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**IRRIGATION DEVELOPMENT - CURRENT REALITIES, NEW
POLICIES, AND FUTURE POSSIBILITIES FOR POSITIVE IMPACTS
ON RURAL POVERTY**

A CONTRIBUTION TO THE POVERTY AND INEQUALITY STUDY

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INTRODUCTION

This paper provides a brief overview of irrigation development in South Africa. The purpose of the paper is to identify ways in which irrigation development could contribute to the alleviation of poverty and the reduction of inequality. The paper begins with a brief description of the present situation. The lessons which might be learned from experience are then discussed through brief accounts of the characteristic forms that irrigation development has historically taken. This is followed by an overview of current policy initiatives, and an assessment of the likely impacts of these policies. The last section of the paper outlines irrigation development strategies which might impact on rural (and urban) poverty.

1. CURRENT REALITIES

a. The Status Quo in Policy and in Law

At present, approximately 50% of South Africa's water use is devoted to the irrigation of 1.3 million hectares of land. The land under irrigation accounts for between twenty five and thirty per cent of South Africa's total agricultural output. The areas under irrigation can usefully be categorised in terms of financial assistance received from government for water supply costs. The categories are as follows:¹

1. Private irrigation farms comprising approximately 40% of the irrigated area. The costs of irrigation development have been met by the owners of the land themselves.

2. Irrigation Board Schemes comprising about 30% of the irrigated area. Government has paid a one third capital subsidy for Irrigation Board Schemes. There has been no government assistance to cover the costs of operation and maintenance. Irrigation Boards have typically been established through local initiatives in the commercial farming areas. Groups of farmers who have wanted to establish joint infrastructure have grouped together, and have applied to The Department of Water Affairs and Forestry for a water allocation. Irrigation Boards have been set up under Section 79 of the Water Act. The Boards have legal status. The Department of Water Affairs and Forestry has offered water quotas (specific cubic metres per hectare) to Irrigation Boards according to rainfall, evaporation, and humidity. The rights are determined according to the normal run of the river. The only other water that could be available from a river is surplus water other than the normal flow. The Department of Water Affairs and Forestry expects Boards to make decisions by democratic vote as to how water should be supplied to the members. There are over 300 irrigation Boards in

¹ The per centages are drawn from a briefing paper prepared for the Minister of Agriculture on the New Water Law for South Africa (1997). DWAF (1995) uses the same categorisation of irrigated areas, but provides a somewhat different per centage break down.

South Africa.

3. State Irrigation Schemes comprising 30% of the irrigated area. These include the white settlement schemes dating from the 1930s (such as the Vaalharts Scheme), and the former Bantustan schemes dating from the early 1950s (for example, the Mthandeni Scheme in the Umvoti Valley in KwaZulu-Natal). Implementation of large schemes in the Bantustans continued through to the 1980s. The better known schemes include Taung in former Bohuputswane, Mjindi in KwaZulu-Natal, and Ncora and Qamata in the Transkei. The full capital cost of these schemes was paid by government. In addition, government has provided substantial operation and maintenance subsidies.² A number of existing schemes (covering about 66 700 hectares) are not fully utilised (DWAF, 1995). Probably, about half of the irrigated area in the former Bantustans is currently under-utilised or unutilised (approximately 25 000 hectares) (Pers. Comm. M de Lange, 1997, The National Irrigation Policy Secretariat).

In addition to private irrigation development, Irrigation Boards, and large government schemes, a myriad of irrigated community gardens has been established in the former Bantustan areas. Community gardens in the former Bantustan areas have a very long history. Brooks and Friedman (1991) document a thirty-year history of community gardens in the former KwaZulu areas.

At present, irrigation and irrigation development is the combined responsibility of the Department of Water Affairs and Forestry, the National Department of Agriculture, and the Provincial Departments of Agriculture. The Department of Water Affairs and Forestry is responsible for the development of national water infrastructure, and for the allocation and control of scarce water resources. The National Department of Agriculture is responsible for national strategies such as marketing standards and norms, and the Provincial Departments of Agriculture are responsible for supporting and developing irrigation farming (DWAF, 1995).

Water rights are a complex issue. Riparian rights apply in the case of private irrigation development in commercial farming areas. Riparian rights also apply in the case of some Irrigation Board development. Land held under title which borders a stream or river may have riparian rights. The water right is attached to the title deed, and is a common law right. In some cases riparian rights date back many decades. In the case of the farmers in the Nkwalini Valley in KwaZulu-Natal, for example, riparian rights are held in terms of the original 1906 farm survey (Sapsford, 1995). Some riparian rights have never been exercised. The extent of unexercised riparian rights is unknown at present. (Pers. Comm. M de Lange, 1997, The National Irrigation Policy Secretariat).

² The subsidies on operation and maintenance costs on schemes in the commercial farming areas are being phased out over a period of five years (Pers. Comm. M de Lange, 1997, The National Irrigation Policy Secretariat). The terms and conditions have been negotiated between the Department of Water Affairs and Forestry and the South African Agricultural Union (DWAF and DoA, 1996: 13).

In addition to riparian rights, water rights have accrued to individuals through sales by the Department of Water Affairs and Forestry, and through Water Court decisions.

In contrast to the areas where land is held under freehold, the former Bantustan areas were granted water rights as a whole. The allocation of water rights to individuals on traditionally held (communal) land is not possible under the present system.

b. Small-scale Irrigation - Lessons from Experience

As will be clear from the outline of the current situation, irrigation development in South Africa has been inextricably linked to the political and economic agendas of the colonial and apartheid states. In documenting the history of the Vaalharts Scheme, Shillington (1986) provides some useful insights into the broader trajectory of South African irrigation development. Historically, irrigation schemes were bound up with settler accumulation and African dispossession.

Shillington notes that large scale irrigation requires the co-ordination of huge capital investment, a large labour force, and the reorganisation of land allocation and usage. He suggests that the only way to bring about the necessary degree of rural transformation has been through the successful combination of heavy capital investment and direct state intervention. In the case of the Vaalharts area, such capital investment and state intervention was evident in the 1930s - a period of acute economic crisis - when the Vaalharts Scheme was established as a means of keeping whites productive in the rural areas. In the absence of such schemes, rural whites would have drifted to the towns, thus exacerbating the chronic unemployment problem. The Vaalharts Scheme also seemed a viable economic venture which would allow South Africa to compete on world markets. Implementation of the Scheme was possible because the state already had at its disposal a significant portion of the necessary land through the confiscation of the Phokwani Reserve approved by the Cape Parliament in 1897. The part of the Taung Reserve (19 000 hectares) which was also required for the Scheme was obtained through negotiations. (Irrigation water could be supplied to the Reserve, and 19 000 hectares of non-irrigable land was offered in lieu of the 19 000 hectares of irrigable land.) Construction on the storage dam began in 1933, and this provided relief work for unemployed white labourers. During the course of the 1930s and 1940s, plots of 17-25 hectares were made available to settlers on a probationary basis. Evictions in the Majeng Location occurred as late as the 1970s for the purposes of rationalising the area under irrigation.

The Vaalharts model of irrigation development was replicated for smaller scale farmers in the former Bohuputswane during the 1970s in an attempt to give credibility to apartheid development policies. Land occupancy was completely replanned, and land was re-allocated to 500 selected farmers who were given approximately 10 hectares each. Irrigation technology on the Bohuputswane Scheme has been designed to avoid the problem of waterlogging which has beset the flood irrigated Vaalharts Scheme. The enormous centre pivots which have been installed imply strict centralised control.

It would be simplistic to assert that the history of state-led irrigation development in

South Africa is the history of the Vaalharts area writ large. However, it is reasonable to suggest that many of the white commercial settlement schemes, and many of the black small holder schemes in the former Bantustans were motivated by similar political and economic agendas - namely to ameliorate white poverty whilst extending and entrenching a white rural political constituency, and to attempt to lend credibility to apartheid development.

As already noted, community gardens were also established in former Bantustan contexts. The historical rationale for community gardens is a subject for interesting speculation. Two possible reasons for the historical support of community gardens can be drawn from Brooks and Friedman's (1991) report. The first has to do with apartheid ideologies regarding the projected economic self-sufficiency of the Bantustans. The aim of the Agricultural Branch of the Department of Bantu Affairs in 1968 is cited as "the development of the homelands towards self-sufficiency in respect of subsistence and marketing economy in the sphere of agriculture" (Department of Bantu Affairs and Development, Annual Report 1967/8, in Brooks and Friedman 1991: 10). The second reason has to do with the high incidence of malnutrition in the rural areas of the former Bantustans. This explanation was offered by extension officers interviewed by Brooks and Friedman (1991: 16).

A broad understanding of the historical trajectory of irrigation development in South Africa is indispensable to an attempt to draw out key lessons for future policy. The relative success of many of the white settlement schemes can, in part, at least, be attributed to the very comprehensive support and subsidies made available to white commercial agriculture in addition to irrigation development support. The history of successful irrigation development in areas like the Nkwalini Valley in KwaZulu-Natal has been a history of land consolidation, capitalisation, and crop specialisation. Original flood systems have been replaced by sprinklers and sophisticated micro jet and drip systems (Vawda, 1995). By contrast, schemes in the former Bantustans have been fraught with problems deriving from irrigation systems unsuitable for small holder production (Mjindi in KwaZulu-Natal is a case in point), and lack of appropriate support from development agencies and Bantustan line function departments.

The reason for the failure of Bantustan type schemes presented in the discussion document produced by the Department of Water Affairs and Forestry (DWAFF, 1995) is compelling. The document draws on a World Bank analysis of successful projects in the Sahel. It is argued that large scale government irrigation schemes as a development strategy have been a dismal failure in Africa. Capital costs have not been recovered and intended spin-off benefits (community development and secondary activities) have not ensued. Scheme managements have been blamed, as have the farmers. However, the fundamental problem has been that the institutional arrangements have precluded possibilities for human resource and entrepreneurial development. Central management structures or agents have taken the decisions regarding crop choice and cultivation practices, and farmers who have supplied their labour have had to bear the risks. A point which supports this argument is made by Shillington (1986: 313) who says "The cost of large scale irrigation for small scale producers is strict control over all aspects of 'peasant' production'. The conclusion

drawn from the analysis is that small private irrigation enterprises are likely to be successful, as are large estates which employ labour. Estates based on farmer settlement are, however, doomed by definition. The lessons to be learned for the future are that irrigation development should be founded on farmer management, and on participative planning. Irrigation systems should be designed for farmer management.

There is a lot to be said for this generalised interpretation. However, in the light of a look at some of the detail of South African experience, it does not entirely hold up. The white settlement schemes, many of which started with very modest land allocations have been relatively successful. Although the analysis contributes usefully to an understanding of some of the reasons for the failures of the Mjindi Scheme in KwaZulu-Natal, and the big schemes in the Transkei, there have been some irrigation development successes in the former Bantustan areas, although, of course, there have been costs to these success stories. Also, small scale private irrigation ventures may not always be successful. The fragmented and inadequate institutional arrangements through which irrigation development was supported in the former Transkei impacted as negatively on independent entrepreneurs as on the large-scale state-led ventures. (McIntosh, Quinlan and Vaughan, 1993).

A dimension of irrigation development highlighted by Shillington (1986), but not mentioned in the Department of Water Affairs and Forestry and Department of Agriculture (DWA, 1995 and DWA and DoA, 1996) discussion documents is that it almost invariably involves or requires the reorganisation of land allocation and land use. Land re-allocation has been an issue within many former Bantustan irrigation developments. Irrigation development in communal areas has also often led to intensified land demand, and to a demand for freehold tenure (MacDonald and Vaughan, 1995). The character, scale, and impacts of land re-allocation (and land dispossession) need to be taken into account in assessing past experiences, as do the shifts in land demand. Land re-allocation, re-organisation of land use, and changes in land demand are highlighted in the brief case studies which follow.

Irrigation Development in KaNgwane - A Unique Experience

Small-scale irrigation development in the former KaNgwane has taken what can usefully be termed a classic small farmer route. Arable holdings have been re-demarcated into 'economic units', and re-allocated to small farmers. During the course of the 1980s, farmers were selected with the assistance of the traditional authorities. Irrigation development has primarily involved the extension of sugar production within the Nkomazi Basin. The notion of 'economic units' has pervaded development thinking in South Africa for many decades. KaNgwane is the only context within which the principle has been successfully applied. Four factors account for the success of a classic small farmer trajectory of irrigation development in KaNgwane. First, almost the entire territory underwent betterment planning in the 1950s and 1960s. The re-allocation of land for commercial small-holder development has not meant the physical removal of people. Secondly, some land which was initially made available for commercial small-holder development had been under state farms. Much of this land was alienated from traditional land holders when the state farms were established.

Because of this, the return of these lands to the local people was viewed positively, in spite of the conditions attached to their return - namely, large lot sizes, which limited the number of people who were able to obtain access. Thirdly, there has been a long tradition of local and regional bureaucrats pursuing 'economic unit' principles. Fourthly, a powerful small farmer lobby able to articulate its interests emerged quite rapidly during the course of the 1980s. This small farmer lobby has expressed a strong demand for freehold tenure.

The benefits deriving from the KaNgwane model are obvious. A class of successful small scale farmers has emerged. Many have been able to extend the size of their holdings. For some, the possibility of acquiring neighbouring freehold commercial farms has become a reality. However, the classic small farmer route in KaNgwane has involved land dispossession. Poorer households have lost access to arable land. The food security of these households has been undermined (Vaughan and McIntosh, 1993 and McIntosh and Vaughan, 1995).

Contract Farming Schemes - Irrigated Smallholder Sugar In KwaZulu-Natal

On small grower irrigation schemes in KwaZulu, the original traditional land allocation has generally been taken as a given by the development agents. Irrigation design has been modified to accommodate the retention of traditional land holdings. Although the ideology of a classic small farmer approach which approximates to the KaNgwane route has resonated powerfully in development thinking in KwaZulu-Natal, the reality has been elusive. Because holdings are generally sub-economic, the benefit of irrigated cane production in the former KwaZulu areas has been the capacity to earn a fairly substantial supplementary income, rather than the opportunity to become a full-time farmer. In the Umvoti Valley where there are four small holder irrigation schemes in close proximity to one another, irrigation development has been a core for economic growth within the sub-region. Growers have generally been able to service a substantial debt (to the Financial Aid Fund for cane establishment, and to the KwaZulu Finance Corporation for irrigation infrastructure).

A feature of smallholder irrigation schemes in the KwaZulu-Natal sugar industry has been a significant degree of reliance and dependence for scheme operation and maintenance on the development agents (the millers). Indeed, water management has essentially been a function of the milling companies. The growers have not been decision-makers with regard to water application, although they have been trained to adhere to specific water application regimes. Operation and maintenance costs are met by monies retained by the milling companies from the income of the farmers. Operation and maintenance are quite largely the responsibility of local people who liaise with company extension staff. It is not entirely clear why the irrigation regimes established by private sector interests have been so much more successful than the regimes which state departments and agencies have attempted to establish. But a narrowly focussed commodity interest, guaranteed markets, and retention from farmer income of adequate funds for operation and maintenance must obviously be key explanatory factors. The notion that the key to future irrigation development success is farmer control and participative planning is not borne out by experience in the KwaZulu-Natal sugar

industry.

Although traditional land allocations have been a feature of most of the sugar irrigation developments, a degree of land re-allocation has occurred through traditional authority intervention on some schemes. On the Biyela Scheme, for example, people who opposed the irrigation development were compelled to give up their land to those who wished to participate in the Scheme. In short, the establishment of the Scheme opened opportunities for a degree of land grabbing. The Inkosi himself acquired a very large allocation of land (14 hectares) (MacDonald and Vaughan, 1995). On the Mthandeni Scheme in the Umvoti Valley, some land dispossession in favour of the traditional authority and its clientele occurred with Scheme redevelopment in the late 1970s (Simelane, 1991).

On the Biyela Irrigation Scheme, existing community gardens were incorporated in the Scheme design. Under sprinkler irrigation, the gardens have been far more productive than was possible in the past.

What is not often recognised is that small holder irrigation development in the sugar industry has been heavily subsidised by the state in the past. The extent and character of the subsidies is evident from the following table reflecting investment in the Biyela Irrigation Scheme.

Table 1.
Investment by the various organisations involved in the Biyela Irrigation Scheme

Organisation	Form	Purpose	Amount (R)
*KFC	Loan	Irrigation system	1.6 million
KwaZulu Government	Grant	Infrastructure and site preparation	1.6 million
*FAF	Loan	Crop establishment	1.1 million
Tongaat Huletts	Grant	Irrigation costs and a Resource centre	440 000

Source: McIntosh, Sapsford and Vaughan, 1995.

*KwaZulu Finance and Investment Corporation

*Financial Aid Fund (South African Sugar Association)

Concessionary finance has been available for irrigation infrastructure and crop establishment. Contract farming irrigation schemes in the sugar industry would not have been viable in the absence of substantial grant funding and interest rate subsidies.

Former Homeland Irrigation Schemes

Aside from the irrigated sugar developments in KaNgwane and KwaZulu-Natal which

are widely regarded as impressive success stories, irrigation schemes in the former homelands are generally perceived to have been unmitigated disasters. On the Mjindi Scheme in KwaZulu-Natal, extension and water management support have been fragmented and unsatisfactory. Water is managed by Mjindi Farms (the private development company which was constituted from the old STK, the development arm of the former Department of Development Aid)), while extension services are the responsibility of the Department of Agriculture. Farmers must pay for water, and must request it in advance. The system as it presently operates is bureaucratic and inflexible. The irrigation design is unsuitable for small holder farming. The farmers have not been able to pay back production loans (from the KwaZulu Finance and Investment Corporation, and more recently from the Agricultural Credit Board), and are heavily indebted. Establishment of the scheme involved land dispossession (which is hard to quantify), and what is generally regarded as a corrupt farmer selection process (through the traditional authorities). Over recent years there have been initiatives to grant freehold title to the existing farmers. (The land is currently leased from the State.) The granting of freehold title will not resolve the question of dispossession. Similar problems have been encountered on other state schemes.

Independent Small-scale Operators in Former Homeland Contexts

A striking point about individual irrigation farmers who have been able to establish successful commercial enterprises is their resourcefulness in the face of numerous obstacles. Independent irrigators interviewed in the Transkei in 1993 (McIntosh, Quinlan and Vaughan, 1993) complained of the difficulties of obtaining adequate factors of production, and assistance and farmer support. Appropriate - and sufficient - land, capital, inputs, and labour, as well as technical advice on irrigation systems, information on crop water requirements, and scheduling, were hard to come by. Also, appropriate infrastructure is poorly developed.

The magnitude and nature of these difficulties is reflected in the strategies which the farmers employed to overcome them. These are strategies which a very limited number of individuals have been in a position to employ. Most of the more successful irrigation farmers made use of associated enterprises to obtain investment capital for irrigation systems, which were invariably a second or third level investment option. Indeed, the majority of the successful commercial farmers were older men who had been able to succeed through enterprise integration involving substantial investment in a range of enterprises. A common pool of resources and assets were deployed across a range of small business ventures. The farmers had considerable management skills, and were innovative in seeking out available services in distant places. Many farmers without the necessary resources and capacities have failed to sustain commercial enterprises on an ongoing basis.

Security of tenure was an enormous problem for most independent irrigation farmers in the former Transkei. The majority of farmers were not irrigating on the land which they had inherited. Most had acquired irrigable land from a traditional authority, or they had leased land from a mission, or they had rented it from other people. Farmers feared that contractual arrangements with the landholders might not be binding. Such

insecurity had resulted in unsustainable farming practices - for example, continuous cultivation of lucrative crops to recoup on investment as quickly as possible. In the light of the fact that lease agreements did tend to break down, this behaviour was entirely rational. The escalation in the productive value of the land as a result of irrigation development was the issue around which lease agreements typically disintegrated. Unrealistic rentals which had not taken account of the inevitable leap in land value consequent upon irrigation development led to "jealousy" which caused lessors to "take the land back" (McIntosh, Quinlan and Vaughan, 1993).

Community Gardens in Former Homeland Areas

The community garden experience is difficult to assess. There have undoubtedly been serious problems. An investigation of irrigated community gardens in the Transkei conducted in 1993 (McIntosh, Quinlan and Vaughan, 1993) revealed some characteristic problems. Unavailability of inputs and lack of transport were critical constraints. Transkei garden members also often did not have the means to purchase inputs, even if these were available, and competing pressures on household labour was a difficulty. Organisation was difficult to create and sustain, and organisational incoherence impacted particularly negatively when technological problems developed in the irrigation systems. However, community gardens have offered production opportunities to poor rural people, and have enhanced household food security.

Concluding Remarks

Experience of small scale irrigation development has been ambiguous. Costs inherent in some of the success stories have been land dispossession and centralised control. Unaccountable and fragmented support systems, and inappropriate institutional arrangements account, at least in part, for many of the big scheme failures in the former Bantustans. Most community gardens have not worked as commercial ventures, but the development of community gardens has been an important food security intervention.

2. NEW POLICY INITIATIVES

a. White Paper on a National Water Policy for South Africa

The White Paper on a National Water Policy for South Africa (1997) has recently been adopted. A new National Water Bill has been drafted, and regulations for the implementation of policy are being developed. A separate Water Services Bill which sets the framework for provision of water by local authorities has been prepared.

As a consequence of apartheid policies, the distribution of access to water in South Africa is as skewed as is access to land. The new water policy will provide a framework and principles to redress present inequities. The new water policy takes cognisance of the Constitution (1996), of the Reconstruction and Development Programme (1994), and of Growth, Employment and Redistribution (1996). These laws and policies provide the broad national context for the new water policy. The new water policy spells out how the principles which have been adopted in the Constitution are to be realised in

the water sector, and it spells out how water policy will contribute to national growth and reconstruction objectives.

The White Paper (1997) incorporates the 'Fundamental Objectives for a New Water Law in South Africa' approved by Cabinet in 1996. The White Paper indicates very clearly what the orientation of the new water law will be. Some of the proposals which will determine the new water law are:

- that the status of the nation's water resources as an indivisible national asset will be formalised;
- that National Government will act as the custodian of the nation's water resources, and will exercise its powers as a public trust;
- that all water in the water cycle will be treated as part of the common resource;
- that the water required to meet basic human needs and maintain environmental sustainability will be guaranteed as a right³, and will be known as the Reserve;
- that in shared river basins, government will be empowered to ensure that the needs of neighbouring countries are met;
- that all other water uses will be recognised only if they are beneficial in the public interest;
- that the new system will recognise investments made by users;
- that the new system will use water pricing, limited term allocations, and other administrative mechanisms to balance supply and demand;
- that the riparian system of allocation in which the right to use water is tied to land ownership along rivers will not apply⁴;
- that the system will promote efficiency by charging users for the full costs of providing access to water including infrastructure development and catchment management;
- that all water use will be subject to a resource conservation charge;

³ The White paper states that no claim for existing water-use rights that limits the water required for basic needs will be recognised (1997: 16).

⁴ The White Paper notes that the riparian principle was an instrument of the apartheid state to assist white landowners to use water to develop their land and an agriculturally based economy. Now, policy focuses on creating jobs in other sectors like industry and tourism, and attempts to ensure equity in society (1997: 10).

- that charges may be waived to promote equitable access for disadvantaged groups for productive purposes;

- and that catchment management agencies will be introduced

The White Paper notes that agriculture which accounts for half the nation's water use will have to re-evaluate this use, and will have to pay a price for water that reflects the real economic cost, including the cost to society and the environment. Water will be allocated through a new licensing system founded on achieving beneficial use in the public interest. Licenses will be granted for appropriate periods of time. Time frames will recognise the substantial investment required in some sectors.

With regard to water pricing policy, the White Paper states that government will move systematically to achieve realistic water pricing. The Reserve for basic human needs, which will be provided free of charge (in support of lifeline tariffs), will be the only exception to this. The price of water will include operating, maintenance and capital costs as well as a water resource management levy, and a resource conservation charge. Water prices on government water schemes will be adjusted over a period of time to cover operation and maintenance costs, and interest and redemption of loans (see footnote 2).

The system for dispute resolution will be reviewed. The present Water Courts are inaccessible to the public, and are located in urban areas. The Water Courts will be replaced by more appropriate legal institutions.

A new institutional framework for water management will be developed. The institutional framework will reflect the role of National Government as the custodian of the nation's water resources. It has been decided that the catchment or water system (comprising a number of catchments) is the most appropriate unit for integrated water resource management. Catchment Management Agencies which have a developmental orientation will be established. Catchment management plans will be formulated by CMAs (or in consultation with all role players). These plans will contain details of water allocation; the requirements of the Reserve and international obligations; the issues affecting water quantity and quality; management strategies for addressing key issues; management strategies for achieving goals; and financial arrangements. Once arrangements for water allocation and management have been made at the catchment level, control over allocated water can be delegated to water user groups through the establishment of Water User Associations.⁵ These would be statutory local level bodies

⁵ Water User Associations are not discussed in the White Paper (1997). Provision for the establishment of Water User Associations is made in the new draft legislation. A brief account of how these proposed local level institutions might operate is provided in DWAf and DoA, 1996: 15-16.)

similar to the present Irrigation Boards. Potentially, Water User Groups would allow any group of water users, including irrigators, to manage their own infrastructure, and lobby around issues of common concern.

b. Towards an Irrigation Policy for South Africa

The process of formulating a new irrigation policy for South Africa was initiated through a discussion document on future irrigation published in 1995 (DWAF, 1995). This discussion document has been followed by a joint publication from the Department of Water affairs and Forestry and the Department of Agriculture entitled 'Towards an Irrigation Policy for South Africa' (DWAF and DoA, 1996). The initial discussion document provides useful information, and some pertinent analysis (see above). The follow up document is something of a disappointment in that it makes little progress towards setting out the policy options.⁶ The document describes the current situation. There is a tendency here to some justification of the status quo. The description of the existing situation is followed by an outline of the principles and dimensions of irrigation farming. This reads as a simple manual for the uninformed. Much of the rest of the document is taken up with explanation of the new principles for water management, and a discussion of the new water law principles, with some reflection on the implications for agriculture.

There is some discussion in the document of small-scale irrigation. In this section, there is unfortunate misinterpretation of the historical role and significance of community gardens. The suggestion is that gardens have been commercially oriented. 'Participants each work their own allocated area for their own profit.' '..... each participant in a community garden is essentially a commercially orientated small farmer, and should be regarded as such' (DWAF and DoA, 1996:19). These were the misguided assumptions which underpinned past policies. In fact, community gardens have very rarely, if ever, been commercially successful. Neither have participants had an exclusively commercial orientation.⁷ For the future, the food security significance of community gardens should be fully recognised, and the food security role of gardens should be strongly supported.

There is also some discussion of women in irrigated agriculture. The constraints experienced by women are spelled out (multiple roles and responsibilities, inappropriate irrigation designs which take little cognisance of women's multiple roles, and lack of access to training). These issues are opened for debate, but no policy directions are suggested.

⁶ The Green Paper on Local Government (1997) is the model document in setting out possibilities and suggesting preferred options without closing off the space for full discussion and debate.

⁷ The community garden experience in the former Gazankulu seems to have been somewhat different. There, gardens *have* had a strong commercial orientation (Pers. Comm., M. de Langa (1997), The National irrigation Policy Secretariat).

c. The Likely Impacts of New Policies

What the White Paper on a National Water Policy for South Africa (1997) shows is that the Department of Water Affairs and Forestry exemplifies more than any other national department the democratic centralism deplored by supporters of decentralisation. Although the powerful centralism, and the Integrated Catchment Management model may cause tensions and difficulties at regional and local levels, the principles which have been adopted set the parameters for fair and equal access to a scarce resource.

Theoretically, the profound changes to the way in which water is managed and allocated should have far reaching impacts. However, access to water for domestic and productive uses is not a function of policy and law alone. Expensive infrastructure may be needed. And access to land is a pre-condition for the development of new irrigators. Budgetary and capacity constraints will impinge on rapid realisation of the objectives of new water policies. Also, vested interests will have to be accommodated. It seems likely that the majority of current users will retain their access to water under the new licensing system.

Despite the impediments to rapid change in systems of water management and allocation, the new principles will open access, and will enable previously disadvantaged water users to articulate priorities and needs. The separation of water rights from title deeds to land will open access to those without freehold tenure. The establishment of Water User Associations at a local level will provide for the effective representation of small irrigation farmers (on schemes), and participants in community gardens. (It should be noted that small scale irrigation farmers and community garden participants in the former Bantustans have previously had no mechanisms or channels through which to articulate their interests. The farmers on the Biyela Scheme, for example, have not had direct representation on the recently established user structure in the Mhlatuze catchment. Only Irrigation Board farmers, and industrial users have been represented (Sapsford, 1995)). Establishment of Water User Associations will also allow small scale irrigators greater scope for self-management.⁸

Predictably, organised commercial agriculture has been quick to express concerns about the proposed new principles and arrangements. The South African Agricultural Union has stated that riparian rights are an integral aspect of property rights (DWAF and DoA, 1996: 22). Fears have been expressed that administration of the new system will be even more complex and onerous than is administration of the present system. There are concerns that the new licensing system will open spaces for corrupt practices. Fears have also been expressed that the time limit on licenses may inhibit investment, and that the termination of riparian rights will impact negatively on land values, and on the value of current investment (Pers. Comm. M. de Lange, The National Irrigation Policy Secretariat, and Briefing paper for the Minister of Land and

⁸ Participatory Irrigation Management (PIM) is the current World Bank phrase (DWAF and DoA, 1996: 16).

Agriculture, 1997).

3. FUTURE IRRIGATION DEVELOPMENT - POSSIBILITIES FOR POSITIVE IMPACTS ON RURAL POVERTY

A number of irrigation development strategies with a poverty focus could be adopted for the future. Most of these strategies have fairly modest budgetary implications.

Upgrading of Underutilised Schemes and Systems

The argument presented in the Department of Water Affairs and Forestry and Department of Agriculture discussion documents (DWAF, 1995 and DWAF and DoA, 1996) that in view of the huge cost of irrigation development, underutilised or unutilised schemes should be restored and upgraded is sensible. It is important, however, that the restoration and upgrading of derelict or underutilised schemes should be based on a clear and detailed understanding of the histories and production dynamics of these schemes. Restoration and redevelopment should not be based on the simple assumption that failure can always be attributed to a common set of factors.

Urban and Peri-urban Agriculture

There is growing consensus that the development of urban and peri-urban agriculture could offer substantial livelihoods opportunities. The White Paper on South African Land Policy (1997) makes provision for grants to local authorities for the acquisition or extension of commonage for allotments, community gardens, or grazing. Gardens and allotments will need to be irrigated if production is to be sustainable. Support and possibly grant financing for irrigation development could be provided through the provincial Departments of Agriculture.⁹ The constraints to the development of urban and peri-urban agriculture do not derive from the national land and agriculture policy frameworks. Constraints derive from traditional land use planning and urban management practices which have not accommodated urban and peri-urban agricultural production. Land has not been set aside for agricultural purposes. Policy parameters to facilitate the development of irrigated urban and peri-urban agriculture need to be formulated. Policy formulation should be based on clear identification of legal, institutional and economic constraints, and should make recommendations about how such constraints could be addressed.

⁹ Grant funding for small farming development is presently available within the former Bantustan areas. The purpose of the grant funding is to assist 'emerging farmers' and small food producers to develop and/or to improve their production efficiency. Two main types of project are identified. First, there are projects which are oriented to economic growth, and which aim for higher efficiency. Secondly, there are projects aimed at empowering the poorest of the poor. The latter have a food security orientation, they usually involve low input low output production systems, and they do not generate much surplus. There seems to be no reason why such grant funding should not be made available in urban and peri-urban contexts (Department of Agriculture (n.d.)).

Community Gardens in Former Homeland Contexts

Although the community garden experience in former Bantustan areas has been mixed and somewhat ambiguous, partly due to poor support and impossible logistics, there is every reason to continue the implementation of garden projects in these contexts. There is a wealth of community experience and knowledge which can be drawn on. The lessons which local people have learned from previous experience need to be respected. In several new gardens in KwaZulu-Natal, for instance, garden groups are choosing to work the land and manage production communally. This choice is based on negative past experiences of gardens organised into individual household plots. If gardens are divided into individual plots (Departments of Agriculture have tended to assume that this is what people want), some plots will inevitably be under-utilised. Transport and marketing are difficult to organise on an individual basis. A communal effort is perceived as a way of overcoming these problems (Vaughan, 1997). Communal arrangements are, however, by no means a universal choice. Many garden participants prefer to hold individual plots.

Water Resource Development Programmes and Projects

There appears to be little experience in South Africa of water resource development programmes and projects designed to accommodate domestic water needs as well as meeting needs for small scale agriculture. Water projects in the semi-arid areas of the former Bantustans have focussed exclusively on domestic supply. However, there is considerable experience of successful water resource development programmes and projects which meet domestic and agricultural needs in the semi-arid areas of Zimbabwe. Conditions in these areas are somewhat similar to those in Northern Province and parts of Mpumalanga. The water resource development projects in Zimbabwe are based on collector wells (boreholes with laterals) which have the capacity to generate a secure water supply well beyond what is required for domestic use. Water can be used for gardens and allotments and for small business ventures (like brick and block-making) which require a sustainable source of water. There is potential for replication of such programmes and projects in the semi-arid areas of South African where geological conditions are favourable (Batchelor, C., Pollett, E. A. Robins, N. And Vaughan, A., 1996).¹⁰

New Small Scale irrigation Development

The development of new small scale irrigation areas is more costly than the strategies for poverty alleviation already discussed. However, there are some areas (the Makhathini Flats, for instance) where there is enormous potential, and where new irrigation initiatives could have very significant developmental impacts. Sugar and high value crops might be appropriate crop choices. The development of the Makhathini Flats is being considered in the context of the Lubombo Spatial Development Initiative.

¹⁰ Ground water should be available at about thirty metres.

The inclusion of irrigated food plots should be seriously considered in the context of future commercially oriented small holder irrigation development.

CONCLUSION

Irrigation development, historically a mechanism for the realisation of the political and economic agendas of the apartheid state, offers a range of possibilities for poverty alleviation. The budgetary implications of many of the options are modest. A new institutional framework for water management and allocation will facilitate irrigation development through creating spaces for the representation and self-development of small scale irrigators. What is required are clear policy principles and relevant information to guide provincial Departments of Agriculture and local authorities. The rather wishy-washy discussion documents which have been produced so far represent little more than a very preliminary move towards policy formulation. As a parallel process to irrigation policy formulation, the existing constraints on urban and peri-urban irrigation development need to be investigated.

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