

ECOGEN CASE STUDY SERIES

**People, Property, Poverty and Parks:
A Story of Men, Women, Water and Trees
At Pwani**

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Njoki Mbuti

Preface

Pwani is a recently populated resettlement village in Njoro Division, Nakuru District, adjacent to the Lake Nakuru National Park. It is in a semi-arid region of Kenya, and it provides the opportunity to examine the resource and social stresses in such an environment, conditions which are found elsewhere throughout Kenya and Africa as a whole. Studying the responses of the newly settled residents to these environmental stresses clarifies the need for and the potential effects of a variety of resource management activities.

The objectives of the research in Pwani are to understand the ways in which natural resources are managed in the community and within the household, with emphasis upon the institutions and individuals who make and carry out management decisions, particularly as distinguished by gender. We analyze the ways in which individuals, households, and the community at large are responding to and affecting their local

natural and socio-economic environments and how their decisions are shaped by structures beyond their borders.

This case study is one of five undertaken in rural Kenya by Ecology, Community Organization, and Gender (ECOGEN). ECOGEN's underlying premise is that it is essential to understand the role gender plays in determining access to and control over natural resources. Further, sustainable production requires attention to the particularities of local ecosystems. If the effectiveness of institutional responses is linked to the roles of women within the local community -- and we believe it is -- then researchers and development practitioners need to understand a great deal more than is presently known about gender as a variable affecting individual and institutional responses in sustainable resource management.

I. Introduction to Gender-Focused Research

A. Why Gender and Resource Management?

During the past decade rural development planners have "discovered" both women and the environment and have addressed each separately as special issues within development theory and practice. Yet, the realities of daily life in rural landscapes throughout the world suggest that both are central to the current and future livelihoods of the poor and to the "common future" of us all. As we review the experience of rural development projects and processes in the field, we find that gender, ecology and development are part of a single fabric of rural life and livelihoods. Subsistence and commercial production activities, as well as maintenance of communities and the larger landscape, are often in the hands of women. Throughout much of Eastern and Southern Africa, they are simultaneously farmers, herders, forest gatherers, drawers of water, food processors, market vendors, construction crews, soil conservationists and keepers of the natural and built environment. They face increasing production demands with less adult labor at home, often working in degraded landscapes scarred by erosion, deforestation and destabilized drainage systems.

Any program that hopes to confront the realities of rural life with viable alternatives must recognize and work with **women as the daily managers of the living environment** (Dankelman and Davison, 1988; Thomas-Slayter, et al., 1991). Yet, this seemingly simple fact is obscured by the invisibility of women and women's work in the

currency of bureaucratic accounting: employment, income, and land ownership. We are confronted with census data and survey maps that either ignore most women and their work or show them as junior members of households headed by men. Most women are legally landless and not officially part of the work force. Their work does not "count" in the calculation of GNP, GDP or most other measures of productivity. Yet in many parts of Africa women are responsible for the reproduction of the work force, the production of

While many of us live and work in circumstances where home, habitat and workplace seem neatly divided and segmented into separate places, for most rural women the surrounding landscape is part of a single continuum.

daily subsistence, and the maintenance of the resource base that supports agriculture, livestock and forest production. Most women are also responsible, in full or in part, for the provision of education, medicine and clothing for their children. They must often provide labor for their husbands' cash crops, or grow their own to obtain income for the purchase of these vital goods and services.

While many of us live and work in circumstances where home, habitat and workplace seem

neatly divided and segmented into separate places, for most rural women, the surrounding landscape is part of a single continuum. It is at once their home, their habitat and their workplace. In a given day, many women criss-cross the landscape in search of a myriad of products and rely upon just as many hidden services provided by the forests, grasslands, marshes, fencerows and fallows as well as croplands and gardens. Even a single forest patch may hold a sacred grove of trees, a water source for daily use, a living reserve of leaf fodder for dry periods, wild fruits for food, medicinal herbs, and dead stickwood to gather for fuelwood.

While men are increasingly drawn into cash crop production, local wage labor, and the urban work force, women are increasingly responsible for the use and maintenance of complex rural landscapes (Rocheleau, 1991a). They are, however, hampered by very restricted rights to the resources needed to meet their growing responsibilities. Moreover, their knowledge, experience, constraints and opportunities are distinct from those of men. So, not only do women and men both matter

Women are increasingly responsible for the use and maintenance of complex rural landscapes.

to resource management, but natural resource policy and technologies matter to women and men's daily lives and their possible futures, both separately and together.

What are resource management and rural development professionals to do in the face of such complexity? It is unlikely that most

resource management and agricultural professionals will become specialists in social analysis and group process, let alone gender analysis. However, there is no reason why they cannot work with social scientists and development/extension workers on participatory project management approaches that explicitly deal with men's and women's distinct domains of work, interest, access and control in resource management. **It is also possible to learn to deal with difference -- by gender, ethnic group, income level or age -- as part of the conceptual framework for project planning and daily practice.**

It is possible to learn to deal with difference -- by gender, ethnic group, income level or age -- as part of the conceptual framework for project planning and daily practice.

While very specialized skills and knowledge may require formal training and detailed investigation, we can learn much from the field experience of others that will inform our work at the crossroads of gender, ecology and community organization in rural landscapes. The lessons of this experience have equal value, whether our specialty is resource management, rural development or gender issues.

When working in complex circumstances that mix research and development in a "laboratory" that is someone else's life and livelihood, field experience may best be distilled as a story. The story may be more practical, more relevant and may often be more appropriate than a replicable experiment or a set of fixed procedures. Often it makes sense of experience that is not replicable, and may indeed be quite instructive (Rocheleau, 1991b).

The "case study" approach, so widely used for teaching management skills of all kinds, puts the story to work as a learning and teaching tool that integrates key concepts and skills within the complex context of real life situations. The story which follows illustrates several ways in which gender affects resource management and conversely, how resource management technologies and policies affect men's and women's lives differently, and, in each case, profoundly.

B. Why Pwani?

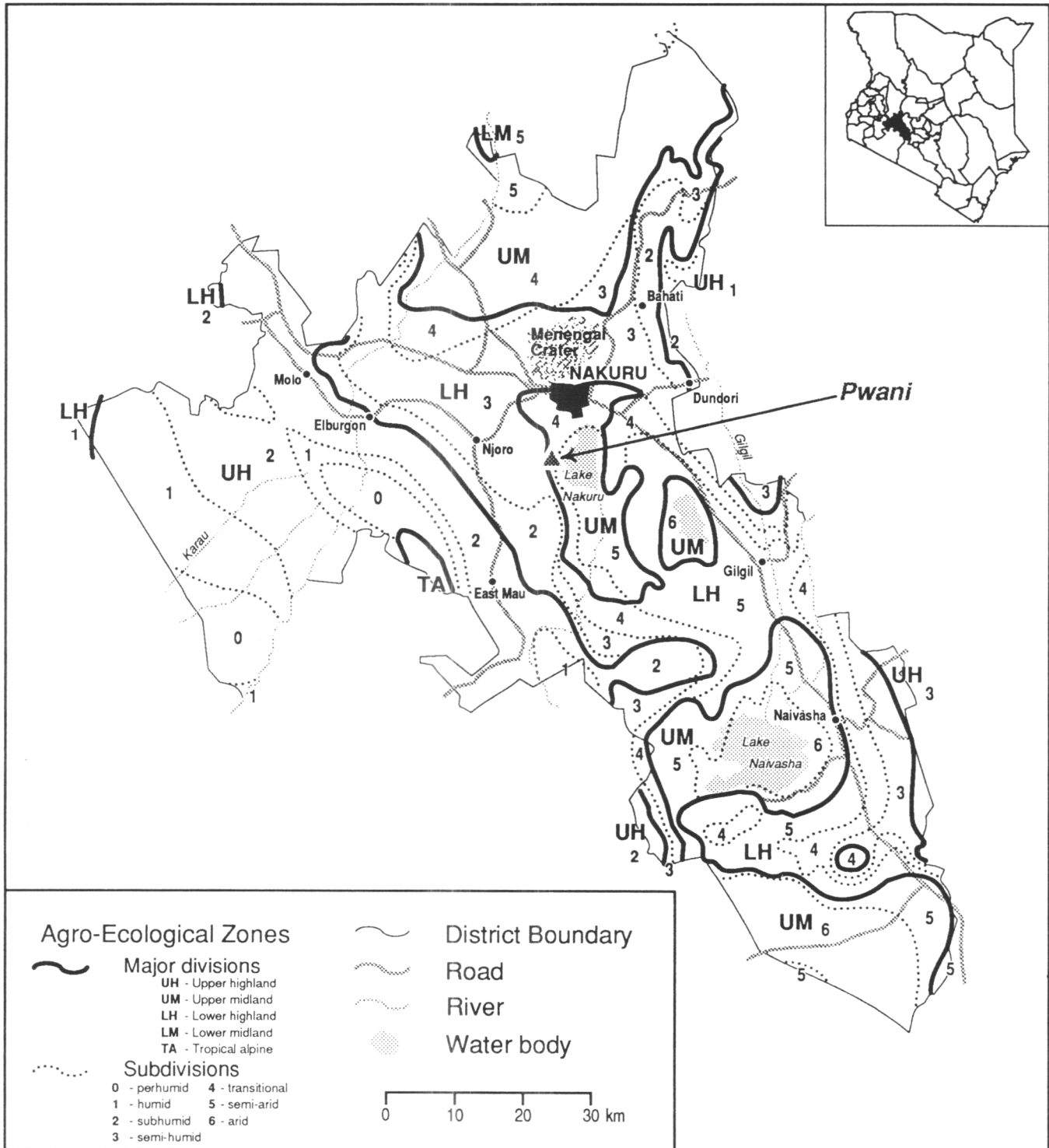
The story of Pwani is one that represents the experience of recent settlers, of people from "somewhere else" making a home in what was once another group's homeland and habitat. Pwani is located in Kenya's Rift Valley Province, on the edge of Lake Nakuru Park (see Figures 1), on a swath of savanna that was once home to the Maasai people and their herds. It was settled by a colonial rancher-farmer in the first half of this century, and later, in the first decade after Independence (1963), by shareholders in a land-buying company. Most of the current 5,000 residents¹ of Pwani purchased their land long ago. However, not until two recent waves of settlement, in 1976 and 1989, did they clear their land of scattered trees and forest, establish farms, and move into the area. This experience is typical of many such settlements, in that the shareholders bought into a legally constituted land acquisition group. They purchased lands made available by the newly independent government to hundreds of thousands of landless and near-landless people, whose families had been displaced from or crowded out of their traditional highland homelands by colonial settlers and the commercial interests that succeeded them (Okoth-Ogendo, 1990; Hunt, 1985; Settlement Study Centre, 1982)

Although Pwani's location on the western edge of Lake Nakuru Park distinguishes it from most settlement projects, it represents a condition shared by park-periphery rural communities around the world. The community's population also consists almost entirely of government forest service employees and their families, most of whom have spent their childhood in intensive farming areas of the highlands and several years in wage labor, farming, herding and gathering in upland forests. In spite of these connections and their indirect influence on the formation of Pwani, the proximity of the park and peoples' employment in the forestry sector has not played a formal role in settlement, land use, and resource management planning in the community. Land was allocated and settled in Pwani as if it had been surrounded on all sides by other farming communities and as if its residents had never worked as foresters and forest farmers. Yet both of these features have affected resource management, and they have affected men and women differently.

Although Pwani's location on the northern edge of Lake Nakuru Park distinguishes it from most settlement projects, it represents a condition shared by park-periphery rural communities around the world.

Pwani is also representative of settlement communities which have experienced dramatic changes in land cover, land use, resource management, and gender division of labor, within a single generation. People at Pwani have moved

Figure 1. Nakuru District Map²



from upland farms, to forest workplace and subsistence farms, to family farms at Pwani, and now to split urban-rural households with the rural "root" in Pwani and a "branch" in the city, plantation, or distant forest workplace. It further typifies those settlement communities undergoing a rapid transition in the gender division of labor, knowledge, rights and responsibilities -- both on farm and between rural and urban domains.

In addition to all of its intrinsic qualities, Pwani provided a case study of a Participatory Rural Appraisal (PRA) and a chance to include gender issues within this approach to resource management planning at the community level. A PRA training course and project planning exercise were conducted in Pwani, with site selection based on all of the above criteria. The PRA conducted by Egerton University (of nearby Njoro, Kenya), the Kenya National Environment Secretariat (NES) and Clark University addressed the issues noted above as well as demonstrating the utility of PRA for learning about gender issues, the importance of gender in the participation process, and the value of gender analysis in the resulting Village Resource Management Plans.

The linkage of this case to a regular PRA allowed the authors to learn a great deal about Pwani in a very short time.

The linkage of this case to a regular PRA allowed the authors to learn a great deal about Pwani in a very short time. It provided an opportunity to learn about gender within the context of the community's history, its future aspirations and its resource management and development problems. Supplementary gender-

focused research in Pwani addressed questions raised within the broader context of the PRA.

C. Linking Gender-Focused Research and PRA

Several methodologies were used to carry out this research. First, a Participatory Rural Appraisal (PRA) was carried out in June, 1990. Along with government extension workers, representatives of non-governmental organizations, and university lecturers, the authors utilized a variety of techniques for gathering

Residents provided the researchers and development officers with a sense of their community's character, its current situation and its possible futures.

spatial, historical, institutional, and social data (see PRA chart, NES, et al., 1990).³ During the course of the PRA, residents provided the outside researchers and development officers with a sense of their community's character, its current situation and its possible futures. The people of Pwani also had a chance to reflect on their own history, their somewhat precarious present and their prospects for sustainable livelihoods, individually and as a community. The initial household and group interviews outlined the history, geography and community organizations of Pwani, the various kinds of households, and the shape of peoples' daily lives. The second phase of the PRA focussed on problems and opportunities related to resource management at household and community levels and the development of a Village Resource Management Plan (VRMP).

Table 1. Eight Steps to Participatory Rural Appraisal

- A. **Site Selection:** Choose a location to conduct the exercise
- B. **Preliminary Visits:** Meet with village leaders to clarify the nature of PRA
- C. **Data Collection:**
 - 1. **Spatial Data:**
 - a. Village Sketch Map: identify characteristic physical and economic details
 - b. Transect: determine sub-zones and distinct microecologies
 - c. Farm Sketches: identify the variety of farm management techniques utilized
 - 2. **Time-related Data:**
 - a. Time Line: record important events of the community's history
 - b. Trend Lines: determine patterns of changes in resource issues
 - c. Seasonal Calendar: track patterns in resource issues over 12 to 18 months
 - 3. **Social Data:**
 - a. Farm Interviews: survey households to complement the farm sketches
 - b. Village Institutions: construct diagrams of group relationships
 - 4. **Technical Data:** Economic and technical feasibility studies
- D. **Data Synthesis and Analysis:** Organize data and list problems and opportunities for action
- E. **Ranking Problems:** Prioritize issues to be addressed
- F. **Ranking Opportunities:** Choose appropriate activities to address problems
- G. **Adopting a Village Resource Management Plan (VRMP):**
Form a work plan for high priority opportunities
- H. **Implementation:** Carry out the activities

As both PRA participants and observers, the authors were able to interact with community leaders and residents to assess their resource management priorities, and to learn more about the ways in which gender shapes the natural resource management choices of Pwani residents. The researchers returned to Pwani in September, 1990, to pursue more gender-focused research. This broad agenda was dealt with by examining more specifically three aspects of these activities:

- * What is happening to the resource base in the community?
- * How are these changes affecting men's and women's use, access, and control of resources at household and community levels?
- * How are people coping with and adapting to these changes?

Residents contacted during the first visit updated the researchers as to how local activities had progressed in the interim. Elders shared their knowledge of the changes in conditions throughout Pwani's 50 year transition from settlers' ranchland to the current community. Groups displayed their projects -- ranging from water tanks and latrines to bee keeping -- and explained their reasons for forming groups and the ways in which they interacted. Leaders illuminated the workings of local politics and decision making. Youth shared their visions of the future and their current frustrations. Students expressed their aspirations, and teachers highlighted the need for expanded education and employment opportunities. Church of the Province of Kenya (CPK) agents currently

working in the community pointed out the recent growth of community unity and the increasing requests for extension services and training.

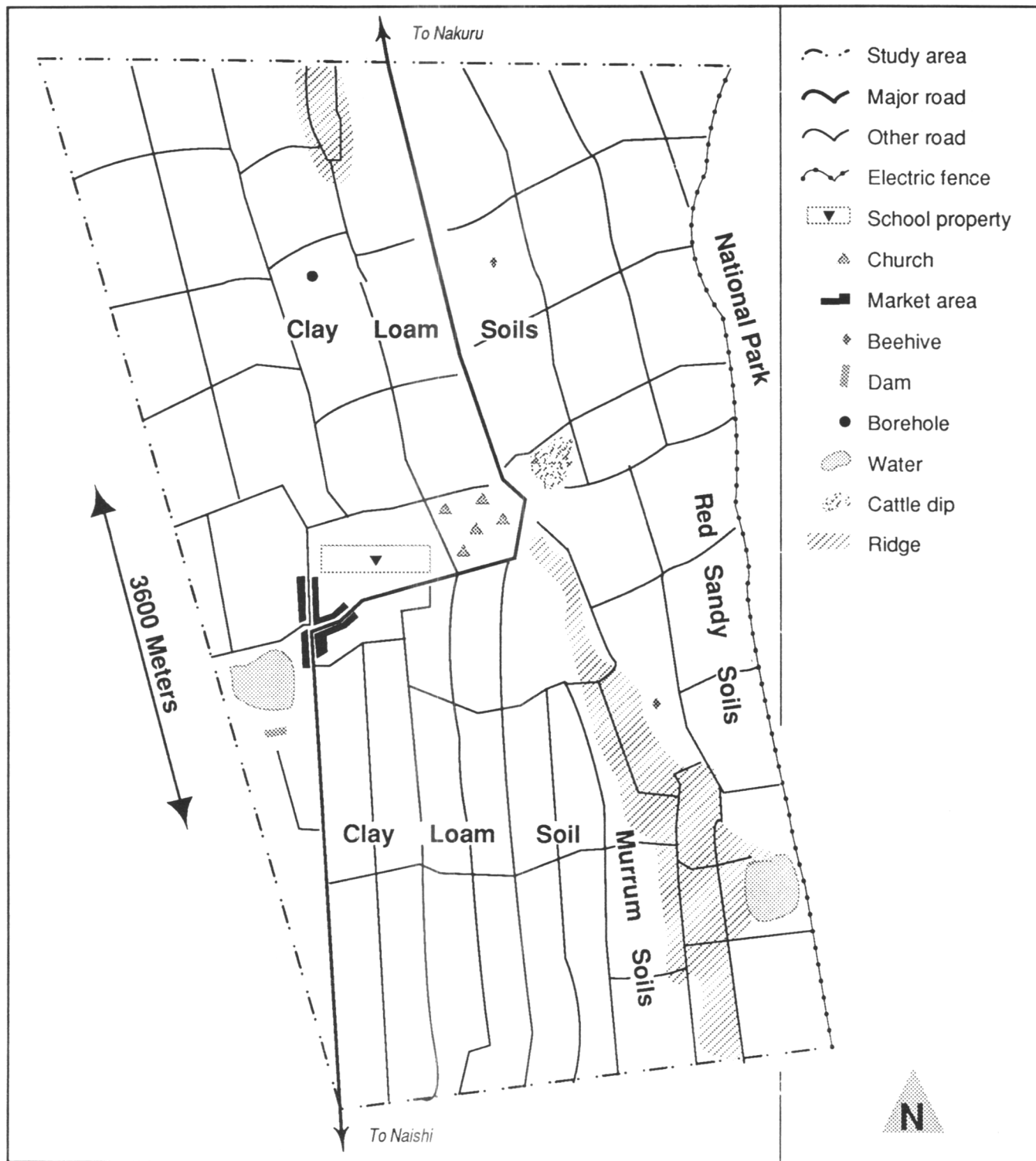
Most useful were the many discussions with women, men, and youth about the daily activities in their households. Along with tremendous hospitality, they showed us the pressures they face in making day-to-day and long-term decisions regarding scarce resources. In sharing their thoughts and experiences, they manifested their detailed knowledge of the linkages among resource issues, and the creativity and initiative needed to improve their life conditions.

We formulated a short, focused survey (see Appendix) to gain a sense of the variety and concurrence of opinions and conditions among the residents; it was randomly administered by local youth to 160 adults throughout the community, representing approximately 32 per cent of the households. In posing questions to their neighbors, the youth learned new things about their community, which encouraged them to evaluate its conditions and to address their role

In sharing their thoughts and experiences, the people of Pwani also demonstrated detailed knowledge of the linkages among resource issues, as well as the creativity and initiative needed to improve their life conditions.

in its development. This prompted them to form a youth group, to more effectively influence the future of Pwani, and to share the trials and triumphs of change.

Figure 2. Sketch Map of Pwani



II. Community Profile

A. The Land

A distinctive feature of Pwani is its boundary with a national park (see Figures 1 and 2), which is legally impenetrable but practically permeable. The Nakuru National Park represents a popular

A distinctive feature of Pwani is its boundary with a national park, which is legally impenetrable but practically permeable.

site for international tourists because of its easy access from Nairobi (a two to three hour drive on paved highways), the dramatic backdrop of volcanic features in the landscape, and the scenic quality of the lake's world famous population of pink flamingos. International wildlife interests value the park and the lake as a refuge for endangered species, including a population of five rhinoceros under armed guard at the park rangers' station.⁴

Like many of the Rift Valley lakes, Nakuru is under increasing pressure from a combination of "natural" and human causes. The lake level is falling, alkalinity is increasing and, as a result, both the aquatic and lakeshore plant and animal communities are changing. The flamingo population is declining due to scarcity of food (specific types of plankton) in the lake. At the same time the surrounding town, industrial sites

and commercial farms have diverted clean water and have dumped polluted water into the lake, with unknown consequences (Koeman, et al., 1972; Greichus, et al., 1978; Lincer, et al., 1981). Poachers have also degraded the plant and animal communities within the forest and grassland of the surrounding park.

Lake Nakuru National Park

Lake Nakuru National Park is the main tourist attraction in Nakuru district, with over 100,000 visitors annually, providing revenue of KSh. 1.4 million in 1980. The park originally covered 5,670 ha. By 1984, with additional funds from the World Wildlife Fund, adjoining land was purchased, expanding its size to 20,250 ha. The park has a magnificent bird sanctuary, which, at one time, served as home to over a million lesser flamingos and over 400 other bird species. The park also supports over 50 mammal species (NEHSS, 1984:22).

This combination of pressures has led national and international wildlife activists to consider the park as an important and vulnerable place under threat. They have identified local people at Pwani, and other park-boundary communities, as threats to the ecological and commercial viability of the park. Encroachment by squatters into the park has already claimed over 1,800 ha of its land

(NEHSS, 1984). The impact of these pressures, however, is not one-way. The animals from the park (baboons, monkeys, impala, waterbuck, gazelles, warthogs and eland) all take a toll on the adjacent farmlands. Farmers complain of raids by marauding animals that eat, trample and uproot their crops. While this is not representative of the region, it is a concern common to park boundary communities the world over, from Yellowstone Park in the United States to the Maasai Mara Reserve in southern Kenya.

Pwani is situated in Eco-Zone 4, a semi-arid region designated as marginal for agricultural use. The dark brown and grayish clay soils are dry, best suited for beef ranching and grazing small stock.⁵ After the unreliable long (March-April) or short rains (November-December), which may deposit 760 mm of precipitation in good years, crops bring shades of green to the landscape. During the dry seasons and the region's frequent droughts, only dispersed acacia and euphorbia trees punctuate the gently sloping land with green. Most other indigenous vegetation, mainly dry forest (often the Acacia-Themeda association; NEHSS, 1984), gallery forest, derived savanna and occasional bushland, has been cleared for agricultural activities.

Pwani's 1,500 acres are divided into small holdings, on average 2.5 acres each.* The farms consist of small grazing areas, a home compound, and one cropped plot with a combination of maize, beans, and a small patch with a variety of vegetables. Crop yields in Pwani have been low in relation to national figures, but not unusually so for smallholder farms in the drier parts of Nakuru (Downing, et al.,

1989). Most households in Pwani also have a few goats or one to two draft animals, and some households keep milk cows.

The village is adjacent to the western fence of the Lake Nakuru National Park in Njoro Division, Nakuru District. The nearest tarmac road lies some 20 km away; Nakuru is an additional 10 km beyond (see Figure 3). Few public vehicles attempt the trip over the deeply rutted tracks leading into Pwani; the rare **matatu** costs KSh. 20 (a day's wage for local casual laborers). Women with produce for market or with children needing medical care must hope for a private vehicle to happen along.

Approaching Pwani from the south (see Figure 3), from the Chief's Offices in Naishi 10 km away, one first encounters the community dam -- a poorly

Definition of Terms:

matatu A form of public transportation, privately owned. Minivans, designed to hold perhaps 9 passengers, are often packed full by riders seeking fast transit.

hotelis Small shops offering tea, soda, and a variety of prepared food for immediate consumption.

mandazi A triangular piece of light, fried dough, intended to be eaten with tea.

fundis Craftspeople and repair shop workers, mainly utilizing innovative replacements for missing or broken parts, as the intended inputs are rarely available.

barazas Formal community meetings held to present issues of importance to the entire population.

* The average land/person ratio for Nakuru District was estimated in 1989 at .34 ha per person (Downing, 1989; Settlement Study Centre, 1982). Based on the PRA and the gender survey, most households have 6-8 members and subsist on 1 parcel of 2.5 acres (1 ha). This suggests that the land/person ratio in Pwani is < the district average.

maintained facility, used for doing laundry, watering livestock, bathing children, and fetching water for domestic use. The barbed wire fence surrounding the dam is broken in several places, permitting goats and cattle to wander in at will. There are several trees on its eastern banks, however, which provide a sheltered spot where young men often gather.

The center of Pwani -- at the jog of the main road transecting the village -- is marked by some two dozen small wooden structures: shops selling some clothing, basic household goods such as tea and sugar, perhaps a few non-prescription medicines, and school notebooks for children; **hotelis** offering tea, sodas, eggs, and **mandazi**; one or two butcheries, specializing in roasted goat; and a few **fundis**, fixing bicycles, small machines, and vehicles which happen to break down near-by. Several stalls are set up for women who bring their beans or vegetables from the shamba (farm) to the marketplace. Behind the shops is an open area, shaded by several trees, where Chief's **barazas** are held.

Most indigenous vegetation, mainly dry forest, gallery forest, derived savannah and occasional bushland, has been cleared for agriculture.

In the opposite direction from the market center lies the Keriko Primary School, the only educational institution in the village. Farther along are Pwani's churches: Presbyterian, Church of the Province of Kenya (CPK), Full Gospel, Apostolic Faith, and Free Mission. The Catholic

Church is the site of the weekly mobile clinic. At the crest of the hill, at the geographic center of Pwani, is the community cattle dip, established in 1928 by the first European settler, and recently rehabilitated. Beyond this lie shambas, then the road continues for 25 km to Nakuru.

B. Its History (see Key Events in Pwani)

The area that is now Pwani was once open grazing land, used by the Maasai in their seasonal migrations. Colonization prompted the arrival of the first European settler in 1911. Captain Harris used all the land in the area south of Nakuru to graze his huge herds of cattle and sheep. Only the Kenyans working on the ranch were permitted to live on the land, and their access to its resources was severely restricted.

After Kenya gained its independence in 1963, Harris' land was divided and sold to several settlers. One long-time resident reports that these new owners mismanaged the property, and eventually sold it to the Mutukanio Land Buying Company in 1969.* Mutukanio, which means mixture, was an appropriate name for this company. Individuals from throughout Kenya purchased shares in this company, responding to increasing land use pressure in high potential zones. According to the usual procedure for such land purchases (Okoth-Ogendo, 1991), the entire tract was divided into plots of equal size which were then allocated to shareholders by lottery. Whether a given household acquired 2.5 acres of fertile valley land or a rocky windswept ridge was left to the "luck of the draw". Some shareholders traded plots among themselves to gain property near to family or friends. Land demarcation in

* Land buying companies were formed after Independence to enable indigenous Kenyans, who did not have the necessary financial resources, to buy back from the settlers the land they had fought to reclaim in the Mau Mau movement.

the area began in 1971, as part of the government's resettlement scheme.

As in many of the shareholder settlements in the Rift Valley, the majority of the shareholders were Kikuyu people from the highlands who had lived in well-watered areas and were familiar with fairly intensive cropping and livestock management systems. And as in most settlements of this type the new people of Pwani have had to adjust to farming in a drier, windier and less fertile environment that was formerly used for extensive (often seasonal) grazing. In these

Migrants to Pwani have had to adjust to farming in a drier, windier and less fertile environment that was formerly used for extensive (often seasonal) grazing.

respects Pwani is typical of a larger process in which near-landless people from well-watered highlands have moved to drier lowland areas formerly used by themselves or others for grazing.

Pwani is distinct in that most of the shareholders are part of a larger group of government forest service employees who lived and farmed in highland forests near their assigned posts. Most adults in this group of forest employee families spent their childhood on intensively cultivated farms, and then moved to upland forest areas where they practiced a mix of intensive gardening, forest gathering and herding, and shifting cultivation. The government mandated an end to farming in the forest areas and has periodically evicted forest

residents during the 25 years since Independence. It was this threat of eviction which led many forest employees to purchase their tracts in Pwani and similar sites. However, their status as forest service employees and the experimental combination of crop cultivation with reforestation efforts spared many of the families from eviction until recently.

As in many settlement schemes it was the men who undertook the work of clearing the land and building houses prior to the arrival of their families. In the case of Pwani, however, the men sometimes cleared their land long before the eventual settlement of their families. As forest employees, they knew about trees, but as both highland dwellers and foresters they saw dryland savanna trees as "weeds" on potentially productive cropland. They also saw the savanna trees as capital, not as a form of investment, but rather as assets that could be readily liquidated to finance house construction, other infra-structure (fences, cattle pens), and purchase of livestock and agricultural implements. As foresters they were also well connected to arrange for the sale of timber, poles and charcoal from the trees on their land.

Women's knowledge, women's interests and subsistence needs were divorced from the development of plots as investment property.

While the women valued dry forest trees, shrubs and herbs for fuelwood, food, fodder, medicine, fiber, oils and dyes, most of them were not present during the period when their husbands made decisions about forest clearing and land preparation. Moreover, many forest employee households cleared and "improved" their plots as investment properties and "back-up" options that they hoped they would never need to settle. So, women's

knowledge, women's interests and subsistence needs were divorced from the development of plots as investment property. In this commercial context the felled trees were a transitory "bonus" to be cashed in, while live trees had no intrinsic investment value and carried a negative value in terms of opportunity cost to agriculture.

Pwani is characterized by a high proportion of women-headed households or women-managed households with absentee wage-laborer men.

Migrations to Pwani have coincided with pivotal events in local and regional history. The new residents built the first kiosk and the primary school in 1976. The closing of game reserves in 1986 triggered some migration and land use change in Pwani. However, the largest surge of settlers came in 1989, when large numbers of current Pwani residents were expelled from the forest reserves. The reluctance of shareholders to move onto their holdings, even to the present day, is an indication of the poor quality of the environment in Pwani. Families arrive in Pwani as they are forced, either by authorities or intolerable circumstances, to relocate.

Not all residents who come to Pwani stay, however. Like many rural communities in Kenya (and throughout the world) Pwani is characterized by a high proportion of women-headed households or women-managed households with absentee wage-laborer men. The exodus of men to the city in search of cash income has characterized most rural communities in Kenya since the middle of

the century. This trend has been particularly pronounced among the Kikuyu, who were displaced from their homes in highland farming areas and were among the most heavily represented in the wage labor force at the time of Independence. The migration of wage laborer men has resulted in a new spatial division of labor by gender, based on split households with rural roots and urban branches. Women remain in rural areas to manage small farms (often too small for subsistence under existing technology and economy) and men move to urban areas or plantations to earn cash. Remittances may flow both ways as women contribute food to men and men send cash, tin roofing, purchased inputs or consumer goods home. Young men and women, too, seek jobs in the cities and towns, but their skills, and hence, their opportunities are limited, and many are employed for short periods of time, only to return to their parents' homes.

This has resulted in a new spatial division of labor by gender, based on split households with rural roots and urban branches.

Pwani has grown considerably since 1971, when there were only six homesteads, those of cattle workers from Harris' day. From 1974, and a population of 45 people, Pwani's population now stands at 5,000.⁶ Population growth cannot go unnoticed: an average family has eight children, which creates intense land pressure. There have been periods of high birth rates, in 1977-80, and more recently, with the increase in teen pregnancies, a subject of serious concern among community members. Social services, such as health facilities and schools, agricultural

Table 2. Key Events in Pwani Since 1970

1972:	Villagers collect money to dredge the dam; project was partially completed.
1974	Cattle dip rebuilt; Major starvation, low level of agricultural activity.
1975:	School and water committees organized; Water gathered from 8 km away.
1976:	Massive starvation; First kiosk; Nursery and primary school built.
1977:	Army worms attacked beans; Change in the park fencing; High birth rates.
1978:	Acaricides used in cattle dip; Roads, first hotel and posho mill built.
1979:	Army worms, poor rains, poor harvests; Artificial insemination of cattle begun.
1980:	Cereal Board arrived, prompting increased production; Serious wildlife attacks; First certified graduates from primary school.
1981:	Dam dried out; Great shortage of food; Milk sold to Kenya Cooperative Creamery.
1982:	Livestock die; Umoja women's group formed; Adult education started.
1983:	Dispensary with government supplied medicines; Catholic mobile clinic established.
1984:	Severe ukame drought and mburuga famine; women walk long distances for water
1985:	Floods; Community-Based Delivery (CBD) health service; stone terracing begun.
1986:	Cut worm invasion; low rainfall.
1987:	CPK (church) promotes biodiversity, organic farming; Land survey for title deeds.
1988:	Family planning service; CPK organizes health seminars; Erosion minimized by terracing tree planting, zero-grazing, and decrease in number of livestock.
1989:	Forest evictions wave of in-migration; Churches promote grass and tree planting.
1990:	Earthquake in May; Asst. Chief Mr. Chirchir appointed; adequate rainfall.

systems and the surrounding ecosystem are straining to keep pace with such rates and patterns of growth and movement.

C. Links to the Outside World

Though relatively isolated, Pwani is, nonetheless, enmeshed in the economic, social, and political realities which exist beyond its borders. Its very existence as a resettlement village is part of the larger government land utilization and allocation scheme. Government decisions about land use have restricted the residents' access to the forests and game reserves from which they relocated. The Lake Nakuru National Park, which forms Pwani's eastern border, is both a temptation and a nuisance; it

holds many of the plants which the residents were accustomed to exploiting, but now cannot, and the protected animals devastate the shambas along the fence while foraging for additional food.

Knowledge of and exposure to new technologies and social services is rather limited within Pwani. Although residents are included in government extension services, the difficulty of transportation to and relative newness of the community make it a low priority site for overworked extension agents. Most innovations and new ideas from beyond Pwani are introduced by church agencies, most notably the Church of the Province of Kenya (CPK-Anglican Church), and also by the Catholic Diocese.

III. Gender, Household and Livelihood in Pwani

A. Who Lives in Pwani?⁷

Within the Pwani community, there are at least two levels at which economic and resource management activities occur: the household, and the broader community. Most day-to-day decisions are made within the household, and it is at this level that choices and actions most immediately impact upon family members. Pressured by limited access to a degraded resource pool, families in Pwani are confronted by frequent changes in the availability and quality of both natural resources and human energies. There is great need to be flexible and to adapt individual responsibilities to meet the requirements of the entire family unit. Both the economy and the structure of the household, described below, set the parameters within which daily resource management decisions are made and implemented.

1. Household Economy and Wealth

Households within the Pwani community are relatively homogeneous in their economic characteristics. Distinctions among "classes" of households are difficult to make as an outside observer; residents, even when specifically asked, don't divide themselves along strictly financial lines. However, during the survey, they noted several key indicators by which household wealth

can be distinguished: size of land holding, the presence of a water tank, the existence of a cash income and the educational attainment of children.

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The first, and most decisive household characteristic is that of **land ownership**. Ownership of land itself brings security of access to other productive natural resources, such as fuel, fodder, and water. Access to the property of others and to public spaces is neither secure nor is it adequate to meet the needs of most households. Approximately 5% of the households in Pwani are landless. Among those owning land, the likelihood of greater affluence increases with the size of the holding, ranging from .25 to 10 acres.

A second indicator of relative wealth is a household **water tank**. As water is a crucial and scarce resource in Pwani, those who have easier, more reliable access to water are better equipped

to make the most of their other productive resources, both materials and time. Because there are substantial labor and material costs involved in building a water tank, the poorest households among the community rarely have a tank, while those better off sometimes do.

An **external source of income** -- money other than that earned from the sale of basic subsistence crops, such as maize and beans -- is a third distinguishing factor. Employment opportunities in Pwani itself are few, and there is strong competition for jobs in urban centers. However, some households in Pwani supplement their farming income with remittances from relatives employed elsewhere, local trading or marketing activities, and/or casual labor both in and out of Pwani. This extra income is used for a variety of purposes: some visible, such as improved living quarters; some productive, such as hired labor or chemical fertilizers; and some investment, such as school fees.

The last criteria, **educational attainment of children**, is the least precise of the four. A child's progress in school is certainly dependent upon innate intelligence and application, but it is also directly impacted by opportunity to attend school. In Pwani, this requires a parent's ability to pay school fees -- contributions to building funds -- and to replace children's labor in other activities, such as gathering fuel or water, so that they can attend school and study.

Given these four criteria, it is possible to identify four different economic "classes", representing the range of circumstances within the community.

a. Landless These people find lack of land their biggest problem. Rent is about KSh. 700/=⁸ per acre per year, which is a great

Hanah W.

Hanah was widowed in 1982, and came to Pwani, with her six children, to live with her parents. Her parents only own a very small shamba, where there is no room for them. She works as a casual laborer, but work has been scarce, and she doesn't earn enough income to support her family. The Church of the Province of Kenya (CPK), Nakuru Diocese, has rented a one room, 10' x 15', wood house for them and an acre of land for her to farm, but this is also insufficient to provide for the family. She must buy water, and uses her corn stalks as cooking fuel. Her youngest son is disabled, and is enrolled in a special class in Pwani. Her elder son was in secondary school briefly, but she incurred so much debt for his school costs, that she was forced to withdraw him; now, he gets casual work when possible, but mostly hangs around in the market square. She's very upset at being unable to educate her children, but has no way of earning a steady income. She knows that she might benefit by joining a community group, but can't afford the dues. Although she approached the CPK about the possibility of knitting sweaters for sale, which she has done in the past, they have not as yet provided her with the necessary materials. She expects that she will have to borrow money from neighbors, in order to cover her expenses.

deal of money for an average individual, even for a small plot. This group, although a small portion of the population (approximately 5%), can be further differentiated by the predominant economic activity. Some households obtain access to farming land by renting it; they are generally unable to earn

Josephine R.

Josephine arrived in Pwani in December, 1984, as a new bride. She and her husband worked as laborers, and when they had saved KSh. 100/=, they bought a few items to start a hotel, renting space on the marketplace. They worked hard and did well; so well in fact that their landlord evicted them, preferring to run the shop himself. Undaunted, they rented a larger shop and business is fine, even with the competition, except when harvests are poor, like now. Though their desire to buy a shamba is strong, they find it difficult; they must pay KSh. 200/= rent on their house, and another KSh. 300/= for the shop, whether they have business or not. Water is an added expense, at KSh. 2/50 or 3/= for a five gallon can. She buys firewood or charcoal, which costs KSh. 100/= a bag. And school fees for her four young children absorb all of their small savings. Her parents also had this problem, and she was forced to leave school in Form 3. This is why Josephine is committed to keeping her children in school, noting that, "Unless I can afford to educate them well, we'll never be able to buy land." Despite this struggle, she says they are better off here; in both her maternal home in Naishi and her husband's home in Gilgil, they were landless.

sufficient income from the sale of crops, however, to cover the expenses of rent, and so are employed, most frequently as local shopkeepers or mechanics.

They are better off than those who are unemployed, and therefore dependent upon extension of credit from local shopkeepers and donations from neighbors and external agencies for their livelihood.

b. Near-Landless Smallholders Households in this group (approximately 15%) generally own between .25 and 2 acres of land and a small, one

Leah N.

Leah lives on a small, irregularly-shaped farm with her two late-teen aged grandsons. Their father used to work for the forest station; when he died, they were forced to move to Pwani. Her land was once lush like the neighboring game park, but when she arrived here, most of the trees had been cut for charcoal. She uses maize stalks and dried weeds from the garden for fuel because she can't afford to buy it. She has tried planting many trees, but they all dry up. Leah has a great deal of trouble growing crops; animals (warthogs, pigs, and porcupines) come at night and root in the fields, and monkeys eat the maize, so she sleeps in the fields to protect what she can. The plot is too small to keep livestock, so they have sold them, and now keep just a few chickens. Although the boys are of employable age, neither has finished primary school, and so they have a great deal of difficulty finding work. Their mother lives and works in a nearby town, but sends money and visits only sporadically.

room wattle and daub house. They usually don't have a water tank, and they must purchase fuel or use maize stalks. Most households in this group have no large livestock, though they may own a few chickens. They rarely have any cash income, and, as a result, their children get less than a Standard 8 education.

c. Middle Income Farmers More than half of the community -- approximately 65% -- falls into this group. These households have access to 2.5 to 5 acres of land, and live in small cement or timber homes with a few outbuildings. They might have a water tank, and generally can gather fuel on their own land or borrow from neighbors. They also have small livestock (sheep and/or goats). Because they occasionally earn cash income, their children generally complete Standard 8.

Agnes N.

Agnes was landless and used to run a small business in Njoro town. Her family sold their business and purchased 5 acres in Pwani in 1984. They admit that it was their last choice because of Pwani's poor climate; they had looked elsewhere for land for 3 years.

Agnes' husband works away from home and comes home only on the weekends. Her children have reached fourth form, but they do not have jobs. They have an average size timber house with a few extensions. The compound is well fenced and they have a water tank. Agnes has already started planting trees because there are not enough left on her farm to provide fuelwood.

Njoki W.

Njoki came in 1977 from Rikia forest, where her husband is still employed as a forest guard. When she came to Pwani, she brought a lot of wood and seedlings with her. Her 10 acre farm has a large living compound, dominated by large mabati-roofed wooden buildings and huge piles of lumber, a larger than average water tank, and is enclosed by a high, solid wooden fence. Her seedlings have been well protected, and she will have many new trees for use as fuel or timber in the near future. Her eldest daughter, separated from her husband, is a nursery school teacher, and helps with work on the shamba, made much easier by their tractor and disk plow. A hired woman (she is landless, and hires out her labor, in the hopes of saving enough to one day buy a plot of land for herself) also works on the shamba and in the household. Njoki's younger children are all in school, some in primary and two away in secondary school.

d. Wealthiest Farmers The remaining 15% of the community can be considered affluent, by local standards. These households own 5 to 10 acres. Their homes are large, built of cement, and they have many buildings in the compound. They have a water tank, fuelwood resources on their own land, as well as cattle and small livestock. There is a regular source of cash income within these households, so children will attend secondary school, if they are capable, and most are able to use hired labor for a portion of the shamba work.

2. Household Composition

While economic characteristics make possible a rough, imprecise definition of households, a much more appropriate way of distinguishing among households in this community involves the examination of the family structure of each. The household may consist of two or more generations of extended family members; although not necessarily consecutive generations. A notable fact of life in Pwani is the frequent absence of male heads of household due to either death, desertion or, more commonly, employment in an urban center. The daily and long-term management of the household, and its interaction with

the larger community, is largely dictated by the age, gender, wealth and status of household members. Therefore, households can be most accurately characterized by whether there are two adults present in the household, or whether it is woman-headed, either de jure or de facto.

a. Woman-Headed A large number of households in Pwani are legally headed by women; some are widows, some have been deserted, and some are single by choice. Most women running households alone reported high levels of frustration due to the burden of providing sustenance and direction for the household without additional adult assistance.

Magdelene N.

In 1976, Magdelene left Murang'a to come to Pwani. She saved money from trading maize and beans in the market there to pay the KSh. 1,270/= for her 2.5 acre plot. She is very isolated from the rest of the community because she is very busy with her own responsibilities. In addition to her own school-aged son, she cares for her daughter's son, who is handicapped; her daughter works in a hospital, and occasionally sends money to help with the expenses for her son. Magdelene rises early to feed her son and get him off to school, then she does her shamba work alone. She must gather fodder for her goats, and collect maize stalks to use as fuel, though she has been able to build a water tank. She knows that there are benefits to be gained by joining a group, and she would welcome the contact and the assistance communal labor could provide, but she can't spend time away from home because of her grandson. She has given up her trading as well, which restricts her budget considerably. If she needs help badly, she can rely on her church, but that's only called upon in emergencies. She doesn't see much advantage to owning land herself, rather than through a man; she states, "I can only use it for normal farming, like everybody else." Despite all these difficulties, there are notable differences between her shamba and compound and others of similar economic status. Her compound is more orderly, laid out more efficiently and attractively. The most remarkable difference is the number of trees -- she has planted nearly a dozen, of different varieties, for different purposes around the household.

b. Woman-Managed While these households have the support, albeit often little or sporadic in nature, of men who work in urban areas and visit with varying degrees of regularity, these women are also largely self-sufficient both economically and socially. They are responsible for the day-to-day management of the household, though long-term decisions are usually made by or with the male

"head of household." Opinions vary about the realities of managing a household without a male partner to help on a regular basis. One woman commented that, "Women are better at managing their farms because they know kitchen necessities, and know what to plant." Another remarked that, "Most women don't have husbands at home; they sometimes don't have money, and there's no-one to give them money."

Veronica M.

Veronica manages the 2.5 acre farm owned by her husband, who works for the Ministry of Agriculture and is often away on field work. She does most of the shamba work herself, in addition to caring for their children. She does hire labor to help with the plowing, and pays them with the profits from the sale of her crops. This season, however, the beans haven't done well, and she'll have to depend on her husband's wages to pay the workers. He doesn't usually cover household expenses, except for the children's school fees. He helps with building and maintenance tasks when he is home, having recently built a chicken coop which she proudly pointed out. She has made several innovative changes in her cropping patterns in the past few seasons, but if she wants to grow a new crop, or to buy or sell their small livestock, she will have to get permission from her husband first. She takes a great deal of pride in her work, and seems to manage the household quite well.

While the occurrence of women as legal landowners is uncommon in most communities throughout Kenya, a small but significant number of women (not all single heads of household) own their shambas in Pwani. Married women who own land are legally entitled to the privileges accruing from holding title to property, but they are generally unaware of such rights, uninformed as to how to access these benefits, or hesitant to use their land as collateral for loans. This may be due in part to the fact that it's still considered socially inappropriate for women to own land. One woman commented that, "It looks like it's [the woman] who's having power [in the household]; if they do [own land], it's a family secret."

c. Both Spouses Present Those households where both spouses are actively involved in both daily and long-term management decisions benefit from the added utility of two minds and two pairs of hands. The manner in which work is divided varies a great deal, however. Responsibilities and decision-making powers are sometimes equally shared, but more commonly, women have a great deal of daily responsibility for providing sustenance, particularly performing the most time-consuming and repetitive tasks, while men reserve the right to make decisions regarding long-term household management.

Phyllis M. and Hosea M.

Phyllis and Hosea own a 7 acre farm. Hosea also owns several buildings in the market center, purchased with his pension from the Post Office, which he rents to shopkeepers. He runs a small general store in the market as well. Phyllis manages their shamba, deciding what, where, and when to plant, managing the harvesting and storage, and caring for the livestock. Each manages the profits resulting from her/his activity, though they pool their resources for major expenses. Though each has daily decision-making control over the corresponding sphere of activity, they make major decisions about both the shamba and the shop together.

B. Livelihoods in Pwani

Most of Pwani's residents are farmers. The main crops are maize and beans, and a variety of vegetables, grown primarily for subsistence use. When the season is good, farmers are able to sell some surplus maize and beans for a small profit. There is no major cash crop grown because the landholdings are small, and no-one has yet identified a profitable crop which will do well here. Despite these and other problems, agriculture is generally the only local source of income. A few farmers grow small quantities of vegetables for the market. One farmer was growing chilies and said they were doing well. Another young man had grown an acre of onions, which had a ready market in Nakuru, and was hoping to experiment with wheat. He admitted, however, that he was able to try new crops because he didn't have the responsibility of feeding a family.

A few of the landless, especially those with small businesses, can afford to rent a piece of land. Working in the shambas of those well-off enough to hire laborers is another source of income for the poorest residents in Pwani. This is more common amongst the very young and

very old people who do not have any outside source of income. They generally earn KSh. 25/= a day.⁹

Largely as a function of the small land holdings, which cannot support the growing population, paid employment has become a necessity for most families. Inputs to improve land productivity, school fees, health care, and food purchases all require money. However,

Largely as a function of the small land holdings, which cannot support the growing population, paid employment has become a frequent necessity for most families.

roads and external communications are poor, and the economy of the village is subsistence-based, providing few opportunities for earning a cash income. There is no industry in Pwani; those not employed in agriculture have small service businesses--hotels, butcheries, repair shops--which meet the community's needs. Yet a

retail establishment requires capital, which few individuals have. Some youth, especially young men with bicycles, earn some seasonal income in petty trading -- buying beans from local farmers, and taking them to sell in Naishi or Nakuru.

An alternative way of bringing cash into the household is through group activities. Kuga no Gwika bee keeping group was formed by a group of women to earn income from the proceeds of honey sales. They have begun their next project, keeping chickens. Another group, Amani, is buying cows for members; they will be building zero-grazing paddocks, due to limited land, and will earn an income by selling the milk. Their success will depend more on their management of this new enterprise and less on the size of their landholding.

Although some men in Pwani are solely involved in agriculture, most have some sort of paid employment, either casual or regular. It is often their responsibility to provide the necessary cash for household expenses and school fees. Employed men, when they are in residence, may also help in developing their

While a large number of adult males are absent, women are required to meet the subsistence needs of their families.

homes. An example is Mr. W., who works for the Ministry of Lands and Settlement and comes home every weekend. He has built a good stone house and has extended the water tank built by his wife's self help group. When he is at home he helps in looking after cows, fencing and shamba work. He notes that his wife makes

most of the decisions because she knows more about the farm than he does. If he had a choice, he would prefer to stay at home and manage the farm.

Since a large number of adult males are absent, women are required to meet the subsistence needs of their families. Women find that they are often facing the challenges of the changing times alone, and have to do a lot of work otherwise done by men. They do not consider themselves lucky to be doing jobs that men used to do, such as looking after livestock, paying school fees, and building tanks. These women find their daily workload increasing as management pressures mount. Despite

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the small size of their holdings, they are generally not able to do all the required work alone. Therefore, there is an ironic coexistence of un- and underemployment for youth and men, and overburdening of women's productive capabilities. While many survey respondents agree that tasks such as building a water tank would have traditionally been a man's responsibility, changing circumstances have required women not only to make the decisions, but also to physically construct the tanks.

As in many rural communities with limited land, Pwani is home to a rising generation of unemployed youth with little hope of making a living as farmers. Not only is farming not a desirable future from their point of view, it is not viable considering the size and quality of the landholdings which are too

small to be efficiently shared among many children. Unlike some communities, Pwani has little to offer in the way of "marginal" or peripheral lands for new young families. Young adults are therefore unlikely to have access to land for their own use. Even with rapid and dramatic intensification of agriculture, Pwani would be at a locational disadvantage relative to areas immediately surrounding the largest urban markets.

The next generation brings rising expectations to a very limited, finite area whose natural capital (trees and soil fertility) has been heavily mined by their parents.

The primary school, forced to contend with too many pupils, too few teachers, and nearly non-existent resources, cannot provide skills training beyond basic literacy. There is no secondary school nor polytechnic in the village, which might improve a young adult's chances of competing in the overcrowded job market.

Limited educational achievement does not adequately prepare Pwani's youth to compete for the few jobs available. Those few educational and employment opportunities which do exist are available almost exclusively to young men. This is a national problem, but it is especially severe in Pwani because traditional social networks are weak and disrupted in such recent settlements. The next generation brings rising expectations to a very limited, finite area whose natural capital (trees and soil fertility) has been heavily mined by their parents. They are typical of rural youth in much of Kenya whose future depends on a reconciliation of urban values and rural realities and of commercial gain with subsistence security.

While most commercial poachers now come from outside the area, and local poachers confine themselves to medicinal herbs, fruits and small game for food, poaching may become a compelling alternative to deepening poverty for Pwani's youth. They face the future from a finite tract of land already occupied by their parents, the park or adjacent communities. Their horizon is short and will require creative vision to extend their future options beyond the present stalemate.

IV. Gender, Livelihood and Community-Wide Resource Management

Household-level resource management decisions are not made in a vacuum; they are limited by and contribute to the conditions in the community-at-large. It is necessary to examine these broader circumstances, in order to gain an accurate view of what conditions are affecting the household, and what responses are possible for both the household and the entire village. Some resources exist only on a larger-than-farm scale -- for example, water points, cattle dips and schools. When dealing with these larger, scarcer, or more expensive resources, the entire community context comes into play. Gender relations matter both in terms of the process by which interactions occur and decisions are made, and also the impact which decisions have upon various community members.

Gender relations matter both in terms of the process by which interactions occur and decisions are made, and also the impact which the decisions will have upon various members of the community.

Most of the information on natural resources management was gathered through PRA field interviews, community-wide meetings and follow-

up group meetings. During the course of these meetings Pwani residents identified water and fuelwood supply, lack of family planning services, low crop yields, livestock disease and transgressions of the park boundary as the major resource management issues in their village. They all agree, regardless of class, gender or age, that water scarcity is the single most important problem that they face, as individuals, as members of local households and as a community.

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There is less consensus on the relative importance of the other issues, although everyone recognizes each of the items as a valid concern. The six resource-related problems are shared by the whole community. However, they are experienced differently and ranked in different order by women and men. Class and age differences also affect the ranking of priority problems and the proposed solutions. In addition to resource issues people also note the lack of health care facilities, the poor condition of the road, the resulting isolation from marketing centers, the lack of employment opportunities and the lack of a secondary school.

A. Water Scarcity, Water Quality, and Location of Water Points

While water is the undisputed choice as the most pressing problem, several points of difference arose during the various group meetings and follow-up surveys on gender and resources. Everyone is affected in some way by lack of water: the women are responsible for providing water to the household, both men and women are responsible for livestock watering (depending on household circumstances), while men, women and children suffer from health problems caused by contaminated water. Some households already have roof-catchment water tanks for domestic water supply, while others do not. The latter group may "borrow" or purchase water from neighbors or they may draw their drinking water from the village dam (Figure 3), which is contaminated by runoff from the roads, the market and by cattle and other livestock that drink there.

Among those who have no tanks, many women are members of self-help groups which provide rotating credit and labor pools to their members.

For those with no tanks, domestic water supply is still at issue, whereas those with large tanks are now concerned only with the supply for their livestock. Residents in group interviews commented that only 10% of the population already have water tanks, and most women in the remaining households place a high premium on building a tank of their own. Many of the poorer households with no tanks have no livestock and therefore no long term

interest in the dam, once they manage to build a tank. In the short term, they are most concerned about the quality of the water from the dam and the need to keep livestock away from direct contact with the main body of water.

Among those who have no tanks, many women are members of self-help groups which provide rotating credit and labor pools to their members. Several of the groups in the vicinity channel their funds and labor into construction of water tanks for each of their members, in turns. One group, the Witeithie Wone Mai Women's group, has already built 14 tanks and the women plan to construct one for each of the 40 members. While the discussions re-affirmed the community's concern about water supply, some of the women's groups already have a plan and the will to carry it out.

In spite of broad consensus on water as the main problem, the preferred solutions still vary among different groups. For example, community discussions about action on the water problem involved more men than women and a disproportionate number of wealthier members of the community. Many of those most active in the community meetings already have water tanks at home. Some of them financed the tanks themselves, while others had been at the top of their respective groups' lists for tank construction.

Among these households, and particularly among men with large numbers of livestock, the priorities for water rest with the restoration of the dam as a livestock watering point. Moreover, the discussion of community level actions by officials and residents, both men and women, placed the emphasis on public, shared facilities, rather than on group contributions to household level infrastructure. The resulting village resource management plan gave top priority to dam rehabilitation, which implies a diversion of self-help group resources away from home water tanks and toward the dam as community infrastructure. This

will benefit those who already have tanks, or those with little hope of securing them in the near future who must use the dam for domestic water supply.

Both the discussion process and the substance of the proposed solutions affected men's and women's interests differently, with respect to water resources. Women, as a group, have a more direct interest in domestic water supply since they are all responsible for the daily provision of water to their households. Men, in general, are the legal owners of cattle and are responsible for the provision of livestock watering points, even if they delegate the daily management of cattle to their wives. The choice to give first priority to the community dam was forged from the convergence of three groups: 1) men in general, as cattle owners; 2) wealthy or influential women who already have water tanks; and 3) very poor women with little or no chance of building a home water tank through group efforts. All three groups shared a common

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interest in repairing the dam to expand the storage capacity, stabilize the shoreline, and to protect the water quality. The group which would have placed home tanks as first priority are those women who do yet have household tanks, but hope to build them with group assistance in the near future.

The distinct interest in various water development options, in spite of a consensus on the problem, demonstrates the importance of proportional representation of different groups, by gender and class, in the overall community meetings. Alternatively, it may be more effective to determine priorities of distinct interest groups in separate sessions and to use community-wide fora to negotiate the terms of joint or complementary efforts from these separate viewpoints. In either case it is critical to determine the nature of the interest groups (a mix of gender and class for water issues in Pwani); the relative numbers of people in each group, and the nature of the interests at stake.

B. Fuelwood

Throughout the survey process women raised the issue of fuelwood scarcity, both singly and in groups, but men were inclined to accord it a lower priority. The fuelwood issue came up at some household and group interviews, but did not cause any controversy in those instances. All women report a scarcity of fuelwood, though there are several responses to that fact. A few of the wealthier women can afford to buy good quality fuelwood or charcoal. Most women either buy sawdust and woodchips from the nearby sawmill, or use maize stalks, maize cobs, dung and small stickwood from weedy fallows and fencerows.

The relation of fuelwood and gender issues was clearly demonstrated in a discussion organized for the PRA exercise. The context for discussion of fuelwood scarcity was conditioned by the presence of officials and outsiders, the formality of the venue (a church), the combined presence of men and women, the high proportion of wealthy and influential community members, and the mixing of distinct groups in a public

forum prior to reaching consensus separately, by group. All of this combined to bring about a struggle over the meaning of women's work, women's resources and women's voices in public affairs related to resource management. This was a clear demonstration of the effect of gender on problem definition, problem ranking, group process and proposed solutions.¹⁰ It also provided an object lesson in the proper place of outsiders in community affairs. The summary below captures the main points of the fuelwood debate during the problem ranking exercise.

It became clear that the matter being discussed was not merely fuelwood, but rather women's place -- in the household, in the landscape, and in community meetings.

Though it was possible to reach an easy consensus on the primary importance of water scarcity through informal verbal assent, the fuelwood issue proved to be somewhat more complex a matter. One woman's suggestion that fuelwood should occupy the second priority "slot" on the list drew an overall murmuring and nodding of approval from all of the women present, while the men talked of roads and markets. Some of the PRA team encouraged the women to raise their point again and to place fuelwood just below water as a major problem. However, there was a stalemate on the fuelwood issue, and by the end of the meeting fuelwood needs had been disregarded. A secondary school

and roads were on the list as was a hospital,* and finally, more intensive, sustainable agriculture.

The dynamic set in motion by the presence of outsiders and the unusual nature of this forum had firmly separated the room by gender and it became clear that the matter being discussed was not merely fuelwood, but rather women's place -- in the household, in the landscape, and in community meetings. The issue of women's groups and the lack of men's groups arose, with strong statements on both sides. Women cited their heavy share of the labor on community work and men reminded them of their cash contributions. Several women strongly re-asserted their claims on public attention and authority by stating that the women provided the organizational impetus, the ideas and the labor, even when men contribute the cash for women's self-help group activities. So a simple discussion of resource management and development problems became an arena for struggles over meaning between men and women and between people with power and those they affect.

Thus was born the "tree planting and tree protection" priority, rather than the fuelwood problem with a fuelwood solution.

The resolution came the next morning, when the community leaders and residents present asked the PRA team and officials to leave them to a community meeting with no outsiders, to sort out the confusion of the previous day. They met for two hours, then announced that roads and

* The hospital was actually derived from women's complaints about the lack of family planning services. "Family planning" was renamed by the men "hospital," which acquired a life of its own as an infrastructural rather than information and service need.

hospitals were beyond the scope of the PRA follow-up and the community's own resources. The group did leave the secondary school in second place on the list.* They further noted that there is more to trees than firewood, such as timber, fodder, food, medicine, soil fertility and soil conservation value. Thus was born the "tree planting and tree protection" priority, rather than the fuelwood problem with a fuelwood solution. Men and women had renamed the contentious issue and had broadened it in the bargain. They also suggested that sustainable agriculture ought to include the practice of agroforestry and community tree planting, and suggested moving that entire topic up to third place, right behind water and the secondary school.

C. Sustainable, Intensive Agriculture

As with the case of water, there is broad consensus on the importance of the problem of crop yields and several distinct approaches to solving it, based on household resources and composition. In group meetings and follow-up visits several women showed a strong interest in group and community level seed banks for indigenous vegetable crops and herbs as well as improved crop varieties (maize, beans, vegetables) from elsewhere. This was dismissed by technical advisors and officials in the community meeting as a high-technology practice beyond the scope of rural communities and women's groups. Yet in follow-up visits women showed substantial skill and interest in seed selection of their own traditional crops and in introducing drought resistant vegetables, such as amaranthus species from other regions.

Some individual women have their own small seed banks with indigenous plants as well as new species and improved varieties purchased in Nakuru. However, their plots are not large enough for broad use and access is limited to family, friends or group members. Some of those interviewed noted the importance of local control over seed supply and quality. Under the current situation most women depend on travelling vendors and have little choice but to purchase whatever type of maize seed and other crop seed that they may happen to bring to Pwani. There is often a shortage of any seed at planting time. This concern was voiced almost exclusively by women throughout the PRA and follow-up, and was not addressed by the first phase of the Village Resource Management Plan. It is, however, already part of the agenda for two church-based NGOs operating in Pwani.

Women showed substantial skill and interest in seed selection of their own traditional crops and in introducing drought resistant vegetables.

Soil fertility and soil moisture problems were noted by both men and women. Many households are now faced with declining crop yields after a few seasons of cropping. Since most residents are accustomed to wetter highland areas with fertile soils or to shifting cultivation in recently cleared forest, they have little experience with soil fertility management under dryland conditions.

* While the school was not a resource management problem, it was related to teen pregnancy, family planning and lack of direction among the youth. The PRA provided a forum to pressure local officials on a longstanding problem over school funding and land allocation.

There is general interest in addressing this problem, but little experience or experimentation thus far. No specific activities were planned to address this during the first phase of the village resource management plan.

Overall people agree that they need to restore and rehabilitate trees in the landscape and to bring multi-purpose trees into croplands and home compounds.

Overall people agree that they need to restore and rehabilitate trees in the landscape and to bring multi-purpose trees into croplands and home compounds. Only a few households still have gallery forest or patches of open woodland on their holding, and they are under heavy pressure from neighbors. There is broad support for community level and group level tree nurseries, with farm level planting by individual households.* Species choices include specific indigenous trees already known and liked, as well as requests for exotic trees that might meet specific needs such as fuel, fodder, timber and medicine. The Egerton University Forestry Faculty has arranged to assist Pwani residents with tree seed, seedlings, training and information.

D. Livestock Health

This issue was raised by many of the men who had been active in constructing and managing the cattle dip at Pwani. Tick-borne

diseases are plaguing livestock keepers throughout Kenya, yet the village dip is no longer functional. Several men complained that the government no longer provides the chemicals and veterinary services free of charge and some residents suggested that the pesticidal solution was diluted at those dips still functioning on a fee for service basis. The content and process of this discussion identified cattle keeping and veterinary medicine as men's domain, which was heavily dependent on government extension services.

A different impression emerged during follow-up visits to individual homes, based on discussions of wild foods and medicinal plants with women. While herding and veterinary medicine had traditionally been domains of men's work and men's knowledge, many women in Pwani have been taught by their fathers to care for cattle, to diagnose health problems and to prepare herbal remedies for common livestock diseases. Their fathers had noted the shift in the gender division of labor and the increasing migration of men in search of wage

Women have, in fact, largely taken over traditional medicine, veterinary and human, as well as livestock management.

labor. Some of the men with specialized herbal medicine skills also taught their daughters to diagnose and treat people and to find and prepare the wild plants for specific remedies. Women have, in fact, largely taken over traditional medicine, veterinary and human, as well as livestock management. Men are solely responsible for the

* As noted in the prior discussion of fuelwood, the PRA participants chose to include trees and the products under sustainable agriculture and to emphasize agroforestry approaches on-farm.

dip and in wealthier families they usually purchase and apply chemical sprays at home. Thus the gender division of labor and knowledge has shifted from livestock versus agriculture to traditional versus "modern", commercial technologies for disease control and treatment.* Many women are quite knowledgeable about the current symptoms and conditions associated with livestock disease and also know the water and fodder requirements of the animals, since they either herd them or supervise children's livestock herding activities.

E. Nakuru Park and the People of Pwani: The Fence Has Two Sides

The conflict between the park and the people of Pwani is a double-edged problem. While the park boundary is legally impenetrable, it is practically quite permeable and is regularly crossed by both people and wildlife. The poaching works both ways: people poach on the plant and animal resources and wildlife poaches on the cropland of those farmers closest to the park boundary. Each threatens the living space and resource base of the other to some degree.

The poaching by people on park turf is closely related to the scarcity of woodlands in the farming area and the demand for specific wild foods, condiments, medicinal herbs and veterinary herbs in the community. Contrary to the professional poachers from outside the area, Pwani residents do not threaten the large mammals or primates in the park. For the most part, they enter the park in search of small quantities of renewable resources such as fruits, leaves, bark, roots, and small game species that

are abundant in the woodlands around the lake. It seems that this widespread but low level of hunting and gathering has a relatively minor effect on the park as a whole.

The poaching on cropland by animals has a very pronounced effect on the narrow band of farms along or very near the park boundary, but has very little impact on the community as a whole. Those farmers whose lands are frequented by wildlife complain of serious damage to their grain harvests, fruit trees, legumes and vegetables. Several of the farmers have changed their cropping strategy in response to frequent raids on their food and cash crops by baboons, warthogs, wild pigs, gazelles, and other wildlife. Some farmers keep vigil in their fields at night to guard their crops just before harvest time.

It seems that this widespread but low level of hunting and gathering has a relatively minor effect on the park as a whole.

This issue was not raised explicitly in the context of the PRA but was raised by the farmers most affected by wildlife damage to crops. It was also raised by wildlife and natural resource management officers participating in the PRA and indirectly by women discussing their dwindling sources of wild foods, condiments, and medicinal herbs. Women's needs might well be met through special forest-boundary nurseries and establishment of special forest stands for extraction of renewable forest products. Men's interest in small game might also be met through

* The same appears to be true in the realm of human medicine, although women must often raise the funds for treatment of themselves or their children in clinics.

substitution of domesticated animals -- which would create more work for women -- or through stocking of small game in special stands outside the park. Overall, there seems to be scope for negotiation of a more practical approach to the fence, which does indeed have two sides. Both men and women share an interest in the park boundary issue though their expertise and priorities are different with respect to specific resources within the park.

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V. Community Responses

A. Progress to Date

1. Historical Context

Pwani's brief history is characterized by movement of population: waves of men, and then whole families, moving to the area and establishing homes; and men going away again, seeking employment in urban centers. It is this continual state of flux which shapes the local institutions within Pwani, and dictates the nature and degree of interaction with the larger economic, social, and political context.

Pwani has not been characterized by community identification or unity until recently. These settlers have come from many places and, in resettling, have strained the traditional ties of family and community which have sustained people in times of need and provided a focal point of social interaction. Aside from close relatives and prior associations as forest employees, most households have little or no pre-established bond with other families in the community. Many have chosen to work independently and to strive for advancement based upon their own individual efforts. However, this pattern of isolation has begun to change for several reasons.

Pwani is isolated, as a community, from larger administrative and economic units. Due to the community's physical isolation, no government extension personnel are specifically assigned the responsibility of tending to Pwani, and rarely

do the "experts" visit, either to determine what is going on there, or to give advice. Residents are prohibited from using the natural resources just on the other side of the park fence. Schools have been flooded with the children of recently arrived settlers, yet no new facilities or instructors have been provided. The natural resource base and local infrastructure, under demands from a booming population, have deteriorated, as indicated by the contamination and siltation of the dam, the scarcity of fuel sources, widespread livestock disease and decreasing agricultural yields. These changes have created a strong need

The changing resource base has created a strong need to pool resources in order to survive, which has been achieved in part by joining together with other households similarly stressed.

to pool resources in order to survive, which has been achieved in part by joining together with other households similarly stressed.

2. Local Institutions

Churches have "always existed" in Pwani. The first women's group, Umoja ("unity"), was formed in 1980. Yet, these institutions were slow to assume major responsibilities within the

In the process of tackling immediate needs, these women and men have begun to envision and plan for the future as a collective body, rather than as isolated households.

community, individuals were hesitant to join, unconvinced of the potential benefits of such activity. Since 1987, however, self-help groups, often based upon church membership, have proliferated rapidly. Comprised predominantly of women members, these groups have formed most frequently around natural resource and financial problems -- water, the need for school fees or household items -- and have developed strategies to address these needs. In the process of tackling immediate needs, these clusters of women and men have begun to envision and plan for the future as a collective body, rather than as isolated households.

3. External Agents

Pwani is not entirely ignored by larger regional and national institutions. Although there is little extension activity in Pwani at the present, a newly appointed Assistant Chief is attempting to redress this neglect. Some needs which cannot be appropriately met by individual households or small groups are being addressed by non-governmental agencies. Egerton University has provided training in the construction of water tanks, and most recently sponsored the Participatory Rural Appraisal exercise on which this case study is based. The University has assisted the community in identifying and assessing their resource problems and their opportunities to improve

conditions. It is expected that this institution will have an on-going research program in Pwani. A weekly mobile clinic, the only accessible health care for the community, is provided by the Catholic Diocese, which has also encouraged the re-introduction of organic farming methods. World Vision and International Christian Aid provide school books and uniforms for impoverished students on an occasional basis.

The most striking external intervention in Pwani comes from the Church of the Province of Kenya (CPK). After sponsoring a community-wide survey and needs assessment, much like a PRA, in 1987, they have begun to provide both training and resources to match those areas of interest and need identified by the residents. Emphasis has been placed upon self-sufficiency, group unity, and interactive processes. Training programs have included leadership skills, group management,

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health education, techniques for building water tanks, livestock management, organic farming, and small income-generating projects, like bee keeping or rabbits. This instruction and encouragement has proven to be a catalyst for the community's own initiatives and efforts.

4. Activities Pertaining to Resources

As mentioned, both the CPK and Egerton University have sponsored community-wide needs

assessment and encouraged joint management of natural resources. Women's groups in particular have adopted activities to better manage or provide scarce resources. Nearly a dozen groups have been formed to build water tanks, since water is the most crucial need in Pwani. The women pool their resources and provide the labor to build a tank for each member on a rotating basis. Having come together around this common need, they have begun to help each other in other ways, sometimes working communally on large endeavors, like plowing, or providing aid in times of distress. Those groups which have completed building tanks for all their members have gone on to other activities, most notably constructing sheds for stall-fed livestock, and purchasing cross-bred cattle, or keeping chickens for sale.

5. Increasing Capacities

Largely as a result of past successes and assistance from the CPK, local institutions have expanded both their activities and their horizons. Groups have begun to look beyond Pwani's borders, and are initiating cooperative efforts with similar groups in neighboring communities, creating what one individual called "development borders." Though originating from different regions, belonging to different religious denominations and occasionally different ethnic groups, many residents have broken down divisive barriers, and work together in a spirit of neighborhood and community, as noted by the local CPK social worker.

Diversity also characterizes their activities. Rather than view each difficulty alone, **groups now examine the linkages among problems, and formulate strategies which can address several needs simultaneously.** Beyond building water tanks, groups have taken on projects ranging from bee keeping to planting tree nurseries to building

toilets. They have also decided to provide for themselves what the government has not; they have rehabilitated the cattle dip, and are raising money to build a local secondary school.

Group members, bolstered by their successful endeavors, have come forward to demand accountability from their locally-elected leaders, and to remind government of its responsibilities to the community.

This practice of cooperation and self-sufficiency has not prompted residents to discount government's role, however. Group members, bolstered by success in their endeavors, have come forward to demand accountability from their locally-elected leaders, and to remind government of its responsibilities to the community. A long-standing conflict over responsibility for planning and funding water projects was recently resolved when residents persuaded the new Assistant Chief to take up the matter with the pertinent parties.

B. Future Prospects

Pwani's residents brought many issues to light during the course of the PRA and subsequent research. Mentioned below are just a few of the numerous opportunities which residents mentioned that would foster and improve natural resources management.

1. Implement the PRA

The purpose of conducting a PRA is for the community to formulate management plans and mobilize local resources to implement them.

The original Village Resource Management Plan has been revised (see Ford, et al., 1990). It must, for the effort to have been at all worthwhile, be implemented, with the flexibility to modify plans to fit changing circumstances.

2. Enhance and Expand Training

The CPK has an effective program to train the residents in agriculture, livestock, health care, and, most importantly, leadership skills and techniques. This assistance should be encouraged and expanded. By increasing local capacities for self-sufficiency, the need for other interventions is dramatically reduced.

3. Strengthen and Link Local Institutions

Pwani already has several strong, active local institutions, with women's groups and church groups at the forefront. To improve the benefits of their activities for members and the community as a whole, communication within

and among these groups, and with non-member residents must be facilitated.

4. Linkage of local groups with government health, agriculture, environment, education and administrative services at district and national levels.

While local groups can achieve more through coordinated, complementary efforts, one of the major advantages of joint action is their ability to articulate community demands and priorities for government services. Directly and indirectly, many PRA participants voiced the need to link local groups with health, agriculture, environment, education and administrative services at district and division levels. In each of these sectors, women and men expressed distinct concerns and interests. This implies a need to change structural approaches to representation of group and community interests and their interface with district and national offices of government agencies.

VI. Policy Implications of the Pwani Case

The convergence of gender, livelihood and resource management issues in Pwani can inform future policy at local, national and international levels. The argument to integrate policy across seemingly separate areas of concern rests on three premises, all demonstrated by the Pwani case. First, rural environmental quality, and the quality of life of rural people, are largely determined by settlement and land tenure policies, agricultural development policy (technologies and services), and the terms of local participation in land use and economic planning. Second, in park boundary communities, the ecological condition of the park and the surrounding areas may be damaged by the legal exclusion of local residents from any access to renewable resources within the park boundary. Third, given the current gender division of rights and responsibilities in many rural communities, women tend to have use rights of, and therefore vested interests in, renewable resources for regular, continuous use; whereas, men, who generally own the land and related resources, may tend to value resources as assets, to be accumulated over time or liquidated through sale or consumptive use. These points can be addressed by an integrated treatment of policy in four critical areas: 1) land tenure reform and settlement; 2) the provision of services and infrastructure to rural communities; 3) the practical management of park boundaries; and 4) participatory approaches to rural development and research.

A. Settlement and Land Tenure Policy

The Pwani case raises several points concerning the role of land tenure and settlement policies in shaping the landscape and the daily lives of the men and women who live there. The first question is whether the settlement of Pwani by former forest residents actually reduced deforestation in the long run. The eviction of forest employee families from national forest lands undoubtedly prevented additional deforestation in the moist upland commercial forests where they previously lived and worked. However, the forest employees who were forced to relocate then purchased land in dry settlement tracts. The result was almost complete deforestation over large areas of wooded savanna.

The cost of providing water to households in Pwani, along with the long term costs of deforestation in the savannas near Nakuru Park may far outweigh the environmental costs of scattered smallholder settlements in the forest. While the forests are government land and the settlement is private, the environmental costs in both cases will be shared by both government and individual residents and will be unevenly divided between men and women residents. This indicates the need to treat forest evictions and shareholder land-buying schemes as part of one process of land use change and to evaluate the net result of resettlement in terms of environmental damage

and livelihoods at both sites. Both men's and women's work and their knowledge of resource use and management should inform such analyses. However, the more integrated treatment of forestry employee resettlement would not solve the problem if some other group were still to settle and deforest the savanna areas. To resolve the highlands/drylands resettlement question would require a more widespread analysis of net impact of land use and settlement change at district and national levels. Pwani provides one specific example of the need for more holistic analysis and management of resettlement.

The second question is whether men's purchase of land as a private investment property and their initial occupation and clearing of farms might have influenced the treatment of trees and water resources in the local landscape. Had men and women both participated in the choice of the settlement site, the location of specific plots, and land use plans for the whole area, they might well have left trees on ridges, streambanks, rocky soils, and in scattered stands in grazing and croplands. Given the chance they might also have developed domestic water supply and stock watering ponds at strategic sites, based on water harvesting at convenient points in the landscape.

However, with the prior subdivision of the land into blocks of equal size, settlers had no control over any land use decisions beyond their own property lines. There was little land left in the public domain and none was officially allocated to shared use of fodder, wood and other resources. At the farm level, men's concerns for buildings, fences and cropland development took precedence over fuel, water and fodder resources. The sequential settlement first by men, and later by their families seemed to favor rapid

conversion to cropland, and a strong bias toward built infrastructure (other than water supply).

Policy options might include community-wide planning meetings, with men and women from all settler (or intended resident) households to decide on: the number, type and location of water sources; fuelwood production and gathering sites; community seed bank sites, fodder production and grazing sites; and gathering areas for other products such as herbs, thatch or fiber products. While all of these resources can be maintained on private plots, it is unlikely that most smallholders could afford to establish or maintain them separately. Moreover, not all sites are equally well suited to all of these functions. The administrative procedures that govern the establishment of new settlements might well incorporate such provisions, whether they be implemented by national government, international development agencies, NGO's or private sector land companies.

The ownership and control of land and water resources often rests with absentee men, while the responsibility for management falls to women who manage the farms on behalf of the household.

The third question has to do with the new spatial division of labor between men and women, and the separation of wage-laborer men from their families and their land. The ownership and control of land and water resources often rests with absentee men, while the responsibility for management falls to women who manage the farms on behalf of the household. While the laws and procedures governing the land purchase and ownership do not preclude women from owning or

co-owning land, the usual practice vests exclusive legal ownership in men heads of household. Possible alternatives or supplements to this situation include: co-signed title deeds by both spouses, if married; the allocation of common lands for shared use by women residents for such purposes as gathering, fodder and fuelwood production; the clarification and enforcement of women's use rights in both public and household lands; the establishment of local land use and resource management committees with equal representation of men and women; and administrative mechanisms to provide credit to women for farm improvements such as water tanks.

B. Agriculture, Health and Related Extension Services

Pwani is typical of many dryland farming communities in the need for more frequent and more flexible extension services in health, agriculture, and veterinary care. One obvious response is to call for more extension officers in a number of specific fields, including women officers to work more effectively with women residents. However, the cost of extension services are quite high, especially over the long term, and expansion of these services is rarely a viable option for national government. This is especially true in Kenya, where a number of extension services are already quite heavily represented relative to other countries in the region.

A more complex, but perhaps more practical and cost-effective alternative is suggested by Bernard Woods (1984). Rather than train and maintain a large cadre of specialized extension officers spread thinly across the rural landscape, it may be preferable to focus on provision of good advice and information to local leaders and resident service personnel in rural communities.

The latter can include appointed officials, teachers, NGO and church workers, women's group leaders, midwives, herbalists, and community-based health workers.

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Besides the cost savings, other advantages include regular, widespread access to information at community level among both men and women. In this case the information and advisory services are concentrated more at national and district levels, while local services are more widely available and accessible. This approach is also consistent with Kenya's District Development Focus. While it does not guarantee equitable services for men and women, the flexible structure provides an excellent opportunity to reach both men and women with the information, advice and products that they require to maintain the health, livelihoods and natural resources of their families and communities.

C. Practical Management of Park Boundaries

Each park has its own unique matrix of ecological and social conditions. However, Pwani exemplifies some circumstances which might well inform policy in other park boundary communities as well. Three options which might help to relieve the current problems at the interface of Pwani and Lake Nakuru include: 1) experiments with carefully regulated "permeable" boundaries

(i.e. controlled access to park by residents); 2) extension or relocation of selected park resources (or substitutes) outward into the surrounding communities; and 3) development of separate restrictions for renewable and consumptive resource use in or near the park. These seem relatively simple at face value, but might well entail major revision of park and wildlife policy based on total exclusion of residents from nearby communities.

In practical terms, the revised policies on park access could lead to improved conditions in both the park and the nearby communities. For example, in some park boundary areas in other countries, farmers in boundary zones grow grain crops which are sold to the park service for supplemental animal feed. While this might not be reasonable in the case of Lake Nakuru, there are several possibilities for productive exchanges at the boundary. In return for vigilance against poachers and as compensation for damage to boundary zone crops, the Park could help to provide herbs, condiments, wild foods and medicines, dead wood, nursery services and dips for the community. Small enterprises based on these products might also employ local men and women from the farms most affected by crop damage. Women, in particular, spoke of herbs and condiments available only in the park. These are easily managed as renewable resources and could be produced in specific stands within the park or near the boundary. Alternatively, special access permits might be issued to a few people to gather and sell specific products. Over the long term, the fresh water and seed resources as well as the personnel in the park itself could also provide nursery, seed bank and extension facilities for Pwani and other communities.

D. Participatory Approaches to Development and Research Programs

Full and equitable participation by all land user groups in the community is essential to effectively address all of the issues mentioned above. There is no single way to achieve broad-based participation nor is there a single formula for how to involve local people in both research and development activities on resource management. Depending on the context and the players, it may be more appropriate to work with individuals, households, groups or the whole community. Men and women may prefer to work separately or together, or their preference may vary depending on the particular issue or task. The key ingredient for appropriate structures and process is flexibility of format and method to suit the people, the place and the task.

The choice of participating organizations and the selection of group representatives is critical, whether the topic is settlement, tenure, extension services or park boundary issues. The recent experience in development and research circles suggests that rural people can bring unique skills and judgement to many tasks, from settlement planning and resource management plans to reforestation efforts and water development activities. The policy changes required to facilitate this approach are often procedural rather than legal, so change can often be initiated at district and local levels. At national and international levels, the policy changes often involve alternative approaches to training of program and project planners as well as field personnel, and may include re-training of existing personnel with regular assistance from experienced community facilitators.

In each of these areas, the Pwani case provides information and insights which could contribute to

substantial revisions as well as specific refinements of existing policy at international, national and district levels. Whether the policy changes are major or minor, the integration of gender, ecology and community organization issues in policy can help to restore the balance between men's and women's rights and responsibilities in the rural landscape and to close the artificial gap between economic and environmental policy.

The integration of gender, ecology and community organization issues in policy can help to restore the balance between men's and women's rights and responsibilities in the rural landscape and to close the artificial gap between economic and environmental policy.

VII. Conclusion

Water, crops, trees and wildlife at Pwani are all embedded in a web of human social relations where gender matters. Throughout the PRA and follow-up discussions, the people of Pwani taught us much about the changing spatial and functional division of labor, knowledge, rights and responsibilities. Part of what they demonstrated through their dealings with us and with each other is that nothing is written in stone. The meaning of gender divisions, the terms of gender conflict, cooperation and complementarity in resource management are always subject to re-negotiation.

From veterinary medicine to human health, and from livestock management to water tank construction, the gender lines are shifting, but they are not disappearing. In many cases women are taking on roles that were formerly men's jobs, but that is not a negation of gendered work, just a new rationale for the way that men and women divide and share work and resources. Resource management programs with rural women who

Resource management programs require an understanding of who controls the resource and the terms of shared access and authority.

manage farms on behalf of absentee wage laborer husbands will still require an understanding of who controls the resource and the terms of shared access and authority. The knowledge, perspective and legal rights of urban men may be critical to planning decisions taken by women in rural landscapes. Likewise, rural women's newly acquired veterinary skills and responsibilities may be crucial to early diagnosis and treatment of livestock epidemics.

The meaning of gender divisions, the terms of gender conflict, cooperation, and complementarity in resource management are always subject to re-negotiation.

It is men's cash, women's labor and women's social organizations that have built the water tanks in Pwani. It is likely to be a similar joint effort that will build the sustainable future that people in Pwani imagine for themselves. Resource management and development professionals cannot afford to ignore the relations of gender conflict, cooperation and complementarity that shape the Pwani landscape as home, habitat and workplace.

Appendix

Pwani Survey:

1. Male or Female
2. Age
3. Position in household
4. Tribe
5. How many people live in this household?:
__adults, __children
6. Do both parents live here?
yes, no: which parent is resident?
7. Where did you come from most recently, and in what year did you come to Pwani?
8. Do you belong to a water group? Which one?
9. Do you have a tank yet?
10. Do you belong to other groups? Which groups? (what type?)
11. In the community, who joins groups more, men or women?
12. What is the size of your shamba?
13. Who owns it?
14. Who do you think will own it in the next generation?
15. Are there different jobs for men and women, or boys and girls? Who does which jobs?
16. What are the top three problems in Pwani?
17. What do you think are solutions for these problems?

10 surveyors (1 Standard 7, 2 Standard 8, 7 Form 4 leavers), working in four separate sections (A,B,C,D) administered the survey. 161 surveys were completed in total.

Endnotes

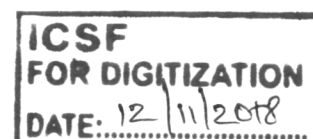
1. Estimates of Pwani's current population vary significantly between 3,500; 1990 estimate of Pwani's school headmaster; and 5,000; 1988 estimate by Church of the Province of Kenya (CPK) survey.
2. This map is derived from the Nakuru agro-ecological zone map in Jaetzold and Schmidt, 1983.
3. A forthcoming ECOGEN policy paper proposes methods to enhance the gender sensitivity of this and other participatory methodologies.
4. The park is one of the few in Kenya that is entirely fenced with a double wire (one electrified) perimeter about 25 feet between each fence.
5. Nakuru District Development Plans, 1979-1983 & 1984-1988; Jaetzold and Schmidt, 1983.
6. 1988 estimate by Church of the Province of Kenya (CPK) survey.
7. All individuals' names, which appear in this section, have been changed to respect their privacy. However, each profile is a genuine glimpse at the circumstances of that person's life. The examples which follow are provided to illustrate the variety of circumstances present within the larger community.
8. Nearly US\$30.
9. Approximately US\$1.
10. A paper discussing the many aspects and importance of gender considerations in participatory research is forthcoming.

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