphasize the research of cattle handling and feeding; the genetic advancement would not yield results in the aimed population without this aspects

We recommend to consider the approach of productive municipality of the extension stage so that it becomes a financing alternative for local projects and their functionality.

In moments when there are budgetary cuts in all the state institutions, with a strong tendency of aggravation. We must think in new organizational or economical participation ways, from the point of view of continuity of the center.

One recommends to add technical specific indicators of genetic improvement, with progressive values in the time.

4.2 LEARNED LESSONS.

It must be fundamental for the Japanese Cooperation, in the formulation of new projects, the active participation of the affected sectors; it means a participative planning of the project, so that the involved participants become responsible of the actions to be executed in the future.

It should also be a pre-requirement for the execution of a project, a planning, follow up and evaluation system of the national counterpart or national institution, in order to guarantee the execution of actions and attainment of objectives that were formulated. The correct elaboration of a logical framework must be part of the project approval, where well elaborated indicators are included.

The projects must have an equalitarian participation of the state and the private sectors, in the economic aspect, the decision making and the participation in the actions. This balance is fundamental for the sustainability of the projects.

The tendency of the regional decentralization must also be taken in the conformation of the structure of the projects. The participation of the head of the sector at national level, the board of directors of the regional projects, diminishes the effectiveness of the decision making instance. It is more important that the state participates in the definition of sector policies than the board of directors of regional projects.

For CNMGB , it is not that important the transmission of this technique as a day to day practice but the essence of this technique so that its effect is useful in the future.

5 ANNEXES.

Annex 1: Geographical coverage of the Project.

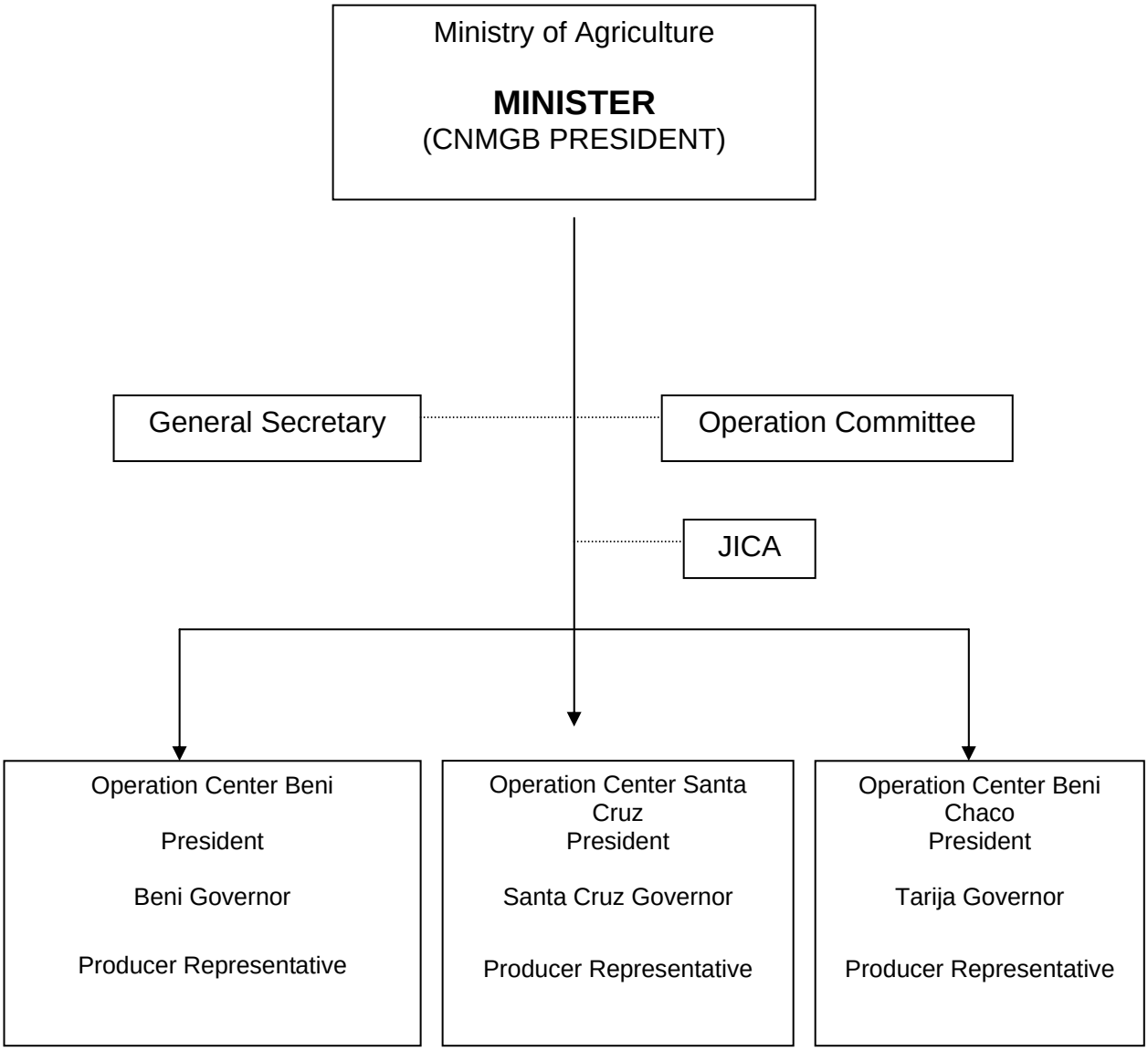
National Beef Cattle Breeding Center.
Santa Cruz Center

Beni Sub Center

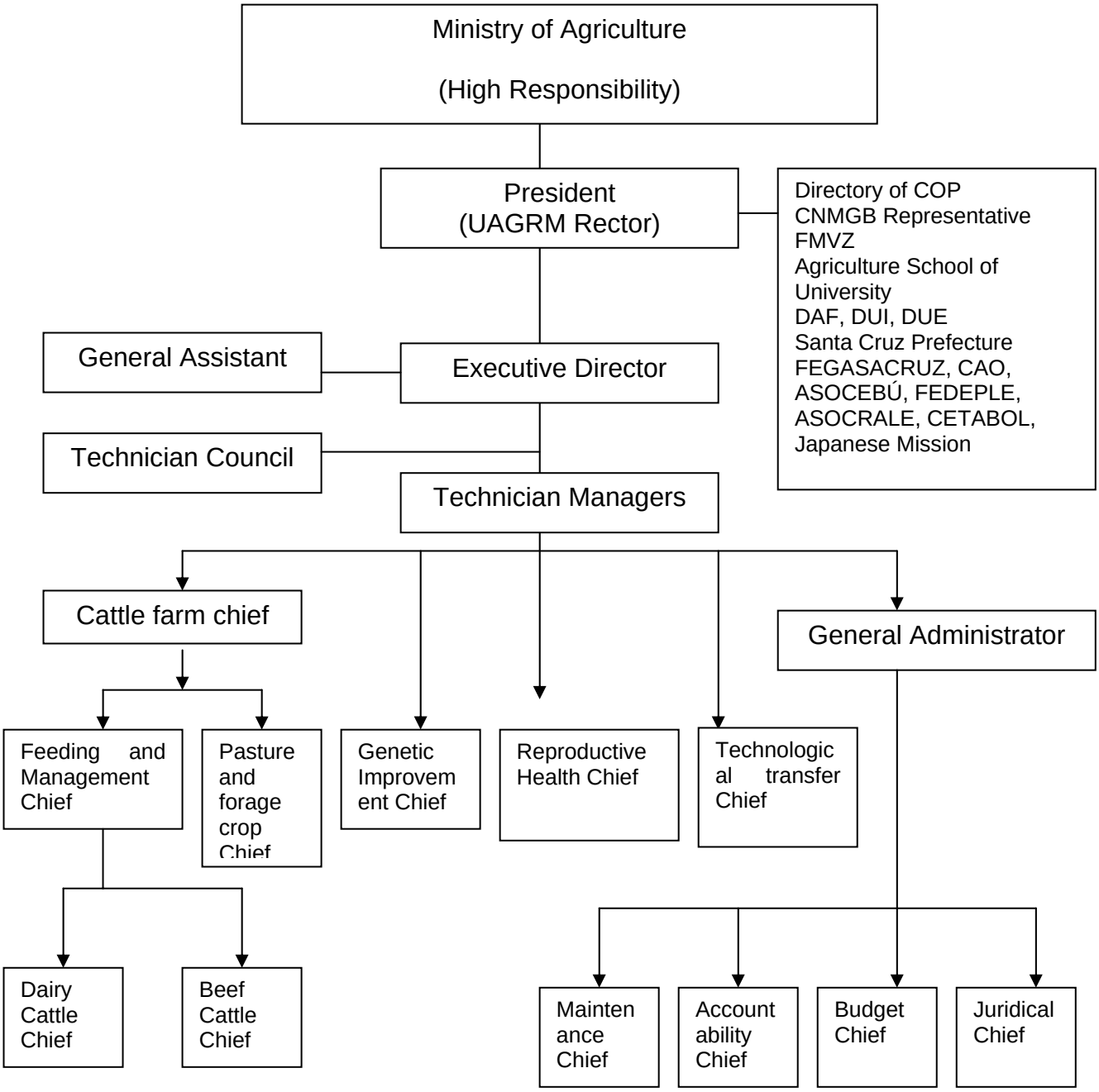
Annex 2: Organizational structure of the Project.

NATIONAL ORGANIZATION CHART LEVEL

NATIONAL COMMITTEE STRUCTURE

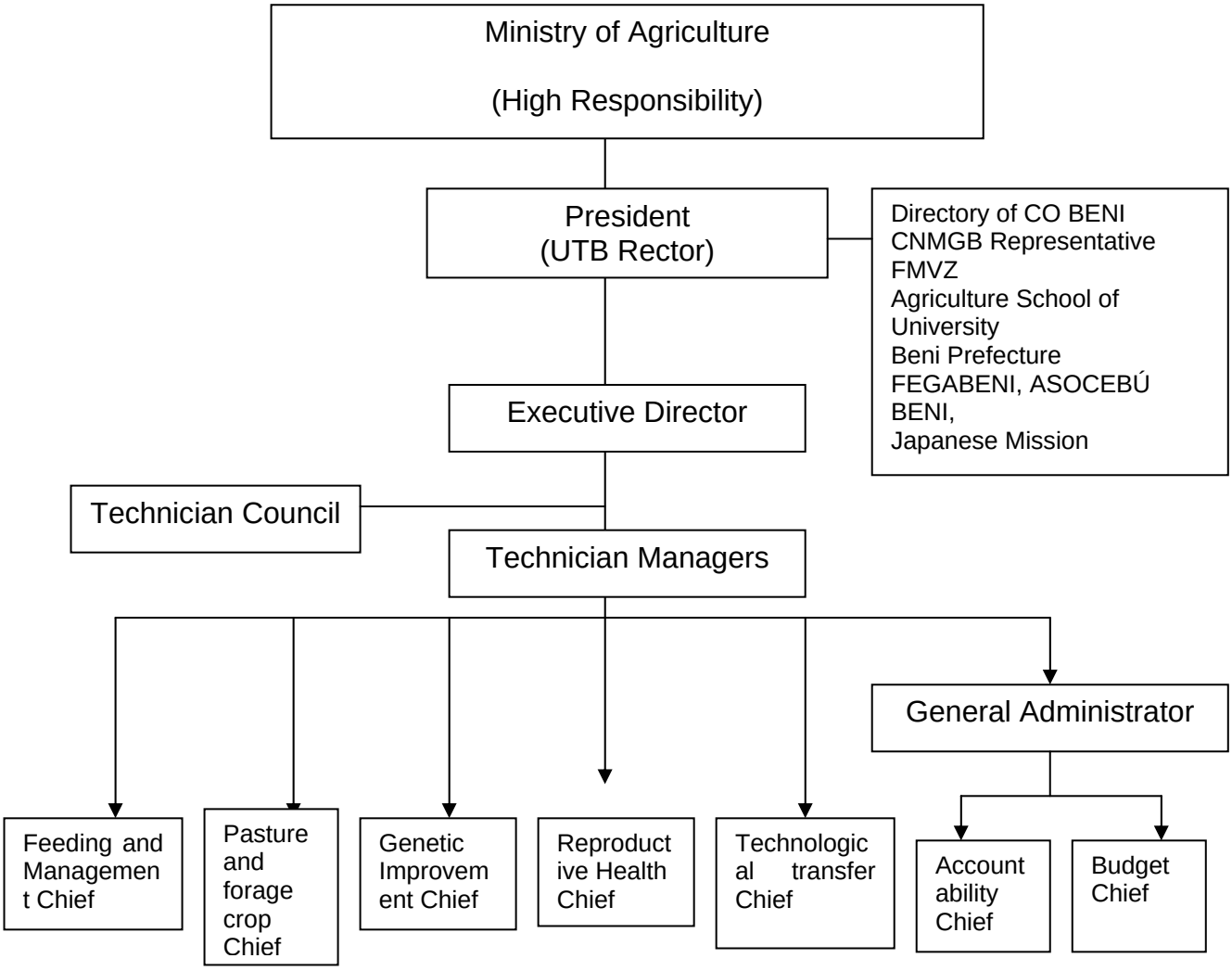


MAIN ORGANIZATION CHART OF SANTA CRUZ



AUTONOMOUS UNIVERSITY, GABRIEL RENÉ MORENO – SANTA CRUZ.
NATIONAL BEEF CATTLE BREEDING CENTER CNMGB
Main Center.

ORGANIZATION CHART OF BENI



BENI TECHNICAL UNIVERSITY
NATIONAL BEEF CATTLE BREEDING CENTER CNMGB
Operational Center.

Annex 3: Roll of Japanese experts of the project.

Period 1996 to 2001.

NAME	FIELD	YEAR
Long Term		
1 Akira Taya	Team Leader.	96 – 98
2 Eitaro Imaizumi	Team Leader.	98 – 01
3 Yoichi Okawara	Coordinator.	96 – 99
4 Fusayasu Kamiya	Coordinator.	99 – 01
5 Akira Chikamatsu	Genetic Improvement.	96 – 98
6 Takuji Okamoto	Genetic Improvement	99 – 01
7 Kasuo Soma	Embryo Transfer	97 – 99
8 Mituo Oto	Embryo Transfer	99 – 01
9 Hideo Tominaga	Feeding and Management	96 – 01
10 Yutaka Taniguchi	Pasture and Forage Crops	96 – 98
11 Takuji Okamoto	Pasture and Forage Crops	98 – 99
12 Yuji Tokura	Pasture and Forage Crops	99 – 01
Short Term		
1 Masatoshi Kuniyuki	Embryo Transfer	1996
2 Yoshiro Tozawa	Pasture and Forage Crops	1997
3 Kokichi Hosoda	Pasture and Forage Crops	1997
4 Tadasuke Toda	Feeding and Management	1997
5 Setsuo Hokonohara	Reproductive Health	1997
6 Akira Nakagawa	Embryo Transfer	1997
7 Yoshitaka Nagamine	Statistics for Genetic Improvement	1998
8 Yoshiro Tozawa	Pasture and Forage Crops	1998
9 Todasuke Toda	Feeding and Management	1998
10 Yuji Inaba	Reproductive Health	1998
11 Tomokazu Hirai	Embryo Transfer	1998
12 Yoshitaka Nagamine	Statistics for Genetic Improvement	1999
13 Satoko Matoba	Embryo Transfer	1999
14 Tetsuya Ikeda	Feeding and Management	2000
15 Osamu Sasaki	Genetic Improvement	2000
16 Tokuhisa Kitahara	Pasture and Forage Crops	2000
Third Country		
1 Alberto Hideo Oca	Genetic Improvement	1998
2 Alberto Hideo Oca	Genetic Improvement	1999
3 Nelly Ortíz	Animal Health	2000

Period 2001 to 2003.

NAME	FIELD	YEAR
Long Term Expert	Project Design Matrix.	2 years
Voluntary	Dairy	
Voluntary	Pasture and Forage Crops	
Third Country Expert	Genetic Improvement	
Short Term Expert	Genetic Improvement	
Short Term Expert	Feeding and Management	

Annex 4: Logical Framework of the project.

Narrative summary	Objectively verifiable indicators	Means of verification
OVERALL GOAL: The progress of productivity in beef cattle, the rise in income and secure of Bolivian farmers will be accomplished through the genetic improvement of beef cattle. **PROJECT PURPOSE:** Through the enforcement of planned introduction of superior Nelore, and related execute system, the total feeding techniques in beef cattle which include breeding, reproduction and feed production will be improved. **OUTPUTS:** • Beef productivity was improved through the systematized genetic improvement for the direct station testing of beef cattle. • Genetic improvement in beef cattle is accelerated by AI and ET technology transfer. • Quarantine for introducing the animals was established in line with the sanitary technology transfer and by the arrangement of facilities. • An annual razing system was introduced by the intensification of using electric fence. • By the acquirement of grazing technology fitted for grassland establishment and maintaining, the productivity of the forage crop and grass is improved. • Because of the transfer of hay and roughage reservation techniques, alimentary condition of cattle was improved. • The manual of transferred technology for each field are accomplished. • With the advance of technical maturity, C/P will able to train the technicians related to beef industry.	**OVERALL GOAL**: The number of superior cattle keeping will increase. The gross beef product will increase. Beef production will advance economically. **PROJECT PURPOSE:** Superior breed, fully adopted to local, will be selected by the technology transfer. Newly transferred technology will take root continually. **OUTPUTS:** • Possible to implement station performance test independently, and contribute to the promotion of registration systems. • Implement of the embryo flushing preservation and transfer to the recipient. • Establishment of the quarantine system for testing sites and periodical investigation system. • Model installation of efficient management for the herds. • Demonstration of the simplifying renovation techniques on pasture. • Revision of alimentary condition in wet and dry season by the establishment of roughage preservation techniques. • Elaboration of the manuals for technology transfer applicable to the beef farmers. • Implementation of training course.	**OVERALL GOAL**: National policy and the scheme for promotion of livestock industry in Bolivia are constant. Absence of political change, long term abnormal climate and outbreak of none-eradicable diseases. **PROJECT PURPOSE:** • Continual support from the cattle producers, Universities, prefecture, and the Government. • Improvement in technical skill of C/P makes integrated use of the pasture, facilities and testing sites. **OUTPUTS:** • Strengthened management system makes the functions of administration activities. • The tight relationships among producers, prefecture, the Government and related experimental institutes will be kept continually. • No interference with personnel by university and others. • C/P can be stable to this position, faithful to his responsibility and cooperative to all parts over station testing operation.

Annex 5: Result of the central behavior tests.

Result of the central behavior tests - SANTA CRUZ.
Breed Nelore, based on intensive pasturage.

Period	Number of test	Number of cabin	Number of bulls	Average GDDP (gr/day)	Winner of the test (gr/day)
Project	1ra (98 – 99)	5	23	658	685
	2da (99 – 00)	9	38	726	750
	3ra (00 – 01)	11	41	710	732
Post project	4ta (01 – 02)	10	28	678	804
	5ta (02 – 03)	11	40	608	887
	6ta (03 – 04)	9	35	727	862
	7ma (04 – 05)				
		Maximum 11	**Total 205**	**Average 684**	**Maximum 887**

GDDP= Daily Weight Gain.

Result of the central behavior tests - BENI
Breed Nelore, based on intensive pasturage.

Period	Number of test	Number of cabin	Number of bulls	Average GDDP (gr/day)	Winner of the test (gr/day)
Project	1ra (99 – 00)	3	19	507	670
	2da (00 – 01)	7	19	527	608
Post project	3ra (01 – 02)	5	19	627	731
	4ta (02 – 03)	4	13	549	745
	5ta (03 – 04)	5	21	600	673
	6ta (04 – 05)				
		Maximum 7	**Total 91**	**Average 560**	**Maximum 745**

GDDP= Daily Weight Gain

Annex 6: Summary of semen production.

YEAR	QUANTITY OF COWS	QUANTITY OF FROZENG SEMEN
1996	13	16.859
1997	21	24.228
1998	15	15.358
1999	18	25.541
2000	18	20.850
2001	23	27.782
2002	16	18.282
2003	25	35.723
2004	30	47.349
TOTAL	**179**	**231,972**
PROMEDIO /AÑO	**20**	**25,775**
MÁXIMO /AÑO (*)	**1**	**15,650**

(*)PÓLUX TE cow of The Sausalito

Annex 7: Evaluation grid: Project of Beef Cattle Improvement.

CRITERION	EVALUATION QUESTIONS		Criterion of measure achievement	Necessary information	Information sources	Information collection methods
	Main Question	**Sub question**				
IMPACT	1. Until what extent has the Superior Objective been reached, from the final evaluation?	• How has beef cattle productivity improved from the final evaluation? • Has the supply of meat in Bolivia increased since the completion of the project?. • What other changes have been produced at national level that have affected the development of the beef cattle after the project?.	Comparison of technical information recently obtained with the reports at the conclusion of the project and the final evaluation.	• Number of stabled cattle. • Increase of meat production. • Economic improvement of meat production.	• Cattle Registration • Economic registration.	• Review of documents • Interview.
	2. Have positive or negative, unexpected or other effects been observed in the project?	• What are the present effects, applied techniques during the execution of the project? • How have the beef cattle handling, reproduction and feeding improvement techniques evolved? • Has the introduction of superior breeding facilities continued with the same rhythm compared to the time of the project's execution?.	Analysis of present information compared to the reports of the final evaluation. Description of results of the discussion with participants and big producers.	• Number of improved techniques. • Data on applied techniques. • Opinion of big producers.	• Registration of techniques. • Field records. • Opinions.	• Review of documents. • Interviews. • Questionnaires.
	3. What factors have contributed to the positive or negative impacts?	• Have technical of economical factors affected the impact of the Project? (internal factors). • Have changes in the government policy or social movement affected the superior objective of the project? (external factors) • What other events influenced in the superior objective of the project after its completion?.	Description of results of the discussion with participating authorities.	• Satisfaction level of participants • Governmental Policies on this matter.	• Opinions. • Documents of national policies.	• Interviews. • Review of documents.
	4. How has the National Center of Beef Cattle Improvement empowered from the positive results of the Project?	• Have the research policies, strategies and lineaments of CNMGB been kept after the conclusion of the project?\ • Are the improved techniques introduced by the project part of the research system of CNMGB? • Is CNMGB still broadcasting the improved techniques developed during the execution of the project?.	Comparison of the present and former performance of the Center.	• Number of improved techniques • Data on applied techniques.	• Registration of techniques. • Registration of field.	• Review of documents. • Interviews. • Questionnaires.
	5. Has the Project contributed to the improvement of capacities of the National Center of Beef Cattle Improvement (counterpart entity)?	• What is the technical performance of CNMGB in the period without the Project? • How does the trained personnel work during the execution of the project • ¿Cual el desempeño técnico del CNMGB en el período sin proyecto?. • What is the attitude of the participants after the Project has concluded?.	Analysis of current institutional and at the end of the project. Discussion with participants.	• Personnel trained by the project.	• Registration of personnel. • Opinions.	• Review of documents. • Interviews. • Questionnaires. • Kirkpatrick Model.
	6. What negative and positive impacts have been produced as a result of the execution of the Project within small and medium producing groups?.	• What is the effect of the practices taught on the beneficiaries, after the completion of the Project? • What changes has the project generated in small and medium producers? • Has an unexpected result happened on the beneficiaries after the conclusion of the project? • Are there any other additional beneficiaries?.	Description of results from the discussion with beneficiaries. Current information analysis compared to final reports.	• Satisfaction levels of beneficiaries. • Analysis of field information.	• Field reports.	• Review of documents. • Interviews. • Questionnaires. • Focal groups.

CRITERION	EVALUATION QUESTIONS		Criterion of measure achievement	Necessary information	Information sources	Information collection methods
	Main Question	**Sub question**				
SUSTAINABILITY	1. How has MACA, Prefectures of Departments of Santa Cruz and Beni, Universities Gabriel René Moreno and Técnica del Beni have administered, operated and handled the activities and services implemented by the Project?	• Have the participating institutions kept their willfulness towards CNMGB after the conclusion of the project? • Is there are favorable attitude to continue supporting or accomplishing specific actions with the center in the future? • Is there a management capacity of financial and human resources needed to keep in a long term the results of the project? • Have the actions of the different participants been complementary?	Description of results of the discussion with authorities and participants. Analysis of the institutional administrative information.	• Opinion on the different participating institutions. • Institutional economic support.	• Registration of interviews. • Administrative documents.	• Interviews. • Review of documents.
	2. Have the results of the Project been kept from the termination of the cooperation?	• Can the effects or changes generated by the Project be conserved at the conclusion of the project? • What is the degree of use of the project's results on the beneficiaries? • What is the effect of the training offered to producers and institutions after the conclusion of the project? • Has CNMGB kept working with the lines established in the project after the conclusion? • How do the users grade the service offered by CNMGB after this period?.	Comparison of current performance with the former one of the Center. Analysis of current information compared with the reports of the final evaluation.	• Generated changes. • Use of results. • Amount and quality of training.	• Yearly Operative Plan. • Registration of field technical assistance. • Training reports.	• Review of documents. • Interviews. • Questionnaires.
	3. What factors have contributed or hindered the sustainability of the project?	• Are there necessary conditions that guarantee the results of the projects and their lasting effects? • How did beneficiaries respond after the conclusion of the project? • What are the changes until now, on the original strategy of the project?	Analysis of institutional strategic information.	• Number of beneficiaries. • Institutional strategies.	• Institutional strategic plans.	• Sampling polls to producers. • Review of information.
EFFICIENCY	1. In general terms. Do you consider that the achievements during the 5 years of application of the Project correspond to the investment?	• Have the activities of the Project continued? • Do the results obtained after the conclusion of the project still justify the expenses? • How is the investment considered after these many years?.	Analysis of the Activities plan. Analysis of cost benefit of the obtained results.	• Type and amount of activities. • Detail of costs and obtained results.	• Economic reports. • Technical reports.	• Review of documents. • Interview.
	2. Was it possible to achieve the same results during a smaller period of time or with a lesser investment?	• How have the resources been spent during the execution of the Project? How is it seen? • How can the costs control system of CNMGB be evaluated? • Was the time of the Project valid for the achievement of results? • Were the quality standards and controls in the execution of the project valid?	Analysis of the system and the accounting information. Analysis of the Activities chronogram.	• Amount of resources used per result. • Time used to achieve each result.	• Economic reports. • Technical reports. • Activities chronograms.	• Review of documents. • Interviews.
	3. Have the institutional problems been opportunely identified and solved?.	• *Has useful and timely information on the finance of the project, chronogram and use or resources existed?* • *How do technical and organizational problems were solved during the execution of the project?* • *What factors have affected the administration of the project and what were the solutions?*	*Analysis of the problems handling of the counterparts.*	• Amount of problems presented and their solutions.	• Meeting Acts. • Correspondence.	• Review of documents. • Interviews.

Annex 8: Roll of interviewees.

BENI DEPARTAMENT

Name	Institution	Position	Date
Ing. Rolf Koheler Perregon.	CNMGB - BENI	Executive Director	17 December 2004 20 January 2005.
Dr Luis Alberto Soria	Beni Technical University	Study Chief of School	17 December 2004
Ing. Yery Dubrasic	CNMGB - BENI CNMGB – BENI Cattle Ranch Tay Majal	Directory Member Ex Director Owner	18 December 2004
Ing. Hayashi	CNMGB - BENI	Senior Voluntary	18 December 2004
Dr. Armando Suárez Vargas	Beni Technical University	Scholarships holder	18 December 2004
Dr. Roberto Aguilera	FEGABENI CNMGB - BENI CNMGB - BENI	Technician Coordinator Scholarships holder Ex Director	19 December 2004
Lic. Pedriel	CNMGB - BENI	Administrator	19 December 2004
Dr Aponte	CNMGB - BENI CNMGB - BENI	Ex Director	22 December 2004. 14 January 2005.
Ing. Guillermo Suárez	Beni Technical University	Dean of Agriculture School	15 January 2005
Cap. Jorge Wilthertal	Beni Prefect Assessor Beni Prefecture Delegate to CNMGB. Cattle Man. Association Secretary of Cercado.	General Assistant CNMGB	15 January 2005
Dr. A. J. Melgar Becerra	Beni SEDAG Delegate to CNMGB.	Productive Development Director	15 January 2005
	ASOCEBU	Technician Managers	15 January 2005
Ing Antonio Rodal	Beni Technical University	Dean of FMVZ	18 January 2005
Dra. Tapias	CNMGB - BENI	Division Chief	18 January 2005
Dr. Carlos Vargas	Producers Association of milk Cercado, Marvan. Beni Prefecture	President. Represent ant.	18 January 2005
	Association Secretary of Cercado.	General Secretary	18 January 2005
Arq. Hugo Dellien	Cattle Ranch Corpus Christie	Owner	19 January 2005
Dr. Fernando Gómez	Technician Managers CNMGB – BENI Teacher UTB	Technician Managers	19 January 2005
Dr. Tito Enrique Salazar	Student of CNMGB Technician of ADEPLE.		19 January 2004
	Enterprise Cattle UTB	Technician Managers.	19 January 2005
Ing. Montaño	CNMGB - BENI		19 January 2005
Dr. Ronald Subirana	Beef Producer Association of San Borja.	President.	10 February 2005
Sr. Jorge Tobias	Cattle Ranch Copacabana.	Owner	10 February 2005
Dr. Iris Berduguez	Cattle Ranch San Pedro (San Borja)	Veterinary	10 February 2005
Dr.	Cattle Ranch Lago Azul (San Borja)	Veterinary	11 February 2005
Víctor Valderrrama	Beef Producer Association of Rurrenabaque	President	11 February 2005
Dr. Belisario Gualico	Beef Producer Association of Rurrenabaque	Veterinary	11 February 2005
Ing. Peter Elsner	Cattle Ranch Espíritu (Yacuma)	Technician Managers	1 February 2005

LA PAZ DEPARTAMENT

Name	Institution	Position	Date
Ing. Alejandro Urioste	MACA	General Director of Farming and food security	2 February 2005
Ing. José Campero	MACA	Director of Cattle Section	2 February 2005

SANTA CRUZ DEPARTAMENT

Name	Institution	Position	Date
Lic. Oscar Bowles.	ASOCEBÚ	General Managers.	9 December 2004
Dr. Moisés Salinas.	CNMGB – SANTA CRUZ	Technician Managers	17 February 2005
Dr. Javier Landivar.	CNMGB - SANTA CRUZ ASOCEBÚ	Ex Manager Technician Managers	17 February 2005
Dr. Gerardo Gómez.	UAGRM	Veterinary School Deam	17 February 2005
Ing. Luis Alfredo Cirbien.	FEGASACRUZ	Technical Department	18 February 2005
Lic. Eduardo Wills.	FEGASACRUZ	Planning Manager	18 February 2005
Dr. Hernán Saavedra.	Dairy Ranch. Milk Producer Association of Warnes. FEGASACRUZ	Owner. President. Director	18 February 2005
Sr. Luis Padilla.	FEGASACRUZ	Area Coordinator of North land.	18 February 2005
Dra Marbel Villarroel.	FEGASACRUZ	Technician Managers	18 February 2005
Sr. Luis Fernando Gutiérrez.	Cattle Ranch Parabanó.	Owner	22 February 2005
Ing Oswaldo Monasterio.	Cattle Ranch Sausalito ASOCEBÚ President	Owner	23 February 2005
Sr. Fernando Bruno.	Cattle Ranch Chaco Lejos ASOCEBÚ Director		23 February 2005
Lic Francisco Terceros.	Prefecture	Development Director	23 February 2005
Equipo técnico de CNMGB. Santa Cruz	CNMGB	Technician Team	23 February 2005
Sr. Isamu Chivana.	Cattle Ranch Capihuara	Owner	24 February 2005
Dr. Carlos Guzman.	AGANORTE	General Managers	24 February 2005
Sr Sakahuchi.	CETABOL		24 February 2005

Annex 9: Roll of counterpart personnel trained in Japan.

NAME	FIELD	YEAR
Period 1996 to 2001		
1 Jorge Orellana	Project Administration	1996
2 Ernesto Salas	Project Administration	1996
3 Moisés Soleto	Embryo Transfer	1996
4 María del Carmen Tapia	Genetic Improvement	1996
5 Javier Ortiz	Reproductive Health	1996
6 Ludwing López	Embryo Transfer	1997
7 Heriberto Salazar	Pasture and Forage Crops	1997
8 Rolf Koehler	Feeding and Management	1997
9 Henry Gonzalez	Feeding and Management	1997
10 Rodolfo Arteaga	Project Administration	1998
11 Fernando Gómez	Embryo Transfer	1998
12 Daniel Calderón	Genetic Improvement	1999
13 Silo Romero	Feeding and Management	1999
14 Marlene Limpias	Reproductive Health	1999
15 Daniel Aponte	Genetic Improvement	2000
16 Javier Landivar	Genetic Improvement	2000
17 Ezequiel Jiménez	Pasture and Forage Crops	2000
18 Juan Manuel Quezada	Pasture and Forage Crops	2000
19 Rubén Costas	Project Administration	2000
20 Saúl Rosas	Project Administration	2000
Period 2001 to 2004		2003
21 Dr. Montaño		2003
22 Dr. Rosa		

Annex 10: Interview to counterparts Kirkpatrick method

INTERVIEW TO COUNTERPARTS KIRKPATRICK METHOD)

(Focused on the Evaluation of impact and rentability of the distribution)

Course:

Date:

(Grading: Very good 4; Good 3; Regular 2; Bad 1)

LEVEL I - REACTION

Satisfaction of the student with the received training (poll after the course)

1 **Assess the positive and negative of the training:**

-

-

-

-

-

2 **What has been your response facing the:** Professor, methods, facilities or environment, rhythm, explicitness of, explanations, language:

3 **Are you satisfied with the course:** How to grade this satisfaction

-

-

-

-

LEVEL II - LEARNING

Measure the knowledge and assimilation of the student due to the different factors.

4 **What have your learnt?, Have you learnt anything:**

-

-

-

-

5 **How would you measure the knowledge acquired by the different factors: Contents of the course; learning**

activities, structure of the course; materials, tools, etc.

LEVEL III - CONDUCT OR BEHAVIOR

Measure the amount applied in your work after a while (Interview or questionnaire to beneficiary or directors)

6 **Was the training useful to you**

7 **Has the training changed anything in your work**

8 **How would you measure the application of your training in your work: Do you use what you have learnt, what**

do you use more and why. What don't you use

PART IV - RESULTS OR EFFECTIVITY IN THE ORGANIZATION

Effects of formation in the organization, impact, performance
(methods: Questionnaire, examine, registries, informs, pursuit a dates)

9 **Was it worth it:**

10 **Has the change in behavior affected positively the organization:**

11 **What are the effects of the training: Reduction of time, improvement of quality, productive increase, etc.**

12 **How do you consider the cost benefit of the training, for the institution:**