THE ROLE, OPERATION AND POSSIBLE IMPACTS OF SUPPORT COMMUNICATION ON WATER RESOURCES DEVELOPMENT

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Introduction

National governments in the developing world and international agencies have invested huge sums of money and human and material resources to facilitate the development of water resources for a number of purposes. The most common objectives of such developments, which are in the form of dams, reservoirs and diversion canals, have been to provide water for irrigation, hydro-power, navigation, recreation, industrial and domestic consumption as well as water quality control and flood control.

Tremendous pressures are being brought to bear on development agencies in the developing countries to speed up efforts to combat poverty, ill-health, drought, famine and all other miseries associated with the syndrome, and water being a basic human need has been given a lot of attention.

Many water projects, like the Aswan High Dam in Egypt, the Kainji and Bakolori Dams in Nigeria, the Volta in Ghana, the Tucurui and Itaipu in Brazil, the Tarbela and Mangala in Pakistan and the Rajangana in Sri Lanka among others, have been embarked upon in an attempt to provide water for socio-economic development. But a comparison of the explosive population growth in those countries with available water supplies suggests the need for more water. Nevertheless, most Third World countries have not developed their water resources as extensively as industrial countries have, and they face some special challenges in an era of scarce and costly water. Third World economies are still largely agrarian, and irrigated agriculture claims 85-90 per cent of their developed water sources. Supplying an expanding urban and industrial base while meeting the food needs of growing populations will therefore require much additional water. However, these nations face capital and energy constraints, including negative environmental impacts, which might reduce the pace of water resources development (Postel, 1985). Indeed,

the importance of reservoir projects is illustrated by the fact that by the year 2000 it is estimated that the portion of the World's streamflow regulated by reservoirs will increase from one-tenth to two-thirds (Freeman, 1974).

Unfortunately, numerous but perhaps avoidable negative impacts have become evident in most water developments. In Nigeria, the Bakolori Dam project in Sokoto State led to social unrest, human deaths, extortion, human displacement without resettlement and huge biotic destruction.

A report of the Agency for International Development on the prospects for the Ambuklao Dam in the Philippines notes that "the cutting of timber and the subsequent loss of water retention capacity of land surrounding the reservoir has resulted in massive silting of the reservoir, reducing its useful life from 60 to 32 years" (USAID, 1979).

Equally, the designers of the Mangala Reservoir in Pakistan projected a life expectancy of at least 100 years for the dam. What they did not reckon on was the effect of mounting population pressure on the watershed feeding the reservoir. A combination of the axe and the plough, as land-hungry peasants push up the hillsides, is leading to a rate of siltation that will probably fill the reservoir with silt at least 25 years earlier than projected (Eckholm, 1976). (See Table 1.)

In the area of health impacts, as of mid-1977 schistosomiasis control has been implemented in thirty projects by the World Bank, at a cost of about $63.36m (O'Leary, 1982). Other international agencies would undoubtedly have spent huge sums of money on disease control in the Volta, Chad, Kainji, Mangla and Matumbulu basins among others. However, it has been argued by some experts that some of these impacts would have been mitigated or reduced if planners merged technology with communication (Pickford, 1985; McLoughlin, 1983; Monosowski, 1986; Olokesusi, 1985a, 1985b; Ince, 1985).

It is in the light of the above that this paper seeks to explore the following: firstly, to identify the need for support communication in water development projects; secondly, the describe how the support communication process could be planned and implemented, as a component of the larger development planning and implementation processes in developing countries in general, and with a view to enhancing environmental quality in particular. The paper focuses primarily on water projects in the rural areas of developing nations.

TABLE 1

Siltation Rates in Selected Reservoirs

Country	Reservoir	Annual Siltation Rate (Metric tons)	Time to Fill With Silt (Years)
Egypt	Aswan High Dam	139,000,000	100
Pakistan	Mangla	3,700,000	75
Tanzania	Matumbulu	19,800	30

Source: S. A. El-Swaify and E. W. Dangler, (1982), "Rainfall Erosion in the Tropics: A State of the Art", in American Society of Agronomy, Soil Erosion and Conservation in the Tropics, Madison, U.S.A.

Some Misconceptions of the Rural Dwellers

Water resources development projects are usually regarded as a strategy for socio-economic development, especially of the rural areas in the developing countries, since water helps to improve the socio-economic and physical life of the society, and rural development essentially encompasses any human activity which contributes to the establishment of improved rural welfare (World Bank, 1975). Rural development has also been construed to mean increased adaptive behaviour and purposive and cumulative control of people over changes in the environment, and in themselves, so that they may attain greater human welfare and better human conditions (Inyatullah, 1967; Ascroft, 1969).

In most nations, dams, reservoirs and irrigation schemes are often located in rural areas, and have sometimes been developed as part of the regional development programme. But in quite a significant number of poor nations, water development projects of many types are limping, delayed and often failing outright because of failure to communicate with the people - the rural beneficiaries. Although clearly distinguishable as a unique category of individuals, rural dwellers remain an audience we need to know more about in a reliable, generalizeable and scientific way, since their views are hardly known to us.

This was emphasized by Marx and Engels (1935), when they described peasants as an "indecipherable hieroglyphic to the understanding of the civilised." The ruralite remains an enigma to those who have not lived his life and, as a result, he is often characterised in a negative light (Rogers, 1969). Also, Prawl (1969) asserts that lack of understanding of the ruralites develops into stereotype - the ruralite is ultra-conservative, steeped in tradition, hemmed in by custom, lacking in motivation and incentive, captive to age-old methods.

These misconceptions have to be corrected partly to energise the ruralites for developmental tasks, so as to ensure the success of water resource development projects in these difficult times. One viable strategy of achieving these objectives is the integration of support communication with water resource development programmes.

Definition of Support Communication

Support Communication means the employment of various communication channels (mass media, interpersonal and group), technologies (hardware and software), delivery system (print, electronic, audio-visual, training and person-to-person), in combination with each other for the purpose of sending messages to promote, persuade, motivate and eventually induce behaviour modifications, thereby contributing to achieving the major goals and objectives of a particular water resource development programme.

The Need for Support Communication

A significant reason for the persistence of avoidable impacts of large water developments (e.g. malaria, siltation, schistosomiasis, onchocerciasis and displacement, etc.) relates to the technical/bureaucratic bias of such projects. More often than not, the planners are engineers in government and other agencies, who are primarily concerned with economic and technical efficiencies. This combination of technician and bureaucrat virtually guarantees one thing. This is the effective omission, in the earlier stages of project development, of integral feasibility components such as economics, legal/institutional considerations, social matters, and often environmental matters, even though lip service may very well be paid to these issues (as now required by law in many countries). To serve its purpose properly, planning for development of any resource, particularly one in which the entire community has a direct stake (such as water), should begin with the final uses to which people want the resource to be put. The planner should then work

backwards, to the present, identifying what must be done along the way to achieve that particular package of end uses. We know from long observation that a meaningful change brought about by man's influence on any one aspect of a water system will induce, sooner or later, qualitative changes in other, linked, systems (McLoughlin, 1983). (See Figure 1.)

Research has also found substantive evidence that development and communication are strongly correlated (Beltran, 1978). At the village level, Rao (1960) found in a comparative study clear correlations between communication and socio-economic as well as political development. Effective support communication and interaction requires conscious efforts by members of the public and development agents because of a variety of obstacles to such relationships.

Lerner (1958) asserts that communication is a main instrument of socialization and socialization is, in turn, the main agency of social change. Social change itself is a condition for societal development. Quebral (1974) cites Schramm on the tasks of communication in a developing state:

(1) To circulate knowledge that will inform citizens of opportunities, dangers and changes into the immediate and larger environment;

(2) To provide a forum where issues affecting the national life may be aired;

(3) To teach those ideas, skills and attitudes that will promote development; and

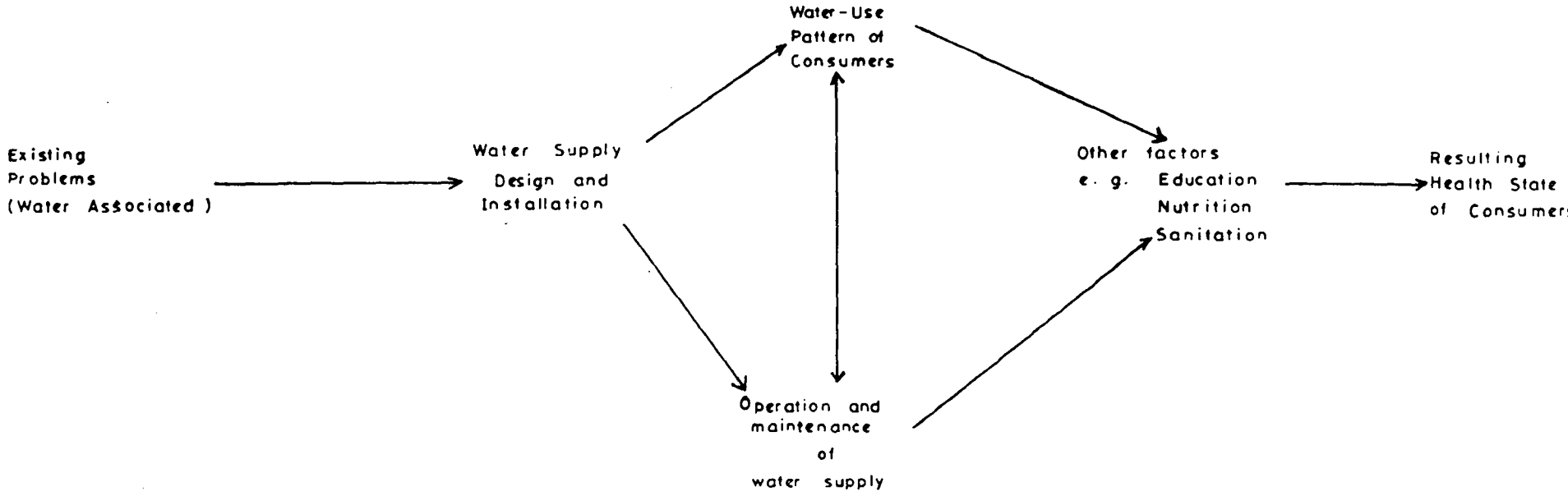
(4) To create and maintain the consensus that is needed for the stability of the state.

Despite all these laudable objectives, there are a number of inherent criticisms levelled by both the public and national governments against the role and utility of support communication in project planning. Some of these are briefly examined.

The Citizen's Perspective

(i) In many rural areas, perhaps as a result of illiteracy, previous unfulfilled promises and apathy, general suspicions of conspiracy are often directed towards public officials and development agency actions by the general public.

Figure: 1. The Water – Use Link



Source: Ince, M. (1985), "Water and Disease", Developing World Water, WEDC (Ed.) Grosvenor Press International, London.

(ii) The ruralites believe that, irrespective of their involvement in the planning process, public officials already know what they intend to do - hence it is a waste of time and effort to participate.

(iii) Usually, the ruralites receive little or no feedback in respect of the impact of their inputs on the public officials or agency - hence motivation is reduced.

(iv) Those groups which complain most and have political clout are served, while those who are quiet, unorganised or inexpressive, even if in need, may be ignored.

(v) Due to factionalism, it is sometimes risky to take part in the project planning and implementation process, as the powerful landowners and politicians (even if in military uniform) are behind the factionalisation in order to achieve their selfish objectives, and by any means too!

(vi) In many developing countries, it is a fact that the corruption among leaders of governments, associations, co-operatives and villages often deals a mortal blow to people's desire to be involved in the planning process.

(vii) Short-term survival logic of the poor majority enhances apathy, while the latter suppresses participation instincts.

The Government Agencies' Perspective

On the part of the national governments and agencies, the following criticisms of support communication are common:

(i) Support communication is unnecessary, since the project has been approved by the national government and international aid agency. In any case, the people lack the organizational skills for dialogue, it is argued.

(ii) More often than not, support communication requires greater disclosure of information than would be required otherwise. In many poor countries such government documents are tagged "secret", even though they are available in government and university libraries in the developed nations. Also, the tag of secrecy encourages the resource mis-allocation instincts of the public officials; hence the need to protect it.

(iii) Support communication demands a share in decision-making, a position that conflicts with existing requirements to operate in the general public interest, as well as making the project more difficult.

(iv) Many public officials still believe that even communicable diseases, such as schistosomiasis, malaria, onchocerciasis, etc., are due to voodoo; consequently, their control techniques need not be a public affairs component of the project. This is equally true of the ruralites.

(v) Due to weak environmental expertise, the urge to promote scientific environmental debates is poor. This inter-relates with the poor political clout of national environmental agencies. Table 2 indicates the environmental expenditure of India, Indonesia, P.N.G, Philippines, Singapore, Nigeria and U.S.A.

While the definitions of environmental expenditure vary from one country to another, the difference of over two orders of magnitude of environmental expenditure as fractions of GNP is significant. These expenditures may be taken as a measure of the actual commitment to environmental values and are more meaningful than official pronouncements (Roque, 1986).

(vi) As a result of poor communication facilities, the tasks of gathering people for meetings and mailing of pamphlets and questionnaires are extremely difficult; consequently, the involvement of the ruralites is viewed as a significant waste of scarce resources (Olokesusi, 1985a).

Despite these criticisms, public involvement of one form or the other often takes place in many development projects. The most common form is the public relations aspect of development projects which espouses the positive aspects of the project only. From this usually emanate demands by pressure groups, particularly the landowners and the squatters, for compensation, resettlement and contracts, etc. Hardly do the public officials or development agency inform the concerned public about possible negative impacts of the project - even known ones such as schistosomiasis and onchocerciasis.

Thus, the types of support communication in many water development projects, particularly in the developing nations, range from manipulation through therapy to placation, to use Arnstein's framework (Arnstein, 1969). (See Figure 2.)

It is contended in this paper that the elimination of impediments to support communication depends on altering the nature of the relationship that exists between the public and the water development agency, and consequently altering the nature of the roles played by public officials and the public. One means of achieving this objective is through a planned communication programme. A planned communication programme is a systematic process of analysing, co-ordinating, synthesizing and evaluating all

TABLE 2

Ratio of Expenditure in Environmental Administration to GNP for Some Selected Countries

Country	Ratio of Environmental Administration Expenditure to GNP
India	0.0122[a]
Indonesia	0.381[b]
Papua New Guinea	0.836[c]
Singapore	1.087[d]
Philippines	0.005[e]
Nigeria (Environmental Protection only)	0.000621[f]
United States (Population control only)	2.00[g]

[a] Based on 1982 figures at current market prices

[b] Based on environmental expenditure for fiscal year 1982-83 over GNP for 1982

[c] Based on environmental expenditure for 1985 over GNP of 1983

[d] Based on environmental expenditure for fiscal year 1983-84 over GNP figure for 1983

[e] Based on NEPC and NPCC budget over GNP for 1983

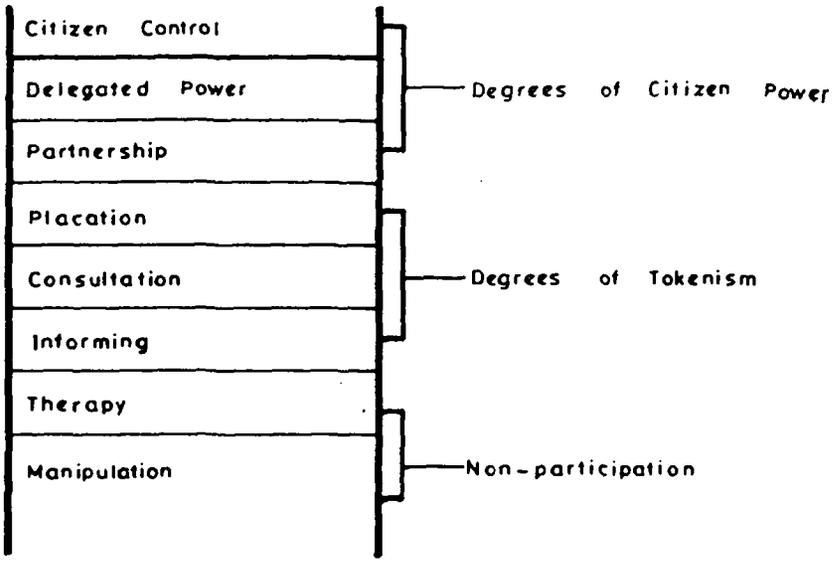
[f] Based on environmental expenditure for 1980-85 and GNP for 1979-80 and Federal Republic of Nigeria (1981), Fourth National Development Plan, 1981-85, Vol.1, Lagos, Nigeria

[g] Average for 1975-84

Source: Roque, C. R. (1986),"Factors Influencing Environmental Policies in Developing Countries" in Environmental Planning and Management Symposium Proceedings, Asian Development Bank, p.154.

Nigeria, as in (f) above, derived by author.

Figure: 2. The Ladder of Citizen Participation.

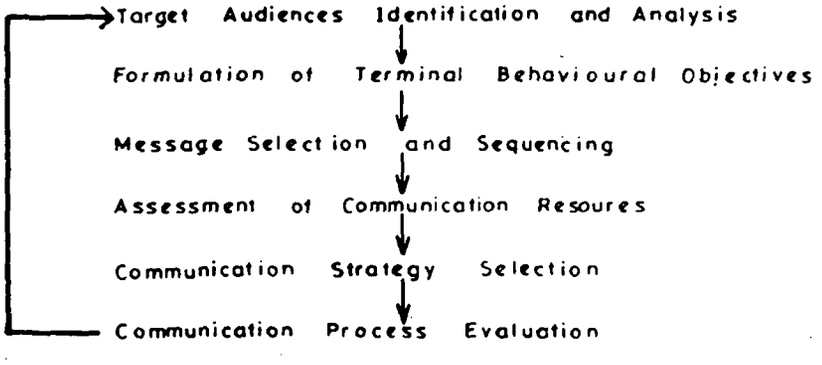


Source: Arnstein, S.(1969), A Ladder of "Citizen Participation", JAIP 35 (4) July: 216 - 44.

The Communication Planning Process

The communication planning process discussed below is a generalised and simplified, but iterative process.

Figure: 3. The Support Communication Planning Process.



factors involved in the attainment of quantifiable change in the target audience's behaviour. The process is briefly described below.

Target Audience Identification and Analysis

As soon as the project's needs are appraised and goals formulated, the various categories of project audiences should be identified. Such audiences must include grass-roots, whether organized or not, professionals, community leaders, change agents, as well as policy makers/ administrators and field cadres in the project's location.

The project planner should gather relevant social data on the audiences, categorise and analyse such data in terms of their characteristics, e.g. age, sex, attitude, income and educational level among others.

Census tract records (CTR) would be adequate for a major component of this phase of the process. However, where CTR are not available or are obsolete, a mini-survey could be done by the appropriate agency.

Formulation of Terminal Behavioural Objectives

During this phase, full specification of behavioural changes expected of the project (or continuously) is made. The list would describe in observable and measurable terms the desired changes in knowledge, attitudes, health, environment and practices of the audiences. These objectives shall form the basis for the project's formative and summative evaluation. The objectives serve other functions, such as evaluating the audiences, to know exactly what is expected of them and how to go about achieving them; also, they facilitate the selection and sequencing for messages as well as the selection of communication approach and media. Mobilising public support for adequately funded impact mitigation measures will require extensive public education on the dimensions of the problem and its many consequences.

Message Selection and Sequencing

The message is the translation of project behavioural objectives into concrete terms. It acts as a bridge between the audience's existing behaviour and the terminal desired behaviour. The message selected should be checked and clarified with appropriate communication planning specialists, for accuracy and completeness. However, a message must be critical and cover all major knowledge and skills required of the audience. Also, the message should be simple and not conflict with the social norms of the audience. The sequencing should be from simple to complex.

Assessment of Communication Resources

Human and material resources are required in qualitative and quantitative terms. Thus, an inventory of such resources has to be drawn up as early as possible. The organizational framework for the process should be equally good and open to suggestions through a perceptible two-way communication channel. The financial resources available should determine the type of physical facilities needed and communication strategies to be used.

Communication Strategy Selection

This phase of the process involves a thorough analysis of the possible alternative methods of communicating with the audience and selecting one or a combination of the alternatives. For each possible alternative, the appropriate communication process and support materials should be listed. The previous phases would by and large determine the outcome of this phase. The use of town criers in many rural areas of Nigeria to pass information such as invitations to market square meetings, outbreak of epidemics, etc. may prove to be more effective and efficient than some radio-vision programmes.

As far as possible, methods that would facilitate audience feed-back should be given priority. Extensive use should be made of visuals, radio farm forums and local dialects.

Communication Process Evaluation

Since in phase two prescribed behavioural objectives were made, an evaluation of these is made in order to monitor the project, provide an assessment of the impact of various inputs and give indications of the success of the project concerned.

This is a very vital phase and, if done with dexterity, enables improvements to be made to the whole communication implementation process.

The above six stages are not as simple as they seem. There must be adequate commitment of the government agency for communication processes to succeed. Members of the public must also show willingness to become involved in activities beyond their homes, more so those activities that are pertinent to their long-term social well-being. Perhaps the donor agencies should be compelled to use the "carrot and stick" tactics coupled with factual information to convince the aid recipients of the need for environmental quality through support communication in water resources projects.

Conclusion

It is apparent that, in order to develop informed water resource plans and programmes, a deep appreciation of the characteristics, concerns and problems of people living in the area to be affected must be gained at the earliest possible point in the planning or decision-making process. In an attempt to develop a cumulative effort at plan resolution, public meetings must be purposeful, that is, the meetings must accomplish some tasks upon which the process of planning or decision-making is dependent.

It has to be indicated that, in many developing nations, governments and aid agencies should not wish informed public opinion into existence overnight. Quite some painstaking and patient work will have to be done to wipe out the pyramid of ignorance, inertia and complacency. Also, support communication should be a component of the Environmental Impact Assessment and Review processes in these countries, and the earlier they all make EIA mandatory, the better.

Consequent upon the vital roles which water plays in human development, there is the need to integrate water resources programmes with local and regional development processes. This would enable adequate consideration of the major impacts and necessary mitigation measures. It would also encourage the use of regular monitoring, particularly of ecological and socio-economic indicators as development evaluation tools. National governments should improve public information about sanitation, environmentally desirable and sustainable development.

Finally, there is a definite need for improved institutional frameworks for development planning. Relevant public and private agencies, including grassroots, should be mobilized for relevant research and information dissemination as well as encouraging better application of foreign and indigenous resources for sustainable development.

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