



# Scientific and Technical Cooperation Program

## International Travel Report

### Northern Province of South Africa

Written by  
Kim Berry, Team Leader  
Dr. Jeffrey Kenyon  
Dr. Daniel Lyons  
Dr. Daniel Wims

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The team consisted of Kim Berry and Dr. Jeffrey Kenyon, sociologists, Natural Resources Conservation Service's (NRCS) Social Sciences Institute; Dr. Daniel Lyons, Assistant Administrator, Regional and County Programs at North Carolina A&T State University; and Dr. Daniel Wims, Director, Small Farm Family Resource Development Center at Southern University and A&M College. Team members visited the Northern Province of South Africa to exchange ideas and concepts on outreach strategies to underserved populations with the faculty at the University of The North and the Northern Province's Department of Agriculture staff.

#### **Background**

South African soils are fragile and highly susceptible to erosion, especially if incorrect farming and irrigation techniques are applied. Environmental damage in rural areas is increasing because of incorrect irrigation methods, excessive use of pesticides and fertilizers and pollution of surface and groundwater industries, power stations and mines. Rural biodiversity is also threatened by the spread of exotic and invasive plant species, the increasing use of land for forestry and the destruction of indigenous forests by agriculture.

According to the Minister of Agriculture, Dr. A.I. van Niekerk, "South Africa is a country lacking sufficient water supplies. It is also characterized by a scarcity of high potential agricultural land. The nonagricultural demand for both these resources is increasing. It is imperative for agriculture to utilize these two resources to ensure the sustainable production of agricultural products."

Farmers, both large and small-scale are the principal users and custodians of the land. It is their responsibility to produce food for their Nation. The government encourages integrated land-use planning and community participation to ensure optimum management and utilization of natural resources.

The team was based out of Pietersburg, South Africa. We visited numerous villages such as Nebo, Mogabane, Moloto, Ramongoana, Kola, townships, and the cities of Pretoria and Johannesburg. In the Northern Province, out of 700,00 farm families, 90 percent farm at the subsistence or small scale level. This province has the highest percentage of dependence on agriculture and has the largest percentage of South African population who live in poverty.

According to the White Paper On Agriculture, "Resource poor farmers have often been viewed as inefficient and backward, but in fact they can be highly efficient users of agricultural resources. Their contribution to rural incomes should be supported by

appropriate training, extension and research. Rather than seeing resource-poor farmers as a dispensable production entity, efforts should be made to improve their productivity.”

Resource poor farmers are primarily women whose husbands must seek employment in neighboring cities. The average farm size in a village is less than 1 hectare and the produce grown is used for household consumption. These small plots are often not fenced and are destroyed by livestock who freely roam the villages. Malnutrition is a problem among children in these villages as well as food storage because many homes have no electricity nor do they have indoor plumbing. Their major food source is maize.

The team was interested in finding out how the University of the North and the Provincial Department of Agriculture worked with the resource poor farmers in the neighboring villages to improve their quality of life.

We met with the faculty at the University of The North in the Agriculture, Botany, Education, Unify, Management Sciences, Optometry, Social Work, Research Administration, Horticulture, Aquaculture, Geography, Animal Unit, and Nutrition departments. This university is one of five historically black universities in the country. It was founded in 1959. Of the 14,500 students, 90 percent live on campus and come from rural backgrounds. The following are research projects being conducted by those departments who had an outreach component to the surrounding villages.

### **Agriculture**

This department has four units: animal production, plant production, soil science, and agricultural economics. The research conducted on the 23 hectare horticulture block and 2,000 hectare experimental farm focuses on the agricultural needs of the province.

One of the highlights of the trip to South Africa was our visit to the Nebo village. This tribe filed a claim for land that was taken during apartheid. The village won their claim and was given back their land. Each of the 25 families received 5 hectares of land. The entire village warmly greeted the team and provided us with a tour of their farms. The village is working with the University’s Department of Agriculture and extension agents on crop production and irrigation methods. Some of these farmers had worked for more than 30 years maintaining someone else’s farm and are excited about the opportunity to work on their own farm.

### **Management Sciences**

This department provides workshops to nongovernment organizations on topics such as leadership development and how to manage conflict and they in turn train the people in the villages. This department focuses on the management of public and private organizations.

## **Social Work**

Students work with village families on research topics such as slow learning, juvenile delinquency, poor eyesight and track the families' progress through case files.

## **Aquaculture**

This department has worked to introduce catfish as a part of the diet to people in the village with little success. Research is currently being conducted in fish production in intensive water recirculating systems and they are evaluating energy and water resource use in intensive fish farming. Other research topics include: biofiltration, integrated food production systems, soil quality and environmental pollution, small-scale tropical fish units, processing technology, fish nutrition, the development of low cost feeds, and selective breeding research.

## **Geography**

The scarcity of water is a problem in the villages. This department is working on a fog water project that is an alternate way of increasing the water supply. Villagers grow indigenous fruit and this department will be working with them to expand their markets to include the beverage industry. It is hoped that by selling the fruit as a source of juice to the beverage industry additional income will be generated and there will be an increase in the demand for more indigenous fruit.

## **Nutrition**

This department is working with the villagers on different ways to prepare maize and trying to introduce different legumes such as cowpea, pumpkins, and dried beans as a source of protein. The department wants to research a more economical way to fortify maize because once it goes to a mill the villagers can no longer afford it. They are also interested in food storage techniques that can be demonstrated to the villagers. They will also be conducting research on the nutritional value of indigenous plants, mopagane worms, and other food staples of the village.

## **Provincial Government**

We also met with the Northern Province's Department of Agriculture, Land and Environment, the Northern Province's Youth Commission, National Community Water and Sanitation Training Institute and the Agricultural Research Council of South Africa's Institute for Soil, Climate and Water.

## **Northern Province Department of Agriculture, Land and Environment**

The provincial government provides assistance to villages and townships to engage in small scale communal farming. We visited the Mogabane Vegetable Project where 25

families grow vegetables for consumption. Oranges, sugar cane, broccoli, cabbage were the primary products at the Kola Vegetable and Orchard Project and the produce is marketed at the landowner's store. Providing fresh poultry and eggs is the goal of the Moloto Poultry Project. The operator also sells feed at the local market. We also visited the Endermark Vegetable Project where women in the local township maintained a garden plot where they grew cabbage, radishes, and other vegetables. They will also make homemade peanut butter and provide home economics training such as food preparation and sewing to the local community through assistance from the government.

### **Youth Commission**

The Youth Commission provided us with statistics on the state of young people in the Northern Province. Sixty-four percent of black youth live in homes without running water and electricity compared to 16 percent colored, 8 percent Asian, and 3 percent white. Three million youth under age 30 are unemployed and are not participating in any training. They expressed an interest in establishing an exchange program where a student is sponsored by a family in the United States and receives hands-on training on farming practices that he/she can take back and share in South Africa.

### **National Community Water and Sanitation Training Institute**

Its mission is to build capacity in the community water and sanitation sector in collaboration with other key players. It is a center for training the trainers. One of its objectives is to network and link with national and international training organizations and offer information support services. The institute has expertise in water resource development and general community development at the grassroots level.

### **Institute for Soil, Climate and Water**

Its mission is committed to research, technology development and transfer to promote optimal and sustainable natural resources utilization by agriculture and related sectors. Its objectives are aimed at a healthy natural resource base, food security, sustainable land use, and advancing science and technology. In the area of small-scale and developing agriculture emphasis is placed on helping people to help themselves in the areas of household food security and entrepreneurship. Hands-on training in low-cost vegetable production and networking is provided to communities. Research is being conducted on safe efficient use of household waste in place of inorganic fertilizers and efficient water utilization.

### **Conclusion**

At the conclusion of our visit the team conducted a workshop entitled "Outreach Strategies to Culturally Diverse Groups in Agriculture." The workshop was attended by more than 45 people that included faculty and students from the University of The North

and extension agents and community planners from the Northern Province's Department of Agriculture. The following topics were presented Alliance Building that leads to Successful Outreach; Integrating Anthropology, Marketing and Commonsense in Serving Culturally Diverse Groups; Overview of Outreach and Extension Programs at NC A&T; and 1890s and Small Farm Outreach.

## **Recommendations**

Joint Research Project with the University's Department of Agriculture - Professor(s) from the University of The North's Department of Agriculture spends an agreed upon time to conduct research that leads to technology development and transfer for small-scale farmers and ranchers that would be mutually beneficial to both countries. Areas for consideration could include but not be limited to: soil health, irrigation systems, agroforestry, wind erosion, and water quantity.

Joint Research Project with The University of The North - Personnel from NRCS, the University of The North and one or more private foundations work to develop a system of targeting agricultural, conservation, nutrition, and environmental information to resource poor farmers. This project would require the cooperation of the Social Work, Geography, Nutrition, and Agriculture Departments at the University. Working with those departments would be sociologists and anthropologists from NRCS and some advisory food foundation personnel from the Carter Center or another similar food foundation. The end product would be similar in concept to the NRCS Farm-A-Syst project but would be designed to function within the structure of African rural village cultures and within the confines of a population with a high illiteracy rate. The cooperative institutions or foundations could supply critical information on using whole enzyme corn or other similar foods.

Research Apprentice Program - Enrollment in the University of The North's Department of Agriculture is low because students are more interested in hi-tec disciplines. Information could be shared on how the agency works with 1890 institutions to start research apprentice programs which introduces high school students to natural resource sciences in a college setting. This type of program has been shown to spark interest in natural resource sciences in the United States. There could also be an exchange component to the program to expose students to natural resources in other countries.

K-12 Agricultural Awareness - Selected NRCS personnel and faculty at 1890s such as North Carolina A&T State University or Southern University and A&M College could collaborate and assist faculty and administrators at the University of The North in developing instructional and informational modules on career and educational opportunities in the agricultural industry domestically and internationally. Focus of the informational program areas and opportunity, commercial traditional and alternative commodity production, community development, etc. The instructional and informational modules will be delivered by agricultural instructors, extension agents and agricultural

specialists, and graduate and honor students at primary and secondary schools and community based youth organizations throughout the province.

Agricultural and Community Development Agent/Specialist Training Program - NRCS and 1890 land grant university scientists, program leaders and specialists could visit to study and observe to enhance their general knowledge regarding social, educational, and economic circumstance in the province. They would also gain access to information that will enable them to develop an intensive training program for agents, specialists, faculty from the province. The South Africans would then will also travel to selected 1890 institutions and/or field offices to take part in and complete an intensive training program and shadow specialists and scientists that work with small scale farmers and community development.

Leadership and Cooperative Community Development - A team consisting of selected NRCS and 1890 personnel will develop a model outreach program that works with local communities in helping residents to assess problems, reach community level solutions and engage in sustainable community development employing community level developed solutions and strategies. The team will also assist in the creation or strengthening of community leadership organizing efforts and cooperative training models where residents participate in all processes from problem recognition to program evaluation.

MANRRS Chapter - NRCS is a major sponsor of the Minorities in Agriculture, Natural Resources and Related Sciences organization. NRCS could work with this organization to establish a chapter on the University of The North's campus. It would enable students to network globally. It would also provide USDA with a larger pool of students from which to recruit.