

Big Infrastructure Works and Impact on Local Indigenous Population: Case Study of Ralco Dam and the Mapuche-Pehuenche of Alto Bio Bio, Chile

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Introduction

The relation between environment and population has not been sufficiently explored by demographers even if the environment represents the context in which human beings live and behave as well as the framework in which humans develop their history. On the base of this consideration, this paper will investigate this relation, specifically the analysis of the impact of a infrastructural project, a dam for hydroelectric power generation, on the population affected by the project – in its structure, dynamics, and development.

For this purpose the study focuses on the effect of the Chilean hydroelectric dam of Ralco (Municipality of Alto del Bío Bío in the Region VIII Bío Bío) built between 1999 and 2003 in the Bío Bío river, the second largest river of Chile. The specificity of this project is that it was developed in an area of key native population (Mapuche-Pehuenche) that would be strongly affected by the project (displacement due to inundation, rupture of the traditional productivity system, change in the use of the land, damage to culture and sacred places, etc.).

The relevance of this study is that for the case of Chile and other developing countries, impacts of energy infrastructure on environment and local populations are poorly understood and even more so poorly incorporated into environmental impact assessments, all immersed in a context of increasing energy demand (in a climate change scenario) for national and international development that needs to be balanced with historical and cultural local roots, as well as local population being benefited by infrastructure development. This study aims to be a first step towards understanding the effects for the case of Ralco dam on indigenous populations in the Alto Bio Bio basin.

Historical and environmental problem

According with the last census (2002) Chile is a country with more than 15 million people of which 692192 (4.6% of total population) declared to be part of one of the eight ethnicity groups considered in the census question. However, according with CASEN survey (MIDEPLAN, 2006) this proportion increased to 6.6% (1061000 people)¹. Between the eight indigenous groups, the Mapuche is the more representative with 604349 people (87.3% of the total indigenous population), which are distributed between Region Metropolitana - Santiago del Chile - 30.3%, Region IX - de la Araucanía – 33.6%, and Region VIII - del Bío Bío – 8.8% (INE-MIDEPLAN-BID, 2005).

¹ Between 1992 and 2002 census there was a change in the question used to identify indigenous population. In 1992 the question was based on auto-identification while in 2002 the question was based on a criteria of belonging to an indigenous group according with the indigenous law (N. 19253)

The Mapuche population represents a fundamental part of Chilean history for its resistance to Spanish colonists that obliged Spanish to accept the existence of a Mapuche area in the south of the country (from the Bío Bío river), being the only Latin American indigenous population to resist European conquest. No change occurred with the independence of Chile (1810), however in the middle of the XIX century the Chilean state starts a war called “la pacificación de la Araucaria” with the purpose of controlling Mapuche population. Salvador Allende’s government was the first to introduce legislation to protect indigenous peoples. With the military coup Chilean indigenous rights experience the worst moment due to the fact that on the base of the principle that in Chile exists only Chileans, no indigenous identity is taken into consideration. As consequence community lands (on which native society was based) were privatized and give to indigenous and no indigenous people. With democracy comeback in 1990, the relation between Chilean government and indigenous communities takes a new breath, and new laws were approved with the objective of increase native standards of life, between which formation of indigenous communities, protection of historical patrimony of indigenous culture, including Ley Indígena in 1993.

On June 1997 Chilean government (represented by CONAMA – Comisión Nacional de Medio Ambiente) approved the construction the hydropower dam of Ralco (ENDESA – Enterprise²). The dam is located in the Bío Bío river (in the Municipality of Alto del Bío Bío in the Region of Bío Bío), the second largest river of Chile, a watershed that crosses two regions of the country (VIII and IX, highest in Mapuche population), of great cultural and historical importance for the country, and possessing 30% of the Chilean endangered native vertebrates species.

According with the 1992 census (just before the Dam construction) the municipality of Alto del Bio Bio had around 5400 people of which, more than half were Mapuche (58.5%), which in this area are called Mapuche-Pehuenche (people of the pehuen, fruit of the Araucaria tree key of their culture). This community, as well as many other indigenous groups of the country and of the macro region (Latin America), is characterized by high levels of disparity with the no indigenous population of the Country in respect with education, access to health services, mortality and morbidity levels, fertility behaviors.

The Ralco dam project implied displacement of Mapuche-Pehuenche families as consequence of dam inundation. The Environmental Impact Study (EIS) was hardly criticized by CONADI (Corporación Nacional de Desarrollo Indígena). According with CONADI (1996) the project represented, on one side, a rupture in the geophysics and biotopic condition of the Bio Bio watershed, while on the other, it caused a discontinuity that breaks the fragile ecosystem that sustains the ancestral livelihood of the Mapuche-Pehuenche people, who live in the seasonal transit from winter to summer grounds³. The dam construction implied a resettlement that signified changes in indigenous families way of life, their subsistence economy, traditions, and cosmovision. Further, resettlement does not allow for any cultural continuity, since for Mapuche-Pehuenche the association land-human is the link that permits their existence, and thus a change to another habitat implies ethnocide (Morales, 1998)

² major ownership by ENDESA España.

³ This declaration ended up with the firing of CONADI’s director by president Frei, second time it happened in Frei’s administration due to support for ENDESA’s Ralco project.

Data and methodology

As a first step, microdata from census (1982, 1992, 2002) will be used for the Municipality of Alto Bío Bío. This will let us analyze tendencies in the population characteristics of the area, before the construction (1982 and 1992) and during the construction (2002). Preliminary analysis shows that during the construction of the dam the structure of the population of the Alto del Bío Bío changed considerably. In particular we are interested in analyzing three small communities according to the level of the impact of the dam (high, medium, low), which could be: displaced community (Comunidad “el Barco”), not displaced community (Comunidad Ralco-Lepoy), and community not affected by the dam (Comunidad Trapa-Trapa). In this way we have a case-control study that lets us analyze the effect of the hydroelectric on demographic changes.

The second step of the analysis is based on a specific survey in the three communities on fertility and family behaviors, health condition, and individual perception of the project (focusing on connectivity). This information permits to evaluate the post Ralco dam effects.

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