RESEARCH WORK

Transboundary Aquifers: Analysis of Negotiation for the Use of Groundwater Sources in the Communities, TheTotora, The Huaraclla and Pomabamba District of Jesus, province and department of Cajamarca

Ing.M.Sc. Gilberto Cruzado Vásquez[1]

Professor of Geology at the Faculty of Engineering of the National University of Cajamarca, Cajamarca - PERU

ABSTRACT

The work was carried out in three communities called the Totora Huaraclla Pomabamba and whose UTM coordinates are 9'200, 000 N, 784.000 E 9 'E 788.000 196.000 N, 9'200, 000 N, 788.000 E 9'196, 000 N and 784.000 E , altitude of 2.670 to 3.680 m.s.n.m.

This research was made in these communities because there are conflicts to use the water which is originated from a spring, named "Chim Chim, whose flow is 18 liters. / sec that pertaining to the Commonwealth called Pomabamba, from which supplies water for human consumption and irrigation through a main channel called La Huaraclla that it has 280 users and a secondary channel called Monte Alegre, with 22 irrigators, Totora is independent in the conflict.

The sub basin is formed by three physiographic positions: A **cone fluvio glacier** that corresponds to the Huaraclla, which is nearly flat position with sandy clay stony soil where the most part of the year without any drinking water and irrigation. The sloping area is Pomabamba, has crops to feed due to there is water almost the time. mostly 60% of the year of the total area and the mountain area is La Totora, where the landscape is permanently green color due to the rain, but lately the peasants burns the vegetation to expand their farm, so these areas has been becomed desert.

The research has been done in three stages: Preliminary stage cabinet to plan the study, field study to know the Geospace and identify conflicts between communities and the end of cabinet to analyze problems and develop the report.

There are conflicts in the basin because the water is not enough to supply 350 hectares with so little flow that after many legal processes more than 100 years and physical assault because there is not enough water, nevertheless these communities have reached the following agreement:

During the day Pomabamba community will use the water for human consumption and irrigation , and the evenings, saturdays and sundays will use the water Huaraclla community with the same purposes. The distribution of water makes a person who is denominated water´s judge, who is elected by universal election such agreement, will be respected by all the users. Totora is independent of this agreement, it is not part of the conflict..

The maintenance of the channels is done by users no state involvement, the absence of any of the users will be fined the price of a work day equivalent to 25 soles ($ 8.77 USD), the running costs will amount commissioners prior authorization of users.

Key words: GRH-Huaraclla

INTRODUCTION

The ecological, social, cultural and ethnic minority communities in Peru, are expressed in local forms of water management, so it is very difficult to describe the overall water management, since each community or people, have their own ways to manage this resource to reach an understanding between them so that gap in research communities have a very particular way of managing water to solve their needs.

The water has its three attributes that relate to the integrated management of water, are vital to life, rolling in practical terms, because water is a finite resource, since the use of one may preclude the use others, but it is also fleeting, because you can not evaluate their stock and flow, you cannot define its limits, this makes planning and monitoring their removal and exclusion from participation of users (Ven der Zaag, P. 2007)

Sphere Project, 2004:74, Steering Comittee for Humanitarian Response, reported that the water needs for domestic consumption vary according to climate, sanitation facilities, customs, people, religious and cultural practices, the food they cook, the clothes that they wash and wear .etc. water consumption usually increases as the place of supply is near.

Peru is no stranger to this type of premises, because throughout its history is one of the examples of highly elitist societies emerged in the development context for the use and availability of water, where there are people who do not have water and others have plenty of water.

In Peru the first actions that led to the development of a national strategy for water management was in 2003 when the Ministry of Agriculture through the INRENA requested FAO support to the preparation of the document entitled "Contributions to the strategy National Water Resources ". In this sense has been adopted and practiced these types of water management throughout history of Peru. During the nineteenth and mid twentieth century, water management was aimed at major projects. With the General Water Law in 1969 and even complementary current water management has evolved to give priority to projects in sub-sectoral approach, this evolution was accompanied with a large infrastructure and technological development.

Ore, Maria Teresa, 2005:19, argues that Peru is no stranger to this type of negotiation, because throughout its history is one of the examples of highly elitist societies emerged in the context of the development of irrigation and availability water between the people of greater and lesser economic power, social and political.

Hendriks, Jan, 2005, the economic value, cost of water and water tariff, says that water is a critical element that must be analyzed from multiple dimensions: social, cultural value, environmental value and economic value when due consideration of all these dimensions will cause management systems on water resources are socially acceptable, economically viable and environmentally sustainable: Therefore, these dimensions must be expressed in a country's water policies, as well as the structure , the actions and behavior of institutional frameworks

Cover all dimensions of water is very important because ignoring them produces a large gap between the economic value of water (or use system) earned yourself the perspective of a

user, and the economic value produced by the use of such water or system for society as a whole and may even shed a negative balance for the latter.

Although limited in this thematic text, only the economic dimension of water pricing, is that the real cost of water supply in the Andean countries have a much wider area of conceived until the water tariff or other sources of support. In the economic dimension should be considered for full funding:
Water costs at the end user.

The costs of operation and maintenance of collective systems for use.

The costs of amortization, depreciation and / or reinvestment of collective use.

The costs of preservation and development of water sources in major areas (watersheds, etc.).

The costs of institutional systems.

This integrity in the approximation of the cost of procurement, use and water management is not present in current policies regarding the collection and use of water tariffs in the Andean countries.

GWP, 2003, the IWRM approach promotes the coordinated development and management of water resources, land and other partners to optimize in an equitable socio-economic benefits arising without compromising the sustainability of vital ecosystems. This requires greater coordination in the development and management: Land and water, surface water and groundwater, river basins and adjacent coastal and marine environments, interests of upstream and river below.

OBJECTIVE

Identify ways of negotiating the use of water among the communities to provide timely acting the challenged water.

RESULTS

After more than one hundred years of conflict over water use, the result is that it has come to negotiate on the use of spring water Chim Chim, as follows:

The restoration of the intake, cleaning of canals and reservoirs are borne by users in general.

The maintenance of irrigation infrastructure is carried out by the villagers of Pomabamba and Huaraclla, but in case of absence of one of the users are rewarded with a day of work or a payment equivalent to $ 8 the day's work.

The fines for absences may be used to buy construction materials like cement, iron, nails, pipes, etc., But when there are surpluses can make expenditures for a party, where there will be food, beverages and folk dances.

The valuation of water in the Huaraclla, Totora Pomabamba and have important features of Andean culture, during the rainy season the water has social and environmental value in times of drought has economic value.

Payment of fees for water there, but if the fines payment for the maintenance of canals and the intake.
The users generally lack the financial capacity to fund major investments, such as lining of canals where there is leakage, build a water inlet through the direction of a professional, installing drip irrigation, training and research.

There is no water management by the state, nor have elbuen training for management and use of water. It works by customary arrangements.

There are no any support for strategic projects have environmental or agricultural and livestock technology.

Globally, water valuation lacks a vision of integrated management of water resources.

DISCUSSION

The promotion and strengthening governance of water management in the communities of the Huaraclla, Totora Pomabamba has a social process, has several components and requires a comprehensive approach and long term.

Users develop some maintenance activities and immediate use of irrigation infrastructure, but lack of a proposal and vision.

There are no major plans for water harvesting for increased flow, improved water use and capacity building, if any, are isolated and are not integrated. There is no leadership to make integration of the basin.
Water users, show little change in water management and governance, since they respond with practices that they are effective.

A higher bodies of water appears to have no interest promotion processes and improve water management in the country, although it was one of the keys to his choice of the current president, who offered water and sewer for all.

CONCLUSIONS

Governance of the Integrated Management of Water Resources has very significant gaps in the promotion and improvement of water use in the Andean communities.
Users respond to daily and traditional practices regarding water governance.
Water governance is accomplished through a board of users, without an integrated approach to water management, as they have no vision, principles, strategies, capacity building, financing or strategic research.
Water management in the communities studied, pluralism precedence policy that combines the formal system with local law, there is also the combination of multidimensional assessment with the predominance of economics, but there are also important features of assessment and social mystique but not environmental.

ACKNOWLEDGEMENTS

I thank the members of the scientific committee of UNESCO ISARM for giving me the opportunity to present and discuss the problems inherent to the water in the Andean region of northern Peru.
I am so deeply grateful to Patricia Urtega Croveto Ph.D and Carlos Pereira Matsumoto M.Sc. for their help to do this kind of research in the mentioned communities and to understand the conflicts for water which is frequently in The Andes from Peru.

BIBLIOGRAPGY

1. Global Water Partnership. 2003. Governance of Water Management in Ecuador. Ecuador.

2. Jan Hendriks, 2005, Consorcio WU / IWE-SNV-IPROGA. Module II issued in the city of Lima, Peru.

3. Ore, Maria Teresa, 2005:19. Water Common Good and Private Uses, Irrigation, State and Conflicts in the Achirana del Inca, Edit. Task Charts Educational Association. Peru. 246 p.

4. Sphere Project, 2004:74, Steering Comittee for Humanitarian Response. Geneva 19, Switzerland.

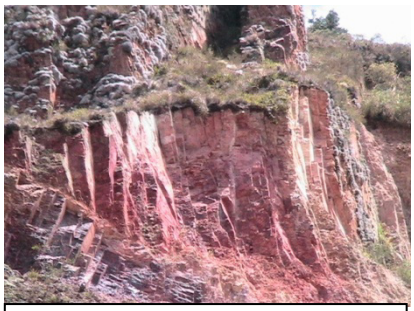
5. Van der Zaag, Pieter. 2005. Introduction to Integrated Water Resources Management. NIFFIC Course. Module I. Peru.

PICTURES FROM THE STUDIED PLACE

Location of the Studied Area

The Totora Community

Small dam to catch water



Sandstone to infiltration of water

Rudimentary reservoir of water

Rudimentary channel for irrigation

Spring in the highest part

Spring in the highest part