Impact of Extension in the Cañete Valley of Peru:
A Convergence of Spatial, Economical, Statistical and Anecdotal Evidence

Rashonda Hayes
Undergraduate Research Fellow, Agricultural Education and Communications
Texas Tech University
Box 42131
Lubbock, Texas 79409-2131
Phone: (806) 742-2816
Fax: (806) 742-2880
E-Mail: rashonda.m.hayes@ttu.edu

Victor Cabrera
Postdoctoral Research Associate
University of Miami

Matt Baker
Professor, Agricultural Education and Communications
Texas Tech University

Abstract

The Cañete Valley of Peru has a highly visible agricultural industry, with practices that can be easily transferred throughout other regions of Peru. However, there is a paucity of information currently available about the effectiveness of extension programs occurring in the Cañete Valley. As in many developing countries, the public sector extension presence in the region has extremely limited resources, leaving many producers dependent on consultation from private firms and non-governmental organizations. There seems to be little coordination or cooperation between these extension agencies. Due to the limited resources available for extension programming, it is important to monitor the impacts of extension programs from a cost effective view point. Typically, extension programs are evaluated based upon only one or two levels of evidence. The purpose of this research was to use a holistic approach of multiple levels of evidence to monitor and evaluate extension programs in the Cañete Valley. The evaluation data included anecdotal and economic data gleaned from Cabrera (1999), statistical data from a variety of governmental and non-governmental sources, and spatial data (Cabrera, 2001) from seven different images of the area that were created using GIS technology confirmed with census information. The spatial data were analyzed by observing and comparing the data found within each map, as well as a visualization of all of the maps collectively. The results of this study will assist extension planners in assessing the social, economical, and environmental impacts of their programs, and provide needed baseline information for monitoring on-going programs. These planners can also utilize the results to examine the recommended extension interventions or best agricultural practices, as well as farmers' tendency to adopt or reject previously recommended practices.

Study Context

The Valley

The Cañete Valley is located south of Lima on the western coast of Peru. Within the valley there are approximately 24,000 ha of cultivable land, which is irrigated using the Cañete River. Agricultural production in this includes asparagus, beans, maize, mandarins, apples, peaches, potatoes, cucumbers, peppers, garlic, alfalfa, cotton, peas, sweet potatoes, cabbage, tomatoes, grapes, pumpkins, and other various fruits and vegetables. There are approximately 6,000 farms in the valley with the average sizes being 1 to 50 ha. Almost 80% of these farms are of plots 10 ha or less. In terms of climate, Cañete Valley is an arid region of the country, with average summer temperatures ranging from 12ºC to 32ºC, with an average temperature of 18ºC (Cabrera, 1999).

Of the approximately 6,000 farms in the Cañete Valley nearly 80% of them belong to small farmers owning 10 ha of land or less (Cabrera, Hildebrand, Jones, 2005). The average family size on a farm within the Cañete Valley is three to seven members. The size of a family determines much of the labor availability and support to care for family members. Among the farms there are many different variations. In terms of educational levels, they range from little to no primary school to completion of secondary education. The other area where there is a great deal of variability between households is in available utilities. Utilities available within the valley are electricity, potable water, water drainage, and telephone. Only 11% of the population relies on all of these utilities, while 10% are unable to afford public-sector utilities. The remainder of the population varies on utility access, with electricity being the most predominant and the telephone least predominant (Cabrera, 2001).

The small farm household situation tends to lend itself to high amounts of interrelation between the home and farm. The main source of labor comes from within the family. There are three different work objectives within the average farm household. The first of these is field work which focuses on crop production including the growing process, communication, administration, and commercialization. The second of these is school work. The final area of work found in a house is housework which entails childcare, cooking, and cleaning (Cabrera, 2001).

Almost 75% of the farms depend on agricultural activities for all of their income and sustenance. The average sized small farm is 4.77 ha. The three most important crops to the valley are cotton, maize, and sweet potato. Other crops of importance are potatoes, yucca, beans, pumpkins, and tomatoes. About 60% of the farms have one animal which is usually guinea pigs, chickens, or ducks (Cabrera, 2001). One thing that the valley does have in its favor is that it is more technologically advanced than other valleys along Peru's costal desert (CIP, 2002).

Extension Programs

Valley Grand Rural Institute

On February 25, 1965 the organization *Promoter of Social Works and Instruction Popular* (PROSIP, Spanish acronym) a non-governmental organization created the Valley Grand Rural Institute (VGRI). VGRI is dedicated to developing rural extension programs that meet the needs of the people while using the resources available in order to change the behavior of farmers. They do this through providing training and education to adults through courses, technical assistance, service enterprise qualification and more. The organization has five objectives, including: 1) to develop the capacities of people, stimulating their creativity and leadership, so they are able to assume the role of managers in the development of communities, 2) to offer a formation of values in concern with work and authority, 3) to accomplish activities of investigation and transference of productive technologies that allow the operation to be maintained and to enhance the efficient use of resources, 4) to support the development of an enterprise mentality and the organization of producers so they can be advantageously inserted into the global economy, and 5) to foster coordination with other institutions, public and private, for the purpose of regional development.

In order to fulfill these objectives VGRI counts on their Agrarian School, the Agrarian Extension Service of the Coast, The Mountain Range Extension Program, The Enterprise Development Unit and other services of agriculturists. First and foremost VGRI depends on the input of their members to better meet their needs. The VGRI does not have their own research program and thus is reliant on other institutions to develop new technologies for their members to use (Cabrera, 2001). Through the various programs they offer, VGRI reaches over 1,000 small farmers each year. In order to offer all of these programs VGRI's budget is divided among three different sources. The first is through minimal fees they charge farmers for programs they offer. The remainder of the money is raised through local and national donations and then from international institutions (Cabrera, Baker, Hildebrand, 2000).

International Potato Center

The International Potato Center (known by its Spanish acronym CIP) is located in La Molina, Peru. The center consists of an international team of scientists from 25 countries and is underwritten by over 40 international donors. The mission statement of the CIP states: "The International Potato Center (CIP) sees to reduce poverty and achieve food security on a sustained basis in developing countries through scientific research and related activities on potato, sweet potato, and other root and tuber crops and on the improved management of natural resources in the Andes and other mountain areas (CIP, 2006, n.p)." CIP is a member of the Consultative Group on International Agricultural Research (CGIAR) and is Future Harvest Center.

The center's research ranges from gene disease defense to molecular technology. They have also worked on the development of new cultivars of sweet potatoes that will overcome many of the disease and cultivation problems of more established cultivars. With the cooperation of farmers, they are able to apply the research in more applicable life situations in early stages of research. They also incorporate workshops and educational programs into their planning to aid farmers with newer technology and resource development. Hopefully within these combinations CIP plans on increasing and improving income, health, and food supply for developing countries (CIP, 2006).

Peru Ministry of Agriculture

The ministry of Agriculture was established on December 31, 1942 and began operations on June 1, 1943. The mission of the ministry is: "To promote the development of the organized agrarian producers to productive chains within the framework of the river basin like unit of management of the natural resources, to obtain agriculture development in terms of economic, social, and environmental sustainability." Within in this mission is the vision which includes words and/or phrases such as: organized, competitive, profitable, sustainable, economic, social, environmental, democratic surroundings, and equality of opportunities.

Currently the focus on the ministry is to prepare a plan for land usage over the next 15 years. The goals within this plan are to increase yields, competitiveness, reduce rural poverty, and to increase efficiency and proper handling of resources. There are several factors that will have to be overcome in order for their plans to be implemented. Among them is harvest concentration for most crops and seasonal variability. A radical transformation is needed within the Ministry of Agriculture in terms of organizational structure and planning, in able to better meet the needs of individual farmers. The three step plan that will be implemented includes 1) change in investments in technological elements, 2) the organization of producers to plan for certain crops, and 3) the obtainment of currency to breach the gap between agricultural exportations and supply needs within the country (Portal Agrario, 2006).

Theoretical Framework

Formative program evaluations provide program performance feedback relative to program process and/or program outcomes (Rossi, Freeman, & Lipsey, 1999; Worthen, Sanders, & Fitzpatrick, 1997). Formative evaluations of agricultural extension programs in developing countries are essential. Two major factors contribute to the need for formative evaluations. First, much of the on-station research, which results in approved practices, has limited generalizability beyond the agricultural experiment stations (Hildebrand & Russell, 1996). Secondly, often practices are a result of research or indigenous knowledge conducted exclusively on-farm, and may suffer credibility which limits broader adoption (Baker, Koyama & Hildebrand, 1999; Baker, Araujo & Hildebrand, 1998).

Small, limited resource farming communities are highly elaborate systems. A comprehensive analysis of a livelihood system includes land, labor, and capital requirements for sustaining the household. Household composition, gender–related responsibilities, off-farm or non-farm activities, land ownership, credit availability, marketing information, and production seasons and cycles all directly or indirectly impact crop and animal agro-systems, which impact households (Rocheleau, 1987; McDowell & Hildebrand, 1986; Cabrera, 1999; Sullivan, 1999).

Purpose and Objective of the Study

The purpose of this research was to use a holistic approach of multiple levels of evidence to monitor and evaluate extension programs in the Cañete Valley. The specific objective of the study was to determine the effectiveness of extension programs based upon a convergence of spatial, economical, statistical and anecdotal information.

Methods

The researchers used a mixed-method approach in designing this ex post evaluation of extension practices in the Cañete Valley. This research includes a summary of statistical, economic, anecdotal, and spatial data, collected from 2000 – present.

Findings

Economic and Statistical Data

In 2000, Cabrera, et. al., conducted a formative evaluation to assess the appropriateness of recommended fertilization practices for cotton production, and to determine the economic feasibility of recommending grape and asparagus production to limited resource farmers in Peru's Cañete Valley. This evaluation was conducted in cooperation with VGRI. Cotton production records of over 600 farmers were used to develop the cotton production functions. The production function analyses revealed that extensionists should consult farmers on an individual basis, as opposed to the current practice of recommending fertilizer rates based upon geographic region within the Cañete Valley. Linear programming with data from numerous qualitative and quantitative sources was used to determine the appropriateness of recommending grape and asparagus production. At the time, it was recommended that in no case should grape production be recommend to limited resource farmers, and asparagus production should be recommended to this same client group with caution.

In a 2002 study of households in the Cañete Valley, Cabrera and Hildebrand explored the effect of household composition upon household security and well-being. Using a process simulation model accounting for births, age, and deaths of household family members and for livestock, crops, and financial activities with price and yield as stochastic variables, ten typical households were simulated. Results revealed that family composition had a huge impact upon economic stress in 10, 20, and 40 year models. Overall, households with lesser numbers of members exhibited less stress.

Anecdotal and Statistical Data

For the past 5,000 years cotton has been an important crop in Peru. However, a new twist on an old crop has the potential to bring about a revolution that could greatly reduce the use of pesticides and increase the profit gain for farmers. This new variation is organically grown cotton. Though it only accounts for one percent of the current world cotton production, organic cotton has a 40% price premium. The Pesticide Action Network (PAN) promotes the use of organic cotton around the world. PAN launched their Ecological Cotton Project in 1997 in the Cañete Valley, with 40 small farmers. Only 500 ha of organic cotton were grown in the valley, despite its definite potential. In order to aid in disseminating the information into the public, PAN used public workshops and farmer training programs. These programs focused on the importance of cotton to the culture and economy and also taught techniques for ecological soil and pest management (Reeves, 1998).

The Cañete Valley produces the highest levels of sweet potato nationally, each year 5,000 to 7,000 ha are planted. The average yield of sweet potato in 1999 was 22 tons per ha. It is primarily planted by small farmers because it is seen a lower risk crop when compared to others. It is eaten more regularly by low income families because it has a good flavor and battles nutritional deficiency. However, like many of the other crops within the valley, sweet potato was greatly affected by the El Niño years that increased whitefly, aphid, and Sweet Potato Virus Disease (SPVD). The normal five varieties that were planted in the valley became infested or infected with such pests. The National Institute of Agricultural Research, the National Research Program for Potato and Sweet Potato, and the International Potato Center teamed up to develop new varieties that would be resistant to these pests. The main focus of this program was to insure that all of the new cuttings produced were free of pathogens (Fonseca, Zuger, Walker, & Molina, 2003).

Spatial Data

Using GIS data, the researchers discovered that there are 184 farms dedicated to conventionally grown cotton within the PIPA Valle Grande (Figure 1). These are farms that are under the supervision of the VGRI. Within these farms only one farm is 25-50ha and only one is greater than 50ha. The majority of conventionally grown cotton is located in the Viejo Imperial irrigation sector. There are 25 different organic cotton farms within the valley (Figure 2). Some of these areas overlap with the PIPA Valle Grande areas where conventionally grown cotton is produced. All farms that grew organic cotton were less than 25 ha in size. Organically grown cotton is produced in the Hunaca, San Miguel and Maria Angola irrigation sectors.

From a landscape perspective, the valley is broken up into several different sized parcels of land (Figure 3). The majority of the larger farms of 50 ha or more are located on the south and southwest parts of the valley. There are a total of 14 farms of 50 ha or more with 10 of these being broken up into smaller sections of multiple cultivars. There are 43 farms of 25-50 ha each, and 33 of these are broken into smaller plots with multiple cultivars. The farms of 5 ha or less are usually away from the coast. The valley has a large variety of agricultural production ranging from horticulture to livestock production (Figure 4). The agronomic production includes asparagus, strawberries, beans, grasses, maize, mandarin oranges, apples, peaches, potatoes, cucumbers, peppers, garlic, green peas/vetch, sweet potatoes, cabbage, and pumpkins. There are seven poultry farms and 14 cattle ranches; these are found on parcels less than 7 ha each.

Very little of the land is not being utilized. Maize is grown throughout the valley in plots of land normally smaller than 12 ha each. Cucumbers are also found throughout the valley, though the highest concentration can be found within the San Miguel irrigation area. The majority of the mandarin production is located along the southern part of the valley, as are other fruits, grapes, and peaches. Asparagus, beans, and peas are grown on very few farms located primarily in the southern one-half of the valley. The primary concentration of tomatoes, grasses, and strawberries is along the exterior of the valley, though small plots of land growing these crops can be located throughout the valley. Apples and peppers are grown less than most other crops. They are primarily gown in the southeast region of the valley in the San Viguel irrigation sector. Potatoes are primarily grown along the river. Sweet potatoes are grown in smaller plots of land throughout the entire valley.

There are seven different irrigation sectors: Palo Herbay, Pnachacamilla, Maria Angola, Nuevo Imperial, San Miguel, Viejo Imperial, and Huanca (Figure 5). In order to provide water into these different sectors multiple canals run through the valley. The largest irrigation area is the Nuevo Imperial located in the northern and eastern parts of the valley. It has 2,818 lots and a total of 8,195 ha of land. The average size of the lots is 3 ha. The Huanca irrigation sector has the largest average size lots at 5 ha with a total area of 2,947 ha being divided among 538 lots of land. The smallest irrigation sector is the Panchacamilla irrigation sector with only 309 lots and 1,099 ha of total area. The largest farms, those of 50 ha or greater are found in all irrigation sectors except the Viejo Imperial and Maria Angola. These two irrigation sectors are primarily composed of farms of less than 12 ha each. The majority of farms that are 25-50 ha in size are found in the Nuevo Imprial irrigation sector.

SENASA (Servicio Nacional de Sanidad Agraria) traps were set up in order to keep track of insect pests throughout the valley (Figure 6). They are concentrated in the southwest area of the valley in the San Miguel and Viejo Imperial irrigation sectors. These traps also extend outside the normal valley parameters found in the other maps. The population concentration is primarily located on the outer edges of the valley with two large population areas in the center of the valley (Figure 7). There are however smaller population centers spread throughout the valley. There are 17 medical facilities within urban populations and six within rural populations.

Discussion

As is the case with so many journeys in life, the road from which we initially departed took us to a different destination than was intended. Clearly, it was much more difficult than we anticipated obtaining specific details on extension programming in the Cañete Valley. This frustration was exacerbated as we attempted to obtain historical records from three very different organizations working in the region. Obviously, without accurate information on program history, it was impossible to look at program efficacy. So the authors determined it would be most prudent to discuss extension programming in terms of structure.

Internationally, a number of extension models have been utilized (Seevers, Graham, Gamon, & Conklin, 1997) with limited success in an effort to improve the quality of life of rural producers. Although in the U.S., states may vary in their approach to extension programming, the U.S. land-grant model is considered by many as being linear in nature and typically includes target populations, resources for programming, and activities associated with achieving program objectives (Boyle, 1981; Bennett & Rockwell, 1995; Boone, 1985; Taylor-Powell, Steele, & Doughlah, 1996;). For many years, the land-grant model served rural producers very well. Most agricultural knowledge was produced by the land-grant system or its USDA partners and Extension was used as a conduit from the generator to the consumer of agricultural information.

As no coincidence, much of the program logic underlying the land-grant model is undergirded by the adoption/diffusion of innovations model as advanced by Rogers (1995), who suggests that most innovations are diffused through a bell-shaped curve. Adopter categories along the curve include innovators, early adopters, early majority, late majority, and laggards. He also advances that there are characteristics of innovations which determines the rate of adoption, including relative advantage, compatibility, trialability, complexity, and observability. However, one of the major criticisms of Roger's model is that it results in a pro-innovation bias, where technology generation drives extension programming.

Another influence upon the land-grant Extension model is a reductionist epistemological orientation for assessing agricultural needs and evaluating extension program results. On the biophysical side, the reductionist approach is exemplified by disciplinary boundaries, or at best multidisciplinary approaches that may not lend to the detection of intended and unintended consequences of scientific innovations upon the entire system. On the social research side, a commonly used method involves survey research, whereby questions are often developed from a researcher's or extensionist's point of view rather than the point of view of a producer (Toness, 2005). The reductionist approach to needs assessment and program evaluation has resulted in some challenging the model by claiming that it is top-down in its approach.

Consequently, a number of forces and factors have contributed to the emergence of more non-linear extension models that place the rural producer at the center of the model. Leeuwis (2004) contends that challenges for agricultural extension practice are in part due to challenges to farmers and agriculture at-large. He identified these challenges as: (1) food production, food security, and intensification; (2) poverty alleviation and income generation; (3) sustainability, ecosystems, and natural resource management; (4) globalization and market liberalization; (5) multi-functional agriculture; (6) agrarian reform; (7) food safety and chain management; and (8) knowledge intensity, knowledge society, and commoditization of knowledge. He concluded by stating that:

> Most of the innovations needed in present day agriculture have collective dimensions (i.e. they require new forms of interaction, organization, and agreement between multiple actors) has important implications for extension practice and extension theory (p.11).

Similarly, Rivera and Alex (2004) argued that extension can no longer be viewed as a unified service, but must be viewed as a network of information and knowledge sources. Implicit in this assertion is that numerous information sources including local or indigenous knowledge must be utilized in extension programming.

It is also interesting to note that alternative needs assessments techniques are emerging to help extension program planners to better understand the needs of producers. Examples include sensemaking (Rose, Beilin, & Paine, 2004), photo-elicitation (Beilin, 1998), Q-methodology (Jones, Kistler, Baker, & Doerfert, 2005), and ethnographic linear programming (Litow, Baker, & Hildebrand, 2001). These tools take a more constructivist approach in the needs assessment process, as opposed to the more reductionist approach mentioned above.

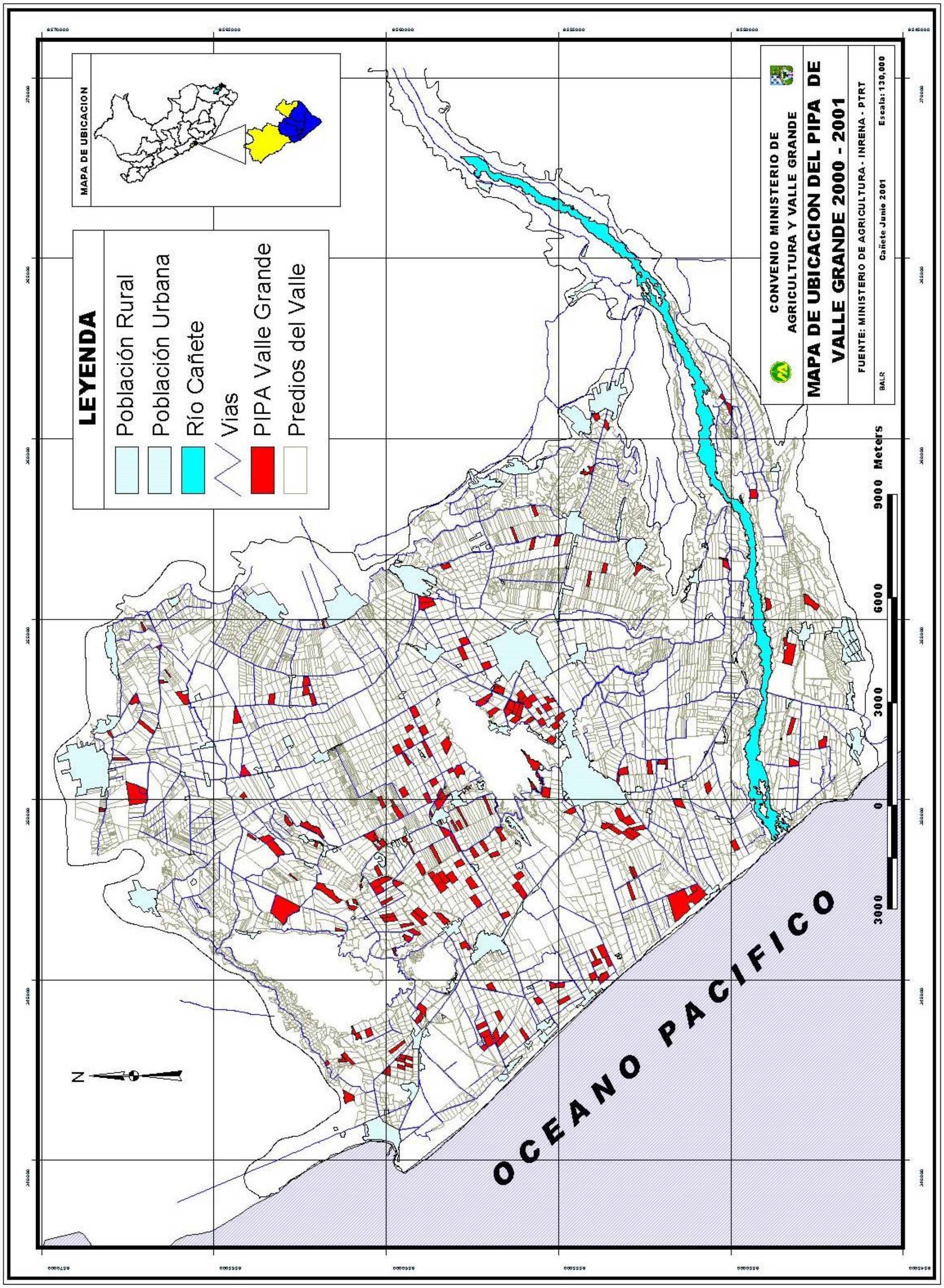
The authors are fully convinced that future extension programming must be established around social learning theory. In a qualitative study of more than 100 individuals committed to work on behalf of the common good, Daloz, Keen, Keen, and Parks (1996) concluded by stating: "it is significant that we found *constructive engagements with otherness* to be the single most critical element undergirding commitment to the common good in the lives of those we studied. There is a vital need in every sector of the commons to encourage meeting and dialogue . . . (p. 215)."

According to Koelen and Das (2002), social learning theory contends that farmers make decisions based upon a combination of normative social influence (i.e. community expectations, peer perceptions) and informational social influence (research-based knowledge). In situations that are highly complex, where ambiguity is experienced, or there is a lack of complete information, such as in the case of the many water conservation decisions that farmers are faced with on a continuous basis, normative social influences tend to become more salient and important to group members.

An interesting extension approach based upon social learning theory involves the establishment of a Community of Practice (Holmes & Meyerhoff, 1999). In this approach, farmers are placed in the center of the extension model. As indicated by Rose Beilin, and Paine, (2003), collective learning and action does not happen instantly or quickly. People have multiple points of view, needs, domains of expertise, and agendas. Consequently, it is extremely important to focus upon communications structures (sharing of experiences, ideas and information) through a continuous dialog of responsibilities, goals, and roles. When farmers begin to think about their individual farming systems in relation to their neighbors who share a common natural resources, then they often make decisions based upon both the good of the whole as well as the good of the individual (Rose, et. al., 2003).

Although this alternative model to extension programming is still being tested in differing regions of the world, anecdotal feedback from the producers has been very positive. We sense that community readiness is a huge issue to approaches grounded in social learning theory. We also acknowledge that not all communities are within a state of readiness for empowerment (Mashburn, Pomeroy, Liberato, & Baker, 2005) and that it is often difficult to assess community readiness. However, interest continues to grow in non-linear constructivist approaches that place the farmer in the center of programming.

Figure 1



LEYENDA
Población Rural
Población Urbana
Río Cañete
Vias
PIPA Valle Grande
Predios del Valle
MAPA DE UBICACION
CONVENIO MINISTERIO DE
AGRICULTURA Y VALLE GRANDE
MAPA DE UBICACION DEL PIPA DE
VALLE GRANDE 2000 - 2001
FUENTE: MINISTERIO DE AGRICULTURA - INRENA - PTRT
BALR
Cañete Junio 2001
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OCEANO PACIFICO
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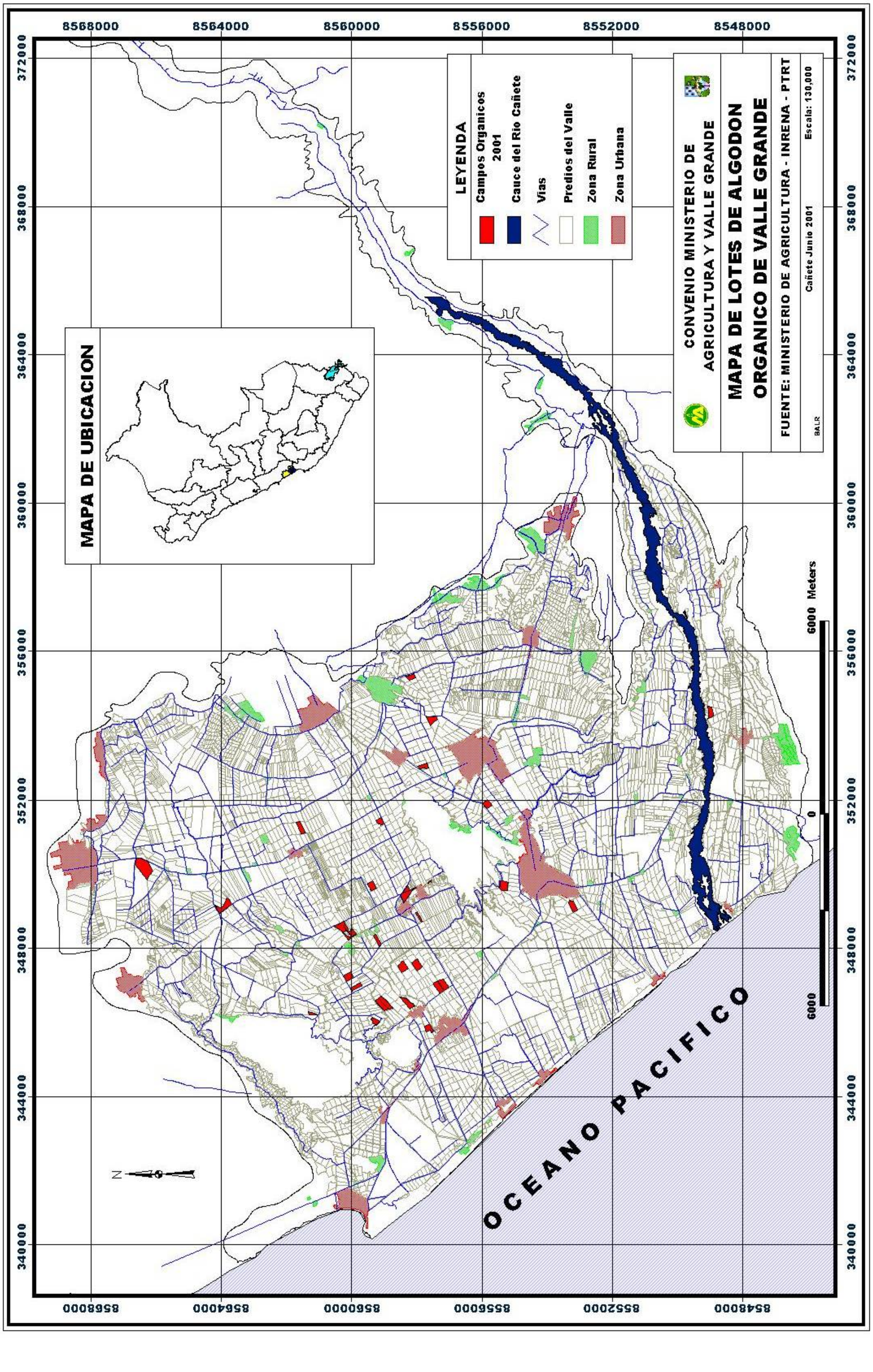
Figure 2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LEYENDA
Campos Organicos 2001
Cauce del Rio Cañete
Vias
Predios del Valle
Zona Rural
Zona Urbana
CONVENIO MINISTERIO DE AGRICULTURA Y VALLE GRANDE
MAPA DE LOTES DE ALGODON ORGANICO DE VALLE GRANDE
FUENTE: MINISTERIO DE AGRICULTURA - INRENA - PTRT
BALR
Cañete Junio 2001
Escala: 130,000
OCEANO PACIFICO
6000 0 6000 Meters
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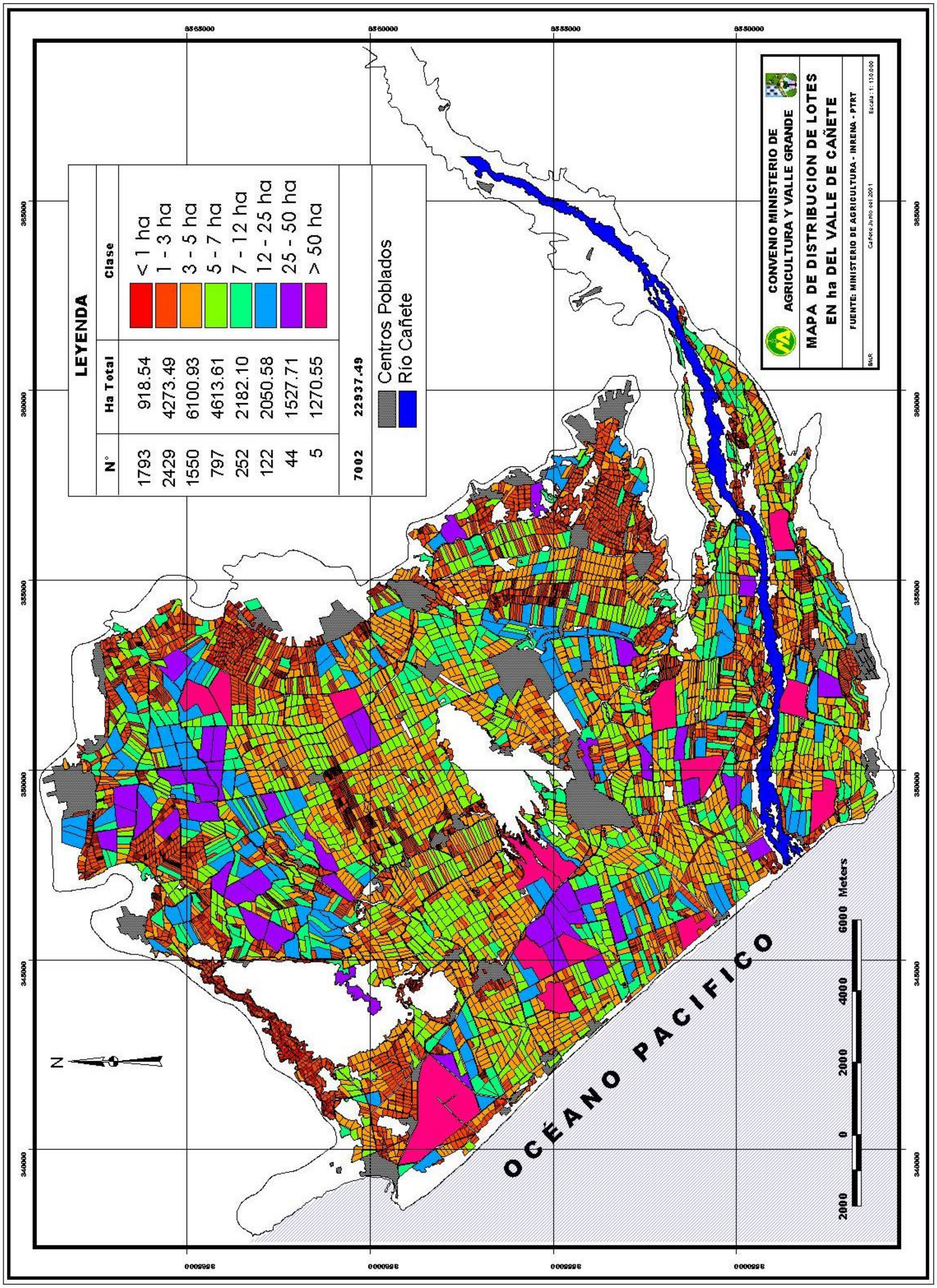
Figure 3



LEYENDA
N° | Ha Total | Clase
1793 | 918.54 | < 1 ha
2429 | 4273.49 | 1 - 3 ha
1550 | 6100.93 | 3 - 5 ha
797 | 4613.61 | 5 - 7 ha
252 | 2182.10 | 7 - 12 ha
122 | 2050.58 | 12 - 25 ha
44 | 1527.71 | 25 - 50 ha
5 | 1270.55 | > 50 ha
7002 | 22937.49
Centros Poblados
Río Cañete
CONVENIO MINISTERIO DE AGRICULTURA Y VALLE GRANDE
MAPA DE DISTRIBUCION DE LOTES EN ha DEL VALLE DE CAÑETE
FUENTE: MINISTERIO DE AGRICULTURA - INRENA - PTRT
OCÉANO PACIFICO
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Figure 4

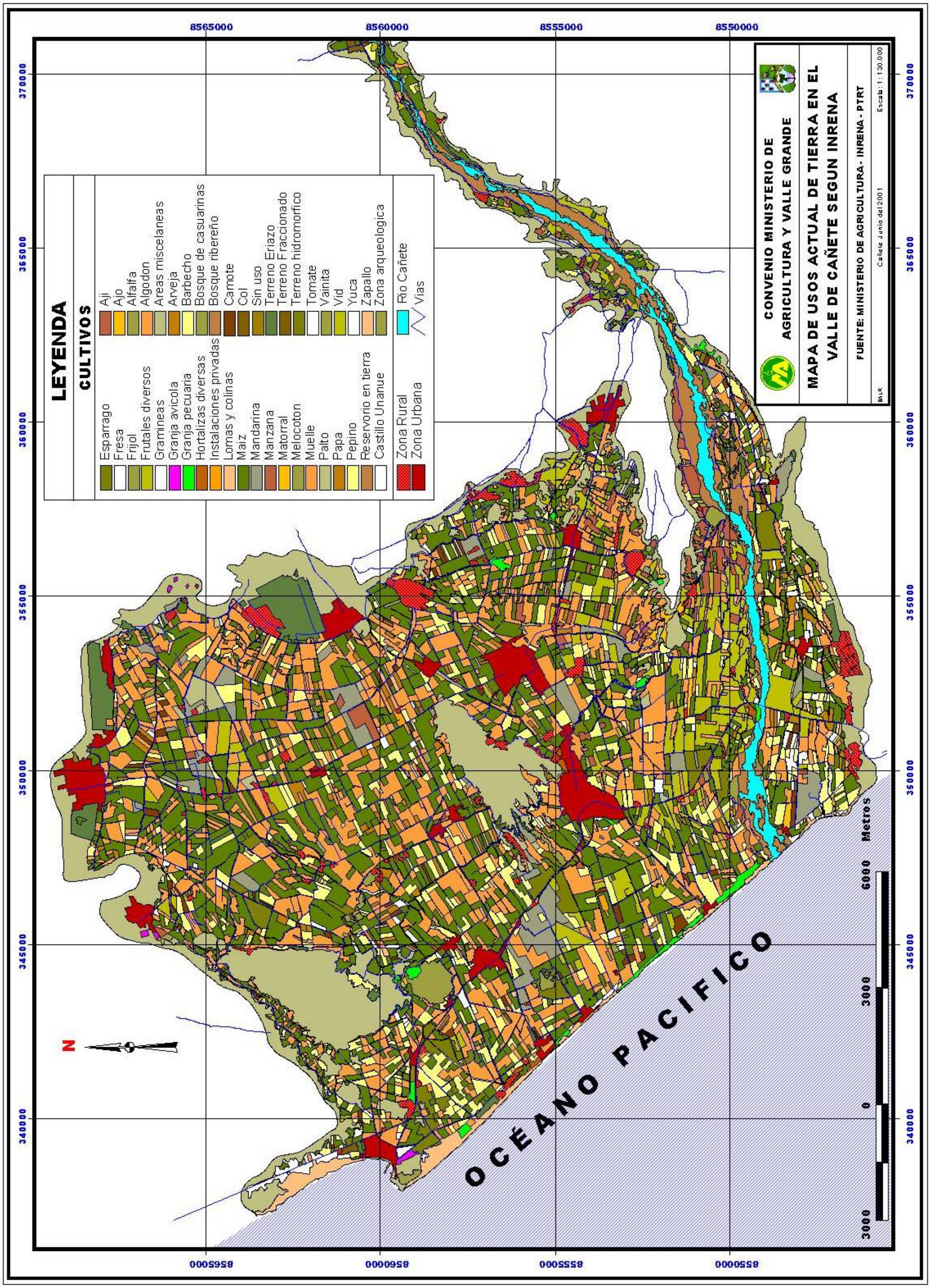
LEYENDA
CULTIVOS
Esparrago
Fresa
Frijol
Frutales diversos
Gramineas
Granja avicola
Granja pecuaria
Hortalizas diversas
Instalaciones privadas
Lomas y colinas
Maiz
Mandarina
Manzana
Matorral
Melocoton
Muelle
Palto
Papa
Pepino
Reservorio en tierra
Castillo Unanue
Aji
Ajo
Alfalfa
Algodon
Areas miscelaneas
Arveja
Barbecho
Bosque de casuarinas
Bosque ribereño
Camote
Col
Sin uso
Terreno Eriazo
Terreno Fraccionado
Terreno hidromorfico
Tomate
Vainita
Vid
Yuca
Zapallo
Zona arqueologica
Zona Rural
Zona Urbana
Rio Cañete
Vias
CONVENIO MINISTERIO DE AGRICULTURA Y VALLE GRANDE
MAPA DE USOS ACTUAL DE TIERRA EN EL VALLE DE CAÑETE SEGUN INRENA
FUENTE: MINISTERIO DE AGRICULTURA - INRENA - PTRT
OCÉANO PACIFICO
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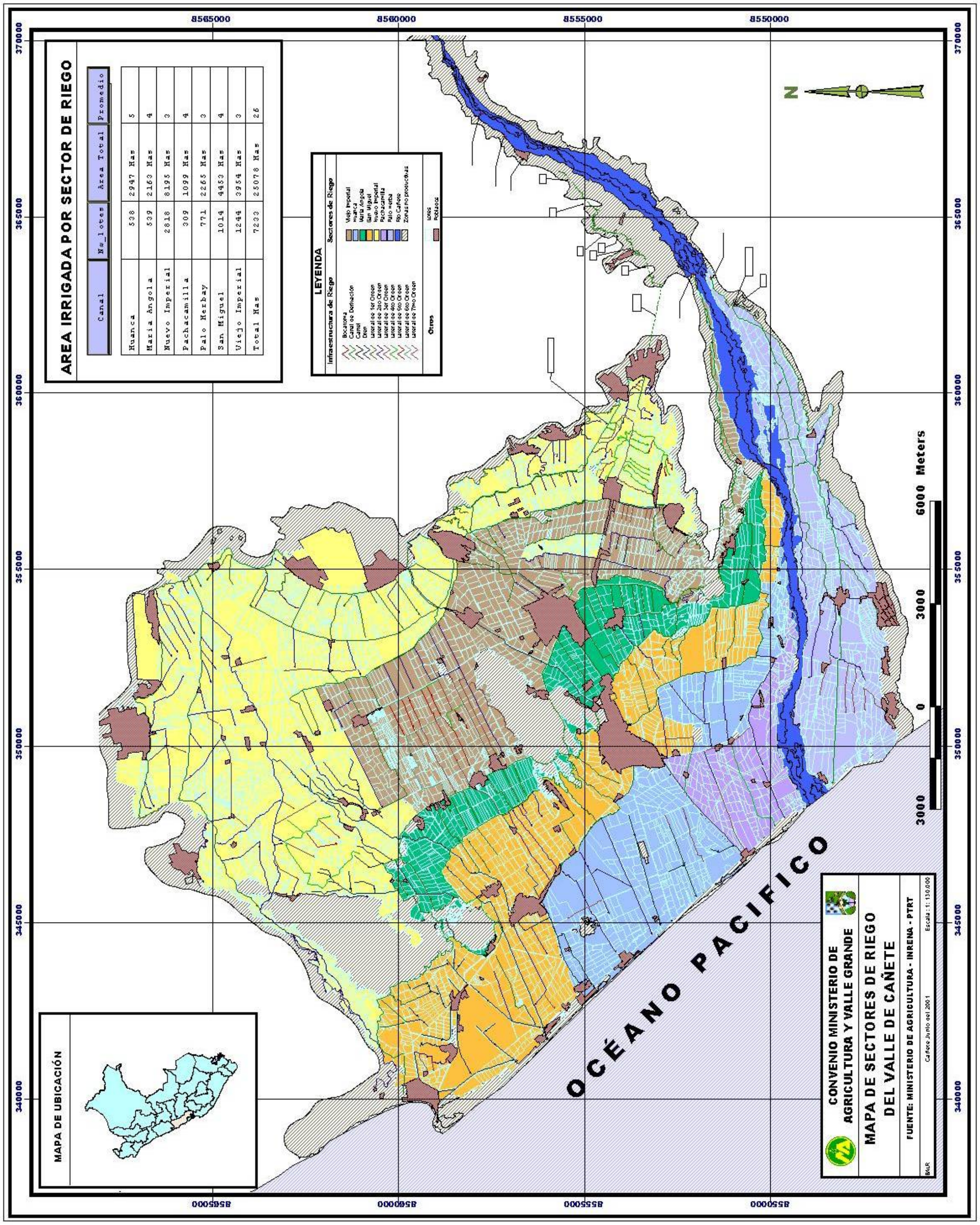
Figure 5



Canal	Nº_lotes	Area Total	Promedio
Huanca	538	2947 Has	5
Maria Angola	539	2163 Has	4
Nuevo Imperial	2818	8195 Has	3
Pachacamilla	309	1099 Has	4
Palo Herbay	771	2265 Has	3
San Miguel	1014	4453 Has	4
Viejo Imperial	1244	3954 Has	3
Total Has	7233	25078 Has	26

Figure 6

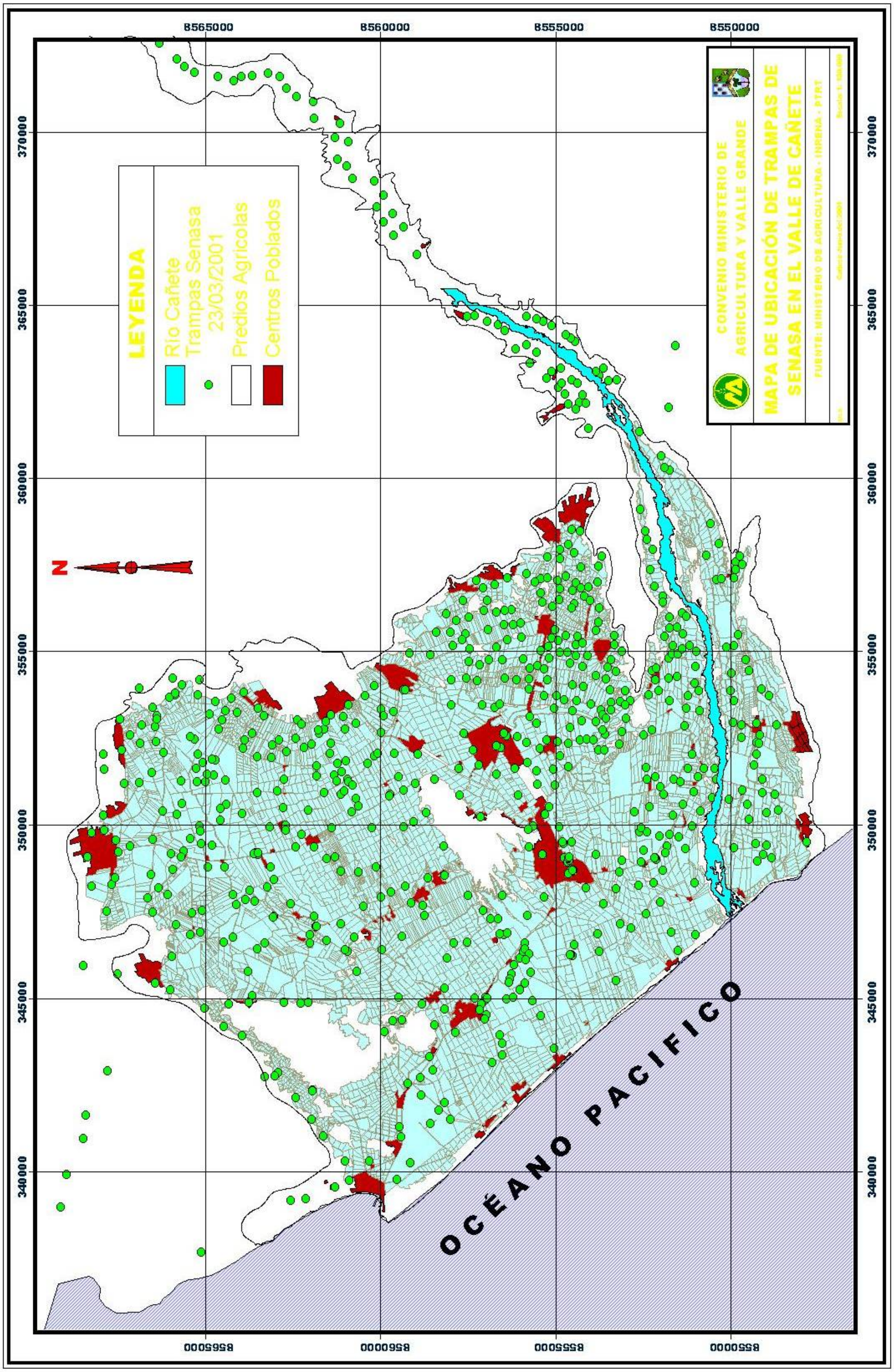
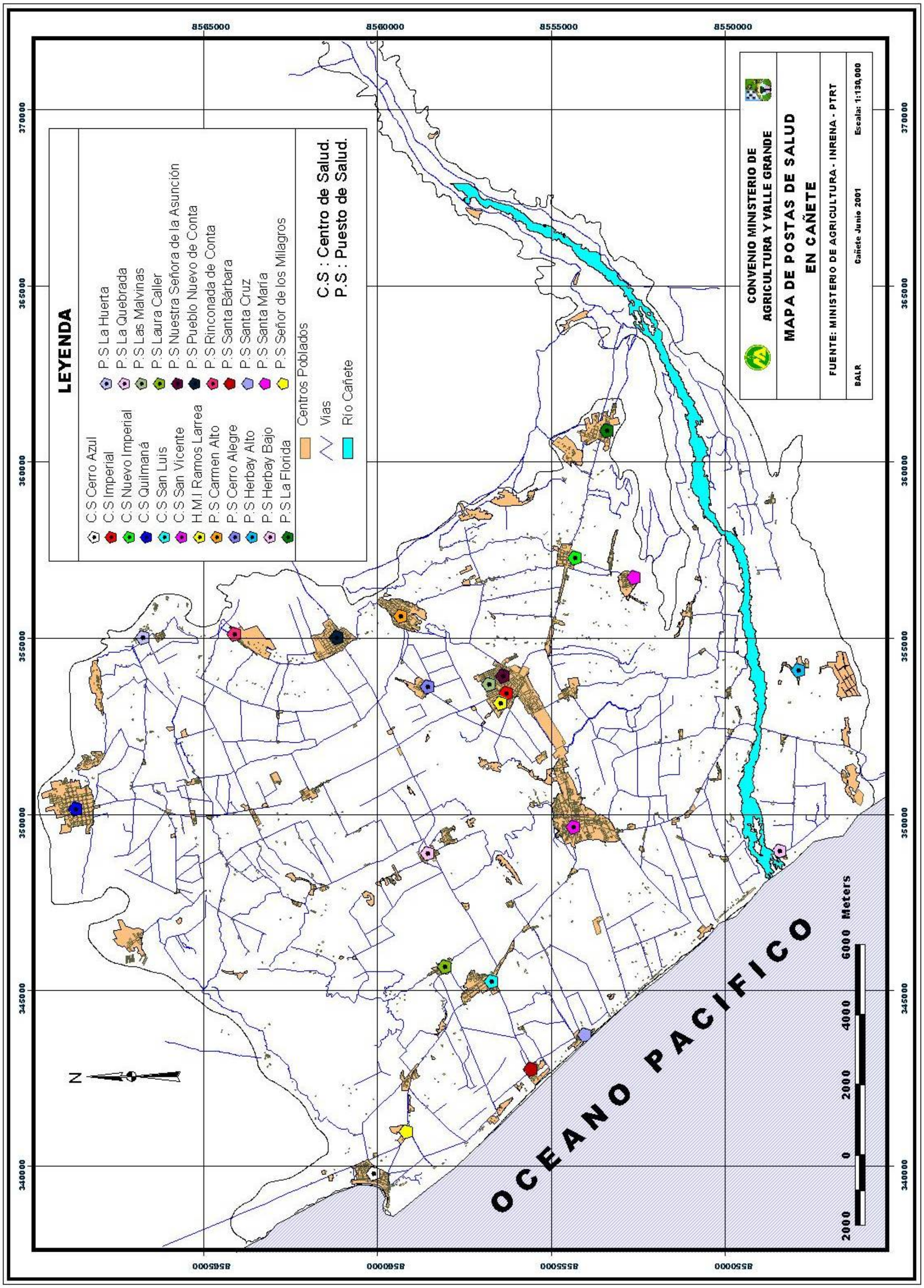

LEYENDA
Río Cañete
Trampas Senasa 23/03/2001
Predios Agrícolas
Centros Poblados
N
CONVENIO MINISTERIO DE AGRICULTURA Y VALLE GRANDE
MAPA DE UBICACIÓN DE TRAMPAS DE SENASA EN EL VALLE DE CAÑETE
OCÉANO PACIFICO

Figure 7



LEYENDA
C.S Cerro Azul
C.S Imperial
C.S Nuevo Imperial
C.S Quilmaná
C.S San Luis
C.S San Vicente
H.M.I Ramos Larrea
P.S Carmen Alto
P.S Cerro Alegre
P.S Herbay Alto
P.S Herbay Bajo
P.S La Florida
P.S La Huerta
P.S La Quebrada
P.S Las Malvinas
P.S Laura Caller
P.S Nuestra Señora de la Asunción
P.S Pueblo Nuevo de Conta
P.S Rinconada de Conta
P.S Santa Bárbara
P.S Santa Cruz
P.S Santa María
P.S Señor de los Milagros
Centros Poblados
Vias
Río Cañete
C.S : Centro de Salud.
P.S : Puesto de Salud.
CONVENIO MINISTERIO DE AGRICULTURA Y VALLE GRANDE
MAPA DE POSTAS DE SALUD EN CAÑETE
FUENTE: MINISTERIO DE AGRICULTURA - INRENA - PTRT
BALR
Cañete Junio 2001
Escala: 1:130,000
OCEANO PACIFICO
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8565000
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8550000
340000
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350000
355000
360000
365000
370000
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