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TIME AND MONEY:

A Preliminary Evaluation of
Women's Participation in AID
Domestic Water and Sanitation Projects
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Isabel Nieves

International Center for Research on Women
1717 Massachusetts Avenue, N.W.
Washington, D.C. 20036

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Executive Summary

This report is based on ICRW's review of sixteen AID water and sanitation projects in regard to their impact on women's time and water use practices. All of the projects were primarily concerned with the introduction of potable water for domestic use, such as drinking, hygiene, irrigation of small gardens, and watering poultry and livestock near the home. Most of them also included health and hygiene education components. Generally, the data contained in the sampled projects were insufficient to answer questions on women's time use and participation in project activities. Similarly, it was not possible to consider the relationship of project features to the project's success in reaching women, since the evaluation documents provided little data on the projects' impact on women. Despite these limitations, however, some generalizations can be made.

In terms of project design, women were frequently mentioned as the principal beneficiaries, since the provision of water systems would represent a considerable time savings to women. Project design documents referred to four ways in which women would benefit from the provision of domestic water systems: (1) reduction in amount of time spent drawing and transporting water; (2) reduction of disease in the household with an indirect time savings in caring for sick children; (3) more efficient home gardening and animal husbandry; and (4) improvements in women's productive capacity, allowing them to invest more time in income-generating activities. In general, though some of the projects reviewed included design features that would reduce women's time spent fetching water, none had features that would multiply these reductions or increase women's income-generating capacity.

Ironically, some of the improvements in well design and water drawing technologies mentioned in project design documents, such as

hand pumps and covered wells, may have erased some of the time women saved in travelling to the water source and drawing water. In a few cases, the covered wells made simultaneous access to water impossible, causing long lines. Breakdowns in the equipment caused even longer waiting periods.

In terms of the mechanisms chosen to implement water interventions, eleven of the sixteen projects reviewed used some kind of community participation. It is critical that women play active roles in community participation activities regarding the management and operation of water systems, yet these activities can be time- and labor-intensive for community members. To the extent that women are targeted to participate in implementation, their time and labor inputs may reduce, nullify, or outweigh the direct time savings obtained from the introduction of water systems. Project documents continue to treat women's involvement in community participation activities as if their time had no opportunity costs. In addition, one of the project evaluations indicated that though women participated on village tap committees, the men filled the decision-making positions.

In general, AID domestic water and sanitation projects clearly have the potential to benefit women by reducing the amount of time they spend fetching water and facilitating household tasks that require water. Without changes in project design and implementation, however, it is unlikely that domestic water projects will translate into indirect time savings and increased productivity for women. Two recommendations in this regard can be made.

First, projects should be designed that focus on direct time savings of women's time. Distance from homestead to water point should be effectively reduced for the majority of women served by the project. Water drawing technologies should be improved in efficiency and reliability to reduce waiting time at the water source and allow simultaneous access.

Second, implementation mechanisms should be reassessed in terms of the demands they make on community members. The current policy of including women in the implementation of water delivery systems, while commendable, should take into account the opportunity costs of women's time. In addition, an effort should be made to see that women are not only included in village tap and branch repair committees, but play significant decision-making roles in these bodies.

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INTRODUCTION

Drawing water and transporting it is one of the most time consuming and energy demanding tasks that low-income women and children the world over must perform. Distance from the water source, means of transportation and type of terrain, amount of water fetched, number of trips per day, and type and size of vessel, are all factors that influence the degree of effort required to obtain the necessary quantities of water. This list clearly demonstrates the potential time and energy savings that domestic water projects could mean to women and children.

USAID, in recognition of the significant impact that water interventions can make on women's daily lives, requested the International Center for Research on Women to conduct an evaluation of a sample of domestic water and sanitation projects to determine how women had participated and how they had been affected.

This evaluation is based on a review of sixteen* AID water and sanitation projects, all of which were primarily concerned with the introduction of potable water for domestic use, that is, for drinking, hygiene, watering small numbers of poultry and livestock near the home,

*Twenty one projects were originally reviewed. Five of them had to be removed from the sample for lack of information, leaving a working sample of 16 projects.

and minor irrigation of small home gardens (USAID, 1982). A list of the sampled projects is attached as Appendix 1. The evaluation is circumscribed to questions of women's concerns in domestic water projects.

The relevant issues with respect to women and domestic water projects are the following:

I. Project Design

A. Identification of Women as a Target Group

1. Do women figure as an important group of beneficiaries because of their primary role in water procurement, management and use?
2. Are women's real water use patterns, needs and preferences taken into account in project design? Do project papers base themselves on solid evidence on these points, or on presumed roles and preferences?

B. Women's Time Use

1. Does the project design recognize the potential impact of water interventions on the way women manage and use their time for productive as well as human welfare activities? Does it consider both positive and negative potential impacts on women's time use?
2. Does the project design recognize women's time constraints? Alternatively, does it treat women's time as a free, unlimited good with no economic value?

C. Women and Community Participation

1. Do project design documents assume that community participation--however defined-- in water and sanitation projects will naturally involve women; does project design make a special attempt to involve women in the community participation component?
2. Does project design accept as given that women's involvement in community participation activities will automatically be of benefit to them? Alternatively, does project design recognize that women's involvement in community participation components may be circumscribed to providing project inputs, including time, but not partaking of the decision-making processes?

II. Implementation

- A. The use of women's labor in project implementation: Which of the two following approaches dominated project implementation?
 1. Women have a vested interest in water and sanitation interventions since they are the ones most directly affected by their presence and smooth functioning; therefore women should be targeted as a principal group to become involved in the everyday management and upkeep (including repairs) of domestic water systems;

2. Women's time is free and unlimited; it has no economic value. Therefore, women are ideal actors to become involved in "community participation" exercises as volunteers in water management and unkeep.

B. Community Participation:

1. Is there a gap between intent and implementation of the community participation approach? Is project intent to involve women as true managers of domestic water systems, with rights and responsibilities, decision-making power etc.; does project implementation fall back on using women as free labor in the least important, less technically demanding and most physically demanding tasks? Are community women identified as project volunteers?
2. Does the implementation of the community participation approach lead to a hierarchical arrangement in which community volunteers are clearly distinguished from technical and professional project staff in terms of degree of control over decisions regarding project and management of same?

III. Evaluation

A. Impact of project interventions on women's time use and time management:

1. Did women's time use patterns change? How so? Did they gain control or lose control over the way they use and

manage their time?

2. What implications do these changes have for women's economic roles and their productivity?

B. Intended and actual use of water: What was water intended for domestic and sanitation purposes actually used for?

Cleaning, bathing, washing, drinking exclusively? Was water used for productive purposes: (eg. agricultural); other uses that have implications for women's income-generation capacity?

The data necessary to respond to these questions were, unfortunately, not generated by the sampled projects. More information was available on the design of water and sanitation projects and their anticipated impact on women's time and water use practices, than on the actual implementation of project activities and their real impact on women. Project evaluations contained disappointingly little data on women's time use and participation in project activities.

The first section of this evaluation summarizes the general features of the projects reviewed, such as level of funding, type of implementing organization and implementing mechanisms. Since by their very nature domestic water projects are WID-integrated, a comparison between the general features of WID-only and WID-integrated projects cannot be made.

Instead, we would have liked to consider how project features related to that project's success in reaching women. This was not entirely possible either since, although twelve of the sixteen projects reviewed mentioned women and their home production roles in the original project documents, the evaluation documents provided very little data on the projects' actual involvement of and impact on the female population. Despite this dearth of information, an attempt is made to infer the possible degree of project success in reaching women by assessing project features in relation to the lessons on women and water provided by the WID literature.

The report's second section is a general discussion of project design features and their treatment of women with reference to the current issues in both the domestic water sector and WID. This is followed by a similar discussion of implementation issues.

The final section summarizes the findings and provides recommendations for how to improve women's involvement in domestic water projects and the impact that water projects can have on poor women's daily lives. These recommendations are made cautiously, however, given the very restricted sample size.

GENERAL PROJECT FEATURES

The working sample consisted of nine rural projects from Latin

America and the Caribbean, including a regional project involving two countries; five African projects, also all rural; and two projects from the Near East and North Africa, both rural.

All sixteen projects introduced and/or upgraded potable water systems through either public taps or wells (nine projects), or through a combination of public facilities and household taps (five projects).^{*} No project provided household facilities exclusively. All five African projects reviewed offered only public facilities. Eight of the sixteen projects also provided latrines (see Table 1).

Thirteen of the fifteen action projects reviewed for this evaluation added health and hygiene education components to the provision of water services. This fact is important in view of AID's policy that all water projects should contain a "software" component of hygiene education directed primarily at mothers, and its policy to include women among those employed to carry out the educational activities (USAID, 1982:12). Although most of the projects in this report were approved and implemented before the policy statement appeared, future domestic water and sanitation projects will most likely have prominent education components aimed at women in their roles as mothers, provided the policy remains unchanged.

^{*}One project provided no information. The distinction was not applicable to one project which was an evaluation of a water pump.

TABLE 1

Services Provided by Project*

	<u>WATER</u>				<u>LATRINES</u>	<u>HEALTH EDUCATION</u>
	PUBLIC TAPS/PUMPS	HOUSEHOLD TAPS/PUMPS	BOTH	NO INFORMATION		
AFRICA (N=2)	5	-	-	-	1	4
LATIN AMERICA (N=9)	3	-	4	1	5	7
NEAR EAST (N=2)	1	-	1	-	2	2
TOTALS	9	0	5	1	8	13

*From design documents

Domestic water and sanitation projects require considerable amounts of equipment, infrastructure and physical labor; they tend to be costly enterprises and the projects reviewed for this report were no exception. Project funding ranged from a low of \$45,000 for a two-year wells rehabilitation project in Tunisia to a high of \$11 million for each of 2 rural potable water projects in Peru and the Dominican Republic, which were 4 and 7 years long respectively.

Twelve of the projects reviewed were grants (OPG's or unspecified) including the least expensive \$45,000 project and one of the \$11 million projects. The other \$11 million project was a loan, and it constituted the only loan project in the entire sample. Three additional projects were a combination of loan and grant funds. Of these three combination loan/grant projects, two went to implementing organizations that were government controlled; the third went to a joint implementation team consisting of a government agency and a foreign PVO. Three other collaborative projects between governments and PVO's received funds in the form of grants. The single loan project was implemented by a government agency, while 3 of the grant projects were entirely the responsibility of host country governments. The six projects awarded exclusively to PVO's were all grant projects (see Table 2). The distribution of projects by type of award and implementing organization did not seem to bear any relation to geographical location nor to the combinations of project interventions discussed previously.

TABLE 2

TYPE OF AWARD *

	<u>Grant</u> <u>(Includes OPG's)</u>	<u>Loan</u>	<u>Combination</u>
<u>PVO</u>	6		
<u>Implementing</u> <u>Organizations</u>			
<u>Government</u>	3	1	2
<u>Joint</u>	3		1

* From project design documents

Other project features, such as size of the target population and the presence of other "software" components, such as community participation are summarized in Table 3.

PROJECT DESIGN

During the project design stage, decisions are made regarding target groups, project interventions and implementing mechanisms. These decisions can sometimes lead to the implicit exclusion of women from certain types of project activities, such as those that have productive potential, and the overrepresentation of women in project activities that have a welfare orientation or objective (Buvinić and Nieves, 1983: 6).

Women as a Target Group: Design statements for water projects frequently make reference to women's and children's roles in water procurement, and identify women as one of the principal target groups. Of the sixteen projects reviewed, eleven made specific reference to women as project beneficiaries since they would no longer have to fetch water from distant and unreliable sources. De facto, however, women and children will be principal beneficiaries of domestic water projects as long as they continue to be the ones primarily responsible for obtaining water, whether project papers identify them directly or not. The relevant questions to ask are how will women benefit from increased water supply, how will other project interventions such as health education affect them, and whether the choice of implementing mechanisms will help or hinder their participa-

TABLE 3
Other Project Features

Project Country and Number	R/U	Population Served ¹	No. of Water Systems ¹	Use of Professionals (P) or Volunteers (V) for Software Components	Community Participation through
					<ul style="list-style-type: none"> ● self-help (SH) building ● maintenance committee (MC)
Cameroon 631-0025	R	136,400	92 systems		SH
Chad 677-0022	R	150,000 villages of 1,300	500 wells	None	None
Malawi 612-0207	R	210,000	23 sub-projects	Both	MC
Tanzania 621-0160	R	6,000	120 wells	Both	Both
Togo 693-0210	R	128,000	400 wells	Both	None
Bolivia 511-0458	R	11,000 families	200 community water systems	P	Both
Bolivia 511-0479	R	22,400	39 to 56 systems	P	Both
Bolivia 511-0495	R	19,500	39 community water systems	P	Both
Dominican Republic 517-0120	R	160,000	(water) 26,500 latrines	Both	Both
Guatemala 520-0231	R	20,000 to 25,000	30 to 50 community water systems	P	SH

TABLE 3 (Continuation)
Other Project Features

Project Country and Number	R/U	Population Served ¹	No. of Water Systems ¹	Use of Professionals (P) or Volunteers (V) for Software Components	Community Participation through
					<ul style="list-style-type: none"> ● self-help (SH) building ● maintenance committee (MC)
Haiti 521-0112	R	25,000	18 systems	None	SH
Peru 527-0177	R	35,000	20 water systems 4 sewage systems	P	SH
Peru 527-0221	R	147,000	420 systems	P	Both
Inter Regional 931-0079 931-0454	R	Not Applicable (N/A)	N/A	N/A	N/A
Tunisia 664-0288	R	100,000 ²	325 wells ²	P	None
Tunisia 664-0312	R	57,000	160 water points	P	None

Notes: 1 = Unless otherwise stated, all figures are from project design documents.
2 = From project evaluation documents

tion in the project and the ultimate benefits derived from it.

Project Interventions and Time Savings to Women: All five African project papers first referred to time savings as the main benefit to the female target population, and then went on to suggest this was important because women would use the additional time to fulfill their domestic and maternal obligations (more time with their families); four of them also claimed that women would be better able to meet their economic responsibilities (more time for income-generating activities). Other project papers recognized that time savings to female beneficiaries would directly improve child and family health since women would have more time for quality child care, would be able to grow more and better food for family consumption, and would have more time to attend health education activities. All 11 project papers which made reference to women as a primary group of beneficiaries made the claim -- either tacitly or explicitly -- that women's involvement in the project (however defined) would improve the project's expected impact on the health of families and children.

In principle, at least, we know that the provision of water systems for domestic use should have an impact on women's time on at least four levels: improved water supply will allow women to reduce the amount of time spent on drawing and transporting water, and make household tasks that require the use of water (e.g., food preparation, and cleaning) easier and more efficient, a direct time savings; increased quality and quantity of water will help reduce disease in the household through its

interruption of the fecal-oral infection cycle and, thus, the number of sick people, especially children, that need to be cared for, an indirect time savings; more water at the household level will also mean more efficient home gardening and small animal husbandry and, thus, greater food availability for that household; finally, more accessible water sources will reduce the energy women and children spend drawing and hauling water which will, in turn, translate into energy savings, increased efficiency and work productivity and, ultimately, additional time economies.

In fact, however, the last three chains of cause and effect relations are difficult to establish conclusively. The health effects of domestic water interventions have not yet been demonstrated statistically. Although several project evaluations mention that women reported less diarrhea and other morbidity episodes in their children after the introduction of potable water (Cotter, forthcoming: 4), objective evaluations have failed to provide evidence of lower infant morbidity and mortality that can be attributed to the availability of water for domestic use (Dworkin and Pillsbury, with Thatsanaseb and Satchakul, 1980). The indirect time savings to women from not having to attend to children recurrently sick with gastrointestinal problems remain unquantified and elusive, mainly because improved health is a function of water availability, increased purchasing power, good health care and improved diets. Only two of the sixteen projects reviewed, one in Tanzania and one in Malawi, had designs that included interventions aimed at improving health care and household diets through planned efforts in food production.

With respect to the claim that water interventions will improve women's productive capacity by allowing them to invest more time in income-generating activities, the same problems arise in trying to effect and demonstrate this link as in the previous example. First, there is no way to predict exactly how the extra time will be used by women. The Social Soundness Analysis Statement for the Malawi Self-Help Rural Water Supply Grant recognizes this particular problem: "Unfortunately time saved on drawing water may be pre-empted to handle other chores requiring progressively greater portions of women's time, such as searching for fuel in areas where supplies are dwindling" (SSA: page 7).

Moreover, there is no way of establishing, a priori, whether women will be able to control how their extra time will be spent. Recent awareness of the intra-household decision making and resource distribution processes has led to a reanalysis of issues of time allocation in the family (see, for instance, Folbre, 1984). Although women may conceivably retain control over how they use their time, there is some evidence to suggest that this does not always happen (Rogers, 1982).

Second, as with the health issue, time availability is a necessary but not a sufficient condition to improve women's income generation ability. Access to productive resources such as credit and technology, the development of production skills, and a market to absorb the finished product (Lycette, 1984; Buvinić and Nieves, 1982), are among the other conditions that need to obtain before time can be translated into money. None of the sixteen projects reviewed, and certainly none of the six that

mentioned women's income-generation in their rationales (the four African ones mentioned earlier and 2 Latin American projects), included any income generation interventions in their design statements (see Table 4).

In summary, with the possible exception of two African projects (Tanzania and Malawi) whose design statements included a multiplicity of interventions aimed at improving access to water, increasing food production for family consumption, extending some health coverage and alleviating fuel shortages, and in one case providing women with brick-making skills (Malawi), none of the projects reviewed contained design features which would potentially multiply women's time savings beyond actual reductions in time spent fetching water, or would increase their income-generating capacity.

Time Saving Design Features of Water Interventions: To return to the central question of direct time savings to women from more accessible and plentiful water, we must look at the design features of the water interventions themselves. Women and children will save time if the distance to the water source is meaningfully reduced, if they can have more water available to perform household chores such as washing food utensils, if they do not have to wait long for their turn at the well or pipe, and if the time spent drawing water from the source is reduced. Projects that space water points in such a way that most of the population's access is improved can reduce women's workdays by 3 to 5 hours, according to some

TABLE 4

Anticipated Impact on Women's Time^{*}

Project Country and Number	Time Savings Alone	Time Savings for Welfare Activities	Time Savings for Income Generation
Cameroon 631-0025		X	
Chad 677-0020		X	X
Malawi 612-0207		X	X
Tanzania 621-0160		X	X
Togo 693-0210		X	X
Bolivia 511-0458		X	
Bolivia 511-0497			
Bolivia 511-0495			
Dominican Republic 517-0120		X	
Guatemala 520-0231		X	
Haiti 521-0112			
Peru 527-0177		X	X
Peru 527-0221		X	X
Inter-Regional 931-0079	X		
Tunisia 664-0288		X	
Tunisia 664-0312		X	

* From project design documents

calculations (Nieves, 1981: 102; Haratani, Viveros-Long and de Gonzales, 1981). If the water systems are not designed in ways that will reduce travel and transportation time, time savings will not obtain.

The AID evaluation of Tunisia CARE Water Projects, which also evaluated the Tunisia El Kef Wells Rehabilitation Project included in our sample, found that women's water use patterns had not changed with the introduction and/or improvement of wells, because distance to the water source was not substantially reduced. Some women (the evaluation does not quantify this statement) still had to travel up to 6 kilometers to draw water. Distance also limited the amount of water available at the homestead (Bigelow and Chiles, 1980: 7). The evaluation of the CARE Water Health Services Project in Peru conducted by AID (Haratani, Viveros-Long and de Gonzales, 1981: 8-9) was successful in showing that the introduction of household taps, by virtually eliminating the distance to the water point, saved women and children an average of 3 hours a day. Women were also more efficient in their performance of home-based tasks once the quantity of water they had available increased, although this finding could not be quantified.

Few of the other project papers reviewed actually calculated the amount by which distance to the water sources would be cut. One of the objectives of the Cameroon project was to reduce time spent in water collection by 25%. This was to be verified through the collection of baseline data on travel time to and from the water source before project interventions were in place, and a similar measurement afterwards.

Project Evaluation Summary papers state that the baseline data were never collected. There is no qualitative information available that would allow us to make an educated guess as to whether travel time was meaningfully reduced for the women and children in the project sites. The Tunisia Rural Potable Water Project suffered from the same oversight in baseline data collection; the result was that the objective of time savings to women and children could not be established.

The Chad Rural Sanitary Water and the Togo Rural Water Supply and Sanitation Projects Papers both calculated the economic value of women's potential time savings from reductions in the distance to water points. The Chad project estimated that, on the average, distance would be reduced from 1.75 to .25 kilometers which translated into savings of 1 hr. per trip. If women continued to make 2 trips per day to fetch water, and if 50% of the beneficiaries could use 1 of those hours saved in handicraft production, the project could net US\$1676 per year, at US\$.17-.21 per hour of production (Project Paper, p. 71). Leaving aside the issue of whether women's time was adequately valued, neither project was able to verify these calculations through actual project accomplishments. A PES for the Guatemala Village Water Systems and Latrines Project states that women interviewed for the evaluation reported time savings from shortened distance to water points. Once again, however, no attempt was made to determine either the amount of time saved or its alternative use (PES, page 15-16).

The same evaluation shows that distance to water sources could have been reduced to an even greater extent if water points had been designed to include clothes washing facilities (pilas). Women still had to travel to traditional, polluted water sources to wash clothes or wash in improvised facilities near the new pipes, a practice that project evaluators felt was unsanitary (PES, page 24). Had pilas been provided, not only distance but number of trips could have been eliminated.

Additional time savings should conceivably obtain from improved efficiency of water drawing technologies. This was precisely the justification for the Interregional Technical Assistance Project that evaluated the development and utilization of an AID-funded hand-pump in Nicaragua and Costa Rica. Women's primary role in water procurement, and the positive impact that a pump designed to be used by "people with little arm strength and short weight" would have on them, were cited as two principal reasons to undertake the evaluation. The reported findings, surprisingly, do not include any data on time and effort saved by the people for whom the pump was designed. The only reference to women is a two-line statement to the effect that community acceptance of the water pump had been good because it was easily used by men, women and children (Potts, et al, 1979: 71).

More positively, the AID evaluation of CARE Water Projects in Tunisia already mentioned, found that women expressed a strong preference for pumps over buckets for drawing water out of deep wells because they did not have to exert so much effort and their arms did not ache. Women

were also pleased with the covered wells because they were not as dangerous to children. By inference, this was also a time saving to women.

Ironically the same improvements in well design and water drawing technology may have erased some or all of the time saved in traveling to the water source and in drawing water. As the same evaluation document states, in a few cases women found themselves waiting in long lines at the wells because, once covered, only one person could draw water at a time. Traditional water sources allow simultaneous access by several people; modern ones do not. When breakdowns occur the waiting time can increase even more, because women have to work with malfunctioning technology. Clearly the solution to these problems lies in improved designs of water delivery systems, including wells and pumps that allow multiple access, and not in the renewed reliance on traditional sources of water.

In conclusion, the designs of water systems have great time saving potential for the drawers of water, in terms of reductions in travel time, increases in the amount of time available to carry out home-based chores, reductions in the number of trips required to obtain the necessary amounts of water (by combining clothes washing and bathing facilities with water points), and reductions in the time and effort needed to draw water. This potential remains undocumented, unquantified, and sometimes unfulfilled.

IMPLEMENTING MECHANISMS AND THE PARTICIPATION OF WOMEN

The choice of mechanisms through which to implement water interventions -- both hardware and "software" or health and hygiene education -- may rely heavily on the time and labor of women in the beneficiary population. Such mechanisms include contributing voluntary labor and materials for "self help" construction of water installations, attending hygiene education activities, absorbing most of the recurrent operating and management costs, participating in promotion activities as extension agents (paid or unpaid), and serving on water management community organizations (USAID, 1982).

Community participation efforts, a term used to encompass all of these activities, should, according to AID's policy, make a special attempt to include women as decision-makers, builders, managers and operators of the hardware components, and to target them primarily in the software component, both as recipients and as promoters of health education (USAID, 1982:10-12).

The literature on women and water argues strongly for the need to include women in community participation activities (see, for instance, Roark, 1980, for both a review and a restatement of this argument, and Elmendorf and Isely, 1983 for an update). Quite correctly, this literature makes the points that women's needs and preferences must be taken into account in the design and introduction of water systems, and that they should not be excluded from decision making roles regarding the management and operations of these systems.

The application of these recommendations to concrete projects, however, sometimes appears to be overzealous in its demands for the labor and time inputs required of women (and men, for that matter). These implementation requirements of project components could nullify the benefits women derive from more accessible and abundant water supplies. Community participation in water systems construction and maintenance could end up exploiting rather than benefitting women, without necessarily making the software component more successful. A recent reanalysis of the role of community participation in potable water projects concludes that more important than community participation is the presence of dedicated and technically proficient professionals who can provide good supervision of project components (Chauhan et al, 1983). The community participation components in at least two of the projects reviewed for this evaluation suffered from lack of supervision, enthusiasm or remuneration, and eventually tapered off (Haratani, Viveros-Long and de Gonzales, 1981; Bigelow and Chiles, 1980), as Chauhan et al (1983) found in the six projects they reviewed.

The demands that the community participation approach makes of community members are sizeable. To take one of the most extreme examples, the Bolivia CARE Potable Water Project (No. 511-0495) expected the communities to make monetary and labor contributions for the installation of water systems, provide land for the construction of water tanks and locally available materials for the building of water facilities, give voluntary labor for repairs and maintenance of the hardware, management, administration

and security of the total system, support the project technicians with food and lodgings during the times they worked in the villages, pay for the system's recurrent costs, and attend health education activities. If we assume that women and men participated equally in these activities, they may have been considerably pressed for time.

It is certainly true that not as many women are required to contribute time and labor to the project as there are women who benefit from the introduction of potable water, and that the initial inputs into system construction are non-recurrent. Yet project documents continue to treat women's involvement in community participation activities as if their time had no opportunity costs: "Within the cultures where the majority of this project will be focussed, women provide a significant proportion of the manual labor related to agricultural and other subsistence activities. Accordingly, it is expected that the contributions of women to the actual construction of facilities will be important in this effort "(Project Paper, Bolivia Rural Sanitation Project, No. 511-0458: 51).

"Recognizing that women perform the major proportion of work within the villages and that their support and involvement is (sic) crucial to the success of the project, their participation in the training seminars will be emphasized and encouraged. Trained women will carry out village extension activities that may include solar drying and recomposition of various foods, cooking and nutrition classes, gardening and health education" (Project Paper, Tanzania Village Environmental Improvement

Project, No. 621-0160: 9).

We were unable to make an estimate of the time that women were expected or required to contribute to project implementation from the information available in the project documents. If we assume that projects were successful in reducing water fetching time by 25%, but that project implementation activities required a time input of 10 to 15%, women will have been left with a net gain of 10 to 15% in their time. It is also possible to envision a situation in which time savings were not as great as those assumed above, and that the time demands of health and hygiene education classes, community meetings, and maintenance and repair of water systems, were equal to or greater than the time savings. In this case the net benefit to women would have been negative.

In conclusion, the choice of project implementation mechanisms of AID water and sanitation projects are labor and time intensive for the communities involved. To the extent that women are targetted to participate in the implementation schemes, their time and labor inputs to the project may reduce, nullify or even outweigh the direct time savings derived from the introduction of water for domestic use.

There is the additional danger that women's participation in project implementation could be limited to the provision of time and labor inputs, and that their contributions to design and management decisions could be nil by comparison. The Malawi Self Help Rural Water Supply Project, for instance, had as an objectively verifiable indicator

the expansion of opportunities to women for local leadership through their participation in village tap and branch repair committees. The project evaluation conducted by WASH concluded that only 10 to 20% of branch repair committee members were women, and that although the village tap committees were made up mostly by women, it was the men in these committees who filled the decision-making posts (Warner, et al, 1983: 40).

CONCLUSIONS AND RECOMMENDATIONS

USAID domestic water and sanitation projects clearly have the potential of benefiting women in their home production and human welfare functions by reducing the amount of time that they spend fetching water. If the quantity of water available at the homestead significantly increases, water projects also have the potential of facilitating those household tasks that require water, such as food preparation and cleaning. Some of the projects reviewed for the evaluation actualized this potential to a greater degree than others, the Tunisia El Kef Wells Rehabilitation Project being the least successful, and the Peru CARE Water Health Services Project probably being the most successful.

Under AID's current policy in the domestic water and sanitation sector, it is unlikely that domestic water projects will mean very much for women in terms of indirect time savings and increased productivity. Reductions in child morbidity and mortality require more than a safe water supply and hygiene education, so that significant time savings to

women from fewer and less severe morbidity episodes with the family probably will not materialize. Similarly, the time saved through the introduction of more accessible and abundant water will not automatically turn into productive time; for this to happen other ingredients need to be present and most water and sanitation projects reviewed made no provisions for such ingredients as credit, training, technology and small business development.

Direct time savings in water procurement need to be assessed in relation to time inputs required of women by both design and implementation features of domestic water projects. If women must now stand in line and wait their turn at the water source, use traditional sources for clothes washing and bathing, attend hygiene education activities, and participate in repairs and in user committees, the time originally saved may be jeopardized. Benefits to women will be significant only if the net savings in time continue to be positive and meaningful, after taking into account the time demands of the project itself. If net time savings do obtain women may be able to reallocate the extra time to other tasks they perform, provided no additional demands are made on them and that they can maintain control over the way they allocate and manage their time. When all these conditions are present, water projects may play a role in reducing women's work day.

Two recommendations derive from these findings. First, domestic water projects should concentrate on design interventions that have the potential for saving women's time directly. Water drawing

technologies, such as hand-held pumps, should be improved in efficiency and reliability. Distance from homestead to water point should be effectively reduced for the majority of women served by the project. Waiting time at the water source should be reduced to a minimum, possibly through the redesign of drawing mechanisms to allow several persons simultaneous access. Efficient vessels and transportation alternatives should be provided to allow more water to be hauled per trip and, ultimately, more abundant water supply at the homestead.

Second, implementation mechanisms should be carefully reassessed for the demands they make on women's time and labor. USAID and its collaborating PVO's should keep in mind that there will always be opportunity costs to the time women are expected to dedicate to domestic water projects, and that there will always be competing demands for their time. If women are to participate in project implementation in order to look after their interests in matters of water delivery, which is the intent of current policy, a concerted effort needs to be made to ensure they participate in the full sense of the word, and not just as volunteer community workers following someone else's orders.

BIBLIOGRAPHY

- Bigelow, R. E. and Chiles, L. 1980. "Tunisia: CARE Water Projects." AID Project Impact Evaluation Report, no. 10. Washington, D.C.: USAID.
- Buvinić, Mayra and Nieves, Isabel. 1982. "Elements of Women's Economic Integration: Project Indicators for the World Bank." Report prepared for the World Bank, Office of the Adviser on Women in Development. Washington, D.C.: International Center for Research on Women.
- Chauhan, Sumi Krishna with Zhang Bihua, K. Gopalakrishnan, Lala Rukh Hussain, Ajoa Yeboah-Afari and Francisco Leal. 1983. Who Puts the Water in the Taps? Community Participation in Third World Drinking Water, Sanitation and Health. Washington, D.C.: International Institute for Environment and Development.
- Chen, L. "Evaluating the Health Benefits of Improved Water Supply through Assessment of Nutritional Status in Developing Countries." Boston: Harvard School of Public Health. Mimeo.
- Cotter, J. Forthcoming. "Women and Water: Two Decades Share Goals," Front Lines (forthcoming).
- Dworkin, D. and Pillsbury, B.L.K. 1980. "The Potable Water Project in Rural Thailand." AID Project Evaluation Report, no. 3. Washington, D.C.: USAID.
- Elmendorf, Mary and Iseley, Raymond. 1983. "Public and Private Roles of Women in Water Supply and Sanitation Programs," Human Organization 42(3): 195-204.
- Folbre, Nancy. 1984. "Household Production in the Philippines: A Non-neoclassical Approach," Economic Development and Cultural Change 32 (January 1984): 303-31.
- Haratani, J.; Viveros-Long, Anamaria; and de Gonzalez, A.M.B. 1981. "Peru: CARE OPG Water Health Services Project." AID Project Impact Evaluation Report, no. 24. Washington, D.C.: USAID.
- Iseley, Raymond. 1981. "The Relationship of Accessible Safe Water and Adequate Sanitation to Maternal Health: Looking Forward to the Drinking Water and Sanitation Decade." Water Supply and Management, Vol. 5 (6): 417-424.
- Lycette, Margaret. 1984. "Improving Women's Access to Credit in the Third World: Policy and Project Recommendations." ICRW Occasional Paper, no. 1. Washington, D.C.: International Center for Research on Women.
- Nieves, Isabel. 1980. "Beyond Survival Skills: Providing Basic Services to Satisfy the Needs of Poor Women." In Priorities in the Design of Development Projects: Women's Issues. Washington, D.C.: International Center for Research on Women.

Potts, P.; Whipple, J.H.; Moh, K.C.; and Craft, T.F. 1979. "Final Report on the Utilization/Evaluation of an AID Hand-Operated Water Pump." Report prepared for USAID. Atlanta: Georgia Institute of Technology, Office of International Programs.

Roark, Paula. 1980. "Successful Rural Water Supply Projects and the Concerns of Women." Report prepared for USAID, Office of Women in Development.

Rogers, Barbara. 1980. The Domestication of Women: Discrimination in Developing Societies. New York: St. Martin's Press.

U.S. Agency for International Development. 1982. "A.I.D. Policy Paper: Domestic Water and Sanitation." Washington, D.C.: USAID.

Warner, D.; Iseley, R.B.; Hafner, C.; and Briscoe, J. 1983. "Malawi Self Help Rural Water Supply Program: A Mid-term Evaluation of the USAID-Financed Project." WASH Field Report, no. 105. Arlington, Virginia: Water and Sanitation for Health.

Appendix 1

List of Projects Reviewed for this Evaluation

	<u>Country</u>	<u>Project Title</u>	<u>Project Number</u>	<u>Years of Implementation</u>
<u>Africa</u>				
1.	Cameroon	Margui Wandala Water Supply	631-0025	79-84
2.	Chad	Rural Sanitary Water Supply	677-022	78-83
3.	Malawi	Self-Help Rural Water Supply	612-0207	80-85
4.	Tanzania	Village Environmental Improvement	621-0160	80-84
5.	Togo	Rural Water Supply and Sanitation	693-0210	80-84
<u>Latin America</u>				
6.	Bolivia	Rural Sanitation	511-0458	77-85
7.	Bolivia	Rural Water Systems	511-0479	77-80
8.	Bolivia	Potable Water	511-0495	79-82
9.	Dominican Republic	Health Sector II	517-0120	78-85
10.	Guatemala	Village Water System and Latrines	520-0231	75-80
11.	Haiti	Potable Water Phase II	521-0112	78-81
12.	Peru	Rural Water in Health Services	527-0177	77-81
13.	Peru	Health and Environmental Sanitation	527-0221	80-84
14.	Inter-Regional (Nicaragua and Costa Rica)	Evaluation in Utilization of AID Hand Pump	931-0029 and 931-0454	76-81

Appendix 1 cont'd.

	<u>Country</u>	<u>Project Title</u>	<u>Project Number</u>	<u>Years of Implementation</u>
<u>North Africa and Near East</u>				
15.	Tunisia	El Kef Wells Rehabilitation	664-0288	76-78
16.	Tunisia	Potable Water Systems	664-0312	79-82

APPENDIX II: A NOTE ON METHODOLOGY

The methodology used in this evaluation was limiting on three counts. First, because the sampled projects were chosen randomly in order to ensure some representation, the working sample had very little information regarding women. Since the purpose of the exercise was to extract lessons regarding women's participation in project activities and the project's impact on women, it may have been more appropriate to purposely select those projects which could provide sufficient data on these matters, and not make any attempt to generalize from them.

The second weakness was the source of information. Official project documents (project papers, project evaluation summaries and project impact reports) were the only data bases that were available, and they were very limited both in the amount and the quality of information on women that they contained. The exclusive use of project documents for evaluation makes the somewhat dangerous assumption that there is a direct correlation between the levels of information on women in the documents and that project's success in reaching women. Since the information sources could not be expected to generate representative data, all the more reason to dispense with the random sample approach.

Finally, the size of the final working sample--precisely because it was randomly drawn to allow some degree of generalization--was small, due to financial constraints and to the fact that five projects had to be dropped for lack of information. This made it impossible to draw any conclusions about AID domestic water and sanitation projects and their impact on women.

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TABLE 1

Services Provided by Project*

35.

	<u>WATER</u>				<u>LATRINES</u>	<u>HEALTH EDUCATION</u>
	<u>PUBLIC TAPS/PUMPS</u>	<u>HOUSEHOLD TAPS/PUMPS</u>	<u>BOTH</u>	<u>NO INFORMATION</u>		
AFRICA (N=2)	5	-	-	-	1	4
LATIN AMERICA (N=9)	3	-	4	1	5	7
NEAR EAST (N=2)	1	-	1	-	2	2
TOTALS	9	0	5	1	8	13

*From design documents