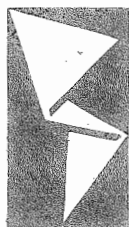


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## CHAPTER 18

### THE INCAIC ORGANIZATION OF TERRACED IRRIGATION IN CUZCO, PERU

Jeanette E. Sherbondy

#### ABSTRACT

The major irrigation canals and the terraced lands they watered formed de facto irrigation districts that were the heart of the lands belonging to each of the panacas and ayllus of Inca Cuzco. At one point the rights to the canals and the lands they watered (irrigation districts) were distributed to the various panacas and ayllus in the valley of Cuzco. This distribution was made in a hierarchical order so that the political rank of the panaca or ayllu corresponded directly to the relative importance of its irrigation district for Cuzco. These rights were coded into the ceque system by employing several organizational principles.

#### INTRODUCTION

The Cuzco Valley is one of the largest highland valleys in the central Andes and was the major metropolitan area of the Inca empire. It included the urban center of its capital city as well as an important rural area of terraced and irrigated fields and irrigated pastures. It is not surprising then that the Incas organized the valley by integrating urban and rural areas into the political subdivisions.

The basis for these subdivisions into wards or precincts was the de facto irrigation district. Many irrigation canals descend from the hillsides to the valley floor and irrigate terraced fields. The Inca state had to solve several administrative problems concerning this multiplicity of canals: 1. What criterion did they use for subdividing the Cuzco valley? 2. To whom and how did they distribute rights to these subdivisions or wards? 3. How did they map these subdivisions?

In this paper I outline the fundamental principles the Incas used to accomplish these goals. These theories are based on my field work in Cuzco as well as ethnohistorical research.

Water was the basis for the subdivisions of the Cuzco Valley. The natural watersheds as well as the artificial ones created by irrigation canal networks defined several levels of units. In the first place the Cuzco valley itself was defined as the drainage basin of the upper reaches of the Huatanay River as far as the gap, La Angostura, to the east of Cuzco. This area was expanded to include the irrigation canal from Chinchero that brought water from the Anta River basin into the Huatanay basin. This area roughly coincides with the area defined by the ceque system, which I will discuss later.

## QUESTION 1: SUBDIVISIONS OF INCA CUZCO

The primary political and social subdivision of Cuzco was the moiety. Hanan Cuzco was the upper moiety and Hurin Cuzco was the lower moiety. In addition, the moieties served as the fundamental land division of Cuzco. Its effective borders were defined by the limits of hydrological areas. The lands irrigated by canals that originated in the upper moiety were part of that moiety, and the lands that canals in the lower moiety irrigated formed the lower moiety.

The point at which several tributary streams join to form the Huatanay River was considered the beginning of the lower moiety, so that lands that were watered by canals that came directly from the Huatanay River formed part of the lower moiety. Lands that were watered by canals from tributary streams such as the Saphi and the Tullumayu formed part of the upper moiety. The border between the two is the division between the effective irrigation districts.

These irrigation districts are comprised of a canal, its branches and reservoirs, and the lands it irrigates. These districts are the divisions within the moieties. A large irrigation district may be subdivided further into discrete units that are branches of the larger canal network. In this case I found that there is usually a reservoir placed at the head of the branch, the point where it diverts water from the main canal. The reservoirs permit water to be stored during the night from the main canal so that the branch and the main canal may be used simultaneously during the day.

In the Cuzco Valley, these reservoirs are generally placed at about 3,600 m elevation, which coincides with the upper limits of maize cultivation in the region as well as the upper limits of the large, well built stone terraces that are associated with maize agriculture. Other terraces were built to the tops of the hills, but the ones below 3,600 m stand out for their large size and high quality of construction.

The irrigation districts were also part of larger units based on a common water source for several separate canal networks. That is, all the canals that take water from one river were considered a unit.

In summary, within each moiety, irrigation districts were a basic unit that often formed larger units based on a common water source. Similarly, irrigation districts were also subdivided along the lines of separate branches of one main canal.

Urban areas were integrated into these units. The city of Cuzco was located at the convergence of the irrigation districts of the upper and lower moieties where several streams meet to form the Huatanay River. The Inca settlement pattern in the Cuzco Valley included a central ceremonial and administrative center (Cuzco) and other villages dispersed throughout the valley. This means that probably all irrigation districts included an urban area.

## QUESTION 2: DISTRIBUTION OF WATER AND LAND RIGHTS

The Incas distributed irrigation district rights to the fundamental social and political group in the Andes: the ayllu. These were corporate groups that considered themselves to be descendants of common ancestors and who worshipped the original ancestors that had emerged from the earth -- usually at water sources -- and had given them the lands they were born on, lived on, and were buried in when they died.

This ideology provided a basis for the local group as well as the social group. The ayllu owned lands and waters corporately. The concept of the ayllu merges social and local criteria, and can be defined as a group of people (who consider themselves related) which holds common rights to certain lands and waters and which has corporate power to decide on the distribution of rights to specific fields to specific members or families within the ayllu.

The Incas distributed rights to the waters and lands of the Cuzco valley to ayllus of non-Incas (conquered and allied peoples) and to ayllus of Incas called panaca. The panaca has been formally defined as a royal Inca lineage with one of the (deceased) Inca kings as its head founder. The panaca also had a local or territorial basis comparable to that of an ayllu.

The Incas had ten panacas and ten ayllus that were distributed to the two moieties: five panacas and five ayllus to each moiety. Each panaca was ranked according to the genealogical distance of its founder king from the reigning Inca. The ayllus were ranked lower than panacas.

My research has substantiated that rights to the most important irrigation districts of Cuzco were distributed to the panacas in order of their political rank. The smaller and less important irrigation districts were distributed to the non-Inca ayllus. For example, the largest and most important canal systems for the city of Cuzco were the canal from Chinchero mentioned above and the Chacan canals that use the waters of the upper Saphi river. These canals flow into the city and irrigate the lands nearest to and in it. The two highest ranking panacas, Capac and Hatun, controlled these two irrigation districts.

The next two highest ranking panacas controlled the canal from Tambo Machay that irrigates lands near Cuzco to the east of the city. In fact, the canal is still used by the descendants of those two panacas, who consider themselves the true "owners" of it. One of the branches of this large canal system was distributed to a lower ranking ayllu. Ayllus also had the districts of the shorter canals located in the valley bottom bordering on the lower limits of this large irrigation district of the panacas. These two "macro" irrigation districts (Tambo Machay and shorter canals) formed the basis for the major subdivision within the upper moiety, the suyu or quarter.

However, the major distinction that affected the panacas' rights to lands was the moiety division. There were five panacas in the upper moiety and five in the lower. Members of panacas in the upper

