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***Local Knowledge and Agricultural Decision Making in the Philippines: Class, Gender, and Resistance*, by Virginia D. Nazarea-Sandoval, Cornell University Press, Ithaca (1995); xiii, 226 pp.**

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Nazarea-Sandoval's account of economic change and the social context of agricultural decision making makes an important contribution to theory and the ethnography of Philippine rural society. Her basic thesis is a significant one--that rural societies are not nearly as homogenous as they are often portrayed by anthropologists and development planners. She argues that not only is there great intracultural variation in socioeconomic status and control of resources but also in access to knowledge, and in the way in which the environment is perceived. Class and gender differences limit a person's economic options and filter the way in which he or she perceives the resources available in the environment (the "operational reality"). As a result, individuals have different "cognized models" of the world that influence their agricultural decision-making process.

This thesis is developed by a study of the community of Kabaritan, located along the shore of a large lake (Laguna de Bay) in southern Luzon, the Philippines. Some Kabaritan residents are former tenant farmers, now "amortizing owners" of small farm plots following land reform, who focus on the production of irrigated rice. Other residents are more recent migrants who have little or no land and who work as agricultural laborers. Many households from both groups also raise fish (e.g., tilapia), either in cages constructed in the lake or fish ponds built along the shore or in former irrigated fields. Wage labor, shopkeeping, tricycle driving (motorcycle taxis), and small-scale marketing are other economic options pursued.

Nazarea-Sandoval's analysis of economic decision making in Kabaritan is based primarily on an intensive study of 12 households (24 individuals counting both husband and wife), a sample that she feels is representative of the community as a whole. The households were selected on the basis of their willingness to cooperate with the study (an important consideration given the intensive data collection methods) and their "class"--four households were selected to represent each of three socioeconomic status groups identified in the community.

In order to identify the "cognized models" of her informants, Nazarea-

Sandoval collected information on the ways in which different individuals perceived and classified the "operational reality" of the physical and social environment around them. Each of the 24 informants was asked to hand-draw maps of the community and she elicited their individual folk classification of plants, insects, and major land-use options ("ethnoagronomy"). In addition, she collected data on time allocation, food consumption and distribution, and criteria for crop choices and different types of land usage.

Nazarea-Sandoval concludes that her data support the theoretical perspective that class and gender strongly influence not only the economic options available to the individual but also the way in which the physical and socioeconomic environments are perceived, which in turn is relevant for understanding agricultural decision making. For example, on the basis of the different "mental maps" of the community drawn by her informants, she suggests that there is greater recognition of community infrastructure and community services by those in the higher socioeconomic group while members of the lowest socioeconomic group are more apt to be sensitized to take note of community resources that offer free public services.

Likewise, her investigation revealed gender and socioeconomic variation in the way in which people evaluated and classified major land-use options. Although all farmers seemed to share some perceptions about crops and land-use options ("prototypical evaluations"), other perceptions ("marginal comments") appeared to be characteristic of informants who shared a common "niche" within the society. For instance, she notes that, as would be expected, women were more concerned with the cooking characteristics of rice varieties while men were more concerned with eating quality. All informants evaluated vegetable crops in terms of their palatability, nutrition, and resistance to pests, but high status females displayed greater knowledge of specific nutrients in vegetables than either men or low status women.

Middle status farmers were more likely than high or low status ones to emphasize the market potential for their crops. Low status farmers provided more "marginal" evaluations of crops (i.e. not shared by all informants) and emphasized more detailed agronomic characteristics of crops in their evaluations. Nazarea-Sandoval suggests that this may be because high socioeconomic group farmers are more likely to act as farm managers who relegate detailed agronomic knowledge to lower group farmers who work as contract weeders and daily laborers for the wealthy. Nazarea-Sandoval concludes that her study confirms that "indigenous decision making is not as homogenous as it may seem but is greatly influenced by the culture bearer's position in the internal differentiation of society."

Nazarea-Sandoval also provides a detailed listing of the complex set of criteria that farmers use in weighing the costs and benefits of each crop variety. This demonstrates that although yield and market price are certainly important considerations in decision making, insect resistance, weed tolerance, cooking characteristics, taste, how "filling" the variety is, and health effects are also an important part of farmers' evaluation of crop

options. This information has obvious implications for understanding why farmers may accept or reject new crop varieties, such as the new high-yielding varieties of rice being developed at the nearby International Rice Research Institute.

Based on informant record keeping and occasional spot-check observations, Nazarea-Sandoval also studied time allocation and dietary intake in her sample of 12 representative households. Not surprisingly, she finds that there is significant variation in the way in which people allocate their time based on gender and status differences. For example, her data indicate that high socioeconomic status households invest labor in a wider range of economic activities than middle and low income groups. Low status households spend more time sleeping and resting--she suggests that although better-off members of the community may see this as evidence that the poor are simply lazy, another interpretation is that their hard physical labor necessitates "time spent for basic and necessary self-renewal without which it is difficult to imagine how the prospect of another day can be faced."

A clear division of labor by gender also emerges from her study of time allocation. As a generalization, she concludes that domestic work, entrepreneurial activities, and agriculture are female domains while men focus on fishing, animal husbandry, and aquaculture. She notes that this supports other studies that indicate that women are likely to do work that can be performed in close proximity to home, is monotonous, tedious, interruptible (consistent with child care responsibilities), and does not require great physical strength. Likewise, in Kabaritan, women are more likely to engage in activities in the "private sphere" while men are more likely to be involved in the "public sphere." Nazarea-Sandoval also argues that because women are responsible for most child care and domestic tasks as well as farming and some entrepreneurial activities they have significantly less leisure time than men.

In terms of diet, Nazarea-Sandoval concludes that upper group households are more likely to consume purchased foods (such as meat and beverages) while low status households are more likely to eat low-cost and readily available foods such as root crops and fish. Within the household, men consume more food, especially carbohydrates, than women. This is justified by the belief that men's labor is more physically demanding and that the welfare of the family rests on the husband's shoulders. There is also marked seasonal variation in diet, with greater levels of food intake during the wet season when most of the physically demanding labor is performed.

Nazarea-Sandoval's book makes a number of important contributions. Her emphasis on the significant heterogeneity that exists within a peasant society is a useful theoretical contribution that counters the tendency of many anthropologists to gloss over variation within "traditional" societies. It is also welcome because development planners often ignore the diversity of resources and perspectives found in rural communities, resulting in technological innovations that are often inappropriate for many individuals. The book also provides a needed bridge between purely materialist-oriented

ecological studies and research that emphasizes primarily cognition and perception. Although her study of Kabaritan focus on the importance of cognitive models of the physical and social environment, Nazarea-Sandoval recognizes the value of much of the methodology developed by ecological anthropologists such as the study of time allocation and dietary intake. She also occasionally notes the implications of her findings for development planners. In addition, the book provides a well-researched and coherent picture of the impact of change--the Green Revolution and commercialization--on a peasant community, emphasizing the active way in which farmers have attempted to respond to and take advantage of new constraints and opportunities. Finally, her emphasis on the important role of gender and socioeconomic status for understanding agricultural decision-making makes a significant contribution to the literature.

The book, however, does have a number of shortcomings. As an ecological and applied anthropologist with research experience in agricultural communities in the Philippines and Kenya, I found the theoretical argument to be plausible, challenging, and interesting. But from my perspective it was often obscured by Nazarea-Sandoval's dense and jargon-filled language. Although readers will find the descriptive and "data" sections of the book admirably clear and well-written, those not already familiar with her approach may sometimes feel they must re-read the theoretical sections (perhaps several times) in order to grasp what the author intends to communicate.

More importantly, though there is real theoretical substance to the book, I felt that some of the conclusions (as described previously) were rather mundane and already well-known. In this context, I was often surprised by the lack of reference to previous studies that have covered similar ground--earlier ethnographies on socioeconomic inequality (e.g., James Eder's 1982 *Who Shall Succeed? Agricultural Development and Social Inequality on a Philippine Frontier*, Cambridge University Press) and on gender in the context of agricultural change. Likewise, there is a vast literature on time allocation and dietary intake in comparable societies that could have been discussed and evaluated in the context of Nazarea-Sandoval's case study.

Finally, although I admire the difficult and time-consuming fieldwork that she carried out, Nazarea-Sandoval's methodology and the presentation of the data in the book do not always adequately support the theoretical generalizations she draws. Her decision to limit her intensive analysis to 12 households (24 individuals) is understandable given the time-consuming data collection methods she employed. However, when this sample is subdivided into male and female categories and into her three socioeconomic groups she is at times drawing generalizations for the community as a whole on the basis of very few individuals. To be fair, all anthropologists face the dilemma of how to balance the quantity and quality of data and Nazarea-Sandoval periodically reminds the reader that it is necessary to be cautious in drawing sweeping conclusions from her small sample.

Nonetheless, sweeping conclusions about gender and class differences in

cognition and behavior are made, not only on the basis of a few individuals but at times with seemingly very minor differences in the data. For example, her generalizations about differences in time allocation and diet among the three socioeconomic groups are supported by bar charts indicating rather minor variation that does not appear to be statistically significant (and no tests for significance are presented). These same charts are also often confusing; for instance, bar graphs summarizing food consumption patterns are based on "number of servings" but it is not indicated whether this is servings per meal or per day or some other measure. The time use data are presented in "number of 30 minute blocks" but nowhere could I find if this is for a 12 hour daylight period (probably) or a 24 hour day? As a result, although her conclusions often seem to be quite plausible, in the end I came away not completely convinced that her data adequately support the theoretical arguments that she proposes.

Overall, despite some criticisms, I recommend this book for advanced undergraduates, graduate students, and faculty. Nazarea-Sandoval is a good ethnographer who presents an interesting and instructive case study. Though I have some concerns about the presentation of the data and the methodology, her theoretical analysis of agricultural decision making in the Philippines is effectively presented and theoretically challenging.