

“Household Composition, Water Acquisition, and Perceived Development Priorities in Ghana”

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Little social science work has explored development priorities as perceived by residents within the context of developing nations. This project is designed to explore these perceptions, particularly as they are shaped by both the demographic and natural resource contexts. More specifically, making use of recently collected survey data from a coastal region of Ghana, we model the association between household factors (e.g., size, composition, economic background) and strategies for water acquisition. We then link these household level associations to individual perception of the most important development needs (e.g., electricity, drinking water, toilet facilities) within the local area. It is argued that a more nuanced understanding of the ways in which local population-environment dynamics shape environmental perceptions will aid in the design of regionally-appropriate and stakeholder-validated development efforts.

Background Literature

The background literature for this study spans three main areas. First, we explore the social demographic work linking household dynamics and natural resources. Second, we focus specifically upon water as a key limiting factor with the African context. Finally, we review work on environmental perceptions, particularly as related to developing nations.

Household Dynamics and Natural Resources: Much of the existing literature on population-environment dynamics has attempted to link population size and/or growth rates to levels of environmental change (e.g., Cincotta, Wisniewski & Engelman 2000; Dietz & Rosa 1994, 1997; Ehrlich 1975; Ehrlich and Ehrlich 1990). Although important, a focus solely on aggregate population size and/or growth neglects to consider other important demographic dynamics such as the number of households, as well as, household composition. Indeed, some have argued that the household is, in fact, the most appropriate level of analysis given the household's primacy with regard to resource acquisition and consumption (e.g. Liu *et al.* 2002).

An important study recently published in *Nature* illustrates the centrality of household dynamics to environmental issues. Focusing upon demographic distinctions between regions characterised by levels of biological diversity, Liu and colleagues find that in hotspot countries, the annual rate of growth in the number of households (3.1%) was substantially higher than the growth rate (1.8%) between 1985 and 2000. Through more detailed examination of 6 representative hotspot areas, the researchers find that reductions in average household size contributed approximately 30-73% to the growth in the number of households over the periods of 10 and 40 years. Household size reductions are a product of lower fertility rates, increases in per capita incomes, higher divorce rates, ageing populations, and the lowered likelihood of extended family living arrangements. As for environmental impacts, more households mean more housing units, thereby typically increasing the amount of land and materials required for housing construction. In addition, smaller households have lower efficiency in resource use per capita (Liu *et al.* 2002). The above is highly relevant in the Ghanaian study site providing the focus here, where a high incidence of migrant labour to urban centres across the country significantly influences household size and dynamics.

Other work also informs the use of household perspective with regard to resource issues (e.g., Awasthi *et al.* 2003; Cooke 1998; Masera and Navia 1997; Vermeulen, Campbell, and Matzke 1996; Whittington, Mu, and Roche 1990), and this literature will provide one dimension of this project's academic foundation.

Limiting, and limited, resources in Africa: Two critical resources have become focal in rural development in Africa: water and energy. Water continues to be a critically limiting, and limited, resource in rural communities, and its procurement remains a daily challenge for most rural households (Perez de Mendiguren and Mabelane 2001). Similarly, significant household resources are expended on collecting fuelwood. Importantly, even in villages where electricity is readily available, over 90% of households use

fuelwood as their primary energy source for cooking and heating due to the prohibitive costs of electricity and electrical appliances (Griffin *et al.* 1992; Twine *et al.* 2000; Twine & Moshe 2003). Degradation of these natural resources, as well as time and human resources spent on collecting them, have important development implications (including health) at the household and community level. Within this project, our analytical focus is upon water.

Environmental Perceptions: The majority of social science research on public environmental perceptions has been undertaken within developed nations, with relatively greater attention with regard to the American public. With regard to American environmental concern, although today's American public expresses high levels of environmental concern (e.g., Dunlap and Mertig, 1992), not all individuals express similar environmental outlooks (e.g., Klineberg *et al.*, 1998). Some research suggests that environmental concern continues to be negatively associated with age and positively related to educational level (Fortmann and Kusel, 1990; Kanagy *et al.*, 1994). However, while younger individuals tend to express the greatest environmental concern, middle-aged groups are the most politically active (Mohai and Twight, 1987). The evidence regarding environmental concern across genders is mixed; Although some research suggests women are more environmentally concerned than men, especially regarding local issues (Blocker and Eckberg, 1989; Davidson and Freudenberg, 1996; Fortmann and Kusel, 1990; McStay and Dunlap, 1983; Schahn and Holzer, 1990), other work suggests no difference in general environmental concern between men and women (Blocker and Eckberg, 1989; Kanagy *et al.*, 1994). Within the project submitted for PAA consideration, we aim to fully explore related social science research focusing on environmental perceptions within less developed contexts, particularly with regard to Africa. Our focus is upon the ways in which these environmental perceptions are linked with perceived development priorities.

Methods

This analysis is based upon a household survey undertaken between January and July, 2002. The sample included 1,296 households, 2500 adults, and nearly 800 children under the age of six, within a coastal region of Ghana stretching from Accra to Takoradi including Winneba and Cape Coast. We rely upon both the 1984 and 2000 Ghanaian censuses for additional demographic detail related to context. Included within the survey were questions related to:

- household member responsible for water collection;
- water source;
- distance to water;
- perception of local environmental quality (including drinking water specifically);
- perception of most important development needs.

We will examine associations between household factors (size, composition, economic standing), water access and acquisition, and perceived development priorities using appropriate bivariate and multivariate techniques.

