

## **Title: Organic Grain Amaranth: Inspiring Global Actions in Chronic Diseases**

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### **Abstract-Summary**

Non-Communicable Diseases (NCDs), represent a leading threat to human health and development. There is growing recognition that the development of many NCDs may have their roots in the uterine environment and up to the age of five years. On top of the unfinished agenda of infectious diseases in low and middle income countries, NCDs have reached disaster proportions. Yet, in most poor countries there exists no healthcare system for chronic diseases such as NCDs but a diseases management system dependent on expensive drugs and invasive surgeries. This paper will demonstrate how Strategic Poverty Alleviation Systems-SPAS has been using traditional healthcare systems and organic grain amaranth- a non-grass cereal and a nutritional powerhouse which is also medicinal to control NCDs and infectious diseases which has proved very promising. Through the Grain Amaranth Initiative for Nutrition Security (GAINS) model farmers grow amaranth for food/nutrition and incomes and surplus bought by SPAS to make grain amaranth based nutraceuticals for community members. However, the challenge presented by NCDs is of such magnitude to merit a serious policy response.

## **1. Background/Introduction**

The world is experiencing a global epidemic of Non-communicable diseases-NCDs, mainly cardiovascular diseases (CVDs), chronic respiratory diseases and diabetes represent a leading threat to human health and development. Despite impacting the poorest people in low income parts of the world and imposing a heavy burden on social-economic development, NCDs prevention and control is currently absent from the Millennium Development Goals-MDGs. Besides, the international community has not taken on board the growth of chronic NCDs in the developing world, but instead, particularly in Africa, efforts are focused on fighting contagious diseases like AIDS and tuberculosis, which are also mass killers, (WHO, 2011).

However, up to 80% of heart disease, stroke and type II diabetes and over a third of cancers could be prevented by eliminating shared risk factors like unhealthy diets. Besides, there is growing recognition that the development of many NCDs may have their roots in the uterine environment and up to the age

of five years. Indeed, ensuring optimal health of women and their children early in life is critical for the prevention of NCDs, intergeneration transmission of poverty and ill health. Many people are dying younger due to NCDs, often in their most productive years. At the household level these diseases contribute to poverty and reduction in GDP, (WHO, 2011). Interest in traditional systems of medicine and, in particular, herbal medicines, has increased substantially in both developed and developing countries over the past two decades, (WHO, 2003).

Therefore, this paper will demonstrate how Strategic Poverty Alleviation Systems-SPAS has been using organic grain amaranth-a non-grass cereal or pseudo-cereal and a nutritional powerhouse which is also medicinal not only to prevent NCDs but to control all chronic diseases. Indeed, through the Grain Amaranth Initiative for Nutrition Security-GAINS, and Organic Grain Amaranth HIV/AIDS Initiative-OGAAI, SPAS addresses all chronic diseases simultaneously. SPAS has partnered with communities through GAINS and OGAAI models to provide affordable and easily accessible nutraceuticals for prevention and treatment of chronic diseases.

### **1.1 The double burden of NCDs and Infectious Diseases**

Indeed, on top of the unfinished agenda of infectious diseases in low and middle income countries, there is now an epidemic of non-communicable diseases. Malnutrition and infection in early life increase the risk of NCDs in later life and in adult life. Because intervention against either health problem will affect the other, intervening jointly against NCDs and infectious diseases, rather than competing for limited funds, is an important policy consideration requiring new thinking and approaches, (UNAIDS, 2012).

### **1.2 Current healthcare model for chronic diseases**

In most poor countries there exists no healthcare system for chronic diseases such as NCDs but a diseases management system dependent on expensive drugs and invasive surgeries. It's a system with a mission to maximize profits as opposed to helping people maintain or regain their health. Indeed, the existing flawed model of "care" for people with chronic illnesses is a leading cause of death and bankruptcy. However, the GAINS model could be a better alternative or provide a suitable compliment to the current system as it offers prevention strategies as well as tested curative therapies that have been used by communities for eons. Furthermore, the more people take responsibility for their own health by nurturing their bodies, the less they will need to rely on "disease care" system that passes for healthcare.

SPAS works to improve current health and nutrition models, policies and practices and provide a framework for the long term needs of people at risk of chronic diseases. Building on local and traditional skills and knowledge in controlling chronic diseases is important for two reasons; Firstly, many communities already have context relevant knowledge and strategies for addressing diseases, and secondly, efforts to marry development with traditional diseases control methods for vulnerable populations will benefit from the ways people have always responded to diseases burden.

## **2. Materials and methods**

SPAS simply trains communities to fall back on the wisdom of their ancestors-their old traditional farming, food and medicine sourcing systems (traditional healthcare systems to control chronic diseases. SPAS assists communities to integrate organic grain amaranth with other active traditional herbal extracts that are common to the Kenyan phyto-pharmaceutical traditions to provide a lasting solution to NCDs. Communities grow organic grain amaranth for food/nutrition and incomes and SPAS buys part of the surplus for making grain amaranth based nutraceuticals for chronic diseases. As for quality assurance, SPAS trains farmers and pastoralists as producers, handlers and processors of medicinal plants materials and provides guidelines on good agricultural and collection practices (GACP) as spelt out in the WHO guidelines on good agricultural and collection practices-GACP for medicinal plants. Traditional methods of food harvesting and preparation (processing) are used. In order to guarantee high quality of finished products, and use of material plants that are of sufficiently high quality standards, organic agricultural practices are strictly followed. These nutraceuticals can be taken by all irrespective of health status or even sero-status which reduces stigma associated with lifelong taking of medication for chronic diseases. Indeed, the model provides a refreshing shift from the current neglect of chronic illnesses particularly NCDs which are not even mentioned in the current MDGs yet they represent 63% of all deaths.

### **3. Results**

People with NCDs such as diabetes, cancers, hypertension, and cardiovascular diseases, for instance, who take these nutraceuticals report to have totally healed within between three weeks and three months. In qualitative terms, the quality of healthcare provision of people with chronic diseases is likely to be greatly enhanced and at low cost resulting in a higher level of community participation and people with chronic diseases satisfaction.

There has been increased recognition of and trust in organic agriculture, traditional foods and medicinal resources and healthcare systems in controlling NCDs which is critical in winning this war in fast changing economic and ecological circumstances. Indeed, a critical window of opportunity now beckons to move healthcare systems for chronic diseases off the current path of disease management and embark on a trajectory towards curative therapies for these illnesses based on organic agriculture and traditional healthcare systems.

### **4. Discussions**

As the Roman philosopher Cicero once said, “not to know what happened before you were born is to be forever a child”. These words came back to me recently as anthropological evidence suggested that the dawn of agriculture had a detrimental effect on our health. Nutritional deficiencies experienced by early agricultural practitioners, who also had a harder time adapting to stress, could be probably because they became dependent on particular food crops, rather than having a more significantly diverse diet. Even today about 60% of our calories come from processed nutrients deficient grass cereals rice, wheat and maize.

However, diversification of production and consumption habits to include a broader range of plant species currently identified as “underutilized” can contribute significantly to improved health and nutrition, household food security and ecological sustainability, (Danik M. et al 2007). Organic grain amaranth—a non-grass cereal and a nutritional powerhouse which is also a medicinal crop is such an underutilized plant genetic resources. However, the vital issue with the future of amaranth can be determined by the end use products, (Danik M. et al 2007). Using traditional organic production and healthcare systems, SPAS improves the “end product” to produce healing foods as Hippocrates, considered the father of modern medicine would have us do, “may your food be your medicine, and may your medicine be your food”. Besides, there is growing recognition that the development of many NCDs may have their roots in the uterine environment and up to the age of five years. Production and regular consumption of grain amaranth ensures optimal health of women and children in early life which is critical for the prevention of NCDs. Indeed, SPAS assists communities to integrate organic grain amaranth into their diets and landscapes as a prevention strategy for preventing and controlling NCDs.

#### **4.1. Current healthcare model for chronic diseases**

In most poor countries there exists no healthcare system for chronic diseases but a diseases management system dependent on expensive drugs and invasive surgeries. It’s a system with a mission to maximize profits as opposed to helping people maintain or regain their health. Indeed, the existing flawed model of “care” for people with chronic illnesses is a leading cause of death and bankruptcy. However, the GAINS model could be a better alternative or provide a suitable compliment to the current system as it offers prevention strategies as well as tested curative therapies that have been used by communities for eons. Grain amaranth and such other cereals are also closely tied to cultural traditions and therefore have an important role in supporting social diversity. (Jaenicke at al, 2006). Indeed, SPAS uses Organic grain amaranth to expand the cereal plant species used by communities for food/nutrition and health, sustainable ecosystems (where used to convert small-scale farming systems into organic production enterprises) and cultural diversity. Besides, organic grain amaranth is drought, diseases and pests resistant and delivers nutrition as a package (quality proteins, vital vitamins and minerals and carbohydrates) making it a potent tool for climate mitigation and adaptation.

#### **4.2. NCDs and Infectious Diseases**

Combination of major NCDs and infections such as diabetes and tuberculosis can interact adversely. Because intervention against either health problem will affect the other, intervening jointly against NCDs and infectious diseases, rather than competing for limited funds, is an important policy consideration requiring new thinking and approaches, (UNAIDS, 2012). Through the GAINS and OGAAI initiatives SPAS addresses both challenges simultaneously.

## **5. Conclusions**

By rejecting and seeking to replace wholesale traditional healthcare systems which are embedded in organic agricultural practices, and by throwing away the vast heritage of wisdom upon which they are based, we risk committing a grave folly, and, perhaps losing the only opportunity we have towards

finding a lasting solution to chronic diseases. However, supporting and propagating traditional healthcare and agricultural systems and exploring further other innovative paradigms that promotes organic agricultural production practices, people's participation and empowerment at low cost is one way that the global community can assist in closing health gaps and removing disparities in healthcare provision for NCDs.

But more substantial attitude shift towards organic agriculture and traditional foods and medicinal resources, skills and knowledge will be needed as a first step towards inspiring global actions for providing lasting solutions to these key global health challenges.

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