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CONSTITUTIONAL CHANGE AND NATURAL RESOURCE POLICY REFORM IN SOUTH AFRICA: CONDUCTIVE OR OBSTRUCTIVE TO SUSTAINABLE ECONOMIC GROWTH OF AGRICULTURE

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"A greatly improved understanding of the natural resource base and environmental systems that support national economies is needed if patterns of development that are sustainable can be determined and recommended to governments" (Myers, 1989).

Establishment of constitutional order and a change in political power has initiated major public policy reforms. Following public consultation, policy documents have recently been published on the environment, agriculture, land, forestry and water supply. A systematic framework is presented to evaluate the expected influence of proposed policy interventions with legal and financial instruments on sustained economic growth and development. Based on past performance and measurement of multifactor productivity of agriculture, indications are that competitiveness can be improved. Required innovations are design of institutions, application of technology, training of management, local value adding and greater export orientation of agricultural products. Policy advice by agricultural economists must be provided by mastering the art of identifying politically relevant aspects of natural resource and environmental problems, followed by projections of economic consequences through applied empirical research. It is concluded that as a whole the policy environment favours the creation of wealth through private enterprise.

1. INTRODUCTION

Far reaching political, social and economic changes have occurred in South Africa over the past decade. The current political debate is particularly concerned with dominant values and the legitimate role of government. The outcome will determine the preferred type of political-economic system. Reliance on experiences in different regions and cultures of the world yields convincing evidence that constitutional democracies ensure peace and safety for all citizens. Furthermore, market economies which are driven by private enterprise and technology produce material prosperity for all members of society in both industrially developed and impoverished developing countries (Fukuyama, 1992:xi-xxiii). Political rules influence economic rules and there is an interdependence between constitutional rights and economic rights. With agreement on fundamental human rights responsible but limited government is elected to protect those rights. The fundamental economic interactions between households and firms are negotiated and mutually beneficial transactions in the market process (Backeberg, 1994:260-261).

In this context empirical studies have concluded that after the initiation of reform in political or civil rights, there is a lag followed by sustained economic growth. Pre-requisites are the commitment of government to protect property rights and to enforce commercial rules (De Gorter & Swinnen, 1994:280-282). Having embarked on irreversible political change in South Africa, the question arises what the prospects are for improved economic and social welfare? It is argued that the answer is largely to be found in the content of the new constitution and public policy that provide the link between the political and economic system and economic performance. The provisional analysis in this paper focuses on policy reform in relation to the natural resource base of agriculture.

2. POLITICAL TRANSITION AND CONSTITUTIONAL CHANGE

The political transition from 1990 onwards is recent history which is fresh in the memory of everyone and already well-

documented (cf Eloff, 1996: 1 - 35). During the first phase of the negotiating process certain constitutional principles were agreed to and included in the interim constitution. Following the democratic elections in 1994, the new constitution was drafted by the Constitutional Assembly during the second phase and submitted for certification. According to the recent verdict of the Constitutional Court, specific clauses were referred back to be reformulated before the constitution can become the supreme law. Although finality has not been reached, particular constitutional principles are noteworthy because of their relevance to economic activity and well-being of members of society.

2.1 Constitutional choice

According to the liberal individualistic school of thought, people in a given environment differ in terms of capabilities (i.e. talents and skills) and utility (i.e. tastes and preferences). In spite of these differences and unavoidable conflicts, the autonomy of free individuals is recognised who treat each other as equals and have equal opportunity to exercise choice. A constitution or social contract is drawn up to entrench inviolable human rights and government is elected which is granted the power to protect these rights (Buchanan, 1974:54-59; Rawls, 1972:136-142; Gwartney & Wagner, 1988:33-34).

Underlying any constitution are social values which include upholding to a varying extent freedom, equality, individual responsibility and participation by members of society. A minimum level of acceptance of these values is essential for general adherence to customary and legal rules to be achieved (Easton, 1979:194-203). Constitutional choice involves the choice of rules within which political activity is allowed to take place. The idea of the supremacy of the constitution is based on *unanimous agreement* on human rights, rule of law and equality before the law. The unanimity principle for collective decision making is the political equivalent of individual pricing decisions and voluntary market exchange of rights to resources, goods and services. Protection of human rights is therefore crucial because it forms the foundation of mutually beneficial

economic activity (Buchanan 1986 in Gwartney & Wagner, 1988: 09 - 110).

The reality of constitutional change in South Africa evidently deviates from these requirements. The strict rule of total consensus was not followed but replaced by "sufficient consensus" or "enough agreement from enough participating parties to enable the process to move forward". Although it is acknowledged to be imperfect, this approach allowed reasonable progress with the constitutional negotiations (Eloff, 1996:21). However, contrary to expectations, agreement on protection of fundamental human rights has not led to a movement out of the Hobbesian jungle where life is "nasty, brutish and short" (Randall, 1987:38). Rather, crime and violence has escalated and the ability of the new government to maintain order has been questioned. Many explanations can be offered for this state of affairs such as pent-up resentment, unfulfilled expectations, unemployment, poverty etc. But it emphasises that satisfying legal requirements of a constitution does not in itself provide the political culture of trust and tolerance (De Villiers, 1996:336). A constitution in a democracy cannot survive if rights and obligations are not respected by everybody and if it is not supported by economic progress.

2.2 Fundamental rights

In the present political dispensation government powers are limited by fundamental human rights, powers and functions are divided between national, provincial and local levels and powers are separated between the legislative, executive and judiciary. The Bill of Rights "enshrines the rights of all people in our country and affirms democratic values of human dignity, equality and freedom ...", which ... the State must respect, protect, promote and fulfil ... subject to the limitations contained or referred to ... in the Bill". The following sections are of particular importance for the purpose of this discussion and include first generation civil and political rights, second generation socio-economic rights and third generation environmental rights:

Section 22: Freedom of trade, occupation and profession.

Section 24: Environment.

Section 25: Property.

Section 27: Health care, food, water and social security.

It is important to note that none of these rights are absolute and "may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society ...". In all sections, rights are specified in negative terms in the sense that they may not be transgressed and are triable; and also positive terms in the sense that they require government action (South African Law Commission, 1991:41-58). With the exception of Section 22, this is achieved by stating that the "State must take reasonable legislative and other measures within its available resources". Reference is made to sustainable ecological, economic and social development and use of natural resources, in particular land and water (Republic of South Africa, 1996:7-19). These constitutional prescriptions clearly have implications for public policy and can potentially create problems in terms of economic feasibility.

Two comments are appropriate regarding the amendment of the constitution and implementation of economic policies:

Objections were levelled against the provisions in the property clause. The first was that this section does not

expressly protect the right to acquire, hold and dispose of property; the second was that inadequate provisions are made for payment of compensation with expropriation. The finding was that there exists no universally recognised formulation of the right to property. The present provision of right to property is a negative formulation; appears to be widely accepted; and protection of the holding of property is implicit. Similar findings were made regarding criteria for expropriation in that it does not deviate from universally accepted approaches (Constitutional Court of South Africa, 1996:43-47).

In the recently published Macro-economic Strategy, a few linkages between growth, redistribution and new policy directions are highlighted under Social and Sectoral Policies. Mention is made of improved water supply and sanitation for rural communities; the land reform programme which combines asset redistribution with enhancement of tenure security; and the role of agricultural development in improving income distribution and economic activity. Under the heading Public Investment and Asset Restructuring, reference is made to public infrastructure needs. This includes agricultural water supplies and rural development which adds to quality of life in communities and builds productive economic capacity. A programme of asset restructuring with respect to ownership is envisaged and may involve total or partial sale of assets or sale of assets with government retaining a strategic interest.

It will follow detailed consultations and planning in sectors including agriculture and forestry, but interestingly enough excluding water. The net effect of these and other policies is a projected reduction in fiscal deficit from 5,1 to 3,0% of gross domestic product (GDP); reduction of real government consumption from 19,9 to 18,1% of GDP; reduction of the real bank rate from 7,0 to 3,0%; increase of real government investment growth from 3,4 to 16,7%; increase of GDP growth from 3,5 to 6,1%; and reduction of inflation from 8,0 to 7,6% for the period 1996 to 2000 (Department of Finance, 1996:14-16 and Appendix 4). It appears therefore that the macro-economic outlook is such that the constitutional requirements can be met without escalating government expenditure, budget deficits, tax rates, public debt, inflation and interest rates. Clearly a balance will in future have to be achieved between the dictates of the constitution and the realities of the economy.

What is lacking though and is definitely a deficiency, is a constitutional agreement on rules and procedures for post-constitutional decision making regarding the provision and financing of public or collective goods and services (Buchanan & Tullock, 1962:78, 82; Buchanan, 1974:41-43; Buchanan, 1986:110-111; Gwartney & Wagner, 1988:36-37). Post-constitutional policy making and application of policy instruments must adhere to the rules of simple majority decision but subject to passing the test of generating net economic benefits. Only pure public goods and services can be financed totally with taxes. Expenditure of public funds for any other capital investment must be justified by a social benefit-cost study (see paragraph 3.1 for selected examples). This can be accomplished by prescribing guidelines for government in promoting socio-economic and environmental rights, which must be satisfied in the formulation and implementation of public policy.

2.3 Freedom and equality in relation to growth, reallocation and redistribution

In the political system there is conflict between individual freedom and social equality. Similarly in the economic system conflict exists between growth in wealth to the

advantage of individuals and reallocation of resources or redistribution of income to the benefit of society. Unconstrained and independent utility maximising behaviour of individuals and groups leads to chaos and declining welfare. Government as an economic subject may be involved in the interaction and is not the appropriate mechanism to bring order to economic activity through legislative coercion. A constitutional contract presents the opportunity to escape from the "prisoner's dilemma" in which members of society are caught. Mutually acceptable rules must be defined while retaining the opportunity to exercise choice within those rules. Social interaction and economic activity in the market process is based on common law principles of property and contract to achieve individual interests through voluntary trade. Responsibility is delegated to government to protect and enforce property rights and to fully or partially provide and fund public or quasi-public goods and services to promote social welfare. Conflict between individuals and society can therefore be resolved through agreement on constitutional and post-constitutional rights and obligations, while efficiency and equity are reached simultaneously through interaction between the political and economic systems (Buchanan, 1974:167-168; Gwartney & Wagner, 1988:30-33; Wagner, 1989:205-207; Backeberg, 1994:268-271).

3. POLICY REFORM AND ECONOMIC TRANSFORMATION

As was to be expected, changes in the political power structure were instrumental to begin a process of drastic policy reform (Zusman, 1994:253-254). What is remarkable, though not surprising in terms of public choice theory, is the speed with which comprehensive review was initiated in the field of natural resources. The natural resource base is of importance because it *firstly* forms the ultimate support of economic activity in agriculture; *secondly* it comprises together with entrepreneurial capacity the most important competitive strength of the South African political economy; and *thirdly* challenges exist to overcome the natural limitations while at the same time opportunities are present to add value to agricultural and food products on a local level (Du Toit & Falkena, 1994:44; Spies, 1996:3.16; Liebenberg, 1996:20-21).

In the discussion that follows, attention will be given to *renewable but interdependent natural resources* of soil and natural vegetation, water, land, woodlands and forestry and the natural environment (which also includes air, climate, fisheries and biodiversity). In contrast to exhaustible resources, the feature of renewable resources is that its stock will increase if it is allowed to regenerate, but within the obvious levels of carrying capacity set by the ecosystem. With necessary precautions, humans can utilise the resources without depleting them (Pearce & Turner, 1990: 241-242). Development and utilisation of natural resources by people has both beneficial and detrimental consequences. Important issues which need attention are understanding of (a) the nature, dynamics and severity of resource degradation; (b) underlying causes; and (c) the range of feasible policy interventions that are appropriate (Warford, 1989:7-9).

3.1 Natural resource policy review

Problems of natural resource and environmental degradation relate to a complex network of events: Overgrazing, fuelwood harvesting; land clearance; deforestation; burning of crop residues; soil erosion; sedimentation; flooding and salinization. Of equal importance are complex financial,

institutional, social and economic linkages. Causes are mainly lack of knowledge, poor training, population growth, price distortions and institutional failures e.g. common property resources changing to open access resources. Pressure on natural resources increases because of low and skewed distribution of income levels, high time preference rates, short planning horizons and lack of capital or finance. A continuously worsening cycle of events follows, which leads to over-exploitation. Attempts must be made to understand the relationships between biophysical events and economic consequences, assessment of the impact and to express costs and benefits in monetary terms where possible. Success of policy interventions depends on the incentives for behaviour and prospects of changing the behaviour of people.

Policy interventions are twofold:

- (1) Investment in projects with the objective to mitigate or reverse environmental degradation, such as reforestation, cleaning up of pollution, removal of alien plants, construction of preventative soil erosion and ameliorative drainage works, and rehabilitation of irrigation schemes. All these projects must be preceded by benefit-cost analysis at a conceptual level and accompanied by regulation at a practical level.
- (2) Comprehensive re-examining of all direct and indirect policy instruments such as price support programmes, subsidies and taxes. Greater reliance on market forces is preferable to provide correct signals to producers, with only targeted and selected interference, e.g. in the case of catastrophic natural events (Warford, 1989:9-22; Bromley & Cemea, 1989:5-25).

As has already been mentioned, such a review has recently taken place in South Africa through a lengthy process of consultation, contribution by experts and publication of Discussion Documents, Green Papers or White Papers. In each instance the relevant subjects are treated extensively and an attempt to summarise will be presumptuous and will not convey the correct message. Instead only a brief outline of some important policy issues will be given, followed by a preliminary evaluation.

3.1.1 Overview of policy documents

A general statement can be made that the above-mentioned causes and consequences of natural resource and environmental degradation are contextualized for the South African situation. Given the ideological nature of policy, there will not necessarily be agreement on all arguments.

3.1.1.1 Environmental policy:

A range of policy choices are given on questions regarding legal, institutional, co-ordinating, governance and public participation issues. This is followed by various questions on environmental management such as sustainable resource management, sectoral management, waste and pollution, social and economic issues. Various options are presented which differ from command and control to self-regulation. Accordingly different approaches to property rights, legal and economic policy instruments are suggested. Emphasis is placed on further public inputs by way of written response and formal discussions (Department of Environmental Affairs and Tourism, 1996:35-90).

3.1.1.2 Agricultural policy

In the chapter on sustainable utilisation of natural resources, the following is applicable: All citizens of the country are considered to be custodians of natural resources as a national asset. It is government's responsibility to prevent misuse of open access resources by establishing full property rights. Integrated land-use planning will be encouraged through community participation; urban and rural planning needs to be integrated rather than sectorial and fragmented. Economic as well as legal instruments will be used to penalise irresponsible management of land. Government will ensure that the law is enforced and that latest knowledge and technology is accessible to and affordable by farmers. Steps will be taken to ensure that benefits and real cost of natural resources, especially water, are reflected in resource pricing in order to discourage abuse (Department of Agriculture, 1995:13-15).

3.1.1.3 Land policy

The goals of land reform are:

- (1) to redress past injustices;
- (2) to foster reconciliation and stability;
- (3) to support economic growth; and
- (4) to improve household welfare and alleviate poverty.

Emphasis is placed on local participation in decision making, economic viability and environmental sustainability for implementation of land reform programmes. It is the responsibility of national and provincial government departments to administer, promote and support land reform. Three major programmes are explained:

- (a) *Land redistribution* requires providing the poor with land to improve their livelihoods.
- (b) *Land restitution* involves restoring land to people dispossessed by discriminatory legislation.
- (c) *Land tenure reform* ensures security of tenure to *different forms of land tenure*, which enables individuals or groups to earn the benefit of their property, enjoy recognition and protection, without fear for arbitrary action by the State. Grants are offered in support of land reform (Department of Land Affairs 1996:25-57).

3.1.1.4 Forest policy

One of a number of elements is an overall policy to govern the place of forestry in the management of land, water and other natural resources. Principles include that forests and forest resources are to be treated as a national asset; development is people-driven; forest expansion must be sustainable and recognise the scarcity of water. The overall goal is to promote a thriving forest sector to the lasting benefit of the nation and managed to protect the environment. Government will promote and co-ordinate a natural resources policy; regulate where and how afforestation occurs, and for this purpose investigate if changes to the permit system are necessary; and lastly remove plantation forests from areas where demonstrable environmental damage has been done. A sub-set of policies apply to industrial forestry, community forestry, natural forests and woodlands. For the implementation of policy a new Forest Act will be formulated, several practical pre-

requisites are listed and an action plan is specified (Department of Water Affairs and Forestry, 1996a:1 - 32).

3.1.1.5 Water supply policy, water tariff and water law review

Principles which are adopted as the basis of policy are the following: Development should be demand driven and community based; basic services are a human right; priority will be given to disadvantaged communities who are inadequately served; limited water resources should be equitably allocated; water has economic value and must reflect the growing scarcity; the user pays for services to ensure effective and efficient water management; and integrated development between all water sectors is necessary. The role of national government, as custodian of water as an indivisible national asset, is managing water resources in the public interest and ensuring that all citizens have access to adequate water services. Definite steps will also be taken to enable participation of water users in water management on a local level (Department of Water Affairs and Forestry, 1994:1-38). Water tariffs for bulk water supply are also under review, but the level and structure of tariffs have not been finalised. The principles are that water services should be self-financing; subsidies should be phased out to at least recover operating and maintenance costs; lifeline tariffs should be introduced to ensure a basic level of service to poor communities; and marginal costs should be used as a benchmark to set tariffs (Department of Water Affairs and Forestry, 1995). In a further ongoing process of review, significant changes are expected to be made to the system of water rights and water legislation. Water resources are considered to be common to all, provision will be made for basic human requirements and protection of the ecological balance. But existing water rights will be recognised, subject to the aforementioned reserve (Department of Water Affairs and Forestry, 1996b).

Currently uncertainty prevails if there will be a definite movement away from central control, attenuation of water rights, legislative coercion and bureaucratic water management. Although water rights markets are mentioned as a policy option (Department of Water Affairs and Forestry, 1995), there is apparently no firm commitment to a policy decision of devolving decision making powers from national government to local water users.

3.1.2 Policy evaluation

There is an urgent need of an analytical framework for policy makers to systematically evaluate trade-offs and to determine the most efficient policy interventions (Myers, 1989:57). An appropriate framework is provided by the hierarchy of decision making on three levels: the policy, institutional and operational level (Ciriacy-Wantrup, 1985:67-71; Bromley, 1989:32-34; Backeberg, 1994:11-22). Accordingly the role of government in terms of direct or arm-length involvement; design of institutional forms and arrangements; choice of other economic policy instruments; and opportunities for active participation in natural resource management through local organisations, can be assessed.

In all but one policy document (namely water supply policy), it appears that the intention is to reduce the degree of government interference or at least to circumscribe it carefully. Provision is made to ensure security of property rights, but with much uncertainty remaining in the case of water rights. The need for new or revised legislation that conforms with the constitution is spelt out. Different

combinations of charges, tariffs, taxes and subsidies are proposed to eliminate or reduce externalities. Resolve is expressed for improved decision support through government services, which can lead to reduced transaction costs to users of natural resources. As a whole all indications are that future policy interventions will gradually eliminate existing distortions and turn the cycle of events around from resource degradation to conservation.

However, three qualifications must be made:

- (1) Except for the case of agriculture and forestry, the first round of the process of policy formulation is not yet completed. Environmental policy in particular is still very open ended. A consultation planning meeting to draw up a new irrigation policy has only begun in August 1996. Of course much will depend on the way in which all policies are implemented in future.
- (2) Contradictory statements are made in the case of water policy regarding the predominance of central or local control, applicable water institutions and local water organisations for effective management of water resources.
- (3) Since all policy documents emphasise some form of integrated management, there is a critical need for co-ordination of natural resources policies. This becomes apparent when agricultural and land policies are compared with water supply policies, specifically regarding the treatment of property rights. As is correctly stated in the Macro-economic Strategy, ... "the ultimate responsibility for a credible and coherent policy framework lies with government" (Department of Finance 1996: 21).

With projections of less government involvement, attention has to be given to the level of private economic activity and natural resource productivity.

3.2 Sustained economic growth

The contribution of agriculture, forestry, hunting and fishing to GDP in 1994 was R19 802 million or 5,1% of total GDP. In relative terms this is lower than other countries in the Southern African Development Community, but in absolute terms it is higher (Spies 1996: 3.19). It reflects both the level of development and strength of the economy. Agricultural exports in 1994 amounted R8 268.9 million or 9,15% of total exports, of which R4 109.5 million or 49,7% were processed products (Department of Agriculture, 1996:82, 85-86). Taking this situation as point of departure, efforts to increase economic growth and development must focus on (1) *increased efficiency of production processes*; and (b) *greater measure of export orientation* (Du Toit & Falkena, 1994:14).

3.2.1 Definition of terminology

The interaction between the economy and the environment is best described as a *circular system*, also known as the materials balance model: Resources are an input for production of consumer goods which create utility. Waste arises at each stage of the production process, which can be recycled, but the environment also has an assimilative capacity. For renewable resources stocks can grow or fall, depending on the rate of extraction in relation to the yield.

Accordingly three clear economic functions of the environment can be identified:

- (i) resource supplier;
- (ii) waste assimilator; and
- (iii) direct source of utility.

All of these functions have positive economic values and can be traded in the market process. Mistreatment can occur if distorted price signals emerge from the interaction between producers and consumers (Pearce & Turner, 1990:35-41). As was pointed out earlier, these are caused by a combination of unclear specified property rights, negative externalities, high transaction costs and incorrect policy measures. Recognising that people impact on the natural environment, the issue is how to exploit natural resources as a source of an improved standard of living?

Sustainable economic growth and development is a process of change in which development and utilisation of natural resources, direction of investments, orientation of technological improvements and adaptation of institutions are all in harmony and meet the needs and aspirations of present and future generations (Pereira, Gilley & Jensen 1996:174). Essentially this definition is similar to the one of *competitiveness* which is the principal goal of economic policy: "It is the ability to sustain, in a global economy, an acceptable growth in the real standard of living of the population with an acceptable fair distribution, while efficiently providing employment for substantially all who can and do wish to work, and doing so without reducing the growth potential in the standard of living of future generations" (Landau 1992 in Liebenberg, 1996:1). The meaningful measure of competitiveness on a national level is *productivity* (Porter 1991 in Liebenberg, 1996:6). Productivity can be increased in five different ways (Liebenberg, 1996:8):

- output increases but inputs remain constant
- output increases but inputs decline
- output increases faster than inputs
- output stays constant but inputs decline
- output declines at a slower rate than inputs.

Since use of one factor of production such as land or capital or labour can be misleading, *multifactor productivity* (MFP) measures (also called total factor productivity (TFP)) are usually preferred. MFP growth represents the amount of extra output created through higher efficiency without the use of any additional inputs. It is mainly the result of technological progress, different ways of better management and more efficient resource allocation (Liebenberg 1996: 8 - 11). Balanced economic growth and development is therefore accepted as a goal of public policy: It implies both increased productivity and reallocation of resources for the achievement of efficiency and equity. They can be translated into "criteria of action and into quantifiable indicators of performance" such as satisfaction of basic human needs or minimisation of human suffering, which could guide practical policies (Kapp, 1976:212-232; Backeberg, 1994:237-241).

3.2.2 Past performance

Three sets of measurements of economic growth will be discussed briefly:

According to the generally accepted measure of economic growth, GDP of South Africa increased at 0,9% per year in

the period 1980 to 1993 and was at 2,3% per year for 1994. Growth in agriculture for the period 1980 tot 1991 was 1,9% per year (Spies, 1996:3.19, 6.20, 6.25). However, it must be recognised that these figures are misleading, since the costs of natural resource depletion are not reflected in national income accounts. Growth built on drawing down of renewable natural resources is clearly different from stable or increasing stocks and unsustainable for natural resource based economies (Warford, 1989:9-10). These costs can be substantial, as is illustrated by the degradation caused by soil erosion: The estimated on-site effects of nutrient losses were put at an annual amount of R976 million, to which must be added the off-site effects of sedimentation and environmental damage of over R172 million at 1992 prices (Barlow, 1996:37-39).

Nonetheless, the annual real growth in agricultural production for the period 1947 to 1991 was as follows (Spies, 1996:3.59):

-	Field crops:	3,06%
-	Horticultural crops:	4,2%
-	Livestock:	2,39%

Some explanation for these differences is given by the *resource quality index*, which is based on rainfall stability, percentage land irrigated and percentage land under natural grazing. Extensive livestock regions have below average resource quality; dryland field crop regions have average resource quality; while vegetable and fruit regions have above average or high resource quality (Van Schalkwyk & Groenewald, 1991:226-227). Furthermore, *agricultural productivity* based on production function analysis with real gross farm income as dependent variable and labour, traction, fertilisation, livestock and resource quality indices amongst others as independent variables, varies between regions. It reflects the effect of different farming patterns (i.e. mixed farming, dryland cropping and extensive sheep or beef farming) and climate, but has generally increased in the period 1976 to 1988 (Van Schalkwyk & Groenewald, 1992:123-124).

According to preliminary calculations, *multifactor productivity* (MFP) for commercial agriculture in the period 1965 to 1981 was 2,15% per year, driven by growth in production; in the period 1981 to 1991 it was 2,88%, driven by reduced use of inputs; and for the total period 1947 to 1991 it was 1,26% per year (Thirtle, Sartorius von Bach & Van Zyl, 1993:301-317). This compares favourable with the MFP of other economic sectors, which vary from -4% for mining to 1,9% per year for respectively textiles and food in the period 1970 to 1992 (National Productivity Institute 1994 in Spies, 1996:3.62). The main sources of productivity growth, particularly after 1965, are efficient use of scarce land as a fixed factor of production and application of public sector research results. It has also been shown that there are links between these productivity changes and positive changes in agricultural policy interventions, such as reduced subsidies and general deregulation since the 1980's (Khatri, Thirtle & Van Zyl, 1994:670-681; Spies, 1996:3.56-3.58).

3.2.3 Future prospects

Critical issues in the forthcoming years are increased pressure on agricultural and food production due to population growth and rising income but a shortage of quality soil and water (Spies, 1996:3.42, 6.19). The classical theory of comparative advantage based on natural resources, often leads to a dependence on those resources

and is part of the "resource curse hypothesis". A new theory must build on competitive advantage that includes segmented markets, product differentiation, technology differences and economies of scale (Liebenberg, 1996:19, 21). The process of *economic transformation* thus involves increasing specialisation in production and exchange of goods, which generates a surplus above subsistence levels and is available for consumption and investment (Shaffer & Wen, 1994:192). Investment whereby employment is generated and wealth is created is the basic requirement for growth of a dynamic economy (Kaltfleiter, 1992:2-6).

Limited natural resources are not a constraint for economic growth, but resources must be used as productively as possible. This applies to extensive grazingland, dryland and irrigated land. Innovations that have proven to be successful in irrigated agriculture of Latin American countries give an indication of future directions: Policy and institutional reform has involved transfer of decision making powers to local water organisations and establishment of water rights markets. This has increased accountability but also increased incentives for conservation and reallocation of water resources. It has led to introduction of water saving technology, change from low income to high income crops and user driven performance evaluation. All these changes have taken place within market directed and export orientated production systems and predominantly by private initiative (Lenton & Garcés-Restrepo, 1995:495-511).

Key requirements are clear specification, enforceability and transferability of property rights; application of cost saving or yield increasing technology; training and extension to improve managerial ability; adding value to products on a local level according to inland and export market potential. Policy imperatives are continued deregulation and decentralisation and removal of any remaining distorting incentives, in particular subsidies on water supply services and medium term capital inputs such as irrigation equipment.

3.3 Transfer versus productive economic activity

Elimination of government interference has the additional advantage of inhibiting transfer activity and promoting productive activity by entrepreneurs.

Control measures limit competition and lead to artificial scarcity of resources. Entrepreneurs will naturally attempt to obtain original rights to resources or new apportionment of rights or favourable application and interpretation of legislation and regulations. Time and financial resources are spent in an attempt to influence government policy. This type of entrepreneurial activity is *rent seeking* or transfer activity. Economic rents are earned by obtaining subsidies or by controlling competitors. Income is transferred from taxpayers to producers, productive resources are wasted but no new wealth is generated, and economic welfare declines (Buchanan, 1980:7-9).

Individual entrepreneurs in the economic systems must be freed from the increasing burden of government regulation (Drucker, 1985:241-244). Reduction of direct and indirect financial support measures by government leads to more competition in markets. Entrepreneurs prosper in situations of competition (Kirzner, 1973:7-19, 30-50).

When arbitrary control measures are removed, entrepreneurs can perform the preferred function of *profit seeking* or productive activity. The incentive is to earn an economic rent i.e. a return on resources that is higher than

opportunity costs. This can be achieved through exchange of rights to resources in the market process. It is obviously not maintained that no political activity will take place, but the emphasis must switch to market activity. This type of entrepreneurial activity is the appropriate way to create new wealth in society. The driving force for economic growth and development is therefore successful entrepreneurship (Buchanan, 1980:3-7).

4. POLICY ADVICE AND RESOURCE ECONOMICS RESEARCH

The tensions brought about by conflicting interests and interaction in the political and market process are also present amongst practitioners of the Agricultural Economics discipline. Instead of having a polarising effect, tensions must be channelled to mutual support. These arguments apply in particular to the approach followed for policy advice and research specialisation in natural resource economics.

4.1 Science and art of policy advice

There are four influential factors in policy advice: The analyst, the client, the organisational situation and the policy area (Meltser, 1976).

Analysts differ by their expectations, professional education and training, beliefs about reality and motivation to make an impact on policy making. If analysts are technically-minded, they measure success in terms of peer acceptance of their work; if politically-minded, they are happy if their immediate boss or client accepts their recommendations, regardless of the ultimate outcome; if entrepreneurial-minded, they are not satisfied unless their efforts influence the allocation of resources and change the lives of people for the better. Policy advice must be construed in such a way as to improve the bargaining position of policy makers and must be client orientated. Clients differ in their ability to listen and clarify problems. Policy advice becomes more effective if time is set aside for discussion of policy problems, expectations of clients and proposals of analysts from the stage of conceptualisation to final recommendation.

However, in most organisational situations a shortage of staff, lack of information and time pressure hinders communication. Very often elegance has to be sacrificed in order to collect and interpret available information before the set return date, because the best information is useless for decision making if it is provided too late. The policy area usually has a twofold dimension: The necessity to build up a base of knowledge and expertise as well as the requirement to cope with crises. Policy advice becomes professionally unreliable and untrustworthy if creative thinking, generation of new ideas, in depth studying of literature and completion of empirical research projects are regarded as dispensable. Although basing advice on preliminary findings is sometimes unavoidable, it must not become a permanent way of doing things due to an approach of crisis management.

The *rational approach* to solving policy problems involves specifying alternatives, determining consequences of alternatives, comparing alternatives according to the preference ordering of the fictitious entity called the "State" and selecting the best alternative for decision making. Although scientific responsibilities are complied with and so-called objective economic advice is provided, it may be politically irrelevant and very often has little impact on policy because it is not heeded. The alternative *incremental*

approach is to accept that policy making is a gradual process of solving problems. It is more important *how* decisions are made than *what* the specific decision should be i.e. there is a sequential process to discover the nature of problems and find acceptable solutions. The art must be mastered to define the political relevant aspect of a policy problem and thereafter apply economic principles and use empirical methods (Shabman, 1984:53-57).

This type of economic policy advice requires interaction between agricultural economists and politicians to determine what is socially desirable, politically acceptable and what are the economic constraints or opportunities. Assessment of the costs of ignoring problems or benefits of finding timeous solutions and creating public awareness of issues is a major contribution by agricultural economists to policy making (Petit, 1990:40-44). Within the incremental policy process, advice is based on three key principles of opportunity costs, marginal change and incentives for private and public decisions (Shabman, 1984:57-65). Concepts from the sub-discipline of resource economics include the following:

- distinction between private and social benefits and costs;
- identification, measurement and mitigation of externalities;
- designing institutions to influence rather than coerce individuals and groups;
- valuation of natural resources;
- specifying winners and losers with use of taxes and subsidies as policy instruments (Petit, 1990:47).

4.2 Focus of research in natural resource economics

All policy advice must be based on sound economic research. In comparison with other sub-disciplines, policy related research in resource economics has received less attention in South Africa than is required. In general terms more research work has been done on land tenure reform and economic analysis of water resource development, but less on declining soil and water quality and valuation of natural resources. *Broad issues* are maintaining the interdependent link between micro-economics and macro-economics; building capacity and a "critical mass" to undertake research; ensuring adequate and continuous funding; conferring research responsibility to specific organisations and diversifying centres of excellence. *Specific issues* must in the mean time be addressed by focusing research projects on major natural resource problems including the following (Department of Environmental Affairs and Tourism, 1996:20-21).

Land

- decline in capacity of the soil to support plant growth
- contamination with toxic waste
- loss of arable land area
- overgrazing of natural veld

Water

- decline in water quality
- over-utilisation of available water quantity
- extraction and contamination of ground water
- neglect of conjunctive use

Biota

- loss of woodland and forest cover

- loss of non-woody flora and associated habitats
- decimation of freshwater and marine fish resources and aquatic life
- general loss of biodiversity

A conceptional approach that will deliver results is to base applied research on the geographic unit of a catchment or watershed.

Firstly it is the logical unit to develop a national system of resource accounts which caters for depletion or degradation of natural resources and costs incurred to redress negative effects or restore drawn down natural capital (El Serafy & Lutz, 1989:23-37).

Secondly it will enable a better understanding of the biophysical linkages, the reasons why individuals use resources in a certain way, economic consequences of natural resource management and appropriate public policy measures (Dixon, 1989:185-199).

Thirdly it will promote communication with local stakeholders, political representatives and fellow scientists, which can only lead to effective multi-disciplinary research and policy advice.

4.3 Combining diverse disciplinary strengths

Policy makers seem to deal with problems in three ways: First they ignore them; if they don't go away they manage from crisis to crisis; if that is not successful they appoint a committee (Eloff, 1996:1). Although committees very often are a delaying tactic, the challenge is to use them correctly for policy advice and to make an effort to implement the findings systematically. This requires perseverance and patience. Unlike scientists who publish in journals, policy advisors usually remain anonymous and the politician gets the credit or blame (Meltsner 1976). Criticism from the sidelines is obviously warranted but seldom helpful. Especially in the present phase of policy reform, agricultural economists affiliated to different organisations must become more actively involved than in the past and participate in the debate at different discussion forums. An alliance must be formed between academics and practitioners or researchers and advisors based on the "common language" of the Agricultural Economics discipline.

5. CONCLUSION

Change is a reality of life but the question is whether improvement can be accomplished. Improvement has a wide meaning but also refers to the effect of the political process in removing limitations on utility maximising economic behaviour (Backeberg, 1994:152-54). The democratic transition to a new political dispensation and acceptance of a constitution with a bill of rights is widely recognised as an achievement. For the first time in the constitutional history of South Africa, use of government powers to infringe on free trade, property, socio-economic and environmental rights are limited and legislation is subject to judicial review. According to the Macro-economic Strategy, strict control will be exercised over government expenditure while still complying with the constitutional requirements of a just and equitable society, although internal checks and balances are insufficient. However, a human rights culture based on mutual respect and trust must still be established in everyday life. If constitutional principles are applied in practice, it is to be expected that further refinements will be made, provided provisions are made for public initiatives to introduce

amendments and strict precautions are taken to prevent arbitrary change (De Villiers, 1996:356-357).

Within a relative short period of two years, major public policy reform has taken place through public consultation in the area of natural resources and the environment, but co-ordination is lacking. The impetus has been to prevent further environmental degradation, promote equitable access and sustainable utilisation of land and water resources, ensure land tenure security and provide basic water supply services. Although the process of policy formation is not yet complete, there are clear indications that apart from correcting political inequalities, where will in future be less government interference in most natural resource based private economic activity.

With limited high quality natural resources, the responsibility of individual entrepreneurs is to utilise existing potential to improve economic growth and development. This can be done through higher productivity, beneficiation of agricultural products and greater export orientation. Competitiveness must be achieved by designing institutions which provide security for investment and incentives for higher profitability; introducing technological innovations, and undertaking investment in human capital (Liebenberg, 1996:25-28). The challenge for agricultural economists is to become more actively involved in policy discussions to give advice for incremental policy improvements. Policy instruments must be proposed that *do not* distort market signals and *do* prevent over-exploitation of natural resources. Due to relative neglect of policy research in resource economics in the past, and a shortage of research expertise, applied research projects must focus on priority natural resource problems identified in the different policy documents.

As a whole the new constitution, reform of public policy, rights based market directed private economic activity, local responsibility for management of natural resources and support by problem solving research, improve the prospects for sustained agricultural economic growth.

NOTE:

1. The ideas expressed in this paper are not necessarily supported by the Executive Management of the Water Research Commission.

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