

Women's local knowledge of water resources management in Coatitilan, Veracruz, Mexico

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Abstract: Coatitilan, Veracruz, Mexico, is in a region characterized by a humid climate, seasonal shifts in heavy rainfall, high elevation, and its dependence on the corn and bean crop. Women's understanding of water and its relationship to other natural resources in the immediate landscape is directly related to their families' crop cultivation and other livelihood tasks. Various participatory methods were used, including participatory observation, interviews, seasonal calendar and mapping to research what women know about and how they manage the abundant water resources. To better respond to the serious and varying challenges in water resource management globally, development policy will increasingly need to focus on specific regions and climate zones to integrate the local understanding of water resource management. This research can contribute to the existing body of knowledge on local knowledge of water resources. It explores the relationship between women and water in a region that is characterized by an abundance of water, which makes interactions between elements of the landscape more pronounced.

Keywords: Local knowledge, landscape, water management, women, Veracruz, Mexico

Introduction

Rural people's local knowledge has been extensively researched in relation to faming and natural resource use (Berkes, 1998; Blaikie, 1985; Peet and Watts, 1996; Robbins, 2005; Rochelau, 2005; Shiva, 1989; Watts, 2000). Fresh water resources have been approaching scarcity in terms of both quantity and quality, which creates a serious management challenge in many regions (Cook, 1998). Rural communities in agriculturally dependent areas are especially affected by this challenge. To better manage and respond to these people's needs, it is up to rural water resource planners to integrate local understanding and dealing of corresponding water management challenges (Boberg, 2005). The Sierra Madre Oriental in Veracruz, Mexico, is a region characterized with strong seasonal shifts and dependence on its corn and bean (*milpa*) crop cultivation. While water is abundant throughout the landscape, the infrastructure to supply families is insufficient. Thus, the water management reflects an unusual dilemma. To find out how the community deals with this challenge, I went to the women, as the primary managers of water resources (Zwarteveen, 1998). The objective of my research was to find out what they know about their water resources and how this defines their perception of the landscape. I hypothesized that women's primary relationship to water resources and their management was directly related to their livelihood tasks and the dynamic climate.

Methods

Coatitilan is a small community of approximately 255 people (INEGI, 2005), at 2,080m in the Sierra Madre Oriental in the municipality of Xico, Veracruz, Mexico. Dispersed ranches and communities throughout the steep hillsides of the Cofre de Perote characterize the area. The climate is very humid with temperatures fluctuating from 0.3°C in January to 22°C in April (Hoffmann, 1993). I relied on the snowballing method (Bernard, 2002; Vogl, et al., 2004) to meet my female informants. In my field research, I used participant observation, informal interviewing, and semi-structured interviews. As a participant observer, I engaged in activities ranging from cooking to gathering firewood to accompanying women's health workers in their community rounds. Interviewing was based on questions related to women's local knowledge of water resources and infrastructure, their development, local politics and climate and crop patterns. Data analysis was qualitative; information was grouped into the aforementioned categories, describing women's local knowledge of water resources, landscape elements, and then socio-political factors.

Results

The first contact women have with water is through household duties, thus they are the first to notice changes in the water source. Women divide water resources into two separate groups: 1. climate (precipitation), and 2. surface water (springs and streams). According to the women, springs will always exist, and streams grow lower only during the dry season. Spring water is used for cooking and drinking; streams are used for washing. Women's knowledge of climate is more complex. The climate not only defines at what time of the year women have certain agricultural tasks, but also their day-to-day task schedule—they don't plan any outdoor activities after 2.00 pm. According to these women, both altitude and forest are responsible for precipitation and serve as an assurance that climate will continue to follow the same patterns. Extreme precipitation affects stream water and soil quality. Crops require only the water from the rain, but in cases of excess precipitation, plants rot and the soil becomes loose and cannot be used for cultivation. The other two [extended] landscape components that contribute to women's knowledge of how to manage both climate and cultivation are the moon and the saints Juquila and San Isidro. When their knowledge fails them, or there is an extreme climatic event and crops are lost, women were assured that the government would support them.

Discussion and Conclusion

In an area where knowledge of the landscape is rooted in centuries of agricultural use (Hofmann, 1993; Sluyter, 2002), the community's knowledge of the landscape is accordingly based on the entire agricultural cycles that integrate the moon, climate, soil and water resources, and their own everyday life. This all-inclusive landscape is a scene of rotations, movement, and livelihoods allowing communities to survive and have access to the [regional] market. Women's perception of the landscape reaches as far as their resource needs do. Women know how to navigate the landscape they are part of as to retrieve and give back elements that ultimately allow them and their families' survival. While women depend on surface and spring water resources for everyday survival, their own life and well-being is defined by the climate and its influence—both as benefiting and damaging—on the landscape and its elements. Climate is the central pillar in their understanding of the landscape at large, which, as socio-economic demands change, will encompass larger and more global dimensions.

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