

Staff Paper

Reflections on Agrarian Reform and
Capacity Building in South Africa

Carl K. Eicher and Mandivamba Rukuni

Staff Paper No. 96-3

January 1996



Department of Agricultural Economics
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48824

MSU is an Affirmative Action/Equal Opportunity Institution

Reflections on Agrarian Reform and Capacity Building in South Africa

Carl K. Eicher and Mandivamba Rukuni
ceicher@msu.edu or mrukuni@esanet.zw

Abstract or Summary
number of pages: 56

Reflections on Agrarian Reform and Capacity Building in South Africa

by

Carl K. Eicher* and Mandivamba Rukuni**

EXECUTIVE SUMMARY

- I. BACKGROUND
 - II. RURAL POVERTY AND THE URBAN CRISIS
 - III. THE ANC ON AGRICULTURE AND RURAL ECONOMIC DEVELOPMENT
 - IV. REDISTRIBUTING LAND
 - V. REFORMING RURAL INSTITUTIONS
 - VI. BUILDING CAPACITY
 - VII. POLICY IMPLICATIONS
 - VIII. CONCLUSIONS
- REFERENCES

*University Distinguished Professor, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan (e-mail address: ceicher@msu.edu).

**Professor, Department of Agricultural Economics and Extension, University of Zimbabwe, Harare, Zimbabwe (e-mail address: rukuni@pilot.msu.edu).

Executive Summary

The challenges facing the coalition government in the new South Africa are stark. The goals of reducing poverty, hunger and inequality are spelled out in an ANC report which is commonly referred to as the RDP, The Reconstruction and Development Program. The RDP has become the policy cornerstone of the new government. Virtually every public agency is reevaluating its goals, redefining its mission, developing a strategy to contribute to the RDP, and figuring out how South Africa can contribute to the development of Southern Africa. However, it is important at this juncture to ask a critical question: Why are agriculture and rural economic development on the periphery rather than in the mainstream of the RDP's strategy?

The purpose of this paper is to contribute to the debate on the role of agriculture and rural economic development in the new South Africa, raise questions about agriculture's ambiguous role in ANC policy and the RDP and draw insights from the development experience of other nations. Today roughly a quarter of South Africa's population, depend on agriculture and related enterprises for their livelihood. However, some 60,000 commercial farmers currently control around 86 percent of the land, while an estimated 1.25 million subsistence farms control 14 percent.

Under the leadership of President Mandela, South Africa enjoys a unique window of opportunity to tackle both agrarian transformation and rural development. However, the political, bureaucratic, and technological resources of South Africa are biased in favor of social services, industrialization and maintaining large scale commercial (first world) agriculture. The ANC does not appear to be using its political muscle to tackle the dual problems of agrarian transformation and rural development. Likewise, many donors are downplaying the need to invest in agriculture and rural development because South Africa has a reliable food surplus from commercial farms and agriculture contributes only 5 percent of the national GDP. But in reality, donors are overlooking the politically explosive connection between rural poverty, the rural exodus, urban unemployment, squatter camps and their attendant social ills. There is a compelling political, social and economic case for investing in agrarian reform and broad-based rural development.

The RDP is sidestepping one of South Africa's most fundamental questions: How to mobilize the political, financial and bureaucratic resources to implement agrarian reform, reduce rural poverty and empower rural people to improve their lives and their communities? Finding an answer to this burning question is of great social and political importance to South Africa's future because of the symbiotic relationship between rural poverty, migration, urban unemployment and crime. The underlying cause of rural to urban migration is the premature mechanization of commercial farms, and the destruction of black agriculture. The bottom line is that South Africa's urban crisis must be tackled simultaneously in rural and urban areas.

The thesis of this paper is that the RDP strategy of giving priority to urban housing, schooling, industrialization and market-driven land redistribution is likely to turn out to be another false start in Africa. The harsh historical reality is that rural poverty cannot be solved after the rural poor join the ranks of the unemployed in the cities. The RDP strategy of focusing on urban housing, schooling and industrialization is preoccupied with the

symptoms rather than the causes of rural underdevelopment and the urban crisis. But South Africa's dilemma is not unique. The dual agrarian societies of South Africa, Namibia and Zimbabwe are prisoners of a chronic failure to tackle poverty in rural areas before it led to migration and the social costs of urban unemployment. The failure to move aggressively on land redistribution, rural economic development and the food insecurity of the poor has plagued Latin America for centuries. The failure to address inequality contributed to the recent coup d'états in Ethiopia and Liberia. Zimbabwe's failure to address the land question and rural poverty is now exerting pressure on President Mugabe to "deliver land to the people." The land question may turn out to haunt the new South Africa well into the 21st century.

South Africa is in need of a bold agricultural and rural economic development strategy that focuses on helping semi-subsistence families become smallholder farmers who are able to utilize most of their family labor in farming, produce a reliable agricultural surplus for the market and are profitable on a recurring basis. But in land scarce and labor abundant South Africa, land redistribution to smallholders cannot put all of the underemployed to work. Therefore the smallholder initiative should be coupled with a massive bottom-up rural employment program to put people to work and increase rural production across the board. Increased rural production is essential for combating rural poverty and underemployment, household food insecurity and moderating the flow of migrants to urban areas.

The paper argues that the ANC needs a new development vision which broadens and refocuses the RDP on both the immediate and long run problems of land redistribution, smallholder farming, and rural economic development programs. This new development vision should be grounded in a spatial framework which integrates rural growth points with market towns and the expansion of secondary cities. These measures are needed to take the pressure off South Africa's three major urban centers.

Experience has shown that implementation of development programs is far more complex than the preparation of White Papers and Development Plans. In the case of the RDP, there appears to be a gap between the ANC's intellectual commitment to land redistribution and its political power to implement a land reform program and restructure farmer support services. For example, the separation of the Ministries of Lands and Agriculture weakens the government's operational capacity for agrarian reform. The new Ministry of Land Affairs is currently headed by an ANC minister but the absence of strong provincial land offices will make it difficult to implement land reform. Also, the implementation of land reform and the restructuring of farmer support services will require substantial assistance and cooperation from the Ministry of Agriculture. However, the National Minister of Agriculture and five of the nine provincial Ministers of Agriculture are members of the National Party headed by F.W. de Klerk. The bottom line is that the ANC has limited political power to implement significant agricultural reform programs under the current political and organizational structure. Therefore, one can legitimately pose the following question: Why break up large scale farms in South Africa if smallholders are not adequately supported by efficient public and private farmer support services?

Four issues merit further study and debate:

1. Refocusing the RDP on the symbiotic relationship between rural poverty and the urban crisis.
2. How to simultaneously redistribute land and improve public and private support services for smallholders?
3. How to transform provincial governments from control agencies into entrepreneurial development agencies which facilitate bottom-up rural economic development initiatives and generate tens of thousands of jobs in rural areas?
4. How to develop black managerial and scientific capacity for the 21st century?

The challenge ahead for the ANC is to develop a unified strategy to tackle rural poverty, and the urban crisis. These are both immediate and long term problems that require political leadership and resolve. Redistributing land, reforming rural institutions, promoting rural economic development and building black scientific and managerial capacity are tasks for the coming 25 to 50 years.

I. BACKGROUND¹

The challenges facing the coalition government in the new South Africa are stark and clear. The goals of reducing poverty, hunger and inequality are spelled out in an ANC report which is commonly referred to as the RDP, The Reconstruction and Development Program (ANC, 1994). This ANC manifesto commands the same degree of attention as Tanzania's Arusha Declaration attracted in the late sixties and the seventies. Virtually every public agency is reevaluating its goals, redefining its mission, developing a strategy to contribute to the RDP, and figuring out how South Africa can contribute to the development of Southern Africa.² But goal setting is an easy task. The difficult task is implementing the RDP. It will take political courage, favorable macroeconomic policies, and enormous financial and human resources to achieve the RDP goals of reducing hunger, poverty and inequality.

Without question, South Africa has made considerable progress since April of 1994 in laying the foundation for a democratic society. Much has been accomplished over the past two years. But much remains to be done by South Africans themselves before foreign academics and donors can assist in this historic journey. Visiting scholars can contribute to this journey if they understand the complexity of agrarian reform and the difficulties in building black scientific and managerial capacity in post-apartheid South Africa.³ The purpose of this paper is to contribute to the debate on the role of agriculture and rural economic development in the new South Africa, raise questions about agriculture's ambiguous role in the ANC and the RDP and draw some insights from the development experience of other nations. This paper is based on discussions with many scholars over the past few years and a visit to South Africa in early 1995.⁴ We are aware that the tone of this paper may appear to be overly pessimistic because we have drawn on legislation and documents published through mid 1995. Therefore, we may have failed to give adequate credit to steps that are being taken by the coalition government to address agrarian reform and the rural crisis. A

¹We are grateful to the Rockefeller Foundation for financial assistance for the preparation of this paper.

²In 1993, South Africa's Gross Domestic Product (GDP) was four times larger than the rest of the Southern African region combined. South Africa's GDP of \$105 billion is roughly 21 times larger than that of Zimbabwe's \$5 billion (World Bank, 1995, pp. 166-67).

³Throughout this paper the term black refers to South Africans of black, colored and Indian origins.

⁴We visited numerous government agencies and the following universities: 1) University of Capetown; 2) University of Durban/Westville; 3) University of Fort Hare; 4) University of Natal, Pietersmaritzburg; 5) University of the North; 6) University of Pretoria; 7) University of Stellenbosch; and 8) University of Witswatersrand.

number of our concerns about the RDP were raised several years ago in an excellent article by Von Rooyen, Ngquangweni and Njobe (1994).

The reader will quickly discover that we have not confined ourselves to a conventional economic analysis of South African development. We drew inspiration from a controversial book - Growth Without Development: An Economic Survey of Liberia that was published 30 years ago by a team of American economists headed by Robert Clower. The American economists studied Liberia's highly inegalitarian society of the sixties and concluded that

“...we could not absolve ourselves from considering political and social matters on the grounds that we are economists and that the political and social arrangements of Liberia are therefore not our business. Economic development is our business and political and social reform are the most important of all ‘preconditions’ for development” (Clower, et al, 1966, p. 14).

The foresight of this 1966 publication is noteworthy, especially in light of the tragic events that have transpired in Liberia over the past 15 years. Since the “business” of the RDP is economic development for all the people of the new South Africa, we have devoted considerable attention to viewing development and the agrarian question in South Africa through the lenses of history, politics, science and technology and our narrow discipline of economics.⁵

The thesis of this paper is that the RDP strategy may turn out to be a false start for the new South Africa. In 1962, two years after seventeen African nations won their independence, René Dumont published a controversial book, False Start in Africa⁶ which criticized new nations for promoting instant industrialization, large scale farms and plantations and expanding social services. There are striking parallels between the development strategy of many new nations in the sixties and South Africa's RDP of the nineties. The RDP's emphasis on social services, housing, industrialization, maintaining commercial farms and moving cautiously on land redistribution is a politically attractive short run strategy because it will help maintain national food security and garner votes for the 1999 national election. But we contend in this paper that the RDP represents a high risk strategy because, in the long run, it may not generate a high enough economic growth rate and sufficient rural jobs to moderate rural to urban migration and maintain social and political stability. The urban bias of the ANC is captured in the goal of building one million houses over the coming five years. But improving urban housing is dealing with the symptoms of the problem. The underlying cause

⁵For a trenchant critique of the narrowing of the discipline of economics over the past 25 years see Robert Heilbroner and William Milberg, The Crisis of Vision in Modern Economic Thought (New York: Cambridge University Press, 1996).

⁶Dumont, Rene, 1966. False Start in Africa. New York: Praeger. The original French version of False Start was published in 1962.

of rural to urban migration is the premature mechanization of commercial farms, and the destruction of black agriculture. In short there is a painful nexus between South Africa's rural poverty and its urban crisis. The RDP's strategy is dealing with the symptoms rather than the causes of the urban crisis of crime and social unrest.

We further contend that the ANC needs a new development vision which broadens and refocuses the RDP on both the immediate and long run problems of land redistribution, smallholder farming, rural economic development programs and building a string of secondary cities, market towns, and rural growth points. But investing in rural economic development programs and secondary cities cannot be captured in a narrow cost-benefit framework. A new development vision must be grounded in a spatial framework which is conspicuously absent from the RDP (Hart, 1995). But the ANC is not alone in neglecting these issues. There is "almost no spatial analysis in mainstream economics" and there is little communication between scholars in economic geography (the study of location activity) and development economics (Krugman, 1995, p.33).

In the course of our travel and discussions with several hundred people in South Africa in early 1995, we were impressed with the momentum since the dawn of democracy, the widespread admiration for President Mandela and the genius of the ANC in mobilizing support for the RDP. Nevertheless, it is disquieting to note the lack of a central role for broad-based agricultural development and rural economic development in the RDP. The RDP's diffident position on small-scale family farms and rural economic development appears to be a reflection of the powerful role of the trade unions in the ANC, the influence of the urban-industrial complex and the political muscle of the 60,000 commercial farmers who control 86 percent of all of the land in South Africa (RDP, 1994c, p. 102). The 1.25 million subsistence farmers have 14 percent of the land. Also, subsistence farmers are poorly organized and they lack political resources to influence the priorities of agricultural support organizations such as the extension service, Agricultural Research Council and the Development Bank of Southern Africa. This sharp disparity in land and power poses a central development question: how can the RDP be refocused to give immediate and long run attention to land redistribution, rural economic development and slowing the explosive rate of rural to urban migration? To achieve these goals, the ANC must broaden its urban-industrial-centric vision of development to ensure that the economic interests of subsistence farmers and the rural poor are articulated in the political process and translated into policies and programs that assist in developing a dynamic smallholder agriculture and improving the everyday life of rural people.

II. RURAL POVERTY AND THE URBAN CRISIS

During our travel and discussions in South Africa, we noted that many white agriculturalists spoke with pride about their role in helping develop a dynamic commercial farming sector which they described as being on a par with first world agriculture. Several agriculturalists pointed out that South Africa's 60,000 commercial farms have the capacity to produce a national food surplus, year after year, except during periods of exceptional drought. Others expressed the view that commercial farming was a proven model of achieving national food security goals. Finally, we were repeatedly told that a development strategy based on industrialization and commercial farms would eventually achieve both economic growth and the reduction of rural and urban poverty. There was little discussion about the symbiotic relationship between the choice of an agricultural strategy, rural poverty and social and political stability of a nation.

A recent study reveals many shortcomings of the large scale farm model in South Africa and Latin America and the urban, social and political consequences of failing to address land reform and rural economic development. A World Bank economist, Hans Binswanger, recently examined large scale farming experiences in four countries (South Africa, Brazil, Colombia and Guatemala) where most of the public sector support has been channeled to large scale farms by subsidizing farm credit, mechanization, infrastructure development without cost recovery, and marketing assistance via parastatals or statutory monopoly rights (Binswanger, 1994, pp. 169-170). Binswanger reports that the results of subsidizing and protecting large scale, capital intensive farming in these four nations are:

- * The fiscal burden of supporting the technologically sophisticated but economically inefficient large scale farming sectors, has proven to be unsustainable in each of the four countries.
- * Subsidized farm mechanization contributed to the "premature" expulsion of labor from agriculture.
- * Rural labor has been largely excluded from participation in the modernization process and converted to slum dwellers in rural towns and cities.
- * The promised elimination of rural poverty via migration to the cities has not materialized. These countries currently have two to three times as many rural poor as in 1950.
- * Smallholders who were unable to gain access to land via purchase, rental or land reform turned to environmentally destructive cultivation of very marginal land, to petty production and trading activities and to crime.

Binswanger's commentary on the technical efficiency and economic inefficiency of large scale farming has been reinforced with an impressive array of studies by South African scholars who have documented the economic, political and social reasons for land redistribution to small-scale farms through market-assisted land reforms. We encountered a number of white agriculturalists in South Africa who were skeptical and, in some cases, dismissive about the ability

of the smallholder development model to generate a reliable food surplus, expand employment and distribute income broadly in rural areas. Some agriculturalists painted a negative picture of smallholder agriculture in Africa by pointing to famine in Ethiopia, Rwanda and Somalia and Africa's increasing dependency on food aid. Several agriculturalists informed us that Asia's Green Revolution experience simply was not relevant to South Africa.

Although there is an abundance of pessimism in South Africa about the smallholder model of agricultural development, one can legitimately pose the following question: why has China's smallholder model generated the fastest rate of agricultural growth of any country in the world over the 1980-93 period.? China's success has been achieved on small farms averaging one-half hectare in size. The annual average rate of agricultural growth in China and South Africa over the 1980-93 period was 5.3 percent in China and 1.8 percent in South Africa.⁷ Why is the agricultural growth rate of South Africa's commercial farm model only one-third of that of China? A comparison between the former Soviet Union and China is also revealing. The Soviet Union gave priority to industry and used state farms and collectives as a convenient vehicle to collect the agricultural surplus to finance rapid industrialization. After seventy years of milking agriculture, Gorbachev abandoned large scale farms in 1989 and threw his support behind the family farm. By contrast China has "walked on two legs," developed both industry and agriculture, and achieved high rates of growth of both agriculture and industry.

The experience of two oil exporting agrarian countries, Indonesia and Nigeria, is also striking. In 1968 Indonesia's President declared national food self-sufficiency as the overarching political goal and after a long march of 17 years, Indonesia's small-scale farms achieved national rice self-sufficiency in 1985. During the same time period Nigeria literally abandoned its dynamic smallholder sector, substituted petroleum for agricultural exports and used its foreign exchange to pay for food imports and machinery and equipment for industrial plants. Today Nigeria has a high cost industrial structure and a low productivity agriculture.

The success of the Green Revolution in China, Malaysia and Indonesia demonstrates how a low productivity agriculture can be transformed into a highly productive sector within a generation. Asia's experience documents the powerful role of tiny farms (1 ha) in boosting farm productivity, contributing to food security, generating jobs and income and providing a market for a growing industrial sector (Timmer, 1994).

⁷China's agricultural growth rate is the highest among 90 low and middle income countries with the exception of Guinea-Bissau, a country of one million people and questionable data on agricultural production (World Bank, 1995, pp. 164-165).

South Africa's RDP stresses the need to redistribute land and reduce rural poverty, malnutrition and household food insecurity. The 1995 White Paper on Agriculture reiterates the goals of the RDP, spells out the new mission of the Department of Agriculture, identifies the policy principles (strategies) and appends a list of legislation guiding the national and provincial departments of agriculture. The provincial departments are preparing White Papers, amending existing legislation and establishing new legislation and programs as deemed necessary.

But the coalition government and donors are giving modest attention to the implementation of agricultural reform and rural transformation. This lack of attention to agricultural reform appears to be based on the belief that agriculture is unimportant at this stage of South Africa's development because agriculture only contributes 5% to South Africa's GDP. But focusing on this simple statistic glosses over the social consequences of a failed agricultural policy. It is a well known historical fact that if agricultural growth is generated by a minority of commercial farmers and plantations, the benefits of this growth will not be broadly distributed throughout the countryside and the employment generation potential of agriculture will be thwarted.

To be sure, South Africa and virtually every industrial country can point with pride to the fact that agriculture has been a declining sector (in terms of the percent of labor force and source of GDP) as economic growth has occurred. This is a desirable and necessary part of the long run process of agricultural transformation. But the long run decline of the agricultural sector is not a reliable guide to short run policy priorities for a nation that has promoted the premature mechanization of large scale farms.

In South Africa, rural poverty and the urban crisis are basically two sides of the same coin. But South Africa's urban crisis cannot be solved by improving housing and social services. In fact, improved urban social services may increase the flow of rural to urban migrants. Likewise, rural poverty cannot be solved after the rural poor end up in urban squatter camps. Short run investments are urgently needed in rural areas to promote smallholder farming, rural economic development, job creation in rural communities and to slow down the flow of migrants to urban centers.

To summarize, agriculture and rural economic development are being sold short in South Africa both on the part of the ANC-led government and by donors.⁸ To be sure, agricultural development is viewed in the RDP as a

⁸In the 1960s two US foundations (Ford and Rockefeller) and USAID played a major role in underwriting joint Indian-US study teams, and in helping to set up new institutions in India to undergird the Green Revolution. But in South Africa today, USAID is playing a marginal and indirect role in agriculture (mainly under scholarship and sustainable development programs). The Ford and Kellogg Foundations are

means of addressing one of the five roles - food security - in the development process. The scope of the food-centered RDP and the White Paper on Agriculture should be broadened to encompass the other roles of agriculture in the development process:

1. providing food for domestic consumption and food security
2. generating foreign exchange through agricultural exports
3. providing meaningful employment in rural areas until rising industrial wages induce rural to urban migration
4. enlarging the market for industrial products and
5. increasing the supply of domestic savings.

South Africa urgently needs a new agricultural and rural development strategy that integrates land redistribution with improved support services for small-scale farms and vigorous rural economic development programs to improve rural living conditions and break the cycle of rural poverty, migration and urban squatter camps. The preparation of an agricultural and rural development strategy is basically a pragmatic process of piecing together policies, programs and projects to address four core issues:

- * Implementing land reform, strengthening local governments and empowering rural people.
- * Restructuring institutions and developing technology to support smallholders and rural economic development programs.
- * Developing a black human capital base to address the scientific, technological and managerial problems facing farmers and rural communities in the 21st century.
- * Developing rural industries, rural growth points and secondary cities in order to soak up surplus rural labor and slow down out-migration to major cities.

III. THE ANC ON AGRICULTURE AND RURAL ECONOMIC DEVELOPMENT

Agriculture is in “limbo” in the ANC and the RDP. This ambiguity over the role of agriculture at this stage of South Africa’s economic history will delay the implementation of the RDP and heighten the possibility that the

supporting the agricultural sector in South Africa. The Ford program is superbly managed by a veteran Africanist, Dr. John Gerhart. However, the annual budget of the Ford Foundation in South Africa is woefully inadequate (US \$5 million per year) for the tasks at hand. The Ford Foundation has made small grants in agriculture and rural development to the following institutions: University of Natal, University of Pretoria, University of Fort Hare, and University of Western Cape (Gerhart, 1995).

ANC will be unable to translate its intellectual vision of equality into feasible programs to reduce rural poverty and urban squalor. The ANC should reassess its position on agriculture because the global experience shows that smallholder farming can be made profitable, it can generate rural employment and growth linkages, it can moderate the rural exodus, and it can enlarge the market for industrial goods. But if the ANC decides to promote smallholder agriculture and rural economic development, then it needs to address the ambiguous position of agriculture in the political arena (Weiner and Levin, 1995). Presently the Minister of Agriculture and five of the nine provincial ministers of agriculture (MECs) are controlled by the National Party of F.W. de Klerk. The ANC has control over the Ministry of Land Affairs but it has little capacity at the provincial level to implement agrarian reform. Presently agriculture's share of the RDP budget is only three percent.⁹ There is an urgent need for the ANC to re-examine the priority that it is giving to agriculture and rural economic development.

IV. REDISTRIBUTING LAND

Social scientists in various universities, government agencies and think tanks in South Africa have carried out extensive studies of large scale farming, land tenure, marketing, and agricultural pricing.¹⁰ These include the influential studies by the Land and Agriculture Policy Centre (LAPC); the Development Bank of Southern Africa (DBSA); Mike de Klerk, University of Capetown; Professor Van Zyl and his colleagues at the University of Pretoria on agricultural pricing policy, land markets and the efficiency and equity dimensions of large scale farms; Professor Nieuwoudt and his colleagues at the University of Natal on agricultural policy, and land tenure; Professors Kassier and Eckert at the University of Stellenbosch on agricultural marketing and land reform; and the research by Charles Machethe, Andre deVilliers and Mulugetta Mekuria at the University of the North.¹¹ The information base generated by this research has contributed to several important changes in government agricultural policy in South Africa over the past decade, including the reduction of subsidies to commercial farmers and state marketing boards. This

⁹Less than three percent of the total proposed RDP funding is targeted for land and agrarian reform initiatives (Weiner and Levin, 1995, p. 20; Levin and Weiner, 1995).

¹⁰See Vink (1993) for a survey of the evolution of South Africa's agricultural policy.

¹¹See de Klerk, 1991; de Villiers, 1994; Eckert, 1994; LAPC, 1995; Lyne and Ortmann, 1991; Machethe, 1992, 1995 Nieuwoudt, 1993; Van Zyl and Groenwald, 1988; Van Zyl and Coetzee, 1990; Van Zyl *et. al*, 1990; and Levin and Weiner, 1995.

information base has contributed to a general consensus on the need for a market-based land redistribution strategy. In 1993 two World Bank economists called for a rapid and large scale land reform program in South Africa (Binswanger and Deininger, 1993). However, South Africa is moving very cautiously with a land redistribution program. The Department of Land Affairs has mapped out a modest land redistribution support program in seven rural communities which have acquired land through financial support from the Department of Land Affairs (South Africa, 1994b).

The experience of Latin America and Zimbabwe adds perspective to the common gap between policy pronouncements and action on land reform. Although land reform was born in the Mexican Revolution of 1910, and the new constitution of 1917, major land redistribution did not begin until the 1930s because of fragmented political parties and the lack of strong national leadership. In the 1930s, eighteen million hectares of land were redistributed followed by a lapse of two decades. A further 25 million hectares were distributed in the 1960s but only 10 percent of the latter was arable land (Dorner, 1992). The Director of the University of Wisconsin's Land Tenure Center recently summarized the land reform experience of six Latin American countries as a string of "broken promises" because most campesinos (peasants) never received any land and most of those who received land were unable to gain access to farm inputs to farm efficiently (Thiesenhusen, 1995).

Zimbabwe's post independence experience is a rerun of Latin America's roller-coaster ride in implementing land redistribution programs. At independence in 1980, Zimbabwe had a dual agrarian structure with half the land controlled by 5,000 commercial farmers and the other half by 600,000 communal (subsistence) households. In 1981 a Ministry of Lands, Settlement and Rural Development was established to implement a new land settlement program (Rukuni, 1994).¹² But political support for land reform wavered in the mid 1980s as overflowing maize silos prompted the government to encourage commercial farms to reduce maize production and pursue agricultural diversification for export markets.

After 15 years of independence, Zimbabwe's highly unequal agrarian structure is composed of roughly 4,400 commercial farmers and approximately one million communal (i.e., subsistence) households. A small amount of land changed hands from 1980 to 1990 under Zimbabwe's market-based strategy of land redistribution (on a willing buyer

¹²Zimbabwe resettlement program settled roughly 52,000 families from 1982-90 which is short of its original goal of settling 162,000 families in three years, 1982-85. Nevertheless, Zimbabwe's experience represents an impressive achievement as compared with the settlement experience of many countries in Latin America and Africa.

- willing seller basis) that was agreed upon in the independence settlement of 1979. Zimbabwe's slow pace of land transfer from 1980 to 1990 explains why pressure mounted in the early nineties for renewed action on the land question. In 1993, President Mugabe appointed a twelve member Land Tenure Commission to investigate the land question and make recommendations to the government. The Commission, under the chairmanship of Mandivamba Rukuni, submitted its findings to President Mugabe and the Parliament (Rukuni, 1994). The government responded by setting up a new Ministry of Lands and Water Resources in mid 1995. Zimbabwe's cautious approach to land reform appears to be what South Africa and Namibia have opted for (Moyo, 1995, p. 277). Land redistribution in Zimbabwe and South Africa could drag on for decades as it has done in Mexico and throughout Latin America.

However, an effective land reform program is broader than just increasing access to land. An effective land reform must ensure that smallholders and the landless gain access to land, farmer support services and reliable markets to ensure that smallholder farming can be made profitable on a recurring basis. Without doubt, South Africa's basic farmer support institutions are geared to commercial agriculture. South Africa urgently needs to restructure its institutions to support smallholder development (Corbett and Coulter, 1995).

But restructuring institutions is a complex task and the limited success of neighboring countries in this regard should be duly noted. For example, in Zimbabwe the impressive gains in smallholder maize and cotton in the eighties are now being undermined by the erosion of farmer support organizations. Zimbabwe's government credit program is currently reaching less than three percent of its 1,000,000 communal households (Chimedza, 1994; Mabeza-Chimedza, 1995). The budget for Zimbabwe's public agricultural research system was quietly slashed by 25 percent in real (inflation adjusted) terms from 1980 to 1990 (Kupfuma, 1994, p. 83). The University of Zimbabwe is facing severe financial constraints as it tries to develop its post graduate training programs in agriculture and natural resources.¹³ The bottom line is that Zimbabwe's basic agricultural institutions are not receiving the level of political and financial support that is required to implement and sustain a smallholder road to development (ARC, 1995b). After 15 years of independence, Zimbabwe's experience reveals that land redistribution by itself will be ineffective unless it is accompanied by political support to craft, finance and sustain a system of development institutions to support broad-based agricultural and rural economic development. These institutional issues represent the second puzzle to which we shall now turn our attention.

¹³The vacancy rate for academic staff at the University of Zimbabwe was 31% in 1995 (Hawkins, 1995, p. 49).

V. REFORMING RURAL INSTITUTIONS

The second rural development puzzle begins with the proposition that the outcome of the RDP will be greatly influenced by South Africa's ability to craft a new set of institutional arrangements that can help empower local government, advance self-reliance and increase the productivity of small scale farms and microenterprises and the rate of growth of the rural economy. However, there is no blueprint for solving this institutional puzzle. A new set of decentralized institutional arrangements to support rural economic development will have to be pragmatically assembled on a piecemeal basis over a period of many years.

Presently, the agricultural sector in South Africa is supported by a cluster of highly centralized institutions. Moreover, agriculture's status in the interim constitution is ambiguous. Section 6 of the interim constitution states that "agriculture is a provincial function." The 1995 White Paper on Agriculture notes that, "agriculture cannot be divided into separate national and provincial departments" (South Africa, 1995, p.v). There is a danger that the RDP will perpetuate the power of the center and create a new bureaucracy - the RDP Bureaucracy. A new monthly publication from Johannesburg, The RDP Monitor reports that

"the RDP requirements for detailed business plans, for the reorganization of laws and regulations, for the rationalization of all the former provincial and "homeland" systems for the development of new policies, are all rational and in line with the government of national unity's stress on fiscal discipline...However, if local authorities take as long as central government in getting off the ground, the country could be facing difficult times. What is emerging is that the RDP bureaucracy itself may be an obstacle to the RDP. A new bureaucracy is emerging, as inaccessible as the old."(The RDP Monitor, 1995, p. 2)

In short, the emerging RDP bureaucracy may be unwittingly undermining the bottom-up rural empowerment ethic of the RDP.

South Africa is now restructuring its system of government from four provinces and ten former "homelands" into a system of nine provinces. Provincial departments of agriculture are charged with creating an enabling environment and providing some farmer support services (especially extension) for private farms. However, it will take time to develop effective provincial agricultural capacity because many of the new provincial departments have acquired thousands of extension agents and government officers from the former homeland departments of agriculture and development corporations. The challenge is to create a unified extension service, upgrade extension field staff and develop applied research and extension linkages to meet the needs of subsistence farmers.

Despite early discussions about abolishing some of South Africa's basic development institutions (e.g., Development Bank of Southern Africa), the pressure for radical institutional reform has abated. South Africa's

cautious approach to reforming institutions illustrates the power of old line national ministries and statutory corporations based in Pretoria. The following examples illustrate this point:

- * The Department of Agriculture in Pretoria has a well-entrenched agricultural bureaucracy. The White Paper on Agriculture reports that the Department is trying to restructure itself to give greater priority to meeting the needs of the subsistence farmers. Agriculture is now a provincial activity under the interim constitution, but the respective roles of the national and provincial departments of agriculture are ambiguous.
- * The Agricultural Research Council (ARC) is the principal agricultural research organization in South Africa. The ARC was established as an independent statutory body under the Agricultural Research Act of 1990. In 1992, the ARC took over the Department of Agriculture's research institutes. ARC's budget was \$US66 million in 1993. The ARC had three black officers among its 700 professional staff members in 1994 (Corbett, *et al*, 1994, p. 10). The ARC is developing a strategy to meet the research needs of small-scale farms but it reports that it needs external funding for this activity (ARC, 1994, p. 8).
- * Since the mid eighties the Development Bank of Southern Africa (DBSA) has provided farmer support services to some 55,000 people in the former homeland areas. However, the activities of the Bank were constrained by apartheid policies which undermined the viability of small scale black agriculture. The DBSA is now trying to develop a new mission consistent with the guidelines of RDP.
- * Advanced agricultural training is carried out in Faculties and Departments of Agriculture in nine of the twenty-one universities in South Africa. All universities are responsible to the national department of education. Creative thinking is going to be required about how to develop working partnerships between Faculties of Agriculture and national and provincial departments of agriculture and statutory corporations such as the Agricultural Research Council. The ability to develop partnerships across separately governed institutions will depend greatly upon building trust, the "glue" that binds the vast array of institutions between the family and the state (Fukuyama, 1995). Since trust has been an ingredient in short supply it will take time to develop a shared vision, trust and new modes of cooperation between universities, NGOs and government agencies.

Currently, South Africa's core agricultural institutions are scrambling to reinvent themselves consistent within the guidelines of the RDP. Some institutions are searching for foreign aid to help implement affirmative action programs instead of reordering priorities and making the hard choices involved in financing affirmative action from a reallocation of internal resources. The challenge during this pre-RDP period is to create a climate of debate on the following strategic question: How can South Africa develop a system of national, provincial and local government institutions that communicate, interact and cooperate in helping implement a new agricultural and rural economic development strategy that is guided by the goals and vision of the RDP and tempered by an understanding of the political courage, commitment and time that it has taken Asia to develop a dynamic smallholder agriculture.

To address this question, the Department of Agriculture in Pretoria recently established a new program called BATAT (Broadening Access to Agriculture Thrust). Basically, BATAT is an RDP strategy to broaden access to

agricultural services (credit, research, extension) for farmers who lacked services in the past. BATAT staff members will work closely with provincial governments to facilitate the establishment of provincial programs and projects for resource-poor farmers.¹⁴ The provinces will be responsible for implementing BATAT programs. It is unclear whether the BATAT program will receive the level of political support that it requires to enable it to succeed. Although there are many coordination problems to be resolved in shaping BATAT's program of work, the central issues are political and bureaucratic.¹⁵

Debate is needed on the process of strengthening the capacity of local governments and empowering local people to develop farmer associations to ensure that the economic interests of the rural majority are articulated in the political process. Debate is also needed on how to restructure the basic agricultural institutions to support a more broad-based agrarian structure. These issues can only be resolved through debate, consultation and the pragmatic assembly of a system of institutions to facilitate smallholder production and rural economic development programs.

The debate on appropriate institutions should focus on developing a system of public and private institutions to support broad-based agricultural and rural development that is linked to the political process at local, provincial and national levels.¹⁶ These institutions include:

- * national-provincial departments of agriculture that enforce rules and regulations to guide market-driven development.
- * public and private research organizations that borrow, develop and adapt new technology for different ecosystems and diffuse it to farmers.
- * private sector markets and firms that provide inputs to farmers and markets for farm products.

¹⁴The BATAT Secretariat in the Department of Agriculture in Pretoria will liaise closely with the Rural Development Desk of the RDP. The Provinces will be responsible for the implementation of all projects funded under the BATAT program.

¹⁵In Asia in the 1950s new ministries and departments of community development fought similar battles with well-entrenched ministries of agriculture. Within a decade however, the "aggies" reasserted their primacy and community development ministries and departments were dissolved. The ultimate success of the BATAT program will likely hinge on how much political support can be mobilized for BATAT activities (e.g., restructuring agricultural services) and the degree to which BATAT eschews top down approaches and serves as a handmaiden (facilitator) to initiatives from NGOs and local and provincial governments.

¹⁶In a seminal article, James Bonnen conceptualizes agricultural development as a process of pragmatically assembling a system of development institutions that creates a national capacity to transform human capital, technology and institutions (see Bonnen, 1990). Also see Von Rooyen, Ngqangweni and Njobe (1994).

- * schools and faculties of agriculture that develop human capital for agricultural extension and research workers, provincial and local governments, statutory corporations and private firms in the food system.
- * political parties at the provincial, national and local levels that are responsible for formulating agricultural policy (Bonnen, 1990).

An efficient system of institutions for agricultural development has three defining characteristics: (1) consensual decision making, (2) interlinked components and (3) decentralization (Bonnen, 1990). Under apartheid, the rural majority had little voice in decision making. Now the challenge in a democratic society is to develop a process of consensual decision making whereby administrators of separately governed institutions come together and agree on cooperation to achieve common goals. The second characteristic of a national system of development institutions is that they are interlinked, i.e., they communicate and cooperate with each other to achieve a common goal - improving human welfare by increasing agricultural productivity through broad based agricultural and rural development programs. The third characteristic of a system of development institutions to support broad based agriculture and rural development is decentralization of decision making and fiscal responsibility for some of the public investments.¹⁷ Decentralization of decision making is essential because of agriculture's spatial reach. Also, because of the diversity of agroecologies, there is a need to develop applied research capacity at the provincial and sub-provincial levels in order to meet the needs of various decision makers - i.e., farmers and public and private firms in the food system.¹⁸ Decision makers also require public information about prices and markets and the freedom to make on the spot decisions during periods of crisis such as drought, floods and disease epidemics.

South Africa appears to be pursuing a laissez-faire rather than a strategic approach to reforming its basic agricultural institutions. The challenge is to develop a strategic approach to crafting a national system of institutions to support agricultural transformation and rural development programs. Unfortunately, the academic literature is sparse on how to craft a system of institutions to develop human capital and technology to support smallholder

¹⁷Lewis (1967) stresses the need for fiscal decentralization because it raises local taxable capacity, moderates the growth in demand for public services (e.g., schools, roads and extension workers) and empowers local communities to monitor the quality and relevance of services in meeting local needs. But the central obstacle to fiscal decentralization is political, not administrative. Fiscal decentralization strengthens local leaders and weakens the authority of the politicians who control the center.

¹⁸A good example is a recent study of smallholder fruit production options in the Western Cape (Conradie, et al, forthcoming).

development and rural mobilization. Research is urgently needed by rural social scientists on the design, implementation and performance of agricultural institutions (Orstom, 1992). The bottom line is that each country has to develop a country-specific system of institutions through a process of trial and error and learning by doing. This process involves reforming existing institutions and, in many cases, inventing new institutions to fill critical gaps in the system. South African administrators may wish to study India's creativity in developing new agricultural institutions in the 1960s and 1970s.¹⁹

South Africa's 1995 White Paper on Agriculture is ambiguous on what institutional structures are needed to undergird the agricultural transformation process. The White Paper reports that "Researchers, extension workers and farmers should be part of a dynamic, holistic system" (p. 20). However, the concept of a holistic system is undefined. Moreover many recommendations in the White Paper constitute assignments to various agricultural organizations to expand assistance to small-scale farms without identifying sources of funding to implement these activities. For example, recommendation 8.9 states that "new farming systems and appropriate technology must be developed to meet the needs of small-scale farmers" (p. 23). But the White Paper is silent on who will finance an expanded program of applied research for smallholders. The ARC has reported that it requires external funding to finance an expanded research program for smallholders (ARC, 1994, p. 8). The bottom line is that the White Paper on Agriculture is of limited usefulness in laying out a vision and conceptual framework to forge a new institutional structure in support of agricultural transformation. In light of this ambiguity, the following question should be addressed by the ANC: why redistribute land to small-scale farms unless there is a clear vision, strong political support and a conceptual framework to guide the development of an efficient array of farmer support organizations to assist smallholders who gain access to land by purchase or rental agreement?

The development of a strategy for broad-based agricultural and rural economic development should be guided by a searching reappraisal and refocussing of each of the basic agricultural institutions on meeting the needs of a new

¹⁹See Mellor (1976) and Busch (1988) for a discussion of India's skill in developing the following new institutions to launch and sustain the Green Revolution: a) Agricultural Prices Commission, b) Post-graduate School of Agriculture, c) Agricultural University Scheme (one major research-oriented agricultural university per state), d) Intensive Agriculture District Program (focused on extension and seed, fertilizer and credit schemes in districts with favorable resources and infrastructure), e) All-India Coordinated Research Programmes (one for each major commodity such as wheat and rice), f) Agricultural Research Service (separate organization from the public service commission which allowed agricultural researchers to be paid higher wages than civil servants) and g) Fair Price Shops which sold food grain at below market prices to the poor and the destitute.

agrarian structure consistent with the ambitious goals of the RDP. We shall now examine two agricultural institutions - agricultural research and extension - and discuss some of the issues involved in reforming and refocusing these institutions on smallholder agriculture and rural economic development.

Agricultural Research

South Africa is proud of its agricultural research enterprise which currently has about 1,400 scientists with about half in public research and the other half in the private sector and universities.²⁰ The public agricultural research system, the Agricultural Research Council (ARC), has 15 research institutes, 700 scientists and 600 technicians. In 1993 the ARC's budget was approximately US \$66 million. The ARC maintains scientific liaison offices in Buenos Aires (covering Latin America); Washington D.C. (covering North America); and Paris (covering Europe) (ARC, 1995).

The ARC is facing a "quiet" crisis as it attempts to reinvent itself to more effectively serve the needs of the nine provincial governments and small-scale farms. A 1994 study challenged the ARC to get on with affirmative action programs and expand farmer participation in research priority setting (Corbett *et al.*, 1994). The Corbett report recommended that "half of ARC's research outlays should be focused on the needs of small-scale farms by year 2000 and that one-third of the research outlays by year 2000 should be allocated by competitive bidding to private and publicly funded researchers, including members of universities and ARC institutes". But the Corbett report failed to lay out a convincing division of labor between basic and commodity research, and who will address the applied research needs of provincial departments of agriculture. Simple rules of thumb (1/3 allocation of ARC research budget by competitive bidding) are overly simplistic guidelines. A follow-up assessment urged the ARC to accelerate the pace of reform and encouraged the ARC management "to embark on a radical review of its organization, its structure, its management and its research priorities in the light of its new clients' requirements..." (Corbett and Coulter, 1995, p. 8).

One of the immediate challenges is figuring out how to develop more decentralized applied research capacity - public and private - to address the needs of subsistence farmers, many of whom are located in unfavorable natural resource areas. Fresh and imaginative thinking is needed about how to develop a new national/provincial/university and private sector research system in which

²⁰The number of researchers (full-time equivalent - fte) increased from 740 in 1961 to 1,400 in 1995. (Pardey, *et al.*, 1995, p. 6). For a historical and statistical profile of agricultural research in South Africa see Roseboom, Pardey, von Bach and Van Zyl (1995).

- * The ARC is charged with national responsibility for basic research and major types of commodity research that cannot be privatized or competitively outsourced to universities and other institutions.
- * Provincial departments of agriculture are given the responsibility and an initial flow of financial resources to initiate provincial applied research programs in order to meet the location-specific needs of extension agents, farm families, private firms and cooperatives. (Applied research could be carried out by provincial research stations or outsourced to private firms and universities.)
- * Universities are encouraged to develop research capacity in tandem with the expansion of graduate programs. (Since graduate programs are research intensive, it follows that universities require access to public funding for research programs.)
- * Private research organizations carry out self-financed research for commodity groups (e.g., sugarcane) as well as contract research for private firms, provincial governments, and the ARC.
- * South African research organizations and individual researchers are interlinked with regional and global research networks.

The historical experience of Japan and the United States from the 1860s to the 1920s is instructive for South Africa because it sheds light on the process of pragmatically piecing together a decentralized and interactive national agricultural research system. In both countries, a dual federal/state system of research evolved through a process of trial and error and debate over a period of many decades. In both countries the debates were basically the same as they are today in South Africa: basic versus applied research, centralized versus decentralized, size, financing, public versus private and the role of universities in the research enterprise.

The 1868 Meiji restoration in Japan ushered in a new government and a sense of excitement comparable to the winds of change in South Africa today. After several decades of experimentation in the 1870s and 1880s, Japan set up a national/prefectural²¹ system of agricultural research (Ruttan, 1982). In 1899, a law was passed allocating central government subsidies for prefectural (provincial) agricultural experiments. Since 1910, two-thirds to three-fourths of the expenditures for agricultural research have been at the prefectural level (Ruttan, 1982, p. 85).

Japan's experience in developing centralized and decentralized research capacity has several generic insights for South Africa. The central Ministry of Agriculture has thirty national research stations charged with carrying out basic research in support of agriculture. Japan realized that the establishment of one research station in each of the 47

²¹A prefecture is comparable to a state in the United States and to a province in South Africa.

prefectures was not adequate for its highly diverse agroecologies. As a result, the government established 379 sub-prefecture research stations that were administered by prefectures (provinces) (Ruttan, 1989). Japan's highly effective public agricultural research system has played a key role in the development of a dynamic agriculture where the average farm size is around two hectares. Japan also has substantial private sector research capacity in agriculture.

In the United States, a dual federal/state system of agricultural research was pragmatically pieced together over a 60 year period, 1860 to 1920 (Bonnen, 1990). The U.S. Department of Agriculture developed federal research laboratories and underwrote some of the cost of research at state land grant universities. Federal support to land grant colleges helps compensate states for "spillovers" (e.g., crop varieties that are borrowed without charge) by neighboring states. To meet the highly location-specific needs of American farmers, universities have over time established a decentralized system of 400 research stations with 50 at the state level and roughly 350 at the sub-state level. The agricultural scientists in the 400 research stations exchange information, and participate in regional research committees and task forces. Today, the states are the dominant partner in the federal-state relationship. In 1990, roughly three-fourths of all public research was financed by the states and one-fourth by the federal government (Huffman and Evenson, 1993, p. 100). Although the federal/state agricultural research system has been highly productive, private research is a growing force in American agriculture. In 1990, the private share of total U.S. agricultural research expenditures was 66 percent, up by 10 percent over 1974 (Huffman and Evenson, 1993, p. 100). Bonnen summarizes the history of the development of scientific capacity in agriculture in industrial countries such as Japan and the United States as follows:

"One of the clear lessons from successful agricultural development the world over is the necessity of a centralized national investment in agricultural research complemented by and *coordinated with a decentralized capacity in adapting research to the highly varied local ecosphere within which agriculture is practiced*" (italics ours) (Bonnen, 1990, p. 275).

The ARC in South Africa has a centralized system of fifteen research institutes with loose ties to extension. The ARC is trying to figure out how to develop a decentralized capacity in applied research to support a new and potentially politically powerful clientele - subsistence farms. Several research issues require debate and further study:

- * What are the evolving roles of the public and private sectors in agricultural research in building and maintaining centralized research capacity over the coming 25 to 50 years?²² For example, should the ARC build world- class research capability in biotechnology or can it be assumed that the private sector will provide the scientific leadership in this arena, including a capacity to serve both large and small-scale farms?
- * What are the roles of the ARC, provincial departments of agriculture, universities and the private sector in developing decentralized applied research capacity?²³
- * Are new provincial and sub-provincial research stations needed to serve smallholders and marginal farmers?
- * What can be done to ensure that the voice of small scale farms is incorporated into research and extension programs?²⁴
- * What is the role of faculties of agriculture in agricultural research in the 21st Century? Can faculties of agriculture develop and maintain high quality graduate programs through competitive grants and research contracts or do they need annual government budget support for the research component of graduate programs?²⁵
- * How can South Africa become a more efficient borrower of technology for small-scale farms?

Agricultural Extension

We now turn to a discussion of the art of developing appropriate extension models (public and private) to serve 1.25 million subsistence farms and rural households. South Africa's parallel extension services - one for

²²For example, private companies are responsible for more than half of the annual research expenditure on plant breeding in South Africa. In maize, it is probably more than 80 percent.

²³See Donovan (1995a, 1995b) for a discussion of the organization and financing of agricultural research in South Africa.

²⁴See Anandajayasekeram and Rukuni (1995) for a summary of FSR training in Southern Africa.

²⁵Chile is the only country in Latin America that has developed world class Ph.D. programs in some fields of agriculture. Universities in Chile have historically accounted for only a small proportion of agricultural research but since research funds have recently been made available through a competitive grants system, universities have responded enthusiastically. Currently the university system in Chile has over 300 agricultural scientists, more than half of the agricultural scientists in the country. Approximately 20 percent of the agricultural research in Chile is now carried out by university researchers (Echeverria, *et al*, 1995, p. 13).

commercial farmers and one for the former homelands - are being merged into one racially integrated service charged with serving all farmers (Bembridge, 1993). The 1995 White Paper on Agriculture reports that a new model of “participatory” extension will replace the present transfer of technology model but it fails to define what is meant by a participatory model. We assume that a participatory model includes substantial farmer participation in the identification of research problems and priorities and in the on-going evaluation of new farm practices (Chambers, 1983). But if the participatory model underplays technology development and concentrates on rural empowerment, it may turn out to be as ineffective as the community development (CD) model in Asia in the 1950s. The CD model blossomed in the fifties and declined within a decade because CD agents focused on participation and helping village people express their felt needs rather than pursuing a balanced participation/technology transfer approach. When India’s food crisis erupted in the mid sixties, the Ministry of Agriculture’s extension agents helped diffuse the new wheat and rice varieties and the CD movement was relegated to the archives.

Several other extension models such as Training and Visit (T&V) and Global 2000 are being aggressively promoted in Africa. After unprecedented support by the top management of the World Bank, the T&V extension model was replicated in many countries in Asia in the 1970s and early 1980s and in Africa over the past decade. However the World Bank’s Operations Evaluation Department (OED) recently evaluated the performance of 107 World Bank-financed extension projects in Asia and Africa and reported that there is considerable disagreement within the Bank over the appropriateness of the T&V extension model, the major model promoted in Bank-financed extension projects. The OED’s global evaluation identified the following problems associated with T&V extension projects: recurrent cost funding problems, weak linkages with research and frequent lack of relevant technology. The Bank’s Africa Department has challenged some of the findings of the OED report and it remains committed to the T&V model (World Bank, 1994, pp. 50-51).

With so many conflicting views on the relevance of various extension models, it behooves South Africa to move slowly on offers from donors to help finance extension reform. Action research is needed on alternative models of delivering extension services to farmers and rural communities. The following extension puzzles require further study and discussion:

- * What are the essential (public good) extension activities that must be performed by the government?

- * What is the scope for the private and public sector collaboration in providing some of the traditional public sector roles such as simple agronomic information (i.e., planting dates, spacing, level of fertilizer application)?²⁶
- * What is the scope for collaborative research and extension effort between private firms (e.g., seed and fertilizer companies) and public agencies?
- * What is the scope for fiscal decentralization and shared financing of extension e.g., provincial governments and local communities?
- * What is the sequencing of investments in applied research and extension at the provincial level?
- * What are cost effective extension model(s) for serving small-scale farms?

We have identified some of the unresolved issues surrounding the organization and scope of agricultural research and extension that require research and debate within South Africa. Similar discussion is needed on alternative institutional models of agricultural credit, seed, fertilizer and marketing services for smallholders. But a discussion of these institutions is beyond the scope of this paper. We now turn to the puzzle of capacity building.

VI. BUILDING CAPACITY

Overview of Higher Education

The capacity building dilemma facing the new South Africa can be posed in the form of three basic questions:

- * What urgent political, policy and institutional reforms should be undertaken to mobilize the human capital of all South Africans to achieve the goals of the RDP?
- * What special measures should be pursued to develop the talent of the black population that has been squelched under the apartheid system?
- * What special measures are needed to develop black scientific and managerial capacity for the agricultural sector?

²⁶Private seed and fertilizer companies are now providing a steady flow of agronomic information (e.g., planting dates, depth, spacing) to communal farmers in Zimbabwe. The Seed Cooperative of Zimbabwe recently hired several more agronomists in order to provide more technical information on hybrid maize production to farmers in communal areas. Joseph Rusike (1995) reports that Lever Brothers is distributing both soap and hybrid maize seed in retail shops in rural Malawi.

It is difficult to address these questions because of conflicting estimates about the demand for trained scientists, managers and extension workers over the coming 10 to 25 years. There is also a lack of precise information about the number of redundant extension workers and agricultural officers arising from the rationalization of the basic government structure from four provinces and ten homelands into nine provinces. Added to these uncertainties are the lack of proven models of human capital development in Africa and the disappointing record of donor-financed human capital improvement programs in Africa over the past 35 years.²⁷ The combination of gaps in knowledge, historical legacies and uncertainties surrounding the rationalization of the government structure explains why human capital puzzles should be subjected to vigorous debate (Machethe, 1992; Van Zyl, 1993; IDRC, 1993; Van Rooyen, *et. al*, 1995).

South Africa is currently spending 21 percent of its national budget on education. About 10 percent of the education budget is typically spent on higher education. South Africa's 21 universities are currently enrolling around 350,000 students. South Africa is bearing the consequences of the long-standing underinvestment in human capital programs for black South Africans (Bunting, 1994). Some of the consequences of the unequal educational system are expressed in human capital qualifications of the white and black population and its scientific infrastructure.²⁸ A recent article, "Elite Science in a Poor Country," reports that "for decades South Africa's scientists have worked in an elite world, not only isolated from problems besetting the poor black majority but also without strong links to South Africa's industry" (Clery, 1995, p. 1282).²⁹

The university system is highly stratified because of the historic use of a formula that provided a disproportionate share of funds to white universities. To address the fundamental questions surrounding higher education in the new South Africa, the Government set up a National Commission on Higher Education (NCHE) on February 3, 1995 and charged it with investigating all aspects of higher education and to make appropriate policy recommendations to the Minister of Education on:

²⁷See Eicher, 1989, 1990; Coleman with Court, 1993; World Bank, 1992, 1994c; and Ridker, 1995.

²⁸The pass rate for the high school proficiency exam is 98 percent for whites and 44 percent for blacks. Average white incomes are six times that of blacks, three times that of coloreds and twice that of Indians (USAID, 1995).

²⁹But South Africa's elite science is on a par with New Zealand, South Korea and Norway in terms of the contribution of South Africa to the mainstream scientific journal articles in the world. The respective shares are 0.41%, South Africa; 0.42%, New Zealand; and 0.54%, Norway (Gibbs, 1995).

- * What constitutes higher education?
- * The national goals of the system of higher education.
- * The institutional types required for the system, their particular functions and missions, their respective inter-relationships and their relationship with the state.
- * The structures required to govern and administer higher education.
- * Funding mechanisms for institutions and students in higher education.

The NCHE will release its report at the end of 1996. The finance sub-committee of the NCHE is expected to complete its report by May of 1996. Since higher education is on the bottom of GNU's education priority list (after primary and secondary), members of the higher education community are eagerly awaiting the recommendations of the finance sub-committee. The critical unknown is whether the finance sub-committee will recommend the reallocation of the higher education budget in favor of the historically disadvantaged universities in order to help them to address such crucial problems such as inadequate buildings and equipment, high student-academic staff ratios (e.g., 40-1) and grossly inadequate budgets for research, graduate studies and outreach. Until the finance sub-committee releases its findings, many donors will understandably buy time on which universities and programs (e.g., staff development, graduate fellowships) to support.

The challenge ahead is one of maintaining standards in the historically privileged universities while improving the quality of education in historically disadvantaged universities during a period of severe budget constraints. Nevertheless, even though universities are facing severe budget constraints, the composition of the student body is undergoing rapid change. The simple dichotomy between historically white and historically black universities is eroding because of the sharp increase in black students in many historically white universities. For example, 52 percent of all first year students at the University of Capetown were black in 1994 (University of Capetown, 1994, p. 4). As a result formerly "white" universities such as Capetown are rapidly becoming multi-racial universities. This explains why some of the administrators of these emerging multi-racial universities are critical of donor plans to channel their assistance to historically disadvantaged universities. For example, Mamphela Ramphele of the University of Capetown recently criticized USAID's \$50 million Tertiary Education Linkages Project (TELP) project "because it focuses all of its resources on black South African universities - to the exclusion of elite, formerly all-white universities whose student bodies are rapidly becoming majority black" (Taylor, 1995, p. A-15).

Research funding for universities and technikons is now available under a new program of work by the Foundation for Research Development (FRD), a research granting agency based in Pretoria. The FRD recently restructured its program to support research capacity building in higher education (technikons and universities) effective January 1, 1996 (FRD, 1995).

Capacity Building in Faculties of Agriculture

South Africa has nine faculties and departments of agriculture in its 21 universities as well as 13 agricultural colleges that are not affiliated with universities (Table 1). Four faculties of agriculture at the historically white universities (Pretoria, Stellenbosch, Natal and Free State) have 55 percent of the total academic staff and 88 percent of the staff with Ph.D.s in faculties and departments of agriculture in South Africa's universities (Table 2). In addition, a high percentage of the black staff in the historically disadvantaged universities (Fort Hare, University of the North, Bophuthatswana, Zululand and Venda) is composed of expatriates from other countries in Africa.³⁰

The five faculties and departments of agriculture in the historically disadvantaged universities are facing some formidable obstacles, including a low percentage of academic staff with Ph.D.'s, frequent turnover associated with expatriate staff, a faculty structure which typically includes four departments and four permanent academic staff positions per department and a token budget for research programs.³¹ With only a handful of black agricultural economists in South Africa, the historically white universities are having great difficulty in meeting their affirmative action goals.

The nine faculties and departments of agriculture in South Africa are in an expansion mode. Some faculties are adding new departments, two (Venda and Zululand) are trying to add academic staff and new departments. Several plan to add taught M.Sc. Programs (e.g., Fort Hare and the University of the North). The number of graduate

³⁰For example, all four of the academic staff in the department of agricultural economics at the University of the North are from other countries in Africa. At Fort Hare the Dean and Vice Dean of the Faculty of Agriculture in early 1995 were from Zimbabwe and Nigeria respectively.

³¹The University of Fort Hare's faculty of agriculture has four departments: agricultural economics, agricultural extension and rural development, agronomy and livestock and pasture science. The faculty of agriculture at the University of the North was established in 1983. It currently has four departments: animal production, plant production, soil science and agricultural economics. It plans to open a new department of agricultural extension in early 1996. The faculty of agriculture at the University of Pretoria has seven departments: agricultural economics, extension and rural development; animal and wildlife sciences; biochemistry; food science; microbiology and plant pathology; plant production; and soil science.

students in agriculture is increasing. About one-third of the degrees conferred in agriculture at Stellenbosch and Natal are graduate degrees (Van Rooyen, Barnard and van Zyl, 1995).

In 1992, the University of Pretoria's faculty of biological and agricultural sciences launched a graduate school of agriculture and rural development. The school admits students with an acceptable bachelors degrees and offers a one year graduate degree - B inst Agrar (Hons). It provides interdisciplinary training to prepare students to work in government ministries, rural development programs and the private sector. The medium of instruction is English. The number of graduate students enrolled in 1995 was 160, up

Institution	Number	Role
Agricultural High Schools	26	Train future farmers and others for a career in agriculture.
Agricultural Colleges	13	Train future farmers and farm managers.
Technikons ^a	7	Train agricultural technicians.
Universities	9	Train professional agriculturalists for the public and private sectors.

^aTechnikons are full-fledged educational institutions at the tertiary level. They are designed to provide advanced technical education as well as to train certain categories of teachers for secondary schools and technical colleges. Admission to a technikon requires a minimum of a senior certificate; admission to a university requires a matriculation (college entrance examination) (USAID, 1994, p. 3).

Source: Van Rooyen, Barnard and Van Zyl, 1995, p. 6.

University	Academic Staff	Ph.D.s	Percent Ph.D.s
Pretoria	59	47	79.7
Stellenbosch	50	34	68.0
Natal	67	43	64.2
Free State	59	28	47.5
Fort Hare	36	8	21.1
The North	14	3	21.4
Bophuthatswana	23	6	26.1
Zululand	6	2	33.3

Venda	7	2	28.6
TOTAL	321	173	

Source: Van Rooyen, Barnard and Van Zyl, 1995, p. 12.

from 56 in 1992. Black students represent 139 of the 160 students in 1995 (Van Rooyen, Barnard and van Zyl, 1995, p. 13).³²

Most agricultural economics departments in South Africa have announced plans to increase the intake of graduate students even though there is evidence of a proliferation of programs. Universities in other parts of Africa have found it easy to launch new M.S. and Ph.D. programs in agriculture, admit students and teach courses. But they experienced great difficulties in mobilizing research support for students, supervising theses and ensuring that students complete their degrees on schedule. The inability to solve the research funding/supervision problem explains why there are numerous “dormant” graduate degree programs in agriculture in Eastern and Southern Africa.³³

American foreign aid is supporting human capital development in South Africa. In 1994 USAID/Pretoria launched a ten year TELP project with a budget of US\$50 million (US\$ 5 million per year). TELP provides funds to historically disadvantaged universities (HDUs) and technikons in the form of capacity building grants for staff development, research and networking. The goal is to improve the quality of historically disadvantaged tertiary education institutions and the number of black professionals. Several faculties of agriculture in HDUs have requested TELP capacity building grants. TELP grants will contribute to staff development, studies and networking but they are not intended to underwrite the long term institution building projects needed at the University of Fort Hare, University of the North, etc. USAID/Pretoria submitted a US\$132 million budget request for fiscal year 1996 (starting October 1, 1995), for its program in South Africa of which US\$41 million (29%) is allocated to various projects to help develop a more equitable and effective educational system (USAID, 1995).

Dutch universities have been very active in developing research and capacity building linkages with universities in South Africa. The Land and Agriculture Policy Center (LAPC) is the coordinator of a proposal “Land Reform and Rural Development Support” by the LAPC, University of Zululand, University of Fort Hare, The

³²The student body in Pretoria’s graduate school of agriculture is drawn from South Africa as well as from Southern, Eastern and Western Africa. The school is funded by donor agencies with most of the support allocated to scholarships and accommodation for poor students.

³³Currently there are M.Sc./M.Phil programs in agricultural economics in Tanzania, Malawi, Zimbabwe and at least seven in South Africa.

University of Natal, University of the Free State, University of the North and Wageningen Agriculture University in the Netherlands. The four year proposed study has a US\$7 million South African budget.³⁴ Four research teams will carry out the research, including a national research team based at the LAPC and three local research teams. The latter will focus on regional issues in the Eastern Cape, Kwa Zulu-Natal and the Northern Province.³⁵ The HDUs will each propose six graduate students and the Universities of Pretoria, Free State and Natal will collectively propose six. The four year project will provide research experience and support for 25 M.Sc. and 15 Ph.D. students.

To summarize, there are many questions about agricultural higher education and capacity building in faculties and schools of agriculture. Further study and debate are needed to resolve the following issues: What should be the mission and scope of faculties of agriculture in South Africa in the 21st Century? How can the present duplication of degree programs be reduced? How can faculties of agriculture that are currently dominated by crop production and animal production departments be broadened to include disciplines such as food science, rural sociology, natural resource management and multidisciplinary graduate programs in agribusiness and resource economics? What is South Africa's role in capacity building in agriculture in Southern Africa?

Relevance of the Land Grant Model

One of the questions that we encountered in our discussions in South Africa was the relevance of the U.S. land-grant model of education to South Africa. Land grant universities are public universities with a triple mission: teaching, research and extension. Land grant colleges were launched in the 1860s to implement a new social policy of making mass education readily affordable to the rural majority, one of the goals of the RDP. Under the land grant act

³⁴Funding has been requested from the Department for International Cooperation of the Dutch government, the Foundation for Research Development (FRD) in Pretoria, the RDP/Rural Task Force and from Wageningen Agricultural University. The research agenda includes the following: The interrelationship between the agro-ecological potential of South Africa and the land reform process; macroeconomic impact of the land reform process; global town-country relationship and the; relationship between the land reform process and the global rural development process (LAPC, 1995).

³⁵The research under the LAPC project in the Northern Province will be coordinated with the University of the North's on-going research on land management and rural development in the Northern Province. This two year land management project was developed in cooperation with the Free University of Amsterdam, funded by the European Union (R 1.1 million) and launched on July 1, 1995 under the direction of Professor Andre de Villiers, Head of the Department of Development Studies, University of the North (de Villiers, 1994).

of 1862, federal funds were allocated to each state to help set up a land grant college with a goal of teaching scientific agriculture and the mechanic arts (engineering) (Bonnen, 1993). The leaders of the early teaching-oriented land grant colleges subsequently helped persuade the US Congress to enact federal legislation (The Hatch Act of 1887) to provide permanent federal funding to land grant colleges to help build a decentralized applied research capacity - state by state.³⁶ In 1914 as a result of political pressure from farm organizations and universities, the US Congress passed legislation that provided federal funds to underwrite part of the cost of extension programs in land grant colleges. The development of land grant colleges was basically an accretionary process that gave initial priority to teaching, and then added a research mission and finally an extension mission.

But most colonial administrations in Africa have not followed the American pattern of first setting up colleges of agriculture to teach scientific agriculture. Most colonial governments started with building research capacity for export crops followed by a build-up of government extension agents and only much later did they turn to the development of faculties of agriculture in universities. The colonial pattern of giving priority to building research capacity in government institutes rather than universities explains why the power base in agriculture in most African countries is centered in government research and extension departments. It also explains why most faculties of agriculture in Africa have a teaching mission and a token research budget. The lesson from the US experience is that land grant colleges are the product of a unique historical sequence of events. The basic difference between sequencing in the United States and in Africa helps explain why the land grant model cannot be easily introduced in countries where there are well-entrenched government research and extension programs.

Nevertheless, there are several generic features of the land grant system that are of immediate relevance to the new South Africa. The first is that US land grant colleges were set up to implement a national social policy of offering low cost, high quality education to the rural majority rather than the training of elites. It is an open question whether South Africa's National Commission on Higher Education will recommend that adequate resources be granted to historically disadvantaged universities to enable them to offer high quality education for their main

³⁶In the 1870s, US colleges of agriculture were primarily undergraduate teaching institutions. The modest amount of agricultural research underway in college experiment stations was justified in terms of its support for undergraduate teaching. The issue of a reliable source of funding for research emerged in the 1870s as American agriculturalists studied the German system of graduate (e.g., post graduate) training which was based on course work and rigorous research. This explains why the directors of experiment stations at land grant colleges lobbied the US Congress in the 1870s and 1880s to provide permanent research support to land grant colleges.

constituency - black students. The second lesson from the US experience is the high payoff to having one administrator - the Dean of Agriculture - responsible for three activities in the College of Agriculture - teaching, research and extension. At Michigan State University, for example, the Dean of the College of Agriculture and Natural Resources meets with the Associate Deans for extension, research, teaching and international programs once a week to prod and inspire them to work together and contribute to the achievement of the overarching goal of the college (to help improve the welfare of the people, rural and urban, of Michigan through higher agricultural productivity). The Dean also meets once a month with the chairpersons of the 13 departments in the College. These regular meetings help reduce transaction costs - i.e., the time and effort that it takes to collect information, negotiate and reach decisions. Finally, this unified system of administration enables hard decisions about research, teaching and extension to be made early rather than late.

Third, the land grant experience reveals that research - not teaching or extension - is the engine of the system. Research generates new knowledge which energizes and informs teachers and extension agents. Because of close interaction between farmers and extension agents, the problems of farmers are relayed by extension agents back to agricultural researchers who are almost all based on university campuses rather than in dispersed research institutes. This interplay between farmers and extension agents and researchers represents a complex feedback loop which helps keep university research priorities focused on the needs of farmers and rural communities. However, since most of the government budget for agricultural research in Africa is allocated to government institutes, academic staff in faculties of agriculture are unable to meet the research needs of farmers. Although many faculties of agriculture in Africa have secured foreign aid for discrete research and outreach activities, most of these activities are phased out when donors fold their tents and slip away into the night. South Africa should study Chile's system of competitive research grants which has mobilized university researchers to work on the practical problems of farmers in Chile (Echeverria, et al, 1995).

Fourth, the US land grant experience demonstrates how to generate national, state and local political and financial support for decentralized research and extension programs on a state by state basis. The fifth insight is that many Asian and African nations have had more success in borrowing components of the land grant model than in replicating the entire model in a foreign political, cultural and institutional environment.

India's experience is instructive for South Africa because Indian educators examined the US land grant model in the late 1950 and decided to incorporate some of its components into a new Indian model - the agricultural

university model. Starting in the mid 1960s, India set up at least one new agricultural university per state. Today there are 25 agricultural universities of varying quality in India's 23 states. India followed the US land grant approach of forcing each agricultural university to garner most of its financial support from state rather than central government funds. And to facilitate university-government cooperation and mobilize state financial support, the Vice Chancellor of each agricultural university was made administratively responsible to the Ministry of Agriculture in each state rather than to the Ministry of Education in New Delhi. India's agricultural universities represent an important institutional innovation in agricultural higher education in the Third World.

The recent experience of Tanzania, Kenya and Nigeria is also instructive for South Africa.³⁷ When Tanzania's President Julius Nyerere visited India in the early eighties he studied India's agricultural university model which incorporated many features of the US land grant model. Upon his return to Tanzania, Nyerere persuaded the ruling political party - TANU - to spin off the Faculty of Agriculture of the University of Dar Es Salaam and create a new university which was subsequently named the Sokoine University of Agriculture. But Sokoine University has never received adequate government support to carry out its triple mission of teaching, research and extension. Today, Sokoine is basically a teaching university operating on a shoestring budget. Nigeria sent a delegation to India in the eighties to study its agricultural university model. The delegation was impressed with the model and the federal government of Nigeria subsequently set up two new federal universities of agriculture which were administratively responsible to the Federal Ministry of Agriculture, not the Ministry of Education. However, both universities of agriculture are floundering because of a lack of agreement between the states and federal government over appropriate research and extension functions for the new universities of agriculture and the faculties of agriculture in already established universities. Edgerton University of Agriculture in Kenya was established with massive USAID funding in the 1970s. In 1988, Edgerton was basically a teaching university with 99 percent of its Kenyan budget devoted to teaching and 1% to research.

The land grant model has some generic features that are relevant to the new South Africa. But in the final analysis, each nation must pragmatically piece together its own system of higher education.

VII. POLICY IMPLICATIONS

³⁷For an assessment of the land grant model at the University of Nigeria see Johnson and Okigbo (1989).

The RDP has captured the attention of both urban and rural people who hope that funds made available under this initiative will lead to a visible improvement in education and an increase in jobs and housing by 1999 - the date of the next national election. But the interim constitution, the White Paper on Agriculture and the RDP are ambiguous on one of South Africa's most fundamental questions: How to implement agrarian reform and empower rural people to improve their lives and their communities? Finding an answer to this burning question is of great social and political importance to South Africa's future because of the symbiotic relationship between rural poverty, migration, urban unemployment, squatter camps, and crime.

Under the leadership of President Mandela, South Africa enjoys a unique window of opportunity to tackle both agrarian transformation and rural development. However, the political, bureaucratic, and technological resources of South Africa are biased in favor of large scale commercial (first world) agriculture. The ANC does not appear to be putting its political muscle behind a strategy to tackle the dual problems of agrarian transformation and rural development. The ANC seems more concerned about urban housing and education than about agriculture and rural areas where 16 million people reside. Likewise many donors are downplaying the need to invest in agriculture and rural development. To be sure, donors may claim that the agricultural sector is being assisted indirectly through education and sustainable development and private sector projects. But in reality donors are overlooking the politically explosive connection between rural poverty, the rural exodus, unemployment, urban squatter camps and crime. The lack of donor attention to agriculture and rural development in South Africa stands in sharp contrast to the 1960s and 1970s when agriculture was given high priority by donor support programs in Asia.

South Africa is in need of a transparent agricultural and rural development strategy that focuses on helping semi-subsistence families become smallholder capitalist farmers who are able to utilize most of their family labor in farming, produce a reliable agricultural surplus for the market and are profitable on a recurring basis. But successful smallholder development is a necessary but not a sufficient condition for soaking up the idle labor and solving widespread poverty in the countryside. The smallholder agricultural initiative should be coupled with a massive bottom-up rural development program to combat rural poverty and underemployment and to moderate the flow of migrants to urban areas (Machethe, 1995). Four critical issues require debate and discussion. The first and most important is political.

1. Getting Agriculture and Rural Development on the Political Agenda of the ANC

We have argued that the ANC should reexamine its ambiguous position on agriculture in the political arena. The ANC does not appear to have the political will to take advantage of this brief window of opportunity to implement land redistribution, restructure rural institutions and implement rural economic development programs. There is a gap between the ANC's intellectual commitment to land redistribution and its political power to implement a land reform program and restructure farmer support services. For example, the separation of the ministries of Lands and Agriculture weakens the operational capacity for agrarian reform. The new Ministry of Land Affairs is currently headed by an ANC minister but the absence of strong provincial land offices will make it difficult to implement land reform. Also, the implementation of land reform and restructuring farmer support services will require substantial assistance and cooperation from the Ministry of Agriculture. However, the Minister of Agriculture and five of the nine provincial Ministers of Agriculture are members of the National Party headed by F.W. de Klerk. The bottom line is that the ANC has limited political power to implement significant agricultural reform programs. Therefore, one can legitimately pose the following question: Why break up large-scale farms in South Africa if smallholders are not adequately supported by efficient public and private farmer support services?

2. Redistributing Land and Improving Support Services for Small-scale Farms.

South Africa has a smoldering land problem and rural inequities that will take many decades to overcome. But land reform is only part of the problem. Redistributing land and developing farmer support services are basically two sides of the same coin. The global experience reveals that it will be fruitless to embark on land redistribution without concurrently restructuring farmer support services.

South Africa has three options in pursuing land redistribution: (1) conservative market-driven model whereby land is transferred or rented on a willing buyer - willing seller basis; (2) progressive (market-assisted) model where the government purchases idle land and commercial farms and makes land available to resource-poor farmers and settles the landless in resettlement programs and (3) radical model of wholesale government takeover of land such as Ethiopia pursued in the seventies. The conservative and radical models are inappropriate for South Africa. South Africa appears to be walking a tightrope between the conservative and progressive land reform models. Zimbabwe has vacillated between the conservative and progressive models in fifteen years of independence. But Zimbabwe's agrarian structure is still highly unequal after 15 years of independence, despite the execution of a small but fairly successful settlement program and a modest degree of land redistribution by market forces (i.e., allowing commercial farmers to sell their land on a willing buyer - willing seller basis from 1980 to 1990).

It will take time to craft an effective system of institutions to serve smallholders and resettlement farmers. The critical issue is to view this as a pragmatic process of experimentation, evaluation and modification of institutions over time. While the initiative for institutional reform and generating institutional innovations for broad-based agricultural and rural development should come from within South Africa, there is much that can be gleaned from examining the experience of industrial and developing countries. Donors can assist with the restructuring of institutions if they take the long view and quietly support the development of indigenous institutional innovations rather than off-loading foreign models (e.g., US land grant college, T&V extension) on South Africa. To finance a massive land transfer and institution building program, donor funds should be pooled in a Land Transfer Endowment Fund and matched with contributions from South Africa.

3. Getting Bottom-up Rural Development on the Agenda of Provincial Governments.

The historical record has shown that rural poverty should be tackled in rural areas rather than waiting for impoverished rural families to migrate to urban centers. The basic components of a rural development strategy are investment programs to (1) enhance productivity growth on small farms, (2) assist marginal farms to increase their portfolio of productive activities, (3) give landless and marginal farmers greater access to resources (e.g., land, credit), (4) generate employment opportunities in agriculture, and (5) create off-farm employment in rural areas and components of a rural development strategy to combat rural poverty (De Janvry and Sadoulet, 1990).

But there is a large gap between the theory and practice of rural development. The boundaries of neoclassical development economics are simply too narrow to deal with complex problems such as building effective local government and empowering rural people. The World Bank and many bilateral donors promoted integrated rural development projects in Africa from the early seventies to the mid eighties. However, the empirical record reveals that integrated rural development projects have had a high failure rate in Africa for the following reasons:

- * adverse policy environment
- * lack of government commitment
- * lack of appropriate technology
- * lack of beneficiary participation and

* the complexity or coordination problem (Binswanger, 1994 and Ruttan 1984).³⁸

Hans Binswanger of the World Bank recently concluded that the “failure of integrated rural development has left experts interested in rural poverty inside and outside the (World) Bank in disarray.” As a result, he reports that “the Bank has retreated from its ambitious agenda (integrated rural development projects) of the 1970s” to supporting specific components of rural development, such as agricultural extension, roads, primary education. However, he reports that nowhere has it been possible to support the full array of interventions which are required for successful rural poverty reduction (Binswanger, 1994, p. 14). Decentralization is a critical issue that must be tackled in South Africa because grassroots rural development programs cannot bloom in an environment where the basic decisions are still made in central ministries in Pretoria. The NGOs have a special role to play in helping nurture rural self-reliance programs. Decentralization and NGOs are in full bloom in Latin America. South Africa may wish to assess this experience.³⁹

4. Investment in Human Capital and Capacity Building for the Coming 25 Years

The human capital gap between whites and blacks is especially troubling in agriculture. The gap can be dramatized by a startling statistic: currently there are no black South African Ph.D.s in agricultural economics in any of the nine (of the 21 South African) universities that have faculties or schools of agriculture.⁴⁰ This is not surprising when one realizes that black agriculturalists were rational in shunning a career in agriculture because it was considered a dead end field.⁴¹ This explains why most of the blacks on the academic staff in faculties of agriculture in historically disadvantaged universities are expatriates from other African countries and why universities such as Pretoria and Natal are finding it exceedingly difficult to hire black South Africans.

³⁸Since integrated rural development projects require inputs from numerous government ministries, the coordination problem emerged as a consequence of delegating sub program execution to representatives of central government bureaucracies who have a tradition of executing independent programs in health, education and agriculture.

³⁹See Tendler (1994) for a critique of rural development experiences in northeast Brazil and Carroll (1992) for an account of the role of intermediary NGOs in grassroots development in Latin America..

⁴⁰Charles Machethe, Senior Lecturer, Agricultural Economics, University of the North is the highest ranking black South African agricultural economist in a faculty of agriculture in South Africa. He is currently enrolled in a Ph.D. program in agricultural economics at Michigan State University.

⁴¹Charles Machethe (1992) has noted that it was logical for blacks to avoid careers in agriculture because of low salaries and the low status of agriculture for blacks under the apartheid system.

The implications of the critical black human capital gap in fields such as agriculture, science and engineering are obvious. South Africa's black human capital gap can be primarily solved within South Africa over the coming 25 to 50 years through institution-building projects for universities and technikons. Similar human capital institution-building projects were effective in Asia starting in the sixties. However, much work lies ahead in figuring out how to rationalize graduate programs on a field by field basis. The final report of the National Commission on Higher Education (due December 1996) will most likely not provide enough information to develop a long term national strategy to meet the specific human capital needs of agriculture, engineering etc. After the NCHE report is released, a study of human capital for agriculture will probably be needed to figure out how to weed out redundant and overlapping B.Sc. and graduate degree programs in South Africa, expand post graduate programs in traditional areas - crop and soil science - and develop new post graduate programs in such fields as biotechnology, environmental economics and global agribusiness. Special attention should be given to South Africa's role in providing graduate study for students from the SADC region.

But the preparation of a human capital plan for agriculture is more of an art than a science. It is very difficult to predict the future demand for human capital, it is easy to set unrealistic targets and it is difficult to get political support for these long gestation investments in people. For example, Tanzania's Second Five Year Plan (1969-74) devoted one of its four volumes (Vol. IV) to high and middle level manpower development (Tanzania, 1969). But the underlying national manpower survey that was prepared for the plan underestimated the private sector demand for managers. Tanzania's Second Plan set an unrealistic goal of 11 years (1969-80) for achieving self-sufficiency in high and middle level manpower in agriculture. In 1990, agriculturalists in the SADC region spent hundreds of hours preparing a long term plan for the development of professional manpower in agriculture and natural resources (SACCAR, 1990). But the report quickly gathered dust because it did not have the political support of SADC countries and donors felt it was far too ambitious.

Donors can assist in capacity building by contributing to a Human Capital Institution Building Fund open to all universities, technikons and agricultural schools. A portion of the human capital institution-building endowment fund should be earmarked for the transformation of historically disadvantaged universities.⁴² Presently there seems to be little need for donors to finance M.Sc. training of South Africans in overseas universities. But the experience of

⁴²Michigan State University's strategy for academic cooperation in South Africa devotes special attention to the concept of transformation linkages (Michigan State University, 1995).

Latin America, Asia, Australia⁴³ has shown that Ph.D. training overseas, especially for future academic staff members, can be very helpful because it provides exposure to new schools of academic thought and different institutional models for agriculture.

VIII. CONCLUSIONS

Today 10 million people or roughly a quarter of South Africa's population depend on agriculture and related enterprises for their livelihood. However, some 60,000 commercial farmers currently control around 86 percent of the land, while an estimated 1.25 million subsistence farms control the remaining 14 percent. The combination of rural poverty, removal of influx controls, civil unrest and the expectations of improved urban housing and social services appears to be contributing to an acceleration in the rate of rural to urban migration and rising tension and crime in urban areas. If the rural exodus continues unabated, South Africa will eventually pay a heavy price in political, social and economic terms.

The thesis of this paper is that the RDP strategy of giving priority to urban housing, schooling, industrialization and market-driven land redistribution is overlooking the harsh historical reality that rural poverty cannot be solved after the rural poor end up in urban squatter camps (Eicher, *et al.*, 1970). But South Africa's dilemma is not unique. The dual agrarian societies of South Africa, Namibia and Zimbabwe are prisoners of a chronic failure to tackle rural poverty in rural areas before it leads to migration and the social costs of crime and urban unemployment. South Africa's RDP strategy of focusing on housing, schooling and industrialization is preoccupied with the symptoms rather than the causes of rural underdevelopment and the urban crisis. The failure to move aggressively on land redistribution and rural economic development has plagued Latin America for centuries and it also contributed to the coup d'états in Ethiopia and Liberia. The failure to address the land question and rural economic development is now exerting pressure on President Mugabe to "deliver land to the people." The land question may turn out to haunt the new South Africa well into the 21st century.

The challenge ahead for the ANC is to develop a unified strategy to tackle rural poverty, industrialization and the urban crisis and slow rural to urban migration that threatens the social fabric and political stability of the new South Africa. These are long term problems that require political leadership and resolve. Redistributing land,

⁴³In Australia, a nation of about half the population of South Africa, a high percentage of students go overseas for Ph.D. training in agriculture.

reforming rural institutions, promoting rural economic development and building black scientific and managerial capacity are tasks for the coming 25 to 50 years.

REFERENCES

- African National Congress, (ANC), 1993. Agricultural Policy. Johannesburg: African National Congress.
- African National Congress (ANC), 1994. The Reconstruction and Development Programme: A Policy Framework. Johannesburg: Umanyano Publications.
- Agricultural Research Council (ARC), 1994. "Recommendations Concerning the Restructuring of Agricultural Research in South Africa." Pretoria, South Africa, August.
- Agricultural Research Council (ARC), 1995. Achievements of the Agricultural Research Council. Pretoria: Agricultural Research Council.
- Agricultural Research Council (ARC), 1995. "The Crisis in the Department of Research and Specialists Services." Harare, Agricultural Research Council.
- Anandajayasekeram, P. And M. Rukuni, 1995. "Institutionalization of FSR Training at Academic Institutions in Eastern and Southern Africa." SAAFRSE-E Bulletin No. 2 (April):4-20.
- Bembridge, T.J. 1993. Assessment of Existing Agricultural Support Services. Johannesburg: Land and Agriculture Policy Centre.
- Binswanger, Hans P., 1994. "Agricultural and Rural Development: Painful Lessons." Agrekon 33(4):165-174.
- Binswanger, Hans P. and Klaus Deininger, 1993. "South African Land Policy: The Legacy of History and Current Options." World Development 21(9):1451-1575.
- Block, Steven and C. Peter Timmer, 1994. "Agriculture and Economic Growth: Conceptual Issues and the Kenyan Experience." CAEG Briefing Paper. Cambridge, MA, Harvard Institute for International Development. September.
- Bonnen, James T., 1990. "Agricultural Development: Transforming Human Capital, Technology and Institutions." In Agricultural Development In The Third World. 2d ed. Carl K. Eicher and John M. Staatz, eds. Baltimore: Johns Hopkins University Press, pp. 262-279.
- Bonnen, James T., 1993. "Reflections on the Land Grant Idea." Staff Paper No. 93-8. East Lansing, Department of Agricultural Economics, Michigan State University
- Brand, S.S. 1992. "What Role Should Government Play in a New South Africa?" Development Southern Africa 9(2):229-232.
- Brand, S.S., et. al. 1992. "Agriculture and Redistribution: Growth With Equity," In Wealth or Poverty: Critical Choices for South Africa, ed. by R. Schrire. Capetown: Oxford University Press, pp. 353-377.
- Bunting, Ian, 1994. A Legacy of Inequality: Higher Education in South Africa. Capetown: University of Capetown Press.

- Busch, Lawrence. 1988. Universities for Development: Report of the Joint Indo-U.S. Impact Evaluation of the Indian Agricultural Universities. AID Project Impact Evaluation No. 68. Washington, DC: USAID.
- Capetown, University of. 1994. The Transformation of the University of Capetown, 1984-1994: A Decade of Change and Development. Rondebosch: University of Capetown.
- Chambers, Robert, 1983. Rural Development: Putting the Last First. London: Longman.
- Chimedza, Ruvimbo, 1994. "Rural Financial Markets." In Zimbabwe's Agricultural Revolution. Mandivamba Rukuni and Carl K. Eicher, eds. Harare: University of Zimbabwe Publications, pp. 139-152.
- Clery, Daniel. 1995. "Elite Science in a Poor Country." Science Vol. 268, June 2, pp. 1282-1287
- Clower, Robert et al., 1966. Growth Without Development: An Economic Survey of Liberia. Evanston: Northwestern University Press.
- Coetzee, Gerhard, 1994. "Restructuring Rural Financial Institutions." Agrekon 33(4):220-224.
- Coleman, James S. and David Court, 1993. University Development in the Third World: The Rockefeller Foundation Experience. Oxford: Pergamon Press.
- Conradie, Beatrice, et al, forthcoming. "Apple Production Systems for Small-Scale Farmers in the Western Cape." Agrekon.
- Corbett, Don, John Coulter, Michael Lipton, Andrew Nhlapo and Anne Vaughan, 1994. Restructuring Agricultural Research in South Africa: A Report to the Land and Agriculture Policy Centre Johannesburg. Brighton, England: Institute of Development Studies.
- Corbett, Don and John Coulter, 1995. "Report on Reorienting the South African Agricultural Research System to Meet the Needs of Small Farmers." Pretoria, Agricultural Research Council.
- De Janvry, Alain and Elisabeth Sadoulet, 1990. "Investment Strategies to Combat Rural Poverty in Latin America." In Agricultural Development in the Third World. 2d. ed. ed. Carl K. Eicher and John M. Staatz, eds. Baltimore: Johns Hopkins University Press, pp. 442-458.
- De Klerk, Michael, ed., 1991. A Harvest of Discontent: The Land Question in South Africa. Capetown: IDASA.
- De Villiers, Andre. 1994. "Land Reform Issues in the Northern Transvaal Province." Occasional Paper. Sovenga, Department of Development Studies, University of the North.
- Donovan, P.A., 1995a. "The Management, Funding and Organizational Structure of Agricultural R&D in Zimbabwe, Malawi and South Africa. Part I -- Management and Funding." Agricultural Systems 47:259-271.
- Donovan, P.A., 1995b. "The Management Funding and Organizational Structure of Agricultural R&D in Zimbabwe, Malawi and South Africa. Part II -- Organizational Structure." Agricultural Systems 47:273-290.
- Dorner, Peter, 1992. Latin American Land Reforms in Theory and Practice: A Retrospective Analysis. Madison, WI: University of Wisconsin Press.

- Echeverria, Ruben G., Eduardo Trigo and Derek Byerlee, 1995. "Toward Institutional Mechanisms for Effective Financing of Agricultural Research in Latin America." Washington, D.C., Inter-American Development Bank, October 20, 1995. (Draft).
- Eckert, Jerry B. 1994. "The Land Question in South Africa: Present and Future Perspectives." Agrifutura Bulletin 1(2):1-17.
- Eicher, Carl K., 1986. "Food Security Research Priorities in Sub-Saharan Africa." Keynote address presented at the OAU/STRC/SAFGRAD International Drought Symposium, Kenyatta International Center, Nairobi, Kenya, 19-23 May.
- Eicher, Carl K., 1989. Sustainable Institutions for African Agricultural Development. Working Paper No. 19. The Hague: ISNAR.
- Eicher, Carl K., 1990. "Building African Scientific Capacity for Agricultural Development." Agricultural Economics 4(2):117-143.
- Eicher, Carl K., 1995. "Zimbabwe's Maize-Based Green Revolution: Preconditions for Replication." World Development 23(5):805-818.
- Eicher, Carl K. and Mandivamba Rukuni, 1994. "Zimbabwe's Agricultural Revolution: Lessons for Southern Africa." In Zimbabwe's Agricultural Revolution. Mandivamba Rukuni and Carl K. Eicher, eds. Harare: University of Zimbabwe Publications, pp. 393-411.
- Eicher, Carl K., Thomas Zalla, James Kocher and Fred Winch, 1970. Employment Generation in African Agriculture. East Lansing, MI: Institute of International Agriculture, Michigan State University.
- Foundation for Research Development (FRD). 1995. Announcement of New Programmes. Pretoria: Foundation for Research Development. July.
- Fukuyama, Francis. 1995. Trust: The Social Virtues and the Creation of Prosperity. New York: The Free Press.
- Gerhart, John, 1995. Personal communication, August 5.
- Gibbs, W. Wayt. 1995. "Lost Science in the Third World." Scientific American August: 92-99.
- Hart, Gillian, 1995. "Beyond the Urban-Rural Dichotomy: Rethinking Agrarian Reform in South Africa." Paper presented at an International Congress on Agrarian Questions, Agricultural University, Wageningen, The Netherlands, May 22-24.
- Hawkins, A.M., 1995. "Lessons of Adjustment from Zimbabwe," In Africa's Experience with Structural Adjustment. Proceedings of the Harare Seminar, May 23-24, 1994. Edited by Kapil Kapoor. World Bank Discussion Paper No. 288. Washington, D.C., World Bank, pp. 48-52.
- Heilbroner, Robert and William Milberg, 1996. The Crisis of Vision in Modern Economic Thought. New York: Cambridge University Press.
- Holdcroft, Lane, 1984. "The Rise and Fall of Community Development, 1950-65: A Critical Assessment." In Agricultural Development in The Third World. Carl K. Eicher and John M. Staatz, eds. Baltimore: Johns Hopkins University Press, pp. 46-58.

- Huffman, Wallace E. and Robert E. Evenson, 1993. Science for Agriculture: A Long-Term Perspective. Ames, IA: Iowa State University Press.
- International Development Research Center (IDRC), 1993. Towards A Science and Technology Policy for A Democratic South Africa: Mission Report. Ottawa: IDRC
- Jaffee, Steven and John Morton, eds., 1995. Marketing Africa's High-Value Foods: Comparative Experiences of an Emerging Private Sector. Dubuque, Iowa: Kendall/Hunt.
- Jayne, T.S., Milan Hayet and Johan van Zyl, 1995. "An Analysis of Alternative Maize Marketing Policies in South Africa." Staff Paper No. 95-22. East Lansing, Department of Agricultural Economics, Michigan State University.
- Johnson, Glenn L. and Bede N. Okigbo, 1989. "Institution-Building Lessons from USAID's Agricultural Faculty Development Projects in Nigeria." American Journal of Agricultural Economics 71(5) :1211-1218.
- Johnston, Bruce F. and John W. Mellor, 1961. "The Role of Agriculture in Economic Development." The American Economics Review 51(4):566-593.
- Kassier W.E, et al, ed., 1992. Report of the Committee of Enquiry into the Marketing Act. Pretoria: Department of Agriculture.
- Korten, David C., 1995. When Corporations Rule the World. West Hartford and San Francisco: Kumarian Press and Berrett-Koehler Publishers.
- Krugman, Paul, 1995. Development, Geography, and Economic Theory. Cambridge, MA: The MIT Press.
- Kupfuma, Bernard, 1994. "The Payoffs to Hybrid Maize Research and Extension in Zimbabwe: An Economic and Institutional Analysis." Unpublished M.S. Thesis, East Lansing, Department of Agricultural Economics, Michigan State University.
- LAPC. 1995. "Land Reform and Rural Development Support Proposal." Johannesburg. (Draft).
- Levin, Richard and Daniel Weiner, 1993. "The Agrarian Question and Politics in the New South Africa." Review of African Political Economy 57:29-45.
- Levin, Richard and Daniel Weiner, 1995. "The Politics of Land and Agrarian Reform in South Africa," Paper presented at an International Congress, Wageningen, The Netherlands, May 22-24.
- Lewis, W. Arthur, 1967. "Comment," In Agricultural Development and Economic Growth. Edited by Herman Southworth and Bruce Johnston. Ithaca, NY: Cornell University Press, pp. 493-96.
- Lipton, Merle, 1993. "Restructuring South African Agriculture." In State and Market in Post Apartheid South Africa. Merle Lipton and Charles Simkins, eds. Johannesburg: Witwatersrand University Press and Westview Press, pp. 359-407.
- Lyne, M. and G. Ortmann, 1991. "Evaluation of the KwaZulu Farmer Support Programme." Unpublished Research Report. Halfway House, Development Bank of Southern Africa.

- Mabeza-Chimedza, Ruvimbo, 1995. "Rural Financial Development in Zimbabwe: Past, Present and Future Options." Working Paper AEE 1/95. Harare, Department of Agricultural Economics and Extension, University of Zimbabwe.
- Machethe, Charles L., 1992. "The Role of Universities in Human Resource Development for Agricultural Development in Less Developed Countries," in Agricultural Restructuring in Southern Africa, C. Csaki, T. Dams, D. Metzger and J. van Zyl, eds. Windhoek, Namibia: Association of Agricultural Economists of Namibia, pp. 305-311.
- Machethe, Charles Lepepeule. 1995. "Rural Development Approaches in the Third World: Lessons for South Africa." Staff Paper No. 95-40. East Lansing, Department of Agricultural Economics, Michigan State University.
- Maredia, Mywish K. and Carl K. Eicher, 1995. "The Economics of Wheat Research in Developing Countries: The One Hundred Million Dollar Puzzle." World Development 23(3):401-412.
- Mellor, John W., 1976. The New Economics of Growth: A Strategy for India and the Developing World. Ithaca, NY: Cornell University Press.
- Michigan State University, 1995. "Michigan State University and South Africa: Partnerships for Mutual Capacity-Building and Transformation." A report prepared by the Action Group on South Africa. East Lansing, Michigan State University. October 12, 1995.
- Moll, Peter, 1996. "Compulsory Centralization of Collective Bargaining in South Africa." The American Economics Review 86(2):326-329.
- Moyo, Sam. 1995. The Land Question in Zimbabwe. Harare: Sapes Books.
- Mwabu, Germano and T. Paul Schultz, 1996. "Education Returns Across Quantiles of the Wage Function: Alternative Explanations for Returns to Education by Race in South Africa." The American Economics Review 86(2):335-339.
- Nicholls, William H., 1964. "The Place of Agriculture in Economic Development." In Agriculture in Economic Development. Carl K. Eicher and Lawrence Witt, eds. New York: McGraw Hill, pp. 11-44.
- Nieuwoudt, W.L., 1993. "South African Land Reform: A Policy Evaluation." F.R. Tomlinson Memorial Lecture. Agrekon: 32(3):101-109.
- North, Douglas and John Wallis, 1994. "Integrating Institutional Change and Technical Change in Economic History: A Transactions Cost Approach." Journal of Institutional and Theoretical Economics 150/4:609-624.
- Ostrom, Elinor, 1992. Crafting Institutions for Self-Governing Irrigation Systems. San Francisco: ICS Press.
- Pardey, Philip G., Johannes Roseboom and Nienke M. Beintema, 1995. "Investments in African Agricultural Research." Washington, D.C. and The Hague, IFPRI and ISNAR. (October).
- RDP Monitor, Johannesburg, Vol. 1., No. 9 (May 1995).
- Ridker, Ronald G. 1995. The World Bank's Role in Human Resource Development in Sub-Saharan Africa: Education, Training and Technical Assistance. Operations Evaluation Study. Washington, D.C.: World Bank.

- Rohrbach, David, 1988. "The Growth of Smallholder Maize Production in Zimbabwe (1979-1985): Implications for Food Security." In Southern Africa: Food Security Policy Options. M. Rukuni and R.H. Bernsten, eds. Harare: UZ/MSU Food Security Project, University of Zimbabwe, pp. 307-328.
- Roseboom, Johannes, Philip G. Pardey, Nienke M. Beintema and Godfrey D. Mudimu, 1995. Statistical Brief on the National Agricultural Research System of Zimbabwe. Statistical Brief No. 20. The Netherlands, ISNAR.
- Roseboom, Johannes, Philip G. Pardey, Helmke Sartorius von Bach and Johan van Zyl, 1995. Statistical Brief on the National Agricultural Research System of South Africa. Statistical Brief No. 23. The Netherlands, ISNAR.
- Rukuni, Mandivamba, 1994a. Report of the Commission of Inquiry into Appropriate Agricultural Land Tenure Systems Vol. I. Main Report; Vol. II: Technical Reports Vol. III. Methods, Procedures, Itinerary and Appendices. Harare: The Commission of Inquiry.
- Rukuni, Mandivamba, 1994b. "The Evolution of Agricultural Policy: 1890-1990." In Zimbabwe's Agricultural Revolution. Mandivamba Rukuni and Carl K. Eicher, eds. Harare: University of Zimbabwe Publications, pp. 15-39.
- Rukuni, Mandivamba and Carl K. Eicher, 1988. "The Food Security Equation in Southern Africa." In Poverty, Policy and Food Security in Southern Africa. Coralie Bryant, ed. Boulder, Colorado: Lynne Rienner, pp. 133-157.
- Rukuni, Mandivamba and Carl K. Eicher, eds., 1994. Zimbabwe's Agricultural Revolution. Harare: University of Zimbabwe Publications.
- Rusike, Joseph, 1995. "An Institutional Analysis of the Maize Seed Industry in Southern Africa." Unpublished Ph.D. Dissertation, East Lansing: Department of Agricultural Economics, Michigan State University.
- Rusike, Joseph and Carl K. Eicher, (forthcoming). "Reforming the Maize Seed Industry in Eastern and Southern Africa." African Rural and Urban Notes
- Ruttan, Vernon W., 1982. Agricultural Research Policy. Minneapolis: University of Minnesota Press.
- Ruttan, Vernon W., 1984. "Integrated Rural Development Programmes: A Historical Perspective." World Development 12(4):393-401.
- Schrire, Robert, ed., 1992. Wealth or Poverty? Critical Choices for South Africa. Capetown: Oxford University Press.
- Singini, Richard and Johan van Rooyen, eds., 1995. Serving Small-Scale Farmers: An Evaluation of the DBSA's Farmer Support Programmes. Halfway House, South Africa: Development Bank of Southern Africa.
- South Africa, Republic of. 1994a. "BATAT: Broadening Access to Agriculture Thrust." Pretoria, Department of Agriculture.
- South Africa, Republic of, 1994b. "Land Reform Pilot Programme." Pretoria, Department of Land Affairs.
- South Africa, Republic of, 1994c. White Paper on Reconstruction and Development. Government Gazette, Vol. 353, No. 16085 (November 23). Capetown: Government Printer.
- South Africa, Republic of, 1995a. Terms of Reference of the President of the Republic of South Africa to the National Commission on Higher Education. Regulation Gazette No. 5460 (February 3). Pretoria: Government Printer.

- South Africa, Republic of. 1995b. White Paper on Agriculture, 1995. Pretoria: Department of Agriculture.
- South Africa, Republic of, 1996. "National Commission on Higher Education Discussion Document." Pretoria, NCHE, April 9, 1996 (draft).
- Southern African Centre for Coordination in Agricultural Research (SACCAR), 1990. A Long Term Strategy for Training of Professional Manpower for the Agriculture and Natural Resources Sector in the SADCC Region: 1991-2010. Gaborone: SACCAR, June.
- Tanzania, The United Republic of. 1969. Tanzania: Second Five-Year Plan for Economic and Social Development, 1st July 1969 - 30 June 1974. Volume IV: Survey of the High and Middle Level Manpower Requirements and Resources. Dar Es Salaam: Government Printer.
- Taylor, Paul. 1995. "US Aid to South Africa: Apartheid in Reverse?" Washington Post March 27, p. 1 and A-15.
- Tendler, Judith, 1994. "Tales of Dissemination in Agriculture." In Agriculture, Environment, and Health: Sustainable Development in the 21st Century. Vernon W. Ruttan, ed. Minneapolis: University of Minnesota Press, pp. 146-180.
- Thiesenhusen, William C. 1995. Broken Promises: Agrarian Reform and the Latin American Campesino. Boulder, CO: Westview Press.
- Thomas, Duncan, 1996. "Education Across Generations in South Africa." The American Economic Review 86(2):330-334.
- Thomas, F. Carroll. 1992. Intermediary NGO's: The Supporting Link in Grassroots Development. West Hartford, CT: Kumarian Press.
- Timmer, C. Peter, 1994. "Food Prices and Agricultural Development: The Relevance of the Asian Experience to Africa." Agriculture and Rural Development 1(1):13-19.
- Tomich, Thomas, Peter Kilby and Bruce Johnston. 1995. Transforming Agrarian Economies: Opportunities Seized, Opportunities Missed. Ithaca, NY: Cornell University Press.
- USAID. 1994. Tertiary Education Linkages Project (TELP) Summary. Pretoria: USAID, October 17.
- USAID. 1995. "South Africa: FY 1996 Fund for Africa Request." Pretoria: USAID.
- U.S. Department of Agriculture, ed., 1994. Agricultural Trade and Investment Assessment Mission, Republic of South Africa, October 1-16, 1994. Washington, DC: Foreign Agricultural Service.
- Van Rooyen, Johan. 1993. "The (Small) Farmer Support Program After Seven Years of Implementation." Agrekon 32(4):262-269.
- Van Rooyen, Johan, Simpiwe Ngqangweni and Bongiwe Njobe, 1994. "Agricultural Change, Reconstruction and Development in South Africa: Comments on the RDP." Agrekon 33(4):257-260
- Van Rooyen, Johan, Robin Barnard and Johan van Zyl. 1995. "Agricultural Education in South Africa." Occasional Paper. Pretoria, Faculty of Biological and Agricultural Sciences, University of Pretoria.

- Van Schalkwyk, H.D., J. Van Zyl, C.J. Van Rooyen and J.K. Kirsten. 1995. "Market-Based Rural Land Reform in Southern Africa - Real Possibility or Pipe Dream? The Case of South Africa's Commercial Agricultural Sector." Paper presented at the XXII International Conference of Agricultural Economists, August 22-29, 1994, Harare, Zimbabwe.
- Van Zyl, Johan, 1993. "Economics and Affirmative Action in a Democratic South Africa: About Values, Welfare and Choice Among Alternative Institutions in the Face of Conflict." Agrekon 32(2).
- Van Zyl, Johan, 1994. "Farm Size Efficiency, Food Security and Market Assisted Rural Land Reform in South Africa." Agrekon 33(4):156-164.
- Van Zyl, Johan and J.A. Groenewald, 1988. "Effects of Protection on South African Commercial Agriculture." Journal of Agricultural Economics 39(3):387-401.
- Van Zyl, Johan and G.K. Coetzee, 1990. "Food Security and Structural Adjustment: Empirical Evidence on the Food Price Dilemma in Southern Africa." Development Southern Africa 7(1).
- Van Zyl, Johan, C.J. Van Rooyen, J.F. Kirsten and H. Van Schalkwyk, 1994. "Land Reform in South Africa: Options to Consider for the Future." Journal of International Development 6(2):219-239.
- Van Zyl, Johan, Hans Binswanger and Colin Thirtle, 1996. "The Relationship Between Farm Size and Efficiency in South African Agriculture." Policy Research Working Paper No. 1548. Washington, DC, Agriculture and Natural Resource Department, World Bank.
- Vink, N., 1993. "Entrepreneurs and the Political Economy of Reform in South African Agriculture." Agrekon 33(4):153-166.
- Weiner, Daniel and Richard Levin, 1995. "Land, Food and the Politics of Agrarian Reform in South Africa." Development Report 8. Oakland, CA, Institute for Food and Development Policy.
- Wilson, Francis, 1996. "Human-Capital Formation and the Labor Market in South Africa: Challenges for the Post-Apartheid Economy." The American Economics Review 86(2):322-325.
- World Bank. 1992. World Bank Assistance to Agricultural Higher Education, 1964-1990. Operations Evaluation Department. Washington, D.C.: World Bank.
- World Bank, 1994a. Agricultural Extension: Lessons from Completed Projects. Washington, DC: World Bank.
- World Bank. 1994b. Reducing Poverty in South Africa: Options for Equitable and Sustainable Growth. Washington, DC: World Bank.
- World Bank. 1994c. Higher Education: The Lessons of Experience. Washington, D.C.: World Bank.
- World Bank, 1994d. South African Agriculture: Structure, Performance and Options for the Future. Southern Africa Department Discussion Paper No. 6. Washington, D.C.: World Bank.
- World Bank. 1995. World Development Report, 1995. Washington, DC: World Bank.
- Zimbabwe, University of. 1995. Agricultural Service Institutions and Smallholder Development. Proceedings of Workshop held at the Leopard Rock Hotel, Vumba, 27-28 March 1995. Harare, University of Zimbabwe.

