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GREEN SCHEME AGRO-INDUSTRY DEVELOPMENT

**Creating Systems for Sustainable Industrial
Development based on the Irrigation Sub-sector.**

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1. Introduction

As the least developed continent in the world, Africa finds its economy dominated by agriculture. It is responsible for 35 per cent of the continent's GDP, 70 per cent of its employment and 40 per cent of its exports. In the case of Namibia it is 5.1 per cent of its GDP, 70 per cent of its employment and 3.3 per cent of its exports (source: National accounts).

The majority of Africa's population derives their livelihood from agriculture, and economic development worldwide demonstrated that development in the secondary and tertiary sectors can only be launched successfully after an agricultural revolution has taken place. Such a revolution enables the agricultural sector to supply the necessary food and labour to the industrial and tertiary sectors. Unfortunately, the agricultural sector in Africa as well as in Namibia has experienced continuous decline the past couple of decades.

The strategic importance of agriculture in sustainable development is acknowledged by the World Bank (1993) and stated that "Agriculture's role in economic transformation is crucial for its provision of investment capital, foreign exchange, and labour to other sectors of the economy. Agricultural production is also the most important source of the income needed to improve food security and reduce poverty as most of the poor and food insecure are rural people".

Agriculture in Namibia is crippled by the inadequate development of infrastructure in rural areas, and the lack of support systems for especially small and emerging farmers.

Success in farming is a journey full of challenges and opportunities. To be successful in farming, the modern farmer/management team needs to adapt swiftly and with accuracy to changes in the immediate and global (industrial) environment. Successful farming therefore, involves a precise feeling for the current farming business and where the enterprise is headed (Nell & Napier, 2005). To survive in a globalised market this statement is very relevant for Namibia's emerging farmers, but how can they successfully become part of this important and supporting sector?

In the past, farming activities focused primarily on the production process, which was relatively straight forward. In modern agriculture, it is required of the

farmer/management team to become more involved in the food supply chain, and strategic decisions are expected regarding the total process (Neill & Napier, 2005).

Neill and Napier (2005) stated that farming business have come up against the challenge to identify competitive strengths within the total process, and then to develop strategies in such a way that a competitive advantage is secured. A supporting system is needed in Namibia for all farmers to take part in this challenge. The emerging farmers should be in a position to share in the knowledge and experience of seasoned farmers. Knowledge is a combination of strategy, practice, method and approach. Knowledge is strength only when it is shared, and this is possible only in an environment of trust and mutual respect.

In the current globalisation atmosphere that we operate in, the farm can not be a fragment or an isolated part of the food production system, it has to be integrated, and the way of thinking has to be changed to achieve that integration. If the production unit is not linked to a processing/ value adding system and share in the profits thereof, farmers in Namibia will not be able to survive the international competition.

Individual farmers who are trying to do all their purchasing, all their information management, and all their marketing on their own, will have a severe competitive disadvantage to other farmers who want to cooperate to get purchasing power, information power and to get management power. This is what the green scheme is based on, to join resources and to stand together.

Stiffer competition, combined with higher productivity, will result in a further drop in real prices for most basic food commodities. Farmers will thus have to make continued efforts to improve efficiency (FAO, 2005). New initiatives need to focus on high value crops and niche markets. With this fierce competition new projects need support in the first few years until optimum production is reached.

The successful implementation of the green scheme initiative is critical and is the vehicle needed for government to achieve their objectives for 2030.

2. The Green Scheme Initiative

The Ministry of Agriculture, Water and Forestry, in support of Vision 2030 and the National Development Plan, has brought forward the Green Scheme Policy for the enhancement of agricultural production under irrigation in Namibia, as well as the Horticulture Infrastructure Development scheme to ensure marketability of agronomic production outputs.

The mission of the green scheme is to create an enabling, commercially viable environment through an effective public-private partnership to stimulate private investment in the irrigation sub-sector as well as to settle small-scale irrigation farmers. The scheme aims to reach down to ground level by creating opportunities for individuals to become fulltime commercial irrigation farmers.

The strategy to achieve this is to attract and enable large scale commercial farming enterprises to establish commercially viable entities in remote undeveloped rural areas to act as a tool (Service Provider) for the successful and sustainable settlement of small scale farmers.

The implementation of the scheme is over a 15 year period during which 27,000 hectares are to be developed under irrigation. Government's responsibility in terms of the green scheme vests in the provision of bulk infrastructure to farm gate as well as the provision of predetermined interest rate incentives and loan collaterals on long-, medium- and bridging finance requirements of the farmers.

The anticipated development should facilitate additional industrial development within the retail and manufacturing sectors, which are based on agronomic products, specifically with regard to the agronomic industry's supply chain development and the processing of lower grade products. Up- and down-stream economic benefits are expected to be realized through the implementation of the scheme.

This programme is specifically designed to provide small-scale farmers with a role model (service provider) who may provide advice or insight regarding related farming activities, farm management in general and planning while the service provider takes responsibility for the operation and maintenance of the overall infrastructure to ensure the continuous availability of critical services. Mentorship, an important component of this scheme, is a valuable tool for empowering people to carry out effective and rewarding work. Partnering small-scale farmers with well-established and experienced farmers/entrepreneurs doing similar work means they will have a helping hand through the difficult initial growth phases of their farming experience. Mentorship also exposes the mentor to new ways of looking at things and is an enriching two-way exchange.

Each individual farmer (mentee) is accountable for his/her own actions and can in no way hold the mentor responsible. The mentor only gives advice and it is the farmer's responsibility whether or not to implement and/or to act accordingly. This partnership will help the emerging farmer to learn record keeping, the efficient use of farm resources, improved methods of applying chemicals and fertilizers, and knowledge of the importance of quality and of the demand of export markets. Initially the service provider also relieves the small farmer of the need to find and negotiate with local and international suppliers and buyers. The idea is that the total project should grow as a unit, where the small-scale farmers can grow to independence and the service provider may even disappear from the scene. To achieve this, government has the responsibility to initiate the process and create the controlling conditions. It will not happen on itself. This is a life long challenge and may only come to maturity within the next generation.

The green scheme is the only alternative in most of the communal areas to support economic growth. Investment in the green scheme is not only an opportunity for return on capital, but it is a real opportunity to change the livelihoods of rural people.

3. Green Scheme Objectives

The agricultural sector, including the green scheme, aims at contributing to the national goals to improve the level of food security at both households level and nationally, and to create employment opportunities in order to provide a secure foundation for sustainable and equitable growth throughout the economy (PWC, 2005).

The major sector objectives are to:

- Enhance agricultural production at national and household level in a sustainable manner;
- Raise the volume and gross value of agricultural exports; and
- Maximize the potential value adding within the country to national agricultural output.

The objectives will be achieved and the green scheme will be successful when we have settled individual commercial small-scale irrigation farmers on 13,500 hectares by 2015, attracted experienced service providers on 13,500 hectares, established a sustainable horticulture market system and agro-processing industry.

One of the key success factors in the successful settlement of small-scale farmers is the mentorship programme. As stipulated in the green Scheme Policy, the service provider will support the Ministry of Agriculture, Water & Forestry's efforts in facilitation of the human resource development functions by supporting the small-scale farmers with skills transfer and mentorship programmes.

By far the majority of the small-scale farmers that will get involved in the Green Scheme will not have any experience in irrigation farming and might have limited experience in commercial farming. This results in a huge social responsibility for the service provider to ensure the successful implementation of its enterprise.

A World Bank analysis of data from India found that growth in rural areas in the agriculture sector had a much greater impact on reducing poverty than did urban and industrial growth (FAO, 2005). This supports the argument that all projects can not always be judged on financial values only, but the multiplier effect in terms of socio-economic benefits should be considered as well. Economic growth is very important, but is not sufficient to reduce hunger.

4. Knowledge Transfer: Partnership and Participation

Knowledge drives development. The green scheme development programme can only realize full potential if knowledge and technology are shared effectively and if all the stakeholders are motivated and committed to achieve success.

Ruttan (cited in Machete et al, 2004) argues that productivity differences in agriculture are increasingly a function of investments in scientific and industrial capacity and in the

education of rural people rather than of natural resource endowments. An inverse relationship has been observed between productivity and farm size, i.e. productivity tends to be higher on small farms than large farms (Binswanger and Elgin, 1998). Low productivity of smallholder farmers in general is one of the most important reasons for the failure of most African countries to achieve food security. Raising agricultural productivity is necessary if Namibia is to overcome the problems of poverty, unemployment and food security. This will require a significant increase in investment in all factors that contribute to agricultural productivity and lifting the constraints thereon.

Knowledge, which may be explicit or tacit, is the basis of project planning, strategy formulation and implementation. Therefore, an effective communication system supports the individual project's strategy by nurturing both explicit and tacit knowledge. The effective communication system exchanges explicit (observable) knowledge among key individuals so that all are aware of the project's current status. The green scheme projects will be special types of partnership/ joint ventures between the service provider and small-scale commercial farmers. Although each small-scale farmer will be responsible and accountable for his/her own unit, all the farmers will work as one team to achieve the project's targets.

The green scheme projects will create explicit knowledge from the development and integration of new knowledge by individual specialists. Explicit knowledge usually derives from the refining and sharing of individual's tacit knowledge, which is understood but not yet articulated or usable by the project. Therefore, an effective communication system encourages and enables the sharing of individual's experiences and collects those shared experiences. This may be best accomplished by intense and frequent sharing, and by dialogue rather than one-directional reporting. The individual farmers on a green scheme project should see themselves as members of a partnership, each producing for its own profit and collectively working towards the same objective.

The successful implementation of the green scheme initiative lies not only with the participants in the various projects. The understanding and involvement of the rest of the community is equally important. Without that support, individual projects will struggle to be sustainable. The surrounding communities should have a clear understanding of the potential ripple effects of the project, its contribution to economic growth in that specific area as well as the influence it might have on development of other upstream and downstream industries.

Knowledge and information are essential for people to respond successfully to the opportunities and challenges of social, economic and technological changes, including those that help to improve agricultural productivity, food security and rural livelihoods. But to be useful, knowledge and information must be effectively communicated to people. (FAO, 2005).

Increasing smallholder agricultural productivity requires that smallholder farmers gain access to reliable and good quality support services such as extension, finance and marketing. Smallholder farmers in Zimbabwe (average farm size of between 2 and 3

hectares) doubled maize and cotton production in the 1980s when extension, marketing and credit services were provided (Rukuni and Eicher, 1994). The critical factor here is the sustainability of these services. The green scheme aims to address this via the long-term leasehold of the service provider, ensuring high quality support for at least 20 to 30 years. After this period and even before, the successful individual small-scale commercial irrigation farmers should be able to expand their activities and support themselves.

Machete et al (2004) confirms the critical issues the green scheme initiative is based on and want to address by stating the common factors contributing to the failure of smallholder irrigation projects that include (a) total dependence on government; (b) dilapidated irrigation water supply infrastructure; (c) ineffective water management; (d) low production levels; (e) little knowledge of irrigation and/or crop production; (f) ineffective extension services; (g) lack of markets and credit; (h) difficulty in sourcing production inputs; (i) expensive and ineffective mechanization services; (j) broken fences; and (k) damaged soils. **Although a large number of projects in Africa are failures, the smart partnership approach of the green scheme and continuous mentoring and monitoring of all the individual projects might lead to sustainable commercial irrigation development together with sustainable agro-industry development, leading to economic growth in the remote areas of Namibia.**

5. Implementation programme

The Rural-Urban migrations have reached proportions that are most challenging. While the City of Windhoek have a 4.4% population growth, this is not matched by the equivalent income growth to the City, and unless this trend is reversed by making it more attractive for people to stay in rural areas (i.e. creation of employment and lateral decentralisation), it may eventually suffocate the City. This urbanization process is an issue that should be addressed on a national, regional, as well as on a local level (Von Finckenstein, 2005).

Since the urbanization is higher than the City's economic growth the unemployment situation is just increasing. It is mostly the younger working generation that migrates to the city and bigger towns resulting in less hectares being cultivated in the rural areas as this function is now left to the elderly and children. Urgent stimulation for economic growth is needed in the rural areas to avoid a major crisis. Says Diouf (2005), if each of the world developing regions continues to reduce hunger at the current pace, only South America and the Caribbean will reach the Millennium Development Goal target of cutting the proportion of hungry people by half. **The green scheme can make a drastic difference in this regard in Namibia if all parties involved, i.e. Government, Regional Council, Traditional Authorities and communities, take the issue serious and commit themselves to make a difference.** There are many opportunities to improve rural livelihoods through investment in water development and control. To date the total agricultural area under irrigation consists of about 8,600 hectares. Considering existing national water and land resources, the arable development potential through irrigation in Namibia is estimated at 43,500 hectares. This area leaves sufficient

development potential not only to cover the substitution of existing food imports, but also to enhance exports of high value products.

The envisaged 27,000 hectare development is gradually spread over the assumed development period of 15 years in that during the first four years 1,500 ha per annum will be developed, followed by 1,800 ha per annum during year 5 to 14 and 3,000 ha during the final year. The proposed distribution will spread development costs more economically and ensure that government is able to reap the benefits of these developments more effectively during the forthcoming years in order to support the re-investment of these funds.

The implementation of the initiative will commence with the incorporation of existing government and Namibia Development Corporation (NDC) projects under the green scheme model. The existing projects with small-scale farmer components, i.e. Etunda, Aussenkehr, Shadikongoro and Vungu-Vungu need to be surveyed, farmers should be evaluated and then recommended for long-term leaseholds. Once the leaseholds are issued and registered, the infrastructure on the individual units should be evaluated and then sold to the individual farmers. These small-scale farmers need to be assisted to draft business plans which incorporate the purchase of the infrastructure and production loans. Already at this stage urgent discussion is needed with the financial sectors regarding financing of these small-scale farmers, especially the production loans. As off August 2006 no credit should be provided by the service providers and all contracts should be in place between the farmers and the MAWF.

For the remaining projects to be incorporated, small-scale farming units need to be designed, bulk infrastructure build and emerging farmers selected for training in August 2006 and settlement in January 2007.

To stay inline with the goals and targets set, the first farmers' training will start in January 2006 and the second group in August 2006. Tenders should be advertised for Ndonga Linena and Etunda for service providers and small-scale farmers to commence their operations on the respective areas as of August 2006. This will result in 700 hectares new irrigation land, 800 short of our target for year one.

6. Budget

Investing in smallholder irrigation is one of the most effective ways to develop smallholder agriculture, and thus, contribute to poverty alleviation. Sally et al. (cited in Machete et al, 2004) conclude that smallholder agriculture intensification by improving the management and productivity of land and water in a sustainable manner is a solution for both poverty reduction and agricultural growth in sub-Saharan Africa. In the north-eastern communal areas of Namibia it is the only alternative to initiate sustainable economic growth.

Additional indirect effects of investing in water development include improved nutrition throughout the year, a more active market in rural labour, reduced out-migration, and reduced agricultural pressure on marginal land (FAO spotlight, 2005).

For the Agency to implement the green scheme initiative, and to immediately address the urbanization, unemployment and poverty issues, government will have to deposit at least N\$100 million by March 2006 in a dedicated green scheme account at one of the commercial banks. Only if and when the promised money is available, progress can be made with the scheme. For as long as green scheme funds remain promises and bureaucratic dragging at local, regional and national level is at the order of the day, the initiative will remain a pie in the sky, agricultural production will continue its declining trend and poverty will further increase in especially the remote rural areas.

To achieve our targets, funds need to be deposited into the said account and be available to disburse as per the implementing schedule in table 1. Proper green scheme projects are needed as example to showcase the success of the smart-partnership.

Off all freshwater use sectors, agriculture in most cases shows the lowest return on water in financial terms. The scope and need exist therefore for rapid increase in agriculture's water productivity. Carefully designed water management strategies, associated with programmes aiming at improving efficiency and productivity of water use need to be put in place. Evidence shows that the poverty-reducing impacts of irrigation-related interventions are larger when they are implemented in an integrated framework. The promotion of high return agricultural produces should be part of such strategy (FAO Spotlight, 2005). However, sustainable arrangements are only possible in the communal areas when parties see themselves as involved in a long-term arrangement.

Table 1: **SUMMARY OF GREEN SCHEME BUDGET 2006 - 2010**

FINANCIAL YEAR	2006	2007	2008	2009	2010
DESCRIPTION					
COST TO GOVERNMENT	39,555,743	190,182,403	198,393,893	60,265,737	52,672,279
Bulk Infrastructure Development	23,800,000	168,500,000	159,300,000	22,500,000	3,320,000
Refund of Capital Development	4,000,000	0	0	0	0
Interest Incentives on Development Capital	10,830,856	19,139,630	33,460,886	28,438,971	36,728,340
Interest Incentives on Working Capital	924,887	2,542,773	5,633,007	9,326,767	12,623,938
COLATERAL*	3,166,106	4,288,241	8,230,930	10,206,316	10,632,302
Colateral on Development Capital	1,624,628	1,349,550	2,347,500	1,942,500	1,267,500
Colateral on Working Capital	1,541,478	2,938,691	5,883,430	8,263,816	9,364,802
Contingency	3,955,574	19,018,240	19,839,389	6,026,574	5,267,228
COST TO PRIVATE SECTOR	146,845,512	163,437,274	303,585,746	336,095,393	318,620,053
Capital for Infrastructure Development	108,308,564	89,969,988	156,500,000	129,500,000	84,500,000
Working Capital	38,536,948	73,467,286	147,085,746	206,595,393	234,120,053
TOTAL PROJECT EXPENDITURE	190,356,829	372,637,917	521,819,028	402,387,704	376,559,559

7. Potential of irrigation agriculture in Namibia

The Newsweek (Nov. 2005) reported that “Too much of the world is getting poorer and not richer”. In the same week news reports blurred out that at least six SADC countries currently experience serious food insecurity conditions and that millions need to be spent on food aid. These reports blame the situation on drought and other natural disasters, but in fact there is huge untapped potential in these countries that can result in a booming rural economy. Namibia does not need to be included with these food insecure countries, but then all parties need to contribute to the successful implementation of the green scheme initiative.

The biggest growth and potential in the future years in agricultural activity will be along the perennial rivers on the borders of Namibia. Irrigation agriculture, especially grapes and dates in the south along the Orange River, holds great promise for expansion. This would not only provide new export producers, but due to the labour intensive nature of these activities, may provide greater employment in agriculture. The planned irrigation projects via the Green Scheme along the northern rivers will help to increase agricultural activities to improve self-sufficiency in fresh produce supply to Namibia and all the accompanying opportunities for farmers in the country.

In view of the need to supply water on a priority basis, it is clear that water for man and animal should be catered for first because it is a basic human need and is actually a small quantity in comparison to the other uses. The second set of priority uses are those for economic purposes with special reference to industry, manufacturing and mining because these activities are major providers of job opportunities and economic growth, and thus cannot be constrained as far as reasonable, managed water demands are concerned. The third set of economic priorities concern irrigation, but based on the arguments in this paper need to be a high priority as well.

Namibia currently produces only about 22% of its horticulture demand. Currently only about 8,600 hectares of land are under irrigation while Namibia has the water and land resources to develop more than 43,000 hectares of land under irrigation. The potential is there to reach the critical mass needed within a commercial viable environment and to assist emerging farmers to continuously produce good quality produce. It is estimated that once 27,000 hectares of land has been developed over the next 15 years, 10,000 permanent jobs will be created as well as an additional 34,000 part time jobs. This will have a major impact in the rural economy of especially the Kavango and Caprivi Regions.

With the special climate in Namibia, further market and product research need to be conducted to identify niche markets and products in which Namibia can have a competitive advantage, to reach its full potential.

The intention of the GS initiative is not to disturb or jeopardize the existing market. The intention is not to take away opportunities of existing producers, those who without support produced for many years for the local and export market. The longer term aim is

to make it possible for especially emerging farmers to participate in the commercial market as well as for the development of new crops. Great care should be taken for new developments not to result in current producers have to close down their operations due to unfair competition! An interactive data base providing accurate information on demand and supply of produce as well as cooperation amongst all producers is of utmost importance. Short term overproduction of specific crops to enhance the cash flow of new projects should be avoided.

8. Horticulture and Agronomic Market

Is a lucrative and competitive market available for increased agricultural production?

A successful market economy hinges on an adequate and relevant marketing infrastructure. It is essential that market facilities should be accessible to both buyers and sellers, and that complete, real-time market information should be available to all market participants (NMAC,).

There should not be opposition between agriculture and industry. Consideration should be given to how they are interlinked in modernisation theory and practices and how they should be linked in an alternative national and popular strategy. For the agricultural revolution needs industry to make it possible.

Local producers find it difficult to comply with the three main factors important in horticulture marketing, namely quantity, quality and continuity. Current production areas are fragmented in the sense that production areas are far from each other resulting in transportation not being synchronized and could be expensive. In the absence of a well established, well managed and organized market system, the Namibian horticulture producers will always struggle to increase their market share.

Exports are however, essential for any country which hopes to establish a stable and growing fresh produce industry. It would be wise for the Namibian fresh produce industry, its various growers and grower associations to establish a strategy per product.

Van Heerden and Blomkamp (cited in NMAC) mention the following trends in the international distribution of fresh produce:

- Large multinational companies are becoming increasingly involved in fruit marketing (also in South Africa).
- Food safety requirements are receiving increased attention.
- There is a worldwide overproduction of fruit and vegetables.
- Electronic fresh produce markets (Internet trading) are increasing.
- Mass production in terms of packing is shifting towards mass individualisation to cater for specific needs of consumers.

Great care should be take that the new initiative will not result in flooding the local market, resulting in very low product prices, leading to great losses for the producers. Thus, to avoid this, producers should ensure to take advantage of specific window

periods on the South African and/or international markets. The intention is not to prescribe what new projects should or could produce, but the green scheme agency will have to guide new producers to avoid the situations described above! We need to address the horticulture basket and should not only concentrate on the “easier” crops, or the marketing system should be such that over production will not result in too low producer prices.

9. Can the Model Work?

Let’s take the Etunda project as example where a service provider farming on 300 ha is in place and rendering services to 92 small-scale farmers farming on 3 hectares each. Currently the service provider has a profit sharing contract with government which expires in 2012 and the small-scale farmers have a settlement agreement with government.

After explanation to the small-scale farmers what the green scheme model is all about, the agency received a number of applications where existing farmers want to purchase the infrastructure and want a long-term leasehold. For them it is a financial proposition and some even want to expand to 6 hectares or more.

Although the service provider has a limited contract with government, they initiated processing of grains plus the production of new higher value crops. This is the ultimate goal of the green scheme for investors/ entrepreneurs to cultivate new and higher value crops and when proved, will expand to the small-scale farmers. Targeting a specific market window in September/October, the project planted water melon, sweet melon and butternuts, resulting in relatively high product prices. The project also planted 6 hectares with bananas as experiment looking for alternative crops and opportunities to address the objective of import substitution. With the current low product margins, projects have to add value to its own produce to be able to make a financial success. The service provider capitalized on this and now supplies the local market with good quality maize meal and wheat flour.

It is believed that once projects are incorporated under the green scheme initiative, more hectares will be planted under tree crops and other higher value crops targeting niche markets and/or market windows.

Some of the small-scale farmers that followed the advice of the service provider and its programme are making a financial success of their farming business. It is envisaged that as soon as the performers get long term leaseholds for their farming units, they will excel in their performance and affectivity.

10. Conclusion and areas for further research

Irrigation agriculture is an important point of departure for economic development in Namibia's rural areas. Investment in irrigation development and agribusinesses will create a better future in the communal areas, given the possible multiplier effects it could launch.

The success of the green scheme initiative and resulting economic growth will depend on the effective public private partnership as well as the active and motivated involvement of all relevant stakeholders. The agricultural sector in Namibia has a key role to play in the achievement of Vision 2030 objectives and especially towards poverty reduction and food security.

The green scheme model provides an ideal environment for the sustainable and effective sharing of information and leveraging of knowledge. However, the success of this will depend on the trust established between the service provider and the emerging commercial irrigation farmer.

As Namibia currently only touches its irrigation potential and due to the regional and international competition, further research and analysis will be required into:

- Niche products and markets;
- Value adding opportunities;
- Effective marketing system; and
- Financial viability of emerging irrigation farmers on existing projects.

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