IFDC's Expanding Horizons Around the Globe

IFDC Corporate Report 2001/2002
IFDC—An International Center for Soil Fertility and Agricultural Development

IFDC Profile

IFDC
An International Center for Soil Fertility and Agricultural Development

IFDC is a nonprofit, public, international organization (PIO) dedicated to conduct its work independently and on a scientifically sound basis. IFDC was founded in 1974 to help in the quest for global food security. The Center's goal is increasing agricultural productivity in a sustainable manner through the development and transfer of effective, environmentally sound plant nutrient technology and agricultural marketing expertise. The Center has conducted technology transfer activities in more than 130 countries. IFDC has contributed to the development of human resources and institutional capacity building in 150 countries through more than 630 training programs. Its cadre of scientists and professionals provide a unique mix of applied research, technology transfer, and agribusiness development capabilities. The Center's facilities include libraries, laboratories, greenhouses, pilot plants, and training facilities.

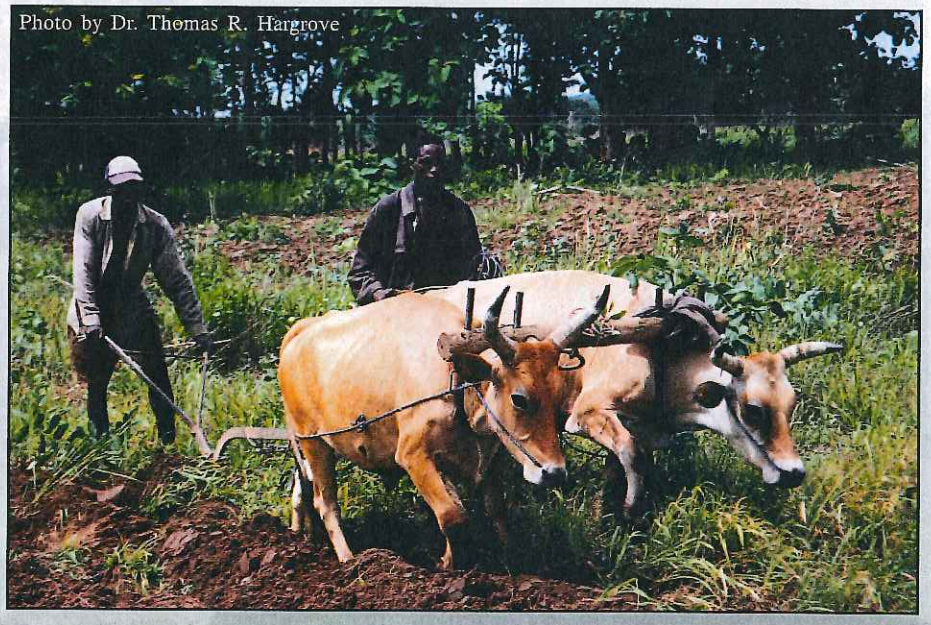


Photo by Dr. Thomas R. Hargrove

Focus

IFDC's work focuses on:

- Policy analyses and reform and institutional capacity building to develop competitive markets for agricultural inputs and outputs;
- Provision of tools and information for more efficient and environmentally sound management of plant nutrients;
- Information and recommendations to improve and sustain soil fertility and land productivity;
- Provision of technical assistance and knowledge to enhance the efficiency and safety of plant nutrient production and supply;
- Training for human resource development in all areas of work.

Cover Photos (top to bottom): Dr. Walter T. Bowen; the late Dr. Bayébinam K. Kezie; and Nurhan "Sveta" Shukurbekova.

"IFDC's most valuable asset is its people. The Center has been blessed in having people who are dedicated to the mission that they have made their own."

—Amit H. Roy, IFDC President and CEO

When I was growing up in India, I could have never imagined myself where I am today. But I always knew that I wanted to work in a field of agriculture through which I could help people. I can vividly remember seeing crowds of people begging for food on the street near my college. Those images are indelibly etched on my memory and definitely had an impact on my life. About the same time, Dr. Norman Borlaug introduced the high-yielding varieties of wheat to India, and the Green Revolution came to my country.

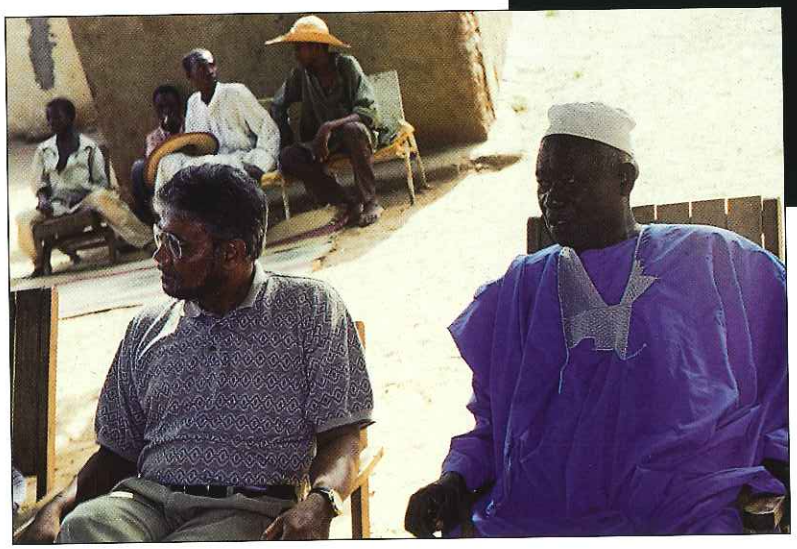
India is a macrocosm of many cultures, and it has more than 15 different languages. Because of my father's career moves, my youth was enriched through the exposure to many different cultures. I was born in Calcutta (now known as Kolkata), where my father had been transferred to a new job. Until I was in the 7th grade, we lived in that city—three miles from Mother Teresa's mission. I met that amazing lady on two occasions. I saw her caring for the very poor people of India, even those suffering from leprosy. My father was later transferred to Bombay (now known as Mumbai)—essentially a different culture with another language. After living there for 8 years, we moved to Madras (now known as Chennai), which was again a different culture. Later I was accepted to the Indian Institute of Technology, one of five colleges established by the Government in collaboration with other developed countries. These colleges attract people of many different cultures and backgrounds from throughout India. After completing college, I came to the United States for graduate studies. Because of my experiences in India, I feel very comfortable working with people of different cultures.

I think the greatest satisfaction I receive through our work is seeing the people whom we are trying to help eventually helping themselves. For example, on my first trip to Albania, I saw a country that was in dire straits. The best hotel in town had only one item on the menu; there was no heat or hot water. Today when we visit Albania, we see a transformed country. People have money and are able to conduct business. They are happy. Of course, there are still problems, but at least people have been pointed in the right direction.

If an organization is to succeed in development, it must have a vision. Equally important is to have a staff that is prepared to make that vision a reality. IFDC has a truly dedicated staff—there is no question about it. IFDC's most valuable asset is its people. The Center has been blessed in having people who are dedicated to the mission that they have made their own. Our staff believes in the philosophy of IFDC—that we are here to make a difference in the world. Without this, we could not be successful.

The uniqueness of IFDC is that it is an institution that encompasses both research and development. We are conducting research for a purpose—to assist in the development process. Our larger vision is that in Asia and Eastern Europe we have helped develop the entrepreneurship of the people and, at the same time, brought to fruition the research of the advanced institutions. I want to see the same type of success in sub-Saharan Africa. With the right combination of policies, the desire, and all of the other necessary factors, Africa is very capable of achieving success in agricultural and economic development. I envision a world that is peaceful where people have the opportunity to have a better standard of living and are well fed.

In the final analysis, I believe that IFDC is becoming a major player in the world development scene in relation to agricultural development. I want IFDC to remain a place where people from various countries can come for unbiased, sincere, and open information and communication.



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Acronyms

AAATA	Assistance to Albanian Agricultural Trade Associations
AAK	Association of Agribusinessmen of Kyrgyzstan
ABK	American Bank of Kosovo
ABMC	Association Business and Management Center
ACTED	Agence d'Aide a la Cooperation Technique et au Developpement
ADMARC	Agricultural Development and Marketing Corporation
AIMs	agricultural input markets
AKA	Association of Kosovo Agribusiness
AMDA	Agro-Input Market Development in Azerbaijan
ANMAT	Adapting Nutrient Management Technologies
AOA	Alimentary Oil Association
APCAM	Assemblée Permanente des Chambres d'Agriculture du Mali
ARC	Agricultural Research Council
ASTA	American Seed Trade Association
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit of the Federal Republic of Germany
CA	Chambers of Agriculture
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIDA	Canadian International Development Agency
CIMMYT	International Maize and Wheat Improvement Center
CIP	International Potato Center
CNDC	Combating Nutrient Depletion Consortium
CONDESAN	Consortium for the Sustainable Development of the Andean Ecoregion
COSTBOX	Client-Oriented Systems Tool Box
CPPs	crop protection products
CYTED	Ibero-American Progam for Science and Technology in Development
DAE	Department of Agricultural Extension
DAP	diammonium phosphate
DGIS	Netherlands Minister for Development Cooperation
DSS	decision support system
ECAMAW	East and Central Africa Maize and Wheat
FAO	Food and Agriculture Organization of the United Nations
FASEPE	Favorable Socioeconomic and Policy Environments for Soil Fertility Improvement
FfF	Farmers for the Future
FIPA	Federation Internationale des Producteurs Agricoles
F&SAD	Fertilizers and Sustainable Agricultural Development
GDP	gross domestic product
GIS	geographic information system
GISD	Geographic Information for Sustainable Development
GRSP	Ghazni Rural Support Program
IAEA	International Atomic Energy Agency
IAPAR	Agronomy Institute of Paraná
ICARDA	International Center for Agricultural Research in the Dry Areas
IDRC	International Development Research Centre
IDSS	information and decision support system
IFA	International Fertilizer Industry Association
IFAD	International Fund for Agricultural Development
IITA	International Institute for Tropical Agriculture
IMC	International Medical Corps
INIA	National Institute of Agricultural Research
INIAP	National Research Institute in Agriculture and Livestock
INTA	National Institute of Agricultural Technology
IPSA	Independent Professional Seedsmen Association
ISFM	Integrated Soil Fertility Management
JICA	Japanese International Cooperation Agency
JIRCAS	Japan International Research Center for Agricultural Sciences
KADP	Kosovo Agribusiness Development Program
KAED	Kyrgyz Agro-Inputs Enterprise Development
KASH	Albanian Agribusiness Council
KODAA	Kosovo Dealers and Agri-Inputs Association
MAI	Ministry of Agriculture and Irrigation
MOS Andes	Management of Soils in the Andes
NGOs	nongovernmental organizations
NARES	national agricultural research and extension systems
NARIs	national agricultural research institutes
NARS	national agricultural research systems
NASA	National Aeronautics and Space Administration
NVRI	National Veterinary Research Institute
PO	peasant organizations
PRONAMACHS	National Program of Watershed Management and Soil Conservation, Peru
QPM	quality protein maize
SHPUK	Kosovo Poultry Farmers and Feed Millers Association
SSA	sub-Saharan Africa
TSBF	Tropical Soil Biology and Fertility Programme
UDP	urea deep placement
UEMOA	West African Economic and Monetary Union
UNDP	United Nations Development Programme
UNIS	National Inter-Professional Seed Association of Senegal
USAID	U.S. Agency for International Development
USDA	United States Department of Agriculture
USG	urea supergranule

Photo by Marie K. Thompson

Because of IFDC's work in their country, these young children from Ahohoue, Benin, can have hope for a better tomorrow.

Letter From the Chairman of the Board

When the World Food Summit 2002 convened in Rome in June 2002, the 15 living World Food Prize Laureates issued a global call to action by stating: "The world as a whole cannot enjoy durable peace, social stability and economic prosperity while hundreds of millions of people suffer from abject poverty and hunger." The Laureates emphasized that hunger "should be the primary concern for everyone . . . it is imperative that we work together to strengthen the research and policy framework underpinning the necessary productivity increases in agriculture, livestock, and aquatic resources in an environmentally sustainable manner. Because most of the poor and hungry in developing countries live in rural areas and rely on agriculture for their livelihood, development policies in these countries should give priority to sustainable productivity increases in agriculture and rural development, including essential infrastructure such as rural roads and markets."

Dr. Norman Borlaug, the 1970 Nobel Peace Prize Laureate and an IFDC Board member, recently wrote the blueprint for achieving many of the aforementioned goals: "We must learn to produce nearly three times as much food for the more populous and more prosperous world of 2050, and from the farmland we are already using, in order to save the planet's wild lands." Borlaug has spent his past 20 years trying to replicate the Green Revolution in sub-Saharan Africa, where farmers still use traditional seeds and organic farming systems. However, he knows that low-yielding farming systems are only sustainable for those people who have high death rates. In sub-Saharan Africa, per capita food production is declining mainly because of high population growth rate and declining soil fertility.

IFDC is actively engaged in addressing the soil fertility issues through the introduction and promotion of Integrated Soil Fertility Management (ISFM). ISFM involves the use of mineral fertilizers, along with crop

residues, manures, and other soil amendments such as phosphate rock, lime, and gypsum. However, ISFM options for each agroecological zone vary and are developed through the active participation of all stakeholders. The results to date are promising and are discussed later in this report. Without some of these innovative approaches, sub-Saharan Africa is likely to see millions more undernourished children by 2020.

The Earth's population has never been as great at it is today and it has never grown so rapidly within one century as it has during the most recent one. In fact, a billion people have been added every decade during the past three decades alone. The food security situation is bleakest in sub-Saharan Africa, where one out of every three people is food insecure. This is the only region in the world where both the number and proportion of malnourished children have been consistently rising in recent years. One-third of all children in sub-Saharan Africa go to bed hungry, and their mental and physical development is compromised by hunger. However, significant improvements have been made in food security in other regions; globally the proportion of young children who suffer from malnutrition fell sharply from 45% in the late 1960s to 31% in the late 1990s. Although progress has been made in improving food security and the quality of life of the world's people, this progress has not occurred everywhere nor has it affected everyone.

Several questions confront all development experts. "How can the world achieve sustainable development in the face of an ever-growing population? Can this be accomplished through human intervention and new technological advances? Will the Earth's natural resources be able to meet the food demand from a steadily rising world population? Or will hunger persist for millions of children for the foreseeable future?"

According to the United Nations, the world's population by 2050 is expected to increase by 3 billion, possibly by 4.5 billion. To meet the food demand of this burgeoning population that is increasingly urban, most experts believe that cereal production will have to be increased by about 35% and meat production by more than 55% in the next 20 years. Because the availability of land for farming purposes is declining, agriculturalists will be challenged to increase production on available land. More intensive agricultural production must be accompanied by measures to maintain and replenish the soil to prevent agricultural areas from becoming degraded. Better rural infrastructure will be required to allow increased production to reach consumers in urban areas. All of this will require more enlightened policies and substantial investment in agricultural inputs, such as fertilizers.

A world characterized by less poverty, greater food security, and a healthier environment is possible, but that scenario will require careful implementation of appropriate policy measures to encourage it.

E. Travis York
Chairman of the Board

Photo: Dr. Thomas P. Thompson

Ce jeune Vietnamien peut s'attendre à avenir plus radieux du fait des résultats prometteurs du projet de l'IFDC dans son pays.

Lettre du Président du Conseil d'Administration

Lors du Sommet Mondial de l'Alimentation à Rome en juin 2002, les 15 lauréats vivants du Prix Mondial de l'Alimentation ont exhorté à une action urgente. "Le monde, ont-ils déclaré, ne connaîtra pas une paix durable, la sécurité sociale et la prospérité économique tant que des centaines de millions de personnes souffriront de la misère et de la faim." Les lauréats ont souligné que "la faim doit être une préoccupation majeure pour chacun d'entre nous... Il faut absolument travailler ensemble à renforcer les cadres de recherche et de politique capables de soutenir les croissances de productivité nécessaires dans l'agriculture, l'élevage et les ressources aquatiques dans un environnement durable. Puisque la majorité des pauvres et des affamés des pays en développement vivent dans les régions rurales et tirent leur subsistance de l'agriculture, les politiques de développement de ces pays doivent viser en priorité la croissance durable de la productivité dans les domaines de l'agriculture et du développement rural, y compris le développement des infrastructures de base telles que les routes et les marchés."

Dr Norman Borlaug, le Lauréat du Prix Nobel en 1970 et membre du Conseil d'administration de l'IFDC a récemment élaboré un plan pour la réalisation des objectifs sus-mentionnés: "Nous devons apprendre à produire près de trois fois autant de vivres pour le monde plus populeux et plus prospère de l'année 2050. Et ceci, à partir des terres que nous exploitons déjà afin de sauvegarder les espaces sauvages de la planète." Borlaug s'est appliqué, ces vingt dernières années, à essayer de reproduire la révolution verte en Afrique subsaharienne où les paysans utilisent encore des semences traditionnelles et des systèmes de culture basés sur les ressources organiques. Cependant, il sait que les systèmes agricoles à faible rendement ne sont durables que pour des populations accusant des taux de mortalité élevés. En Afrique subsaharienne, la production alimentaire par personne décline du fait du fort taux de croissance démographique et de la baisse de la fertilité des sols.

L'IFDC s'emploie à résoudre les problèmes de la fertilité des sols par l'introduction et la promotion de la Gestion Intégrée de la Fertilité des Sols (GISF). La GISF implique

l'utilisation d'engrais minéraux associés aux résidus culturaux, le fumier et d'autres amendements du sol dont le phosphate naturel, la chaux et le gypse. Cependant, les options GIFS varient pour chaque zone agro-écologique et sont développées avec la participation active de tous les acteurs. Les résultats obtenus jusqu'ici sont prometteurs et sont présentés plus loin dans ce rapport. Sans quelques-unes de ces approches novatrices, l'Afrique subsaharienne risque de compter quelques millions supplémentaires d'enfants sous-alimentés à l'horizon 2020.

La population mondiale n'a jamais été aussi forte qu'elle ne l'est aujourd'hui. Elle n'a jamais progressé aussi vite en l'espace d'un siècle comme ce fut le cas en celui qui vient de s'écouler. En réalité, un milliard de personnes s'y ajoutent chaque dix ans durant les trois dernières décennies. La situation de la sécurité alimentaire est plus désastreuse en Afrique subsaharienne où une personne sur trois est frappée d'insécurité alimentaire. C'est la seule région du monde où le nombre et la proportion des enfants sous-alimentés augmentent régulièrement ces dernières années. Un tiers des enfants de la région vont au lit le ventre vide, et leur épanouissement mental et physique est compromis par la sous-alimentation. Cependant, la sécurité alimentaire a connu d'importantes améliorations dans d'autres régions du monde. Globalement, la proportion de jeunes enfants victimes de malnutrition a fortement diminué passant de 45% vers la fin des années 60 à 30% à la fin des années 90. Malgré les progrès réalisés en matière d'amélioration de la sécurité alimentaire et de la qualité de vie de la population mondiale, toutes les régions et les populations n'en ont pas bénéficié.

Tous les experts en développement sont confrontés à plusieurs questions. "Comment atteindre un développement durable face à une population mondiale en rapide expansion? Est-ce par des interventions humaines ou par de nouvelles percées technologiques? Les ressources naturelles mondiales arriveront-elles à satisfaire la demande alimentaire d'une population mondiale en croissance constante? La faim persistera-t-elle pour des milliers d'enfants dans un avenir prévisible?"

Selon les Nations Unies, en l'an 2050, la population mondiale devrait atteindre 3 milliards, peut-être 4,5 milliards de personnes. Pour couvrir la demande alimentaire de la population montante qui est de plus en plus urbaine, bon nombre d'experts soutiennent que la production céréalière doit augmenter d'environ 35%, et la production animale de plus de 55% au cours des vingt prochaines années. Le manque de disponibilités en terre à vocation agricole oblige les agriculteurs à relever le défi d'augmenter la production sur les terres cultivables. L'intensification des systèmes de production doit s'accompagner de mesures susceptibles de conserver et de réapprovisionner les sols pour empêcher la dégradation des espaces agricoles. De meilleures infrastructures rurales sont aussi indispensables pour permettre aux consommateurs urbains d'avoir accès à la production accrue. Pour atteindre ce but, il faudra des politiques réfléchies et des d'importants investissements dans les intrants agricoles dont les engrais.

Un monde caractérisé par moins de pauvreté, une plus grande sécurité alimentaire, et un environnement plus sain, c'est possible. Mais ce scénario nécessite la mise en œuvre judicieuse des dispositifs politiques appropriés pour sa réalisation.

E. Travis York
Président du Conseil.

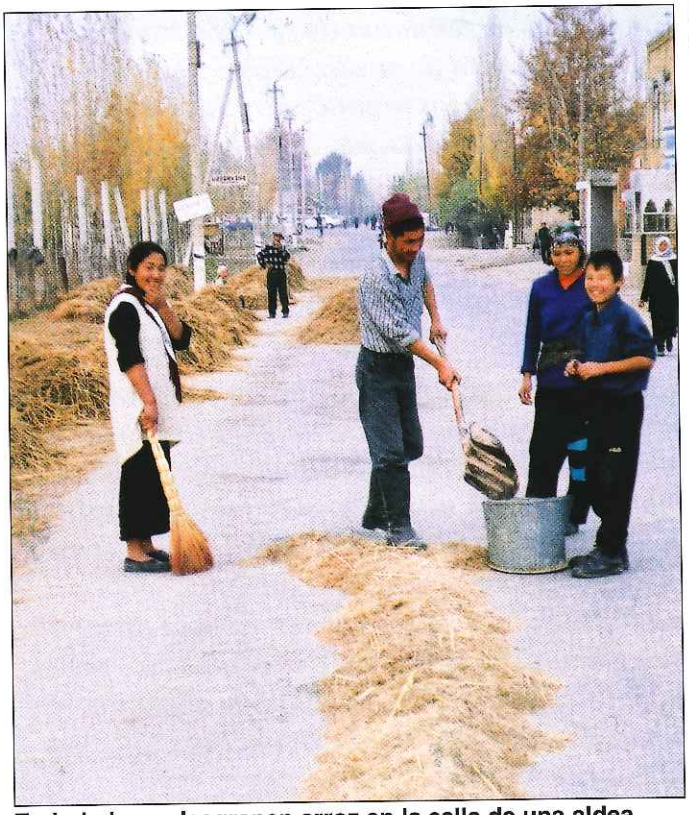


Foto por Daniel F. Waterman

Trabajadores desgranan arroz en la calle de una aldea al sur de Kyrgyzstán.

Carta del Presidente de la Junta Directiva

Cuando se celebró la Reunión Mundial Sobre Alimentos del 2002 en junio en Roma, los 15 Laureados Mundiales Sobre Alimentación vivientes emitieron un llamado a tomar acción al declarar: "El mundo en sí no podrá disfrutar una paz durable, ni estabilidad social o prosperidad económica mientras cientos de millones de personas sufren de gran miseria y hambre." Los laureados enfatizaron que el caso del hambre "deberá ser el enfoque primario para todo el mundo . . . es imperativo que trabajemos en forma unida para reforzar la investigación y la infraestructura de políticas que forjen los aumentos necesarios de productividad en la agricultura, ganadería y recursos acuáticos de una manera ambientalmente sostenible. Debido a que la mayor parte de los pobres con hambre en los países en desarrollo viven en áreas rurales y se atienen a la agricultura para su sustento, las políticas de desarrollo en estos países deberán darle prioridad a los aumentos sostenibles en la productividad de la agricultura y el desarrollo rural, incluyendo infraestructuras esenciales tales como son las carreteras y los mercados rurales."

El Dr. Norman Borlaug, el Laureado Premio Nobel de la Paz de 1970 y miembro de la Junta Directiva del IFDC, recientemente escribió los planos de ejecución para lograr muchas de las metas mencionadas anteriormente: "Debemos aprender a producir casi tres veces más alimentos para el mundo mayormente poblado y próspero de 2050, en las tierras de cultivo que actualmente usamos, para así poder salvar las tierras silvestres del planeta." Borlaug ha pasado sus últimos 20 años tratando de replicar la Revolución Verde en el sub-Sahara Africano, donde los agricultures todavía utilizan semillas tradicionales y sistemas de cultivo orgánico. Sin embargo él sabe que los sistemas de cultivo con bajo rendimiento sólo son sostenibles para aquellas personas que tienen una alta tasa de mortalidad. En el sub-Sahara Africano, la producción per capita de alimentos está bajando primordialmente por su tasa de alto crecimiento en población y la disminución de la fertilidad de los suelos.

El IFDC está activamente trabajando en los problemas de fertilidad de suelos a través de la introducción y promoción del Manejo Integrado de Fertilidad de Suelos (ISFM). El ISFM integra el uso de los fertilizantes minerales adicionándolos a los resíduos de cosechas, estiércoles y otras enmiendas de suelos tales como la roca fosfórica, la cal y el yeso. Sin embargo, las opciones del ISFM para cada region agroecológica varían y son desarrolladas a través de la participación activa de todos los interesados. Los resultados son prometedores hasta la fecha y se discutirán más adelante en este informe. Sin algunas de estas tácticas innovadoras, el sub-Sahara Africano muy probablemente verá a más millones de niños desnutridos al llegar al año 2020.

La población de la tierra nunca ha sido tan numerosa como lo es hoy en día, y jamás ha crecido tan rápidamente en un siglo como ha sucedido en el más reciente. De hecho, más de mil millones de personas se han añadido en cada década durante las últimas tres décadas. La situación de la seguridad de alimentos en el sub-Sahara Africano es la más desolada, donde una de cada tres personas sufre por la inseguridad de alimentos. Esta es la única region en el mundo donde tanto el número y la proporción de niños desnutridos han aumentado consistentemente en los últimos años. La tercera parte de los niños en el sub-Sahara Africano se acuestan a dormir con hambre, y su desarrollo mental y físico están comprometidos por el hambre. Sin embargo, se han logrado mejoras significativas en la seguridad de alimentos en otras regions; globalmente la proporción de niños que sufren de malnutrición bajó fuertemente del 45% a finales de los 1960 al 31% a finales de los 1990. Aunque se han logrado progresos en el mejoramiento de la seguridad de alimentos y en la calidad de vida de la gente en el mundo, este progreso no ha ocurrido en todas partes ni ha afectado a todos.

Todos los expertos en desarrollo afrontan varias preguntas. "¿Cómo puede el mundo alcanzar el desarrollo sostenible mientras la población continua aumentando? ¿Puede ésto lograrse a través de la intervención humana y los nuevos avances tecnológicos? ¿Podrán los recursos naturales de la Tierra cumplir con la demanda de alimentos para una creciente población mundial? ¿O persistirá el hambre para millones de niños en el futuro previsto?

De acuerdo a las Naciones Unidas, se espera que la población del mundo para los 2050 aumente en 3 mil millones, posiblemente en 4.5 mil millones. Para cumplir con la demanda de alimentos de esta creciente población que principalmente es urbana, la mayoría de los expertos creen que se deberá aumentar la producción de cereales en un 35% y la producción de carne en más de un 55% en los próximos 20 años. Debido a que la disponibilidad de tierras para cultivo está disminuyendo, los agrónomos estarán retados a aumentar la producción en las tierras disponibles. Se debe acompañar la intensa producción agrícola con medidas para mantener y restaurar el suelo con el fin de prevenir que las áreas agrícolas se degraden. Se requerirán mejores infraestructuras rurales para permitir que el aumento en producción alcance a llegar a los consumidores en las áreas urbanas. Todo ésto requerirá que se forjen políticas más sabias y se hagan sustanciales inversions en los insumos agrícolas, tales como los fertilizantes.

Un mundo caracterizado por menos pobreza, mayor seguridad de alimentos y un ambiente más saludable es posible, pero este cuadro requerirá la cuidadosa implantación de las medidas apropiadas de políticas que lo estimule.

E. Travis York
Presidente de la Junta Directiva

Photo by Dr. Arno Maatman

IFDC Board member, Luc Maene, and Dr. Amit H. Roy, President and Chief Executive Officer, visit a Togolese farmer's field with IFDC-Africa agronomist, Francis Tamelokpo (center).

Message From the President and Chief Executive Officer

"Expanding Horizons"

We are pleased to bring you this report of our impacts, activities, and partnerships around the world for the past 12 months. Our theme this year is "Expanding Horizons," which reflects our truly expanding outreach to a growing number of countries and our emphasis on making a difference in the lives of people on every continent. In 2001, we were involved in projects in Albania, Bangladesh, Benin, Bolivia, Burkina Faso, Colombia, Ecuador, Ethiopia, Ghana, Kenya, Kosovo, Mali, Mozambique, Nepal, Niger, Nigeria, Peru, Tanzania, Togo, Uruguay, Venezuela, and Vietnam. Now in 2002, we have added five more countries to our portfolio: Afghanistan, Azerbaijan, Kyrgyzstan, Malawi, and Uganda.

We recognize that if we cannot improve the lives of people with whom we interact, our work will have been in vain. At the same time, we realize that no single organization has all the answers; we must cooperate with a myriad of organizations to weave new and stronger threads into the fabric of people's lives.

This report represents a collection of selected examples of our work, which is carried out in concert with farmers and colleagues throughout the world. In the stories of individuals from around the world, you will read first-hand accounts of the value of our contributions to the betterment of

their daily lives. We hope that these testimonials will bring into sharper focus the reality of IFDC's work and its impact on the lives of our clients.

In the story about Afghanistan, you will learn about IFDC's contribution to the rebuilding of that country's agriculture. In the article on the Integrated Soil Fertility Management (ISFM) Project now operating in 91 villages in 7 countries of sub-Saharan Africa, you will read first-person accounts that illustrate the impact that this work is having on the livelihoods of thousands of farm families by helping them receive crop yields that are 2-3 times greater than average and returns to invested capital exceeding 100%, with value:cost ratios well above 2. In another feature your attention will be focused on an environmentally friendly fertilizer used by rice farmers in Bangladesh, Vietnam, and Nepal and how an IFDC scientist working in their countries is helping them change their lives for the better. In the story of an Albanian olive oil processor, you will meet one entrepreneur who has benefited from IFDC's expertise and also get an idea of why that project's chief of party was awarded the Golden Award from the Albanian Government for his contributions to their country's agricultural development. In the feature on our work in Kosovo, you will meet other entrepreneurs who have literally rebuilt their lives from the rubble of their war-torn country by establishing agribusinesses that are generating employment and income for them and their fellow countrymen. In an account from Kyrgyzstan, you will learn of the work of another innovative development manager whose goal is to transform the lives of Kyrgyz children so that their tomorrows are brighter and more prosperous.

Sprinkled throughout this publication are profiles of some of our staff members who are making a difference around the world. At IFDC we are cognizant of the fact that our staff is our most valuable asset. These profiles will provide you with a window on their worlds and how they perceive their work's purpose.

Looking back on the past year, we recognize that many achievements were realized and many challenges were confronted. Over the past year we at IFDC have continued to pursue our goal of contributing significantly to food security and economic progress by promoting sustainable agricultural development around the world through the efficient and environmentally friendly management of plant nutrients in conjunction with other agricultural inputs and natural resources.

In conclusion, we thank all of our donors and collaborators who have enabled and helped us make the contributions that have been possible. With your assistance and support, we pledge to make even greater contributions in the decades ahead.

Amit H. Roy
President and Chief Executive Officer

Photo: M. Feisal Beig

Dr Amit H. Roy visite la boutique d'un distributeur d'intrants agricoles albanais.

Message du Président Directeur Général de l'IFDC

"Elargir les horizons"

Nous avons le plaisir de vous présenter ce rapport qui illustre l'impact de nos activités et de notre partenariat à travers de monde au cours des douze derniers mois. Cette année, nos actions se sont articulées autour du thème "Elargir les horizons." Ce thème traduit vraiment l'extension de notre collaboration à un nombre croissant de pays et notre détermination à faire la différence dans la vie des peuples sur tous les continents. En 2001, nous avons engagé des projets dans de nombreux pays: Albanie, Bangladesh, Bénin, Bolivie, Burkina Faso, Colombie, Equateur, Ethiopie, Ghana, Kenya, Kosovo, Mali, Mozambique, Népal, Niger, Nigeria, Pérou, Tanzanie, Togo, Uruguay, Venezuela et Vietnam. En 2002, nos activités se sont étendues à cinq autres pays: Afghanistan, Azerbaijan, Kirghizstan, Malawi, et Ouganda.

Nous reconnaissons que si nous ne pouvons pas améliorer la vie des gens avec lesquels nous agissons, notre travail aura été vain. Mais nous réalisons aussi qu'aucune organisation ne peut apporter à elle seule toutes les solutions: nous devons coopérer avec une myriade d'autres organisations pour tisser des fils nouveaux et solides dans la trame de la vie de ceux avec lesquels nous travaillons.

Ce rapport représente une collection d'exemples des actions que l'IFDC accomplit en concertation avec les agriculteurs et les collègues à travers le monde. Nous espérons que ces témoignages vous permettront de saisir

l'importance et la valeur de notre contribution à l'amélioration de la vie quotidienne de nos clients.

Dans l'exemple de l'Afghanistan, vous réaliserez la contribution de l'IFDC à la reconstruction de l'agriculture de ce pays. Dans l'article sur la Gestion Intégrée de la Fertilité des Sols, (GIFS), vous lirez des témoignages illustrant l'impact de notre travail dans la vie de milliers de ménages agricoles. Le projet GIFS qui intervient présentement dans 91 villages de 7 pays de l'Afrique sub-saharienne, aide ces familles à obtenir des rendements 2 à 3 fois supérieurs à la moyenne et des retours sur investissement dépassant 100%, avec un ratio valeur-coût largement au-dessus de 2. Vous découvrirez le potentiel d'un engrais respectueux de l'environnement utilisé par les riziculteurs du Bangladesh, du Vietnam et du Népal et comment un scientifique de l'IFDC travaillant dans ces pays les aide à améliorer leurs conditions de vie. Vous rencontrerez un entrepreneur albanais, producteur d'huile d'olive, qui a bénéficié de l'expertise de l'IFDC. Vous comprendrez aussi ce qui a valu au Chef de parti national du projet de recevoir la Médaille d'or du gouvernement albanais pour sa contribution au développement agricole du pays. L'article sur le Kosovo, vous fera rencontrer d'autres entrepreneurs qui ont réussi à reconstruire leur vie du chaos laissé par la guerre qui a détruit leur pays. Ils ont mis sur pied des agro-industries qui ont généré des emplois et des revenus pour eux et leurs concitoyens. L'exemple du Kirghizstan, présente le travail d'un directeur de développement qui grâce à des approches novatrices vise à transformer la vie des enfants de ce pays pour des lendemains meilleurs et plus prospères.

Dans ce rapport s'insère ici et là le profil de quelques-uns des cadres qui font cette différence à travers le monde. A l'IFDC, nous reconnaissons que notre personnel constitue notre plus précieuse richesse. Leur profil ouvre une fenêtre sur leur monde à eux et sur la manière dont ils perçoivent le but de leur travail.

En jetant un regard rétrospectif sur l'année écoulée, nous reconnaissons que de nombreuses réalisations ont été faites et des défis relevés. Au cours de cette année, nous avons fait avancer notre but de contribuer de façon décisive à la sécurité alimentaire et au progrès économique dans le monde par la promotion du développement agricole. Notre stratégie d'intervention passe par la gestion efficace et respectueuse de l'environnement des éléments nutritifs des plantes associés à d'autres intrants agricoles et ressources naturelles.

Nous remercions nos bailleurs de fonds et nos collaborateurs qui nous ont donné les moyens de mettre en œuvre nos actions. Avec votre confiance et votre appui, nous nous engageons à contribuer davantage au changement du monde agricole dans les décennies à venir.

Amit H. Roy
Président Directeur général de l'IFDC

Foto por Marie K. Thompson

Vista de una aldea agrícola en Ahohoue, Benín, una de las localidades en las cuales opera el proyecto de Manejo Integrado de Fertilidad de Suelos.

Mensaje del Presidente y Jefe Ejecutivo del IFDC

"Ampliando Horizontes"

Nos complace presentarles este informe sobre nuestros impactos, actividades y asociaciones alrededor del mundo acontecidos en los últimos 12 meses. Nuestro tema de este año es "Ampliando Horizontes," el cual demuestra verdadera ampliación en la extensión hacia un creciente número de países y nuestro énfasis en lograr impactar las vidas de gente en cada continente. En 2001, trabajamos en proyectos en Albania, Bangladesh, Benín, Bolivia, Burkina Faso, Colombia, Ecuador, Etiopía, Ghana, Kenia, Kosovo, Malí, Mozambique, Nepal, Níger, Nigeria, Perú, Tanzanía, Togo, Uruguay, Venezuela y Vietnam. Hoy en el 2002, hemos añadido cinco países más a nuestra área de trabajo: Afganistán, Azerbaiján, Kyrgyzstán, Malawi y Uganda.

Reconocemos que si no logramos mejorar las vidas de la gente con quien interactuamos, nuestro trabajo habrá sido en vano. A la vez, comprendemos que no hay una sóla organización que tenga todas las respuestas; debemos cooperar con un gran número de organizaciones para forjar nuevos y más fuertes enlaces en las vidas de la gente.

Este informe representa una colección de ejemplos seleccionados de nuestra labor, la cual se lleva a cabo en concierto con agricultures y colegas a través del mundo. En los relatos sobre personas alrededor del mundo, usted leerá sus recuentos personales sobre el valor de nuestras contribuciones en el mejoramiento de su vida diaria.

Esperamos que estos testimonios proyecten la realidad de la labor que hace el IFDC y el impacto que hace en las vidas de nuestros clientes.

En el relato sobre Afganistán, usted verá la contribución que ha hecho el IFDC en la reconstrucción de la agricultura del país. En el artículo sobre el proyecto de Manejo Integrado de Fertilidad de Suelos (ISFM) el cual actualmente opera en 91 aldeas de 7 países del sub-Sahara Africano, usted leerá recuentos personales que ilustran el impacto que esta labor está teniendo sobre el bienestar de miles de familias de agricultures con la asistencia que se les está prestando con el fin de que obtengan mayors rendimientos de cosechas de 2 a 3 veces más que los promedios y entradas superiores al capital invertido, con cocientes de valor:costo bastante por encima de 2. En otro aparte se hará enfoque sobre un fertilizante ambientalmente benigno que es utilizado por agricultures en Bangladesh, Vietnam y Nepal y cómo un científico del IFDC trabajando en sus países les está ayundando a mejorar sus vidas. En la narración sobre un procesador de aceite de olivas albanés, usted conocerá a un empresario que se ha benefiado de la experticia del IFDC y también verá por qué el Gobierno Albanés le otorgó el Premio de Oro al jefe de ese proyecto por sus contribuciones al desarrollo agrícola del país. En la narración sobre nuestros trabajos en Kosovo, usted conocerá a otros empresarios que han literalmente reconstruído sus vidas de los escombros de su país que ha sido destrozado por la guerra, al establecer agrinegocios que están generando empleo y ganancias para ellos y sus compatriotas. En un recuento de Kyrgyzstán, usted conocerá el trabajo que está haciendo otro administrador innovador de desarrollo que tiene como meta transformar las vidas de los niños en Kyrgyzstán para que tengan un mejor y próspero futuro.

A través de esta publicación se presentan perfiles de algunos miembros de nuestro personal quienes están alcanzando logros alrededor del mundo. En el IFDC sabemos que nuestro personal es lo más valioso de nuestro Centro. Estos perfiles le permitirán a usted mirar por una ventana de sus mundos y ver cómo ellos perciben el propósito de su labor.

Mirando hacia atrás al año pasado, reconocemos que se alcanzaron muchos logros y se afrontaron muchos retos. A través del año pasado hemos continuado en el IFDC con nuestra meta de contribuir en forma significativa a la seguridad de alimentos y al progreso económico promoviendo el desarrollo de la agricultura sostenible alrededor del mundo por medio de el manejo eficiente y ambientalmente benigno de los nutrients de plantas en conjunto con otros insumos agrícolas y recursos naturales.

En conclusión, le damos las gracias a todos nuestros patrocinadores y colaboradores que nos han habilitado y ayudado a lograr las contribuciones que han sido posibles. Con su asistencia y apoyo, prometemos lograr aún mayores contribuciones en las décadas del futuro.

Amit H. Roy
Presidente y Jefe Ejecutivo

Farmers in Afghanistan Sow Seeds of Hope in Their War-Torn Country

Photo by M. Feisal Beig

Afghan farmers from the Bagram area—Mahiudin and Abdul Khaliq (left to right)—hope that the IFDC project in their country will continue.

"What is needed now (in Afghanistan) is aid directed at reviving agriculture and trade. . . . Reclaiming abandoned agricultural land would make Afghanistan less dependent on food relief shipments and would allow hundreds of thousands of returning refugees to resettle in the rural areas they left."

August 27, 2002
New York Times Editorial
New York, NY

Afghan farmer Mahiudin is extremely hopeful regarding the prospects of an IFDC project in his country. When farmer Mahiudin received fertilizer to use on his wheat crop in May, he said, "I hope this program continues so that Afghanistan can become agriculturally strong and independent." He and another farmer Abdul Khaliq hope that the project will provide additional fertilizer for their future crops.

Ensuring adequate supplies of good quality fertilizers to Afghan farmers is the foremost objective of IFDC's project, being funded by the U.S. Agency for International Development (USAID). To avoid disrupting the market, IFDC chose to allow local dealers to distribute the fertilizers. More than 70,000 Afghan farmers who previously received improved variety wheat seed from the International Center for Agricultural Research in the Dry Areas (ICARDA) received fertilizer vouchers through nongovernmental organizations (NGOs). The NGOs included International Medical Corps (IMC), Agence d'Aide a la Cooperation Technique et au Developpement (ACTED), FOCUS Humanitarian Assistance, Ghazni Rural Support Programme (GRSP), and Solidarites. The farmers then exchanged the vouchers for fertilizer at the local fertilizer dealers, who were reimbursed by IFDC. The urea fertilizer was imported mainly from Pakistan, Iran, and Uzbekistan. Supplies were also available from the only fertilizer plant in Afghanistan, located in Mazar-e-Sharif. M. Feisal Beig, IFDC Senior Marketing Specialist, says, "The dealers make money through this system, which encourages them to obtain more fertilizers to supply to the farmers."

The project is handling the emergency distribution of 3,500 mt of urea fertilizer for the top-dressing of spring wheat sown in March and April. "The fertilizer was distributed in seven provinces in central, eastern, and northeastern Afghanistan—Ghazni, Kapisa, Wardak, Parwan, Takhar, Badakshan, and Uruzgan," says Ross Everson, Chief of Party, IFDC/Afghanistan.

Farmers who received a 50-kg bag of urea will pay for the fertilizer within a month after harvest to the local shura or town committee, who will use the funds for local development projects. Technical leaflets explaining in local languages how to properly use the fertilizer as a top dressing for spring wheat were prepared and distributed along with the fertilizer.

Afghan farmers were very pleased to receive the fertilizer to help them increase their wheat yields. After the fertilizer was distributed, IFDC staff visited the farmers' fields to observe the use of this material on the wheat that had been sown

in March and April. Afghanistan's Ministry of Agriculture and Livestock, the five NGOs, and IFDC closely coordinated the entire process.

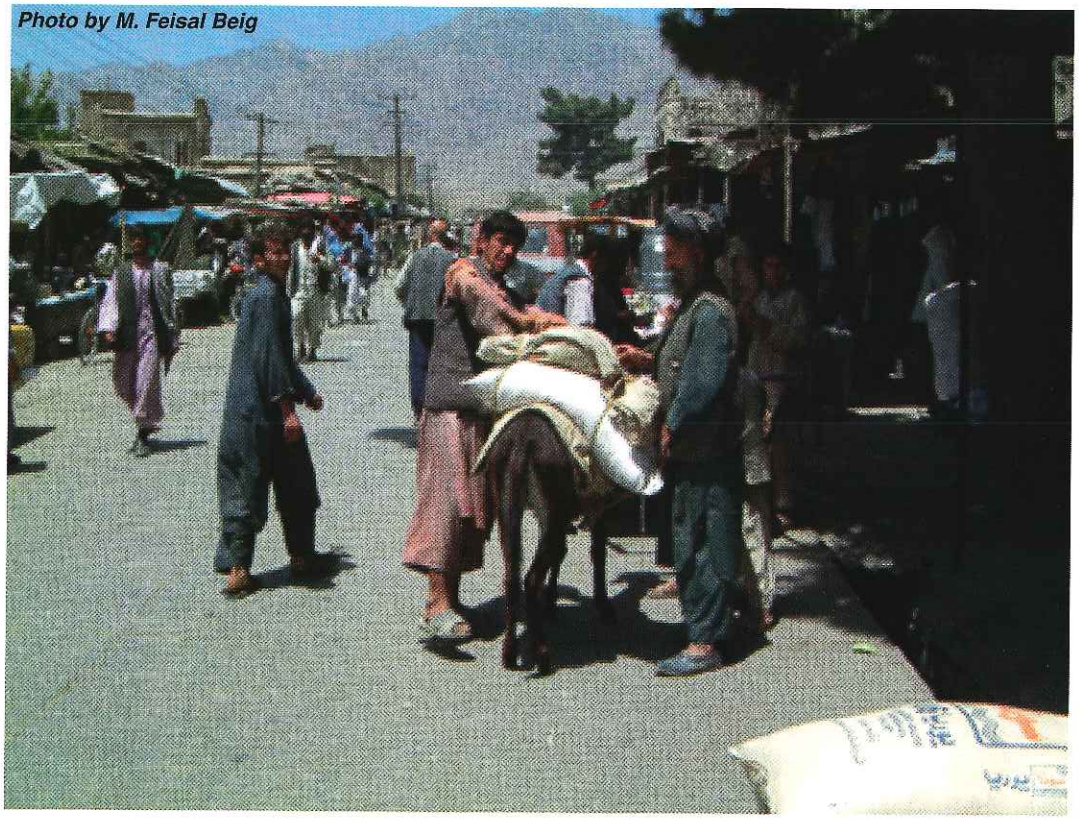
Agriculture is Afghanistan's mainstay. Beig says that if Afghanistan can improve the national security environment, positive economic results will be visible in six to eighteen months. Economic activities have improved since the conflict. "You can feel it in the air," says Beig. In the times before Soviet occupation, Afghanistan was fully self-sufficient. The country was known for its fruits, which it exported to neighboring countries such as Pakistan and Uzbekistan. At the moment, however, Afghan farmers have to grow wheat to feed their families. However, IFDC's program strengthens the agricultural market and makes future growth possible. "It will be a slow process but it can be done," says Beig. The current average yield for wheat worldwide is three tons of wheat per hectare planted. In Afghanistan, the average yield is far less at one ton per hectare. This difference is attributed to the improper and inadequate use of fertilizer, crop protection products (CPPs), and improved seeds – the building blocks of high-yielding agriculture.

IFDC evaluated Afghanistan's situation and concluded that the country has to overcome three main challenges. According to Beig, the first problem is the lack of credit extended to farmers. "The farmers don't have money and they need support during the growing season. They need credit immediately." The enormous distances between farmers, suppliers, and markets create the second problem. "It is very difficult to move supplies," says Beig. For one acre of land, for example, two or three 50-kg bags of fertilizer are needed. "Fertilizers are very bulky and must be transported on trucks. The roads, however, are in bad condition, especially in areas primarily used for farming." The third challenge is to overcome the current lack of knowledge regarding modern agricultural practices. "For example," explains Beig, "the farmers do not know how to apply the fertilizer." IFDC's plan is to not only provide hands-on training to some farmers but also to involve the local dealers in training and informing their customers.

Looking to the immediate future, the Department of Extension (DAE) of Afghanistan's Ministry of Agriculture and Livestock has estimated that fertilizer will be needed for an estimated 680,000 ha of irrigated wheat in fall 2002. DAE estimates that 175 kg/ha of diammonium phosphate (DAP) and 250 kg/ha of urea will be needed for the fall irrigated wheat.

The IFDC project should benefit farmers, dealers, and most importantly consumers by providing the country with more food and support to stabilize the agricultural market. Agriculture is Afghanistan's only path to economic advancement. IFDC is providing its experience, expertise, and support to help ensure that the dream of a better quality of life for the people of Afghanistan becomes a reality.

Afghan farmers prepare to transport agricultural inputs.



IFDC Staff—The Center's Most Valuable Asset
A Profile of One Staff Member

Because I grew up in a cosmopolitan environment, I was exposed to numerous cultures from within the Indian kaleidoscope and other countries. As a young child, my mother and teachers influenced me to learn more about the world and its inhabitants. Although not directly, it was probably a force that later caused me to move into international work. A native of Bombay, I was educated at St. Vincent's High School, which was operated by German Jesuits. My higher education was gained at St. Xavier's College, Ismail Yusuf College, and the University of Bombay, where I earned a degree in chemistry. In 1963 I migrated to Pakistan and completed an M.B.A. degree from the Institute of Business Administration in Karachi.

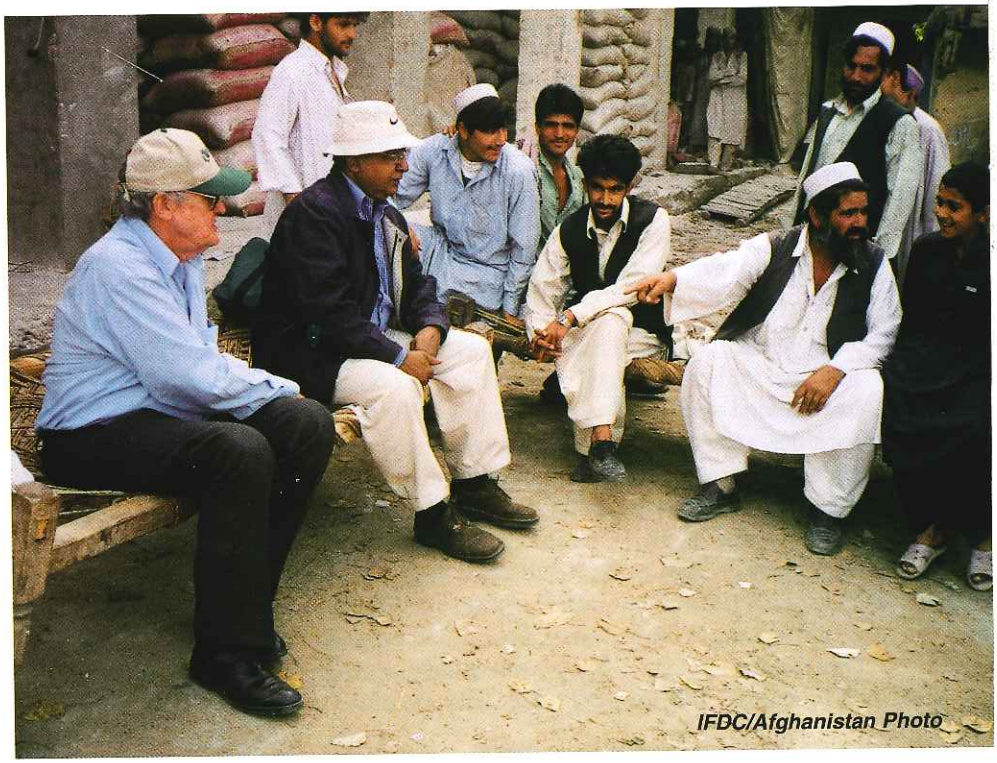
My desire to work with other cultures and countries was enhanced during my 14-year tenure with Exxon, for which I served on an international petrochemical and fertilizer marketing team. During travels for that multinational, I met several of the colleagues with whom I work today.

After Exxon, I served as head of the marketing division of Fauji Fertilizers. In that position, I established the company's commercial operations. I was fortunate to meet regularly with the economy managers of my country, Pakistan—a developing country. I witnessed the spiraling growth of the fertilizer market from less than 200,000 mt to over 6 million mt and the transition from a strictly controlled market to an open competitive market. The experience with Fauji has served me well since I joined IFDC in 1999.

> "For an organization to succeed in development work, it needs to follow an approach based on what is possible to achieve in a country in view of that country's characteristics and not a transplanted formula."
>
> **M. Feisal Beig**
> **IFDC Senior Marketing Specialist**

The greatest source of satisfaction that I have derived during the past 35 years in development work has been the feeling that not only am I earning a livelihood and pursuing a career but also I am fortunate enough—as many of my peers—to participate in the fight against hunger by helping to increase food production. Most recently my work has taken me to several developing countries, including Afghanistan, to work as a member of teams that are engaged in providing assistance to develop fertilizer markets and increase agricultural production.

For an organization to succeed in development work, it needs to have a professional, motivated, and dedicated workforce and a unique, pragmatic approach based on what is possible to achieve in a country in view of that country's characteristics and not a transplanted formula. IFDC fortunately has just this sort of team and approach.



Dr. Ray Fort, IFDC Consultant, and M. Feisal Beig, IFDC Senior Marketing Specialist, confer with Afghan agricultural inputs dealers.

The Integrated Soil Fertility Management Project Expands Its Impact in Sub-Saharan Africa

Small farmers like Edah Kehinnou and Todji Gabriel of Benin have experienced firsthand the benefits of using the package of inputs and practices promoted by the ISFM project. For more details on their experiences, see their profiles that follow.

More than 1,000 farmers in Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo are now benefiting from the ISFM project. The project is producing considerable evidence that ISFM provides a feasible pathway for sustainable agricultural intensification and a way out of the vicious cycle between poverty and land degradation. ISFM strategies are based on the integrated use of soil amendments like organic matter (manure, crop residue recycling, and leguminous species), phosphate rock, and chemical fertilizers.

IFDC has formed partnerships with the countries' extension services, rural development projects, and NGOs. Farmers, bankers, traders, and policymakers at the local level have become the key stakeholders. IFDC collaborates with both international and national agricultural research institutes to develop new ideas on ISFM technologies for different agro-ecological and socioeconomic zones. Technological options that appear to be of interest for the ISFM village-level projects are considered for experimentation through a participatory screening process that involves IFDC staff, the partner institutions, and the target farmers. Farmers' experiments and alternative ideas are also considered. The process results in the design of experiments established with the farmers to test and fine-tune ISFM options.

Preference is given to regions with a relatively high potential for intensive food crop production oriented toward food markets. The profitability of the ISFM packages varies from one year to another as a consequence of rainfall, changes in implementation, and eventually changes in soil fertility. Yields on ISFM plots are usually twice or sometimes three times higher than average levels. Return on (invested) capital exceeds 100%, with a value:cost ratio well above 2, and returns to family labor are 2-6 times higher than the average salary rate prevalent in the region. The progress of ISFM work has been impressive:

- The number of countries involved in the project has grown from 3 in 1998 to 7 in 2001;
- The number of pilot areas, from 7 to 17;

Photo by Dr. Arno Maatman

Todji Gabriel, Farmer From Benin

Todji Gabriel is a very successful farmer from Ahohoue, Benin. He has more fields and more money than most farmers in the area. The ISFM package that he uses includes phosphate rock, a cover crop of mucuna or legumes (cowpeas), and crop residues. On his larger fields, he applies the ISFM packet of ideas (which includes applying phosphate rock every 3 years, weeding, growing cover crops, recycling nutrients, etc.). In 1998 he started using phosphate rock at a dosage of 300 kg/ha as basic dressing; ISFM recommends using 50 kg/ha/year for balanced fertilization. On his other fields he uses the traditional practice because of the additional labor required for the preferred practice. He recycled the biomass from a mucuna cover crop and applied the ISFM recommended rate of 200 kg/ha of NPK/urea fertilizer. Later he reduced the rate of application to 125 kg/ha; he tries to adjust the rate according to crop response to management practices. He thinned his crops to reduce the number of plants and applied NPK and urea 34 days after sowing. His harvest for the first season was 4,375 kg/ha of maize. During the second season he cultivated cowpeas and realized a harvest of about 280 kg of cowpeas on one-half hectare. Gabriel grows mucuna when the soil needs it and to correct the weed problem. He applies phosphate rock every 3 years. This is a very resourceful farmer; to associate phosphate rock with a leguminous cover crop is a very good combination. By using this combined approach, Gabriel's fields have fewer weeds and he harvests greater yields. Using the ISFM technology package, he can now grow cotton and realize greater yields and, hence, more revenue. With the profits from his labor, Gabriel has built a house.

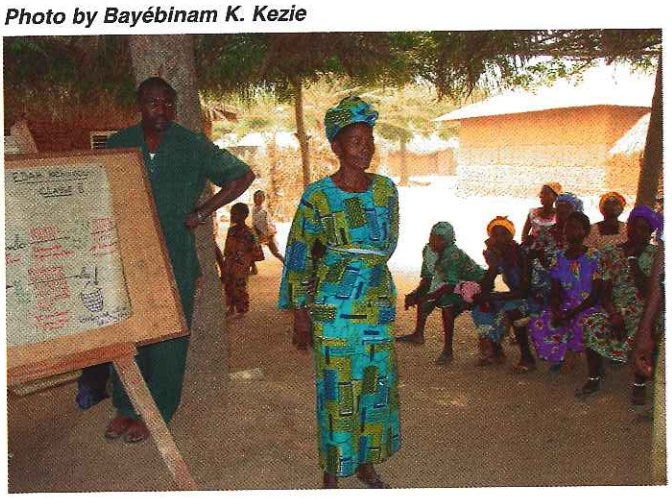
- The number of villages, from 28 to 91;
- The number of farmer participants, from 231 to 1,625;
- The number of NGOs involved, from 6 to 17; and
- The number of farmer-managed credit systems, from 0 to 13.

Another important issue is input distribution. Because demand for fertilizers and other agricultural inputs is rising in the pilot areas, a significant goal of the ISFM project is to link farmer organizations to private dealer networks. Contacts have been made with private dealers in Benin, Niger, northern Nigeria, and Burkina Faso. Studies have been conducted in several regions to assess the potential and means to improve input supply. In Burkina Faso, for example, a workshop was organized with farmers, input dealers, national agricultural research and extension systems (NARES) and nongovernmental organization personnel, and regional-level policymakers to discuss the results of such an assessment study and to develop plans to improve input accessibility.

In all of the pilot areas, farmers are enthusiastic about ISFM technologies. Farmer field days are well attended, and many farmers have started their own ISFM experiments, adopting or adapting the ISFM packages that they have seen in the pilot villages. At the grassroots level, the IFDC Africa Division and its partner institutions are developing innovative methods to extend the lessons that are being learned from the participatory ISFM trials and the adaptive farmer-led experimentations as much as possible. Both formal and informal knowledge and communication networks among farmers, traders, and extension are being used for this purpose.

The concept of ISFM can work if farmers, traders, researchers, extension agents, and policymakers at national and regional levels invest and collaborate actively.

Photo by Bayébinam K. Kezie



Edah Kehinnou, Woman Farmer From Benin

Edah Kehinnou, a woman farmer from the small village of Ahohoue, Benin, grows crops of maize, cowpeas, and groundnuts on her three fields. The ISFM package that she uses includes phosphate rock, legumes (cowpeas or groundnut), and other fertilizers. On her farm of less than 1 ha, she applied 300 kg of phosphate rock for a resulting harvest of 4,175 kg/ha of maize. During the second season, she harvested 120 kg of cowpeas on two-tenths ha of land. She prefers to grow cowpeas rather than mucuna because the cowpeas not only add nutrients to the soil but also provide needed revenue. This farmer is applying almost the total package of ISFM technology. This year the rains came later so she applied fertilizer later and in a smaller dosage. When the rains come later, these farmers prefer to reduce their risks and try to apply smaller dosages of fertilizer in sequences—a "wait and see approach." Edah treated the cowpeas four times with CPPs to avoid insects. When farmers like Edah do not have money to purchase CPPs, they manufacture their own using leaves of the neem tree, locally produced soap, and other natural remedies.

IFDC Staff—The Center's Most Valuable Asset
A Profile of One Staff Member

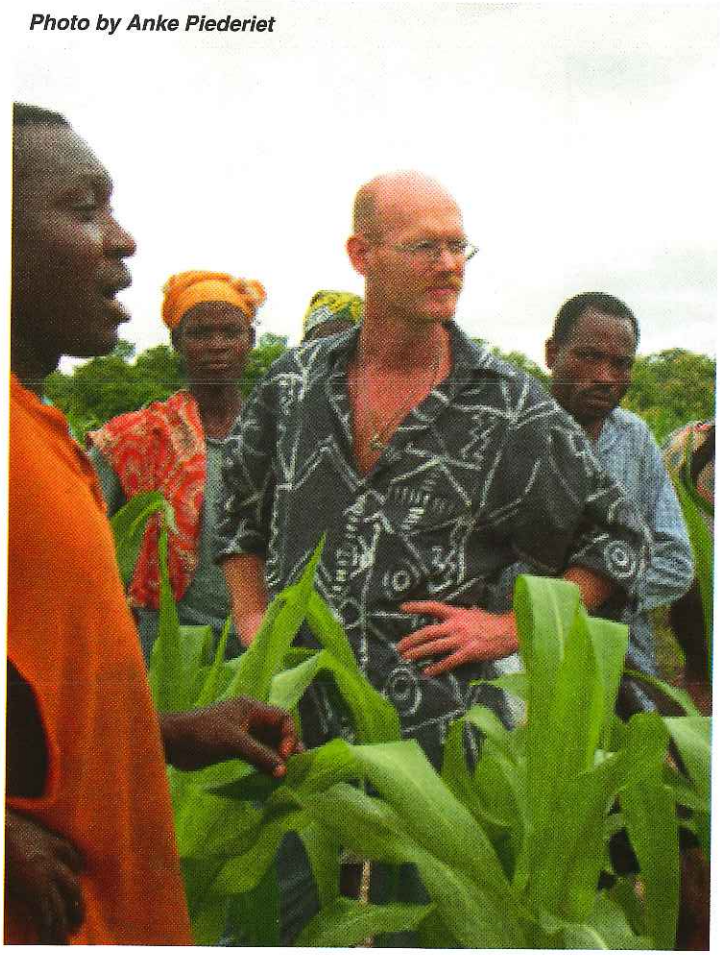
"I agree very much with the Nobel Prize Laureate, C. S. Lewis, who said that 'Safety and happiness can only come from individuals, classes, and nations being honest and fair with each other.' While promoting a market-driven economy, to which I adhere for its simplicity, we should not forget the conditions necessary to make it work for all of us."

Dr. Arnoldus Maatman
Leader
Input Accessibility Program
IFDC's Africa Division

I grew up in the small town of Schijndel, in the southern part of the Netherlands. My parents were among the first flow of immigrants to this town. My father worked as a designer/artist at Jansen de Wit—a clothing manufacturer. Most of the people in my town made a living from farming, small shops, and the factory. As a teenager, I worked on Saturdays at a farm for $1.00 per hour. However, I never dreamed of having a career in agriculture or certainly not in developing countries. We teenagers agreed with the lyrics of Bob Dylan; we wanted to change the world—only we knew very little about the world outside.

I do not know from where my desire to work with other cultures originated. I remember being fascinated by a priest who came to Schijndel every year or so to collect money for his mission work in other countries. He came to our schools, talked about his work, and showed pictures. I don't remember the man; I only remember the sense of adventure.

Photo by Anke Piederiet



Dr. Arno Maatman, Leader, Input Accessibility Program, with farmers in southern Togo, observing a maize crop.

One of the most decisive periods in my life came when I was about 20 years old. At that time I was a student of mathematics at the University of Eindhoven. I quickly found that mathematics alone was not really what I wanted to do. I began courses in philosophy, which resulted in similar feelings, and then turned to the political economy of developing countries. I was so overwhelmed with all of these new and revolutionary ideas and problems that I started to combine mathematics with social and economic theories of development. A significant discovery for me was the work of Caspar Schweigman, a professor at the University of Groningen. He had worked in Tanzania, where he used mathematical modeling to analyze various kinds of problems that were posed by his students. I visited him in Utrecht where he was invited to present a lecture, and we sat in a small pub discussing the possibility of finalizing my studies in Groningen. I finally realized the potential of integrating mathematics and development theory.

When I was 32 years old, I was quite sure that I had something to offer, and I thought I was ready for a career in Africa since I had participated in several short-term missions there. I thought that I was well prepared for my new venture and had regular contacts with Burkinabè students through a food security research program of the University of Ouagadougou. However, when we finally arrived in Tougan, a small town in northwestern Burkina Faso, I was absolutely shocked. At first, my

eyes could only see sand, stones, and trash. I was very depressed, but I was blessed with a wife who had a positive spirit. She arranged for us to have a small house and even a means of cooking our own food. Soon I became acquainted with the young and relatively new team of scientists, which I was to "coach" in the implementation of a farming systems program and food security research in three provinces of Burkina Faso. A few months later we really arrived in Tougan where we rented a house near the marketplace. The house resembled an old military bunker, but it was nicely located on a large compound in the middle of town. We had electricity for several hours a day—off and on, depending on the presence of rain or storms. We slept outside, except for December and January when the harmattan blew and the nights were cold. But, it is not the heat, the sweat, nor the pain in the eyes and throat during the sandstorms that I remember best. It is the adventure, the successes, and the failures of living with other cultures, trying to integrate in the community of Tougan, coupled with a difficult but satisfying job. The larger extended family surrounding us really became our family. We still have many contacts with these friends who occasionally visit us in Lomé.

My work in Burkina was difficult because of external problems, lack of motivation, and capacities of some of my colleagues and social networks interfering with the work. But I learned to cope with rumors (ignore them), the social networks, and the many different meanings of the same words; to stay tuned to the work itself; to focus on enthusiastic people; and to capitalize on the good work being done. We often stayed for several days—sometimes a whole week—in the villages. I will never forget these visits, the hours that we spent walking and talking in the fields with farmers and the discussions into the middle of the night—looking at the stars from our camp bed—to analyze what we had seen and heard that day. It seemed very normal in those days, but now I know how unusual it was to spend a really important amount of time in the field, to discuss with farmers all kinds of issues, both inside and outside the work, and to live with them for a while. It also enabled us to reach other types of farmers, who will not immediately appear in the usual one-day meeting under the "big tree." Finally, these experiences brought the scientists together.

My greatest challenge thus far was probably completing my Ph.D. research, which I began concurrently with my "normal" work in Tougan as a means of improving our understanding of farmers' strategies. In my Ph.D. research I used mathematical modeling as an instrument to analyze farmers' strategies and their responses to changing circumstances. The models were constructed step by step, based on diagnostic surveys, detailed and in-depth interviews with key farmers, exchanges with scientists both within and outside the Tougan team. Strange results were used to discuss the assumptions of the model and to improve its formulation. Although the models and the results were available and to some extent documented when we left Tougan, I still had to begin writing my thesis. This was certainly one of the most difficult exercises—to finish a book on farmers' strategies in Burkina Faso while living in the Netherlands.

However, today, it appears to me that the implementation of effective participatory approaches to technology development and, in particular, to sustainable agricultural intensification is the most difficult challenge that I am facing. It is not so much the development of the approach itself, which always remains to some degree "a work in progress," but to make it happen. To this end, we still can make considerable progress, merging all of the capacities and competences that we have within IFDC Headquarters and in Africa to implement a holistic and coherent approach to the development of integrated soil fertility management. I also must consider developing promising and perhaps new pathways toward cooperating with national organizations, NGOs, and organizations of stakeholders—farmers, bankers, and traders—to build upon and to improve existing capacities and to ensure that they are put into practice at all the different levels. This is a complex issue because we must deal with many stakeholders, who often have different, hidden agendas and within a developing-country context characterized by a lack of financial resources and/or self-reliance at all levels.

As for my vision, I agree very much with the Nobel Prize Laureate C. S. Lewis who said, "Safety and happiness can only come from individuals, classes, and nations being honest and fair with each other." While promoting a market-driven economy to which I adhere for its simplicity, we should not forget the conditions necessary to make it work for all of us.

I hope to live up to the challenge of today: to provide evidence that a holistic participatory approach to technology development—in our case, agricultural intensification and agribusiness development—can work and to contribute to IFDC's performance as a facilitator for such a process. Behind all of this is my conviction that technological change in our area will not evolve from the adoption of one technically bright idea; the challenge is to facilitate and to sustain a process of social learning involving all stakeholders through networks, platforms, or whatever.

Farmers Benefit From Kyrgyzstan Agro-Input Enterprise Development Project

U.S. Ambassador to Kyrgyzstan, John O'Keefe, meets with association members and KAED staff.

"Our vision is that by the end of the project there will be a developed, legal agribusiness sector organized into a trade association that will provide a reliable and high-quality supply of seeds, fertilizer, and other agricultural inputs to farmers in southern Kyrgyzstan," says Channing Sieben, Chief of Party, IFDC/Kyrgyzstan.

In late 2001 IFDC began a 2-year pilot project aimed at improving productivity of agriculture and competitiveness of agricultural enterprises in the Ferghana Valley of Kyrgyzstan. The region's most important crops include wheat (140,000 ha), oilseeds (40,000 ha), cotton (35,000 ha), maize (25,000 ha), potatoes and vegetables (25,000 ha), fruit (17,000 ha), and smaller amounts of tobacco and melons. Because Kyrgyzstan is one of the most densely populated areas in Central Asia, the average landholding is 0.4 ha/person. However, valley soils are fertile and, in general, the irrigation systems are functioning. Agricultural production has recovered to 1990 levels, but the severe decline in agricultural processing and the loss of output markets has resulted in a decline in incomes and severe rural poverty. The usual problems of credit availability, lack of information at the farm level, and an unfavorable business environment are compounded by the isolation of the south from the north and the cross border trade constraints imposed by Uzbekistan.

"When we complete our projects and activities, we (IFDC) will be remembered as an organization and as persons because we made a difference for the children of tomorrow."

Chan Sieben
Chief of Party
IFDC/Kyrgyzstan

The Kyrgyz Agro-Inputs Enterprise Development (KAED) project is expanding the use of appropriate technologies and enhancing the growth of private sector enterprises and investment in agricultural input supply and marketing and, thus, increasing access by farmers to critical inputs needed to boost agricultural production. The project is establishing viable private sector agricultural input marketers and identifying the policies and mechanisms required to support them and potential counterparts throughout the country and region. The project has a favorable environment in which to operate since Kyrgyzstan has been the most progressive country in Central Asia in enacting market reforms, selling off state-owned enterprises, and adopting democratic principles.

An agricultural input network was established for the spring 2002 planting season and set the stage for seed production, information systems, and policy reform. The primary result of the project after 2 years will be to provide

assistance to the recently established trade association in gaining access to credit, business planning, trade opportunities, policy advocacy, extension, value-added training, and other beneficial services.

The project has identified more than 200 enterprises as potential association members. However, in early 2002 a group of seven courageous entrepreneurs registered the Agro-business Association of Kyrgyzstan. Membership recruitment and trust building regional meetings are held monthly at 12 village-level locations. Field demonstrations have been implemented in each oblast featuring appropriate fertilizer treatments on several varieties of maize, cotton, potatoes, and tomatoes. Wheat demonstrations will follow at fall planting time. Seminars on the safe use of CPPs have been coupled with media events and a small equipment sales program to the benefit of the association. A credit guarantee fund is being established to assist association members in accessing credit at best rates for their businesses. One member has been nominated to participate in small business training in Israel, and another attended a EurAsia Foundation business network seminar in 2002. Six seed producers and the KAED agronomy team participated in an International Maize and Wheat Improvement Center (CIMMYT) workshop on new wheat varieties and production technology in 2002.

As a result of demonstrable benefits from association membership, recruitment for the trade association, Association of Agribusinessmen of Kyrgyzstan (AAK), is moving forward. The association has 80 members, with a potential for adding 20 more. A first General Assembly was held to elect a board of directors, adopt bylaws, and begin the organizational aspects of a true association. Then leadership development and engagement in advocacy, communication, and education began in earnest.

The KAED project has designed and implemented field demonstrations at three sites in the target area and prepared for field days and technical training for dealers and farmers at the sites. Crops that were planted include cotton, maize, potatoes, tomatoes, cucumbers, and soybeans. Site visits were made to 15 private and state enterprise seed farms involved in the production of seeds for these crops: cotton, wheat, hybrid maize, potatoes, and onions. Additional enterprises were identified and invited to regional meetings.

IFDC has definite expectations from the KAED project, as expressed by its Chief of Party: "Private enterprise can be a strong engine for improving economic conditions, increasing trade, and giving value-added service to farmers so that agriculture can be a leader in overcoming serious problems such as poverty and helping Kyrgyzstan join the community of nations."

IFDC Staff—The Center's Most Valuable Asset
A Profile of One Staff Member

"May the children of Kyrgyzstan have peace in the future and the opportunity to grow into citizens of the world with an improved quality of life."

Chan Sieben, Chief of Party
IFDC/Kyrgyzstan

At the end of each meeting of the Association of Agribusinessmen of Kyrgyzstan, I make a point of closing the meeting with a comment like this: "We are not in the business of making money for ourselves; IFDC is not trying to influence you on behalf of the United States; we are all working together for the children of Kyrgyzstan. May they have peace in the future and the opportunity to grow into citizens of the world with an improved quality of life." I think that this applies to all IFDC projects. When we complete our projects and activities, we will be remembered as an organization and as persons because we made a difference for the children of tomorrow.

Chan Sieben, IFDC/Kyrgyzstan Chief of Party, visits with Kyrgyz children and their family members.

I grew up in a small town of about 5,000 souls called Geneseo, Illinois (located about 120 miles west of Chicago). It was a kinder, gentler time—a baseball game was "pick-up" in the schoolyard, and television did not arrive until I was 12.

My exposure to the agribusiness world came early since my father owned a hybrid seed business. I began working in the bagging room of Sieben Hybrids on Saturdays at age 11, detasseling at 13, and delivering seed to dealers at 16.

On the '60s college scene, President John F. Kennedy inspired us with, "Ask not what your country can do for you, rather what you can do for your country!" In the midst of this, I completed a B. A. degree from Shimer College in Mt. Carroll, Illinois, with a major in philosophy and English literature. To have some spending money at college, I helped with morning milking at a nearby dairy farm for 2 years, worked one summer on a sheep ranch in Montana, and another summer as a night manager of a small restaurant in Evanston, Illinois, where I was attending summer school at Northwestern University.

On my 21st birthday, I entered the "real world"—working for John Deere at their combine factory in East Moline, Illinois, as an industrial engineer. Two years later, I was a shiny Ensign assigned to a destroyer based at Pearl Harbor for 3 years. In 1970 I ventured back to the family seed business with my father and brother, where I remained until 2001. In addition to serving 3,000 farmer customers through 250 dealers, we were occasionally engaged in the international market, buying and selling small amounts of seed on the world market through international brokerage organizations. Our town and business became one of the main "heartland America" sites regularly frequented by U.S. State Department tours for international visitors. Sieben Hybrids typically welcomed 30-40 international visitors annually.

In connection with the seed business, I participated in activities of the American Seed Trade Association, served in advisory positions with the University of Illinois College of Agriculture, and was a member of the Board of Directors of Illinois Foundation Seeds. With the advent of applications of genetic engineering, five other seedsmen and I formed the Independent Professional Seedsmen Association (IPSA)—a trade association designed to promote the interests of family-owned companies so that they could compete with the multinationals, and it continues today as the second largest seed association in North America. The Illinois Agricultural Leadership Foundation, with sponsorship of the Kellogg Foundation, afforded me an opportunity for 2 years of broad-based training in policy and leadership including an international component with the European Union countries.

After making a presentation on the seed sector during an IFDC marketing training program in 1992, I served as an association specialist on the Albania project in 1996. When IFDC started a project in Kosovo in late 1999, I participated in this activity and learned many valuable lessons in a difficult environment.

When IFDC initiated a project in Kyrgyzstan in 2001, I was fortunate to be selected to head that team—an excellent, highly motivated staff of 10. For me it is immensely rewarding to see staff members develop maximum levels of competency and grow in responsibility. Personally, I always try to find some way, outside the project, to help one or two individuals in a practical way. For example, a group of music students from Osh wanted to travel to Uzbekistan to present a concert—an unknown benefactor made something happen for them.

All managers have different approaches and styles. My "modus operandi" is to first build a real team—not just an organization chart. This requires investing in the strategic planning process internally so that the team "owns" the project and understands the mission, goals, objectives, and strategies. They can then work together to achieve results. I try to approach my staff with respect and encourage them to take ideas and modify them to fit the requirements of their culture.

Rice Farmers in Bangladesh, Vietnam, and Nepal Reap Rewards of Using Environmentally Friendly Farming Technology

Fertilizer deep placement using briquettes is labor intensive, provides high yields from less fertilizer, is environmentally friendly, and is feasible for use by small-scale resource-poor farmers.

Photo by Dr. Thomas P. Thompson

While protecting the environment, the Adapting Nutrient Management Technologies (ANMAT) Project is achieving the goal of reducing rice production costs for farmers in Bangladesh, Vietnam, and Nepal, which enables them to improve food security and invest in more land, livestock, savings, equipment, improved housing, new clothing and schooling for their children. The main purposes of the ANMAT project are to improve standards of living of rice-growing farmers and reduce the environmental impact of fertilizer use by introducing an improved form of urea fertilizer.

Resource-poor farmers usually fertilize rice crops by broadcasting fertilizer on the water surface of rice paddies. As much as 70% of the nitrogen from the urea is converted to gas, may contribute to global warming, and never reaches the plant when the urea is applied on the surface. The loss of nitrogen drastically reduces the efficiency of urea fertilizers. To mitigate this problem, the International Fund for Agricultural Development (IFAD) is supporting IFDC in working with partners in NGOs for farmer participatory evaluation, adaptation and adoption of deep placement of fertilizer briquettes as an alternative fertilization practice for farmers in Bangladesh, Vietnam, and Nepal. Urea or mixtures with diammonium phosphate and muriate of potash are converted to small briquettes and applied below the soil surface near plant roots. The efficiency of fertilizer is greatly improved because the nitrogen is trapped, and an additional benefit is the one-time application of briquettes for rice production. The use of this technology has resulted in an average increase of 20% in paddy yields. The reduction in nitrogen lost to the atmosphere and run-off water is an additional benefit. In addition, in conventional broadcasted urea fertilization, it is often difficult to determine when to apply the fertilizer to achieve optimal results. Farmers using the briquettes do not have to be concerned about this issue because the fertilizer is always near the plant roots where it is needed to be absorbed.

Fertilizer deep placement using briquettes is labor intensive, provides high yields from less fertilizer, is environmentally friendly, and is feasible for use by small-scale, resource-poor farmers. In 1996, during a previous project, IFDC began collaborating with the Bangladesh Department of Agricultural Extension (DAE) to promote the deep placement of urea briquettes (UDP). DAE estimates that during 2000-2001 UDP was practiced on 379,000 ha of paddy using 92,000 mt of briquettes produced from 653 privately purchased briquetting machines. Employment generation from new machine manufacturing and briquette production and placement was estimated to be 10,400 person years, and contribution to the gross domestic product (GDP) was $58 million.

To expand adoption, quantify the benefits of use at the farm level, and identify household socioeconomic characteristics and farm attributes that influence adoption, the ANMAT Project is active in areas of Bangladesh where UDP is not practiced previously. In general during dry and wet seasons, farmers obtain about 1,000 kg/ha and 750 kg/ha, respectively, more paddy (an average 20% increase) from UDP than from broadcasted urea applications and use 20%-30% less urea. Marginal net benefits for UDP calculated from demonstration results were $112 and $96/ha for dry and wet seasons, respectively. Based upon a survey of 1,026 households in four pilot areas and farmer demonstration results, it has been estimated that UDP has a potential to increase household income by 12% and to provide 2,725 persons within those households the annual rice requirement above the poverty level (223.4 kg/person @ 3,465 K. calories/kg of rice).

The work of ANMAT recently expanded into Southeast Asia. In Vietnam where farmers were completely unaware of fertilizer deep placement technology, the focus of ANMAT in 2001 has been farmer participatory evaluation of varying distances between placement points of briquettes for both transplanted (closely spaced hills) and broadcast seeded rice. To our knowledge the latter has never been a subject of scientific research and thus the project can contribute to the literature on the subject. Additionally, farmers are evaluating placement of N, NK and NPK briquettes. Also, one replica of a briquette production machine that was shipped from Bangladesh has been reproduced in Vietnam and several low-cost prototypes of deep placement applicators are being tested.

According to Dr. Thomas P. Thompson, IFDC Senior Sociologist, who conducts socioeconomic surveys for the ANMAT project in Bangladesh and Vietnam, "one of the most challenging aspects of the ANMAT project is disseminating the technology to the farmers." To deal with the challenge of promoting the technology, IFDC decided to conduct hands-on demonstrations in popular public locations.The prime locations for these demonstrations are areas in close proximity to mosques, busy crossroads, and near marketplaces. The reactions of farmers have been positive, and many want to experiment with and invest in the technology.

ANMAT work to date concludes that fertilizer deep placement for wetland rice production is a sustainable technology that may be included as a component of projects designed to reduce rural poverty, improve food security, increase crop diversification, and reduce environmental pollution.

Abdul Jalil, Bangladesh Rice Farmer

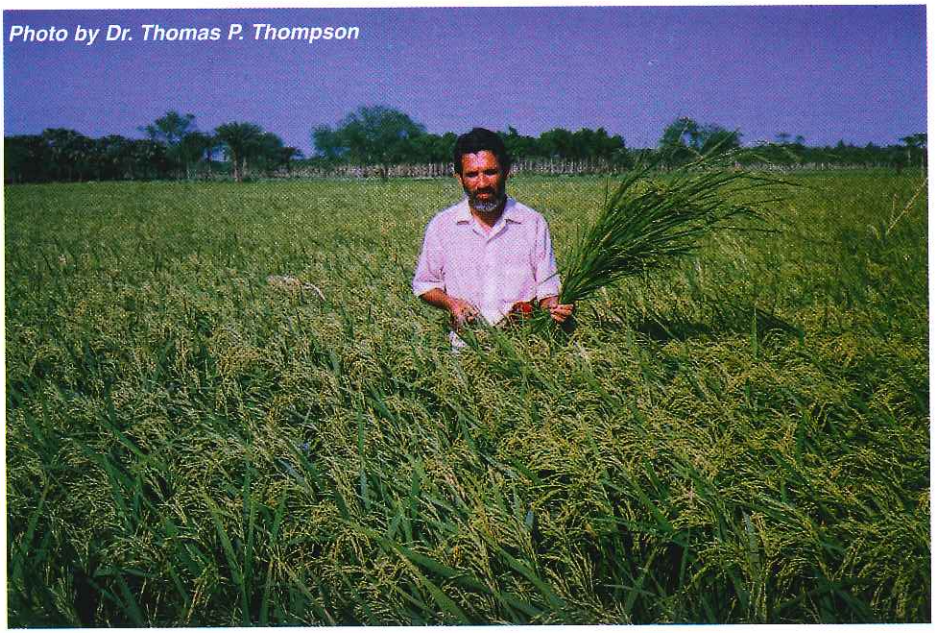


Photo by Dr. Thomas P. Thompson

Farmer Abdul Jalil lives with his wife and two children near Sherodha (Jessore) Bangladesh. He and his family cultivate a 99-decimal (0.40-ha) farm, on which they grow rice. By using urea supergranule (USG) fertilizer, the farmer was able to produce 3,600 kg and 1,560 kg of rice during the Boro 2001 and Aman 2001 seasons, respectively. The farmer received a total crop income of 12,000 TK during 2001. Jalil has been using USG since 1998; the fertilizer has benefited his family in three ways. Because of increased yields and profits, he was able to repair his house, purchase clothing for his family, and pay for school costs. Jalil's life has improved in other ways since using USG: he was able to buy a cow and an irrigation pump with his profits from farming.

Albanian Farmers Increase Their Crop Yields and Income

IFDC/Albania Photo

IFDC/Albania has encouraged the production of greenhouse vegetables like these bright red tomatoes.

Anastas Gjikondi, an olive oil processor, is just one of many Albanian entrepreneurs who have benefited from IFDC assistance in their country (see box describing Gjikondi's experiences on the following pages). In 2002 there are 40,000 rural households that are cultivating olive trees on about 44,000 ha, with approximately 4 million olive trees in production. Since 1998 a new trend has been visible in Albania; the area devoted to the culture of olive trees has been increasing by at least 200 ha per year. Before 1990 olive oil production was handled by 27 oil factories, using only press technology, with a total production capacity of 7,000 tons of olive oil per year. Now 126 olive processing plants are operating in Albania. The processing plants are located in high-yielding olive-growing areas rather than in a centralized location according to the old custom. All of the processing plants are privately owned. The olive plants have been imported from Italy. Because the olive tree is typically an example of an alternate crop, the multi-annual average production of olive oil fluctuates from 3,000 to 6,000 mt/year. The families of the olive growers consume most of the production; the marketable quantity of olive oil by our entrepreneurs is nearly 1,000 tons per year. However, only 500 tons per year is sold on the market through four bottling/packaging units located in Tirana at a retail price of $3-5/kg.

The olive oil story is only one example of the successes that have been realized by the IFDC project in Albania. During the past 3 years IFDC has assisted Albania in nurturing private sector-led growth in agriculture and business by successfully establishing eight democratic and functioning agricultural trade associations, a federation of 18 trade associations as an effective voice for advocating policy reform, and the partnership of eight of them in an Association Business and Management Center (ABMC) that aims to be effective and self-sufficient. Since 1998 farm income in Albania has increased by 64%; export of fresh vegetables has increased by 247%; and Albanian entrepreneurs have exported $2.1 million worth of food products. The project clients have invested millions of dollars of their own money in agribusiness and increased their production and revenues by more than 60% in 2 years and employment by 25%.

During 2001/2002, the Assistance to Albanian Agricultural Trade Associations (AAATA) project has realized several achievements, including the following:

- Advances in production and quality among the client enterprises, including notably the first production in Albania of extra virgin olive oil, turkeys, roasted peppers, and cherry tomatoes;
- A National Conference of the Albanian Agribusiness Council (KASH), which set the agenda for reform of fiscal policy;
- A breakthrough agreement by the Government to dedicate proceeds from the sale of Japanese commodities for a revolving credit fund ($1,300,000 to date) for the purchase of agricultural inputs;
- Further development and strengthening of ABMC;
- The first significant conference in Albania on food quality and safety issues;
- Three new bank credits for clients worth $380,000, bringing the total to $3.2 million, supplier credits of $500,000, and new local investments of $5 million;
- Arrangements with a German organization to provide a long-term agricultural expert to help develop horticulture in the south;
- Cost share, loans, and contributions of $6.2 million, bringing the year 2001 total to $8.5 million, and overall phase one total of the project to $21 million;
- Emphasis on agribusiness activities in four focus clusters—greenhouse vegetables, olive oil, poultry production, and intensive field vegetable production as led by fruit and vegetable agricultural processing;
- Continuation of demand-driven ideas resulting in new products and technologies;
- A significant milestone in the 10 years since the collapse of collective farm system—the production of tomatoes in late winter in two high-tech greenhouses at a profit;
- Growing list of critical clients; agricultural entrepreneurs becoming wise consumers of credit as evidenced by the success of the Credit Savings Association of the Albanian Fertilizer and Agricultural Inputs Dealers' Association (AFADA) and the ability of individual entrepreneurs to secure supplier credit.

IFDC's achievements in Albania are remarkable. Since IFDC first entered Albania in 1992, a working and vibrant agricultural input market has developed. For example, in 2001/2002, private enterprises were supplying 100% of national fertilizer requirements, 95% of CPPs, and 80% of certified imported and domestic seed. Four-fifths of all farmers were using fertilizers and nearly half were using improved seed. Yields of wheat and maize increased by 22%, and many farmers were shifting to more high-value horticultural crops. Better fertilizer and seed laws, reductions in tariffs, and the establishment of viable seed and soil institutes capable of serving farmers and agribusinesses enhanced these improvements.

Albanian Entrepreneurs Launch Extra-Virgin Olive Oil Processing

Throughout history the olive tree has been a symbol of abundance, glory, and peace. Homer called it "liquid gold"; its mystical glow illuminated history. Olive oil has been more than mere food to the people of the Mediterranean; it supposedly has medicinal and magical powers. It is an endless source of fascination and wonder and the fountain of great wealth and power. Olive culture has ancient roots. Olives were first cultivated in the Eastern part of the Mediterranean in the region known as the "fertile crescent" during the fifth century B.C.

Olive culture is not new to Albania, but the production of extra virgin olive oil is new to the country. Two years ago Anastas Gjikondi and other olive oil processors in Albania were told by the skeptics that it might take 10 years to produce extra-virgin olive oil in Albania. However, the skeptics were proven wrong in only 2 years. Supported by IFDC and the AAATA project during the past 2 years, the Albanian processors and members of the Albanian Alimentary Oil Association (AOA), including Gjikondi, were trained and assisted in country by local and foreign experts and in other countries by participating in study tours.

Gjikondi and his family have operated an olive oil processing company since 1995. The family profited from the 35-year experience of Gjikondi who is a former state employee of olive oil processing. In 2000 this active member of AOA doubled his company's processing capacity by installing a second line by means of a loan provided through the Albanian Government. The company's olive oil is sold in bulk to wholesale markets in Tirana. Since 1995 Gjikondi has invested $550,000 in the business; total storage capacity is 100 tons, and processing capacity of olives is 1,800 kg/day. The IFDC AAATA Project has assisted the company by accomplishing the following:

- Locating equipment suppliers and receiving quotations for the necessary technology;
- Designing and assisting in procurement and installing the equipment;
- Selecting the most profitable products like extra-virgin olive oil;
- Providing information and contacts on raw material supply;
- Finding and procuring packaging materials;
- Conducting market research for livestock feed ingredients and developing a strategy.

The Olive Orchard of Anastas Gjikondi—Albanian Olive Oil Processor

IFDC/Albania Photo

IFDC Staff—The Center's Most Valuable Asset
A Profile of One Staff Member

"If I have a single conviction after 10 years in Albania, it is that Adam Smith was right in postulating that there is an invisible hand working in free markets; allow for a market and the invisible hand will work with and for you."

Claude Freeman
Chief of Party/Albania

I always knew that I would live overseas, but I did not know I would be in agriculture. However, agriculture was a definite part of my upbringing since all of my paternal relatives have been Texas cotton farmers for generations. I am pleasantly surprised because I never imagined that I would be able to provide useful contributions to agricultural development. I now have a wonderful career—both interesting and fulfilling—in terms not only of its humanitarian aspects but also the real intellectual challenges that it poses.

IFDC/Albania Photo

IFDC/Albania Chief of Party, Claude Freeman, examines greenhouse tomatoes in Durres, Albania.

I suppose that most farm boys look into the distance at the end of a long day and imagine traveling the world. Long hours allow for the imagination to wander and so it was for me. I was lucky to travel as a youth, first going to Europe at 18 years of age and then overland to India at 23. My mother, who is a second generation Italian-American, always encouraged me to return to the homeland; I have completed that requested mission. Regardless of where I travel, I am still awed by the broad spectrum and diversity of human life.

When my seventh-grade English teacher asked me what I wanted to be when grown, I told her I wanted to be an ambassador. She replied that she believed that I would be one someday—in some way this has come true. Although at times I know that I represent my country, I am aware that I must also be a representative of the altruism of the developed world.

To be able to work in the elements is a real privilege. Many ancient writers, like Virgil, wrote about agriculture, which was considered the educated gentleman's preferred avocation. Both Greek and Roman poets loved their farms and generally retired to them after the tedium of "civilized" life. Thus, I consider the expression, "You can take the boy off the farm but never get the farm out of the boy," to be a positive philosophy.

Even though I received an excellent education at both the University of Texas-Austin and Cornell University, Nigeria was my first school in development implementation. My 6 years of working there never produced a dull moment. It was a challenging experience but as beautiful as Africa can be. As I reminisce about my time there, I realize how much Nigeria formed my attitudes toward people in general. Education was important, but trust-based relationships were critical to surviving long enough to achieve something.

In some ways nothing could have prepared me for Albania—or at least no theory. When I arrived in that country, a great people had been under a dictatorial autarchy for 45 years. Isolated from the world, Albania had engaged in no business activities for decades and no fertilizer market ever. If I have a single conviction after 10 years in Albania, it is that Adam Smith was right in postulating that there is an invisible hand working in free markets; allow for a market and the invisible hand will work with and for you. Many consciously or unconsciously doubt this despite what they say, and it encourages mistakes and failures. So much of the success, I believe, that has been achieved in Albania is due to the immeasurable spirit of the people as it moves to act where freedom exists. This process in Albania revealed and defined many new development ideas and to some extent has become a model, which could be applicable elsewhere, with appropriate modifications.

My greatest sense of satisfaction comes from knowing that many of our clients have been empowered, and their quality of life is improved. Lives are enhanced not only through financial means but also through freedom. Watching hundreds of individuals move from poverty and dependency on the government to having sustainable businesses that support family life and community is a reward. Seeing staff members mature and become the experts who will support the next wave of development is like rearing children who will rise to a higher station than their parents.

IFDC was born of crisis: the need to provide food for the world's growing population. This role, in the fundamental sense, has not changed. While IFDC works in many parts of the world, the Center's vision is best seen in its long-term commitment to Africa—the greatest development challenge of the 21st century. The institutionalization of altruism in IFDC as reflected in its scientific work forces the Center to look beyond the next contract to the solution.

In IFDC's various projects, scientists and development managers work together to provide a unique and special synergy. IFDC provides professionals freedom to experiment in development; work assignments often become laboratories searching for long-term solutions. For me the challenge in development is to really understand the environment, primarily in a qualitative sense, and then to reach down into one's creativity to find those ideas that will resolve the problems—to make positive change and then find the institutions that will sustain it over time. Because I was allowed the opportunity to conduct experiments in development in Albania, I believe we have learned many unique lessons; the scientific attitude toward our work gives us an edge. My greatest fortune was coming to Albania and seeing the market work. It was an epiphany, which I was not prepared for. Things happened without having an apparent causality as people accepted their freedom and put it to work.

I have the deep conviction that the market does work, and it is so much more than any of us. I am reminded of the saint's shrine in Shiraz, where the mosaic not only typifies Persian artistry but also is made entirely of pieces of colored mirror. The human hand had its place in its beauty, but it was important only as it helped pass from reflection to reflection.

If I had a wish of how I want to be remembered professionally, it would be based on passing on the conviction that there is success in development, and it comes from participating in the power of the great ideas—these I believe to be elemental forces. As I consider the future, I hope that someday people will have this to say about me: "He listened but more importantly he heard."

Kosovo Agribusiness Development Project Generates Employment and Income

Through the Kosovo Agribusiness Development Project (KADP), IFDC is providing support for capacity building and is aiding private sector-led development efforts in agriculture. KADP is strongly oriented toward the establishment of a sustainable and vibrant private sector, which is essential to growth, and the generation of employment and income. The project is encouraging private entrepreneurs to invest their own capital in income and employment generation activities by providing business counseling and credit facilitation. Employment in private enterprises is increasing, and structural changes within enterprises can also be observed. It is estimated that during the post-war period, the contribution of private business to GDP has increased by more than 65%.

IFDC/Kosovo Photo

Kosovar growers collect their Pioneer hybrid maize and DAP fertilizer at Gjilan.

Kosovars like poultry farmer Tom Gjini and agricultural inputs dealer Mufail Salihaj are two of the beneficiaries of KADP. They are reaping the benefits in terms of expanding business opportunities, increased employment for their families and fellow countrymen, and the realization of a better quality of life (see boxes describing their experiences on pages that follow).

Kosovo has long been one of the poorest regions in all of Europe. Agriculture is of chief importance in Kosovo; the primary crops include the cereals—maize, wheat, and barley—and fruits and vegetables such as peppers, tomatoes, cucumbers, and beans. To improve the odds for Kosovo's poor, the development of an adequate and sustainable rural strategy designed to increase agricultural productivity and develop employment opportunities in related sectors is an important element of any growth strategy for the country. The expansion of agro-processing activities is of crucial importance to promoting efficient labor-intensive growth. However, before this can happen, Kosovo needs to further develop and implement policies and market mechanisms, both legal and institutional, under which the private sector can succeed.

"KADP is promoting market-oriented reforms and assisting in the development of financially sustainable trade associations," says Ian Gregory, Director of the IFDC Market Development Division.

"KADP is also establishing linkages in the agribusiness sector, similar to the private sector extension system pioneered in Albania. The Kosovo project is providing nascent agricultural enterprises with targeted business and marketing support and facilitating their access to credit."

The project has already been successful in a number of ways. Salaries in private enterprises rose by 27% in 2001. The project's trade association clients have been successful in advocating for policy reforms of import tariffs and organized several successful trade missions and staff training programs. Of all Kosovar enterprises recently surveyed, 77% have made investments in private enterprises; the employment generated by these investments increased by 32% compared with 1999 figures.

Technical assistance to Kosovo's entrepreneurs has resulted in increased agricultural input availability as follows:

- Fertilizer—from 40,000 mt of imports in 1999 to 72,000 mt in 2001;
- Improved seeds—from 16,000 mt imports in 1999 to 30,000 mt in 2001; and
- CPPs—from 2,500 mt imports in 1999 to 7,800 mt in 2001.

IFDC has been working to achieve widespread adoption of high-yield agricultural methods and technologies, such as fertilizers, CPPs, and improved seed varieties in Kosovo. In conjunction with Kosovo's Ministry of Agriculture, Forestry, and Rural Development, IFDC is conducting 150 to 200 demonstrations of wheat and maize technology in all municipalities throughout the region. Two fields of one-quarter hectare each are compared in these demonstrations. The first field is planted with traditional varieties and according to the traditional means and methods of Kosovar farmers. The other field is planted with a modern improved variety and treated with fertilizers and CPPs to maximize the yield.

"In IFDC's trials, yields were three to four times greater than those of average Kosovar farmers," says Gregory. "When farmers use the technology on their fields, however, it would be more realistic to expect about twice the normal yield."

"As a result of better quality agricultural input availability, better access by farmers, better prices, and a sound private extension program, the yields of the main crops have increased significantly in the past 3 years," says IFDC Chief of Party in Kosovo, Daniel Themen. "Estimates show that since 1999 arable output has increased by 37%. In 2001 the yield of wheat was 33% higher when compared with that of 2000. The yield of maize in 2001 was 4.2 mt/ha, compared with 2 mt/ha in 1999. The yield of potatoes was 11 mt/ha in 2001, compared with 7.4 mt/ha in 1999. As for the poultry industry, the total number of domestically produced eggs increased by 17% in 2001, compared with 7% in the year 2000."

Irrespective of the challenges confronting Kosovo, the province has reason to be hopeful for a better tomorrow. As IFDC President and Chief Executive Officer, Dr. Amit H. Roy, says, "I see a bright future for Kosovo's agriculture. Most Kosovar farmers are very progressive and embrace new technologies. Moreover, the private sector is learning to take business risks, which increases the level of entrepreneurship necessary to sustain a healthy free market economy."

Rebuilding Poultry Production in Kosovo

Tom Gjini operates a 10-ha arable and poultry farm near Gjakova in southwestern Kosovo. In addition to producing fresh eggs and chicken feed for the market, he owns an incubator in which he hatches 19,000 eggs per week.

"I have been working with poultry since I was 17 years old,' Gjini says. 'I started with 3,600 chickens and despite total destruction of all livestock during the 1999 conflict, I have regenerated my business to its present size of 4,000 layers and capacity for 10,000 pullets, with international assistance channeled through the IFDC-supported Kosovo Poultry Farmers and Feed Millers Association (SHPUK)."

Tom Gjini, Poultry Farmer, Feed Miller, and SHPUK Member

Tom Gjini was one of the first farmers to introduce commercial poultry farming to this region and the first post-war private hatchery operator. His incubator has enabled him to hatch large numbers of chickens for the poultry industry, which is proving a profitable activity. Profits have ranged from 20% to 30% in the three post-war years.

Gjini has a family of eleven, six of whom work on the farm alongside seasonal workers. The farm is operated intensively; wheat, maize and vegetables are all produced on his 10 ha of arable land. "Kosovar farmers face many problems," Gjini says. "As producers and members of SHPUK, we are working with the UN administration and local authorities through the IFDC-assisted advocacy association, the Alliance of Kosovo Agribusinesses (AKA), to find solutions to the problems of restrictions on imports of poultry equipment and high customs duties on agricultural inputs that result in unfair competition in the regional market and inflated prices for inputs that renders our produce noncompetitive."

IFDC is also assisting the poultry production and feed milling subsector through SHPUK with the extension of new techniques, marketing methods, and visits to overseas producers and organizations. In addition, IFDC is assisting the entrepreneurs in obtaining credit for new developments and identifying the sources of raw materials at competitive prices. With IFDC's assistance, Gjini is applying for a $100,000 loan from EU credit providers to purchase equipment and to prepare to breed chickens for the first parent stock chicken farm in Kosovo. IFDC is helping him develop the business plan required for a loan and is providing the technical data needed to plan his expansion. Gjini was also assisted by IFDC in his successful application for a $16,000 loan to purchase soybean meal from the U.S. Department of Agriculture's (USDA) Food for Progress program for processing in his feed mill.

Since 1999 Gjini has averaged an 18% annual return on investment. He borrowed money for the purchase of the incubator and repaid the loan ahead of schedule. He also purchased a 5-year-old German tractor and other farm equipment and has already repaid the associated loan. To assist the poultry industry, he plans to double the capacity of his incubator and develop the parent-stock breeding farm. His expanded operation will provide 10 new jobs and reduce the costs of day-old chicks to Kosovar farmers by 20%-25% by ending their dependence on expensive imports.

Gjini says that he plans to increase his production of fertilized eggs by at least 4,500 to complete the production cycle on his farm. "After all," he says, "it's all about chickens and eggs!"

Good Agri-Inputs Properly Used Benefit All

"I have been a member of the Kosovo Dealers in Agri-Inputs Association (KODAA) since it was established in March 2000 just after the conflict, and I am now a board member." says Mufail Salihaj, an agribusinessman from Shtime in Southern Kosovo. "IFDC and KODAA have provided an invaluable contribution to Kosovo's agribusiness associations and agriculture in general. In many ways they acted as the Department of Agriculture in Kosovo since their project started before the establishment of the department."

"IFDC test plots in Kosovo have shown that diammonium phosphate is the starter fertilizer of choice for wheat and maize in Kosovo, as opposed to the traditional NPK fertilizer," Salihaj says. "Moreover, you can see a huge difference in yield of the newer wheat and maize varieties, introduced and tested in Kosovo conditions by IFDC specialists, as compared to what we have traditionally planted. I recall in one instance that net income per hectare of maize increased from $15 to $300, just by changing the fertilizer and maize variety and adding an appropriate herbicide."

Mufail Salihaj, Agricultural Inputs Dealer and KODAA Member

Salihaj is a crop protection specialist who opened agricultural input retail centers in three towns in 1991 and has since opened a fourth center. He said that in the future he aims to supply more inputs to farmers and improve technology for the production of concentrates for livestock, while ensuring prompt repayment of loans acquired to fund these activities.

With assistance from IFDC specialists working with his association, Salihaj gained credit from the American Bank of Kosovo (ABK), a USAID-funded banking and lending institution. These funds were used to purchase 500 tons of starter fertilizer for wheat to supply the farmers of his region in the autumn of 2001. At the time, this was the largest loan ever made by ABK, and Mr. Salihaj has already successfully completed his repayment schedule.

"Without the assistance of IFDC, I would never have received the loan and the farmers in my area would not have received the quality starter fertilizer they needed to plant their 2001-2002 wheat," he says. "Based on IFDC crop demonstrations, yields from the inputs that I have sold this season should be higher. This should allow for greater profits for arable farmers, flour and feed millers, livestock breeders, and input dealers. In addition, now that I have repaid the loan, I can apply for another loan with a larger ceiling and a lower interest rate."

Salihaj's business also supplies farmers with a range of agricultural products. He is proud of his relationship with local farmers because he has contracted with wheat producers from three locations for the production of 150 hectares of wheat seed. This is a significant contribution to Kosovo's agriculture because it ensures a large supply of quality seed produced by local farmers. IFDC is currently assisting seed importers and producers such as Salihaj to adjust to new Kosovar regulations on seed and to register their import/production businesses legally.

When asked about the problems faced by farmers in Kosovo and what can be done to assist them, he replies, "We need to invest more resources in agriculture. We need to ensure long-term credit with lower interest rates and longer repayment periods. Special emphasis needs to be placed on farming, and IFDC in cooperation with local lending institutions such as USAID/ABK are helping us to move in the right direction."

Azerbaijan's Farmers Gain Greater Access to Fertilizer, Seed, and Other Inputs

Often cattle are taken to graze in fields near the roadside in the area of Sheki, Azerbaijan.

The name, Azerbaijan, comes from the Persian phrase, "Land of Fire," referring to the country's petroleum deposits. Besides important oil reserves, Azerbaijan has a significant agronomic potential based on a wide variety of climatic zones. A new IFDC project will hopefully help the country realize its full potential agriculturally, and it will become known for not only its bountiful supply of oil but also food.

In February 2002 USAID awarded a grant to IFDC to implement an Agro-Input Market Development in Azerbaijan (AMDA) Project that provides technical assistance to agricultural input dealers of Azerbaijan. A team of international and local experts is undertaking a range of activities over a period of 3 years.

Azerbaijan's future lies in fostering the potential of its nascent private entrepreneurs; this project aims to meet their needs in agricultural inputs. The objective is to develop prosperous private enterprises that stimulate widespread and solid economic growth. The project has four main goals: business development and training; access to credit and finance; association building and development; and technical training, transfer, and extension services.

Azerbaijan has approximately 6,500,000 ha of arable land, most of which is irrigated by a network of more than 40,000 km of canals and pipelines. There are nine different climatic micro-zones throughout the country. Agriculture is the second largest sector within the national economy and, therefore, a significant contributor to the GDP and provides about 34%-38% of

present employment. About 30% of total exports are generated mainly by sales of cotton, tobacco, fruits and vegetables. Since 1991 agricultural production in Azerbaijan has sharply declined.

Azerbaijan imports all of the agricultural inputs that it consumes. In 1985 about 3.1 million tons of fertilizer was used. By 1996 this figure was down to 4,500 tons, and domestic production of phosphoric and potash fertilizers had stopped completely.

About 98% of the farmland has been distributed to more than 700,000 individual families, but the private landholders do not have good access to agricultural inputs, services, know-how, and financing that would maximize their output and make the agricultural sector competitive. Since independence Azerbaijan has had to find new markets for its agricultural products and new suppliers for the necessary agricultural inputs.

Obviously, the present situation in the agricultural sector needs tremendous improvement. Farmers are facing a vicious cycle: the production of standard quality is low, liquidity is not given, credit and working capital are difficult to obtain, and traditional markets are no longer available. Therefore, private investments in agriculture are limited, and returns are low for most farmers. Some individuals, however, have begun to invest and produce encouraging results in areas like greenhouses, egg production, dairy processing, etc.

The solution to Azerbaijan's agricultural problems lies with the private sector. According to Azerbaijan's Minister of Agriculture and Food, Irshad Aliyev, the most critical task is to privatize the system and then help producers gain access to financial credit and provide opportunities and connections to compete in the world market. The most urgent agricultural needs involve acquiring fertilizers, equipment, seeds, machinery, and CPPs.

To increase productivity and raise standard quality production, AMDA aims to provide various fertilizers, pesticides, and seeds to be competitive vis-à-vis imports. This requires the understanding and application of gross margins calculation by farmers to become economically viable entities, find access to financial resources to bridge liquidity problems, and have access to reliable input and output markets.

The AMDA project is establishing demonstration farms and technology transfer programs in the four main agricultural regions of Azerbaijan. By teaching the private dealers the value and methodology of demonstration farms, the project will also help establish private sector extension services.

AMDA began pesticide trials in Guba to increase the production of standard quality apples sold to the processing plants in the region. Dealers have been involved to provide them with the sources of new pesticide products and their application. In the Masalli region, trials were undertaken for tomato production to provide direct fresh sales and deliveries to the local processing plants. This trial includes not only new varieties but also different fertilizer application rates. Trials for wheat are planned in the Ismaili, Sheki, and Ganja regions. In these areas wheat is the main crop grown.

Furthermore, the visits to individual dealers were started to understand their present business practices. In collaboration with three dealers in the Ganja region, 5 tons of DAP was made available and sold to farmers. This marked the first time in 3 years that phosphate fertilizer was for sale in Azerbaijan. Agricultural input dealers in the project regions were invited to meetings to get to know each other, thus strengthening their collaboration and information exchange. Visits to the fertilizer factories in Russia and Georgia are planned to coordinate the purchase of fertilizer.

The Azerbaijan project expects to:

- Double the commercial trade in fertilizer, seed, CPPs, and animal feed;
- Support over 150 agricultural input dealer enterprises;
- Help them establish an effective and sustainable trade association; and
- Assist clients in gaining access to more than $750,000 in new credit and investment.

Nigeria Lays Groundwork for Meeting Its Food Requirements, Increasing Export Earnings, Raising Farm Income, and Alleviating Poverty

"Positive things are happening in Nigeria," said the Minister of Agriculture and Rural Development, Mallam Adamu Bello, during a visit to IFDC Headquarters during July 2001. "President Obasanjo has told me that he is keen to seek IFDC's assistance in looking into the issue of using Nigeria's indigenous resources to produce fertilizer. He is interested in determining the potential of a phosphate rock deposit in Ogun State."

President Obasanjo and Minister Bello support a new IFDC project in their country and its aim toward the further development of agriculture in Nigeria. At the dawn of the 21st century, Nigeria launched a bold experiment of participatory democracy and market-based economic growth to improve the well being of its citizens. To sustain these goals, Nigeria must confront its socioeconomic challenges of food security, environmental protection, and poverty alleviation. Without significant progress in these areas, democracy and economic development are not sustainable. Rapid growth in agriculture is essential for broad-based economic growth and increased productive employment in rural areas, but accelerating agricultural growth requires sound use of science and technology embodied in improved seed, fertilizers, CPPs, and well-functioning output markets. However, without an efficient and cost-effective supply of these inputs at the farm gate, science-based growth in agricultural productivity cannot be achieved. If Nigeria's farmers are provided the advances of modern agriculture, they can evolve from subsistence agriculture to commercially based, upwardly spiraling agribusiness.

Photo by Marie K. Thompson

Nigeria's Minister of Agriculture, Mallam Adamu Bello (extreme left); Nigeria's Director of Agriculture, O. A. Edache; Dr. Lami Lombin, Director of Nigeria's National Veterinary Research Institute (NVRI); Alabama farmer Neal Isbell; and Dr. Balu L. Bumb, Leader of IFDC's Economics and Policy Development Program, discuss the future prospects for Nigerian agriculture.

More than 70% of Nigerians are estimated to be poor, and a significant proportion of the population is food insecure. Until recently, agricultural growth and food production trends have not been able to keep pace with over 3% annual growth in population on a sustainable

basis. This has resulted in increasing dependence on food imports. Nigeria needs to accelerate agricultural growth and development to reduce the deficit in its food balance sheet.

Nigeria's balance sheet for soil nutrient management is also in deficit. During the mid-1990s when Nigeria was using more than 1 million product tons of mineral fertilizers, per hectare nutrient depletion was estimated to be over 80 kg/ha. Since the mid-1990s, fertilizer use has decreased by over one-half. In fact, decreasing fertilizer use is contributing to the increasing nutrient depletion and decreasing per-capita food production in the country. The deficits in both food and soil nutrient management cannot be sustained without compromising food security and environmental protection. Furthermore, slow growth in agricultural output also prevents the growth of agro-based industries and employment generation.

To ensure that the required agricultural inputs are readily available, the supply system needs to be strengthened. A holistic approach is required to strengthen the liberalization process and to develop efficient and sustainable agricultural input markets in Nigeria. Such an approach encompasses concurrent developments in several areas to realize synergy in various efforts. It requires creating an effective policy environment, building human capital for private-sector participants and supporting public-sector institutions, improving access to finance and market information, and strengthening and enforcing quality control regulations. It also mandates focusing on technology transfer activities and supporting research capacity for the private seed industry.

In late 2001 IFDC began a project in Nigeria to promote private sector-based agricultural input marketing, with a special focus on fertilizers. The purpose is to nurture and fortify open and competitive markets and dealer networks in the pilot area as the primary mechanisms to improve farmer access to appropriate agricultural technologies. The project is working to improve farmer access to appropriate agricultural technologies. It is contributing to rural enterprise development, an improved policy setting, natural resource management, new dealer and agricultural trade associations, and various partner relationships, including with farmer groups in the pilot area. The project is undertaking economic analysis and engaging in continual dialogue with the government regarding the range of issues affecting the expansion of marketing in fertilizer and other inputs. The project is identifying, training, and organizing agricultural input dealers to develop a reliable and competitive supply of inputs to farmers. It is establishing a market information system initially concentrated on the agricultural input and crop output situation in the pilot zone.

The IFDC project in Nigeria conducted the first stakeholders' workshops in Kano and Ibadan during April-May 2002. The objectives of the workshops were to upgrade and enhance the participants' knowledge of agricultural inputs concerning the importance, types, uses, and difficulties in getting inputs to farmers and how to overcome such constraints. It also aimed at helping to educate agribusiness entrepreneurs and prospective entrepreneurs on financial management and general farm advisory services. Seventy-eight participants from Kano and Oyo states attended these workshops. The participants included agricultural input dealers, managers of agricultural input companies, extension agents, cooperative managers, bankers, policymakers, researchers, and officials of NGOs.

With all of its natural resources, Nigeria has no reason to be poor, provided the necessary policies and agronomic practices are instituted. The potential outcome of IFDC's new project in Nigeria is great. Through the effective collaboration with farmers, input dealers, policymakers, and other stakeholders, much can be accomplished in the future.

Malawi Designs Agricultural Input Supply System

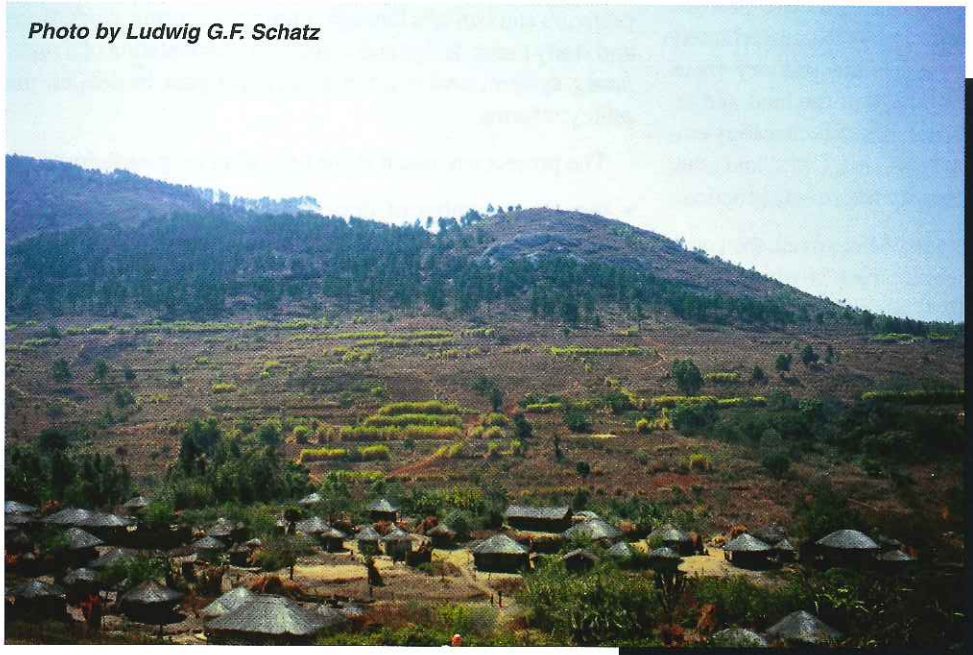


Photo by Ludwig G.F. Schatz

A landscape in the "warm heart of Africa"—Malawi.

Juxtaposed against the vision of a land of beautiful scenery—a nature-lover's paradise—one finds a landlocked nation of 10.4 million people who in mid-2002 are facing their most serious food crisis in recent decades. According to food production experts, Malawi is confronting a 700,000-ton shortfall in grain production. Development experts are predicting wide-scale hunger for this country in which 70%-80% of its inhabitants live in poverty and survive on less than $.50 per day. Nearly one-half of the population suffers from chronic food insecurity even in normal years.

The quality of Malawi's soils is the root cause of the conditions that led to the food shortages. Malawian farmers remove far more plant nutrients from the soil than they can replace. In fact, harvested crops in Malawi now remove about 160,000 mt of nutrients per year. Only about 70,000 mt of nutrients are replaced in the form of mineral fertilizers; organic sources may supply another 15,000-20,000 mt of nutrients per year. Therefore, there is an annual net loss of 70,000 mt of nutrients from the soils. Reversing the dangerous trend of soil nutrient mining is imperative so that food security can be ensured and the soils can be preserved for future generations.

Reversing the dangerous trend of soil nutrient mining is imperative so that food security can be ensured and the soils can be preserved for future generations.

Since Malawi's economy is based largely on agriculture, that sector accounts for more than 90% of the country's export earnings, contributes 45% of its GDP, and supports 90% of the population. Almost 70% of agricultural produce comes from smallholder farmers. More than 40% of smallholder households cultivate less than 0.5 ha. The main food crops are maize, sorghum, millet, rice, root crops, and fruit. Most smallholder crops are sold through the Agricultural Development and Marketing Corporation (ADMARC), with more than 50 storage depots around the country. The commercial estates occupy about 60% of the fertile land. The country's export trade is dominated by tobacco, tea, cotton, coffee, and sugar.

It is predicted that Malawi's population will reach 15.2 million by 2020. To feed that population at an adequate nutritional level, Malawi will have to produce a minimum of 3.8 million mt of grains. This will require the doubling of grain production during the 2000-2020 period. Under such conditions of poverty, food security at both the household and national levels can be ensured only through a two-pronged approach of market-based measures and well-targeted safety net improvements. In both approaches the primary focus should be on enhancing the productivity of the land and labor through the application of science-based technology embodied in improved seeds, mineral fertilizers, CPPs, and other appropriate agronomic and soil-fertility improving practices.

If the fertility of Malawi's soils can be improved, the country should be able to feed its people. This is where IFDC enters the scene. In July 2002 IFDC began a new project in Malawi that should ultimately assist the country in finding ways to increase its food production. IFDC's new project in Malawi is fostering a market-driven approach to improving smallholder access to agricultural inputs. The overall goal of the project is to achieve sustainable increases in rural incomes by increasing agricultural productivity. The project's objective is to improve smallholder farmer access to improved seeds, fertilizer, and CPPs through commercially sustainable agri-input marketing systems. The project is working to establish a vibrant private sector-led agri-input supply and marketing system. It will ultimately strengthen the institutional capacity of the government with regard to policy reforms; regulatory system design and implementation; and information collection, analyses, and dissemination.

In collaboration with the Ministry of Agriculture and Irrigation (MAI) and others, the project will design and operate a market information system on agri-input market conditions. The project will provide direct technical assistance to entrepreneurs and bankers through training programs, workshops and study tours; design and assist in implementation of a regulatory system; and conduct policy analyses to deepen the policy reforms.

The project will result in the following long-term impacts:

- Increased number of dealers in rural areas and ensured availability of quality inputs
- Improved timeliness of input delivery
- Improved appropriateness of the inputs delivered
- Significantly lower farm-gate prices of improved seed, fertilizers, and CPPs
- Improved availability of technical information and services to farmers through dealers
- Increased number of farmers using improved seed, fertilizers, and CPPs
- Improved farmers' knowledge and choice in products
- Increased food production.

Peasant and Farmers' Organizations in Sub-Saharan Africa Receive Boost

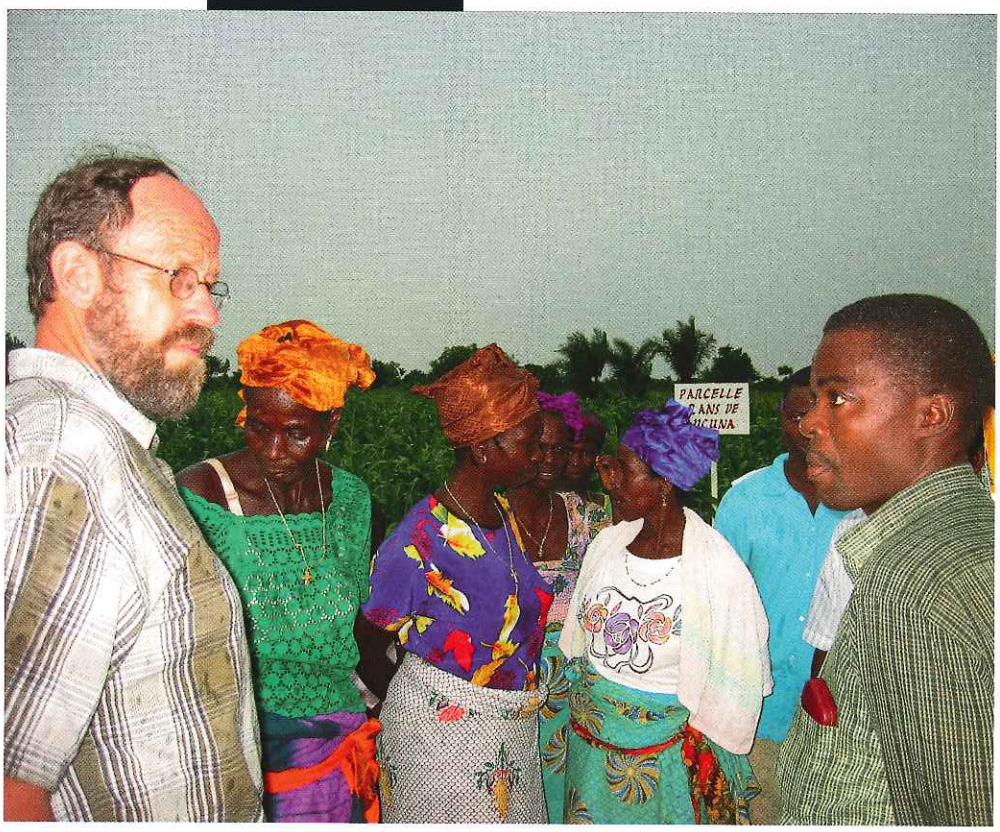
"A peasant organization must be endowed with a solid management structure and a viable economic foundation," says M. Oumar Sekou Tall, President of the Assemblée Permanente des Chambres d'Agriculture du Mali (APCAM). "It should also be focused on a single product or a group of commodities and firmly implanted in its area of intervention to be able to provide efficient services to its members."

The President of APCAM participated in a regional training program workshop organized by IFDC-Africa in Lome, Togo, during October 23-25, 2001. This program, which was organized within the framework of the Dutch-financed project entitled Favorable Socioeconomic and Policy Environments for Soil Fertility Improvement (FASEPE), brought together more than forty representatives of peasant organizations (PO) and chambers of agriculture (CA) from four West African countries. They met to discuss ways to "strengthen the capacities of leaders of peasant organizations in the area of input supply and distribution systems and marketing of agricultural produce."

In most developing countries after Government withdrawal, peasant and rural organizations must play an increasingly central role in agricultural and rural development. This movement is rapidly expanding in response to the need for a professional agriculture. Producers must be able to act as enlightened entrepreneurs and to develop their negotiating power. The level and intensity of participation confirm the timeliness and appropriateness of this program offered by IFDC-Africa. The main objective of the program was to identify problems, needs, and expectations in terms of support and training to plan future actions.

Dr. Henk Breman, Director of IFDC's Africa Division, visits a Togolese farm.

Photo by Dr. Arno Maatman



In his opening address, Dr. Arno Maatman, Head of the Input Accessibility Program, stressed the need for a participatory approach to reach an integrated agricultural intensification, which implies not only the development of appropriate technologies but also solid policy and institutional frameworks including a sustainable agricultural input distribution system. After welcoming the participants, Dr. Kofi Debrah, Head of the Policy and Market Development Program, emphasized the importance of this initiative, which should lead to the strengthening of a vital link in the agricultural production chain at national and regional levels.

The program included field visits to observe input supply and distribution systems and sites where integrated soil fertility management was being implemented, particularly in the vegetable-growing sector. An important aspect was a visit to the fertilizer-blending plant at the port of Lomé. This afforded the participants the opportunity to make business contacts for direct purchases of the inputs.

The themes developed and issues discussed led to the identification of some topics to consider, which should orient future training programs:

- Clarification of the functions of the different types of peasant organizations
- Definition of roles and responsibilities of POs in supplying inputs
- Mechanisms to facilitate access to agricultural inputs
- Measures to reduce middlemen's margins and ways of redistributing returns from economy of scale
- Regional cooperation to lower input supply cost

Emphasis was placed on the importance of information and communication to target markets and the urgent need for POs and CAs to receive training and have access to new information tools and technologies. "Training, information and communication are key elements for efficiency of peasant organizations: training to succeed in conducting activities; information to position oneself; and communication to keep in touch with other partners," explains Bassiaka Dao, a participant from the Fédération des Professionnels Agricoles of Burkina Faso.

Participants formulated some recommendations including:

- Institutionalization of an annual or biannual forum to assess new developments in the private sector and PO/CA.
- Collaboration between IFDC-Africa and PO/CA to obtain necessary financing for training programs
- IFDC-Africa's support in developing mechanisms to transfer knowledge acquired by leaders of POs and CAs at the grassroots level.

African Agricultural Trade Associations Gain Strength

"The private sector participation is the real engine of growth for cost effectiveness, timely responses to changing circumstances, efficiency, and sustainability. African nations cannot go on living on public funding and international aid." This lucid remark came from Dr. A. Joshua, Managing Director of Premier Seed Nigeria LTD. Dr. Joshua participated in the first meeting of trade associations of the agricultural input sector organized by IFDC-Africa in Lomé, Togo, during December 11-13, 2001.

Following the Regional Training Program for Peasant and Farmers' Organizations, the meeting of trade associations involved in the fertilizer, seeds and plant protection sectors confirms IFDC-Africa's commitment to help the private sector to be equal to its role as a driving force of the economies in sub-Saharan Africa. The number and diversity of countries and associations represented show the importance of this meeting that brought together more than sixty participants from fourteen countries: Albania, Benin, Burkina Faso, Cameroon, Ivory Coast, France, Ghana, Guinea, Kenya, Mali, Niger, Nigeria, Senegal, and Togo.

The objectives were to provide a forum for these associations to share ideas and experiences, to reinforce their organizational and financial capacities at national and subregional levels, and to discuss the need and possibility for regional collaboration. "Agricultural policies are to be developed with the participation of all stakeholders. Trade associations are mushrooming, but they often do not have the level of organization that would enable them to impact the behavior

Photo by Dr. Arno Maatman

IFDC-Africa Agronomist Francis Tamelokpo (second from left) confers with farmers at a Togolese coastal farm.

and decisions of national authorities," noted Marc Atouga, who represented the West African Economic and Monetary Union (UEMOA). "The initiative of IFDC's Africa Division is in line with UEMOA's efforts, which led to the elaboration of the Common Agricultural Policy," he concluded.

In his opening address, Dr. Kofi Debrah, leader of the Policy and Market Program, stressed "the emergence of new players on the national economic stage, especially, farmers' organizations, chambers of agriculture, and private input dealers that are called to work with the public sector to meet the challenges of liberalization and privatization of the agricultural markets." Ayassor, on behalf of the Minister of Agriculture, Livestock and Fisheries focused attention on the vision of the Director of the Food and Agriculture Organization of the United Nations. "Sustainable agricultural intensification is the key to free the world from hunger," Ayassor said.

Sustainable agricultural intensification and effective production input markets go hand in hand. These are the two pillars around which the IFDC Africa Division articulates its programs and activities. The meeting highlighted the crucial importance of securing input supply for agricultural development and food security. "This includes not only technological packages but also and, particularly, improved seeds," emphasized another participant, Amadou Djigo, President of the Union Nationale Interprofessionnelle des Semences (UNIS). According to Djigo, "Sixty percent of production constraints are linked to seed-related problems. Without improved varieties and certified seeds, all agricultural development efforts are doomed to fail."

The workshop began with the presentation of IFDC capacities and domains of expertise focusing on fertilizer technology and engineering, integrated plant nutrient and soil fertility management, agricultural input accessibility and policy and market development. Emphasis was also placed on IFDC involvement in facilitating cooperation between the public sector, the private sector, and farmer organizations. The papers presented covered various topics including: the African input market in crisis, a strategic framework for the development of input supply and distribution developed by IFDC, and the situation of the input market in sub-Saharan Africa. Several presentations focused on the new players in the agricultural sector, the Common Agricultural Policy elaborated by UEMOA, and market information systems. Three working groups were formed to further the reflection on the organization and creation of trade association networks, funding associations, and their activities at the national and regional levels.

The discussions evolved around two different approaches: the industry sector approach and the integrated approach. The conclusions favored the sector approach recognizing that, at the national level, trade associations should organize themselves on the basis of the industry sector or the community of interests and concerns within a given sector. This also applies to the regional level to allow for the harmonization of regulations and the exploitation of comparative advantages.

The meeting considered the role of IFDC as one of facilitation and coordination at the national and regional levels, particularly in the following areas:

- Creation of associations at the national level
- Creation of a coordination structure at the regional level
- Strengthening of technical and managerial capacities
- Development of market information systems
- Formulation of projects in partnership with associations and support for their implementation.

The participants unanimously acknowledged that the workshop met their expectations. They stressed the need for a regional coordination structure and expressed their readiness to contribute to efforts toward the establishment of the African Agricultural Market Information Network, an initiative recently launched by IFDC's Africa Division. The impact of this program was well summarized by Djigo. "I was impressed by the atmosphere that prevailed throughout the meeting, which was characterized by the spontaneity of collaboration, the sense of complementarity, and the will to articulate efforts to move forward together. From a more subjective point of view, the meeting allowed me to broaden my personal horizon and to assess the value of my organization in comparison with others," Djigo said.

Soil Management and Systems Research in the Andes Promotes Sustainable Development

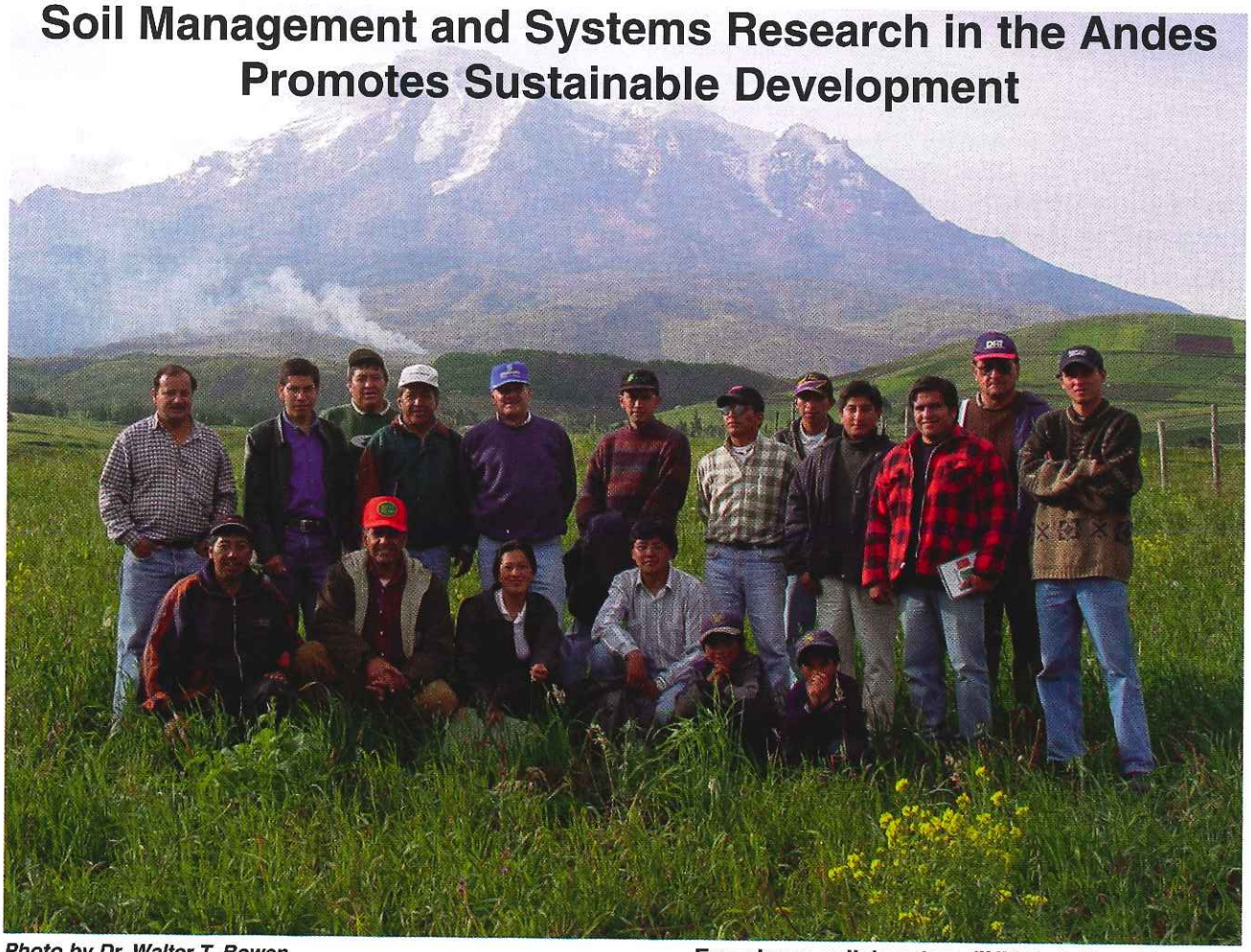


Photo by Dr. Walter T. Bowen

Ecuadoran collaborators (INIAP staff and farmers) gathered beneath the towering Mount Chimborazo.

Like a slow-growing cancer, soil degradation is eating away at the livelihoods of millions of poor farmers in the Andes. Cultivation on steep slopes and a tendency to overwork the soil are causing the loss of productive topsoil by both water and tillage erosion. With the loss of soil, there is also a severe and continuing reduction in the carbon content, the nutrient-supplying capacity, and the water-holding capacity of the soil that remains. Many farmers realize that present practices are degrading their land and sacrificing its long-term productivity, but they remain focused on the short term because of the immediate need for food and income.

To reverse the degradation of natural resources and make food production systems in the Andes sustainable, IFDC has joined forces with a wide range of partners in the Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN). With coordination assistance provided by the International Potato Center (CIP), CONDESAN links more than 75 public and private sector partners in research, training, development, and policy making to promote the sustainable use of natural resources and improvements in welfare and equity for the people of the Andes. Since 1996, IFDC has worked with CIP and CONDESAN partners to develop the understanding and analysis capabilities needed to help poor farmers better manage their land and water resources.

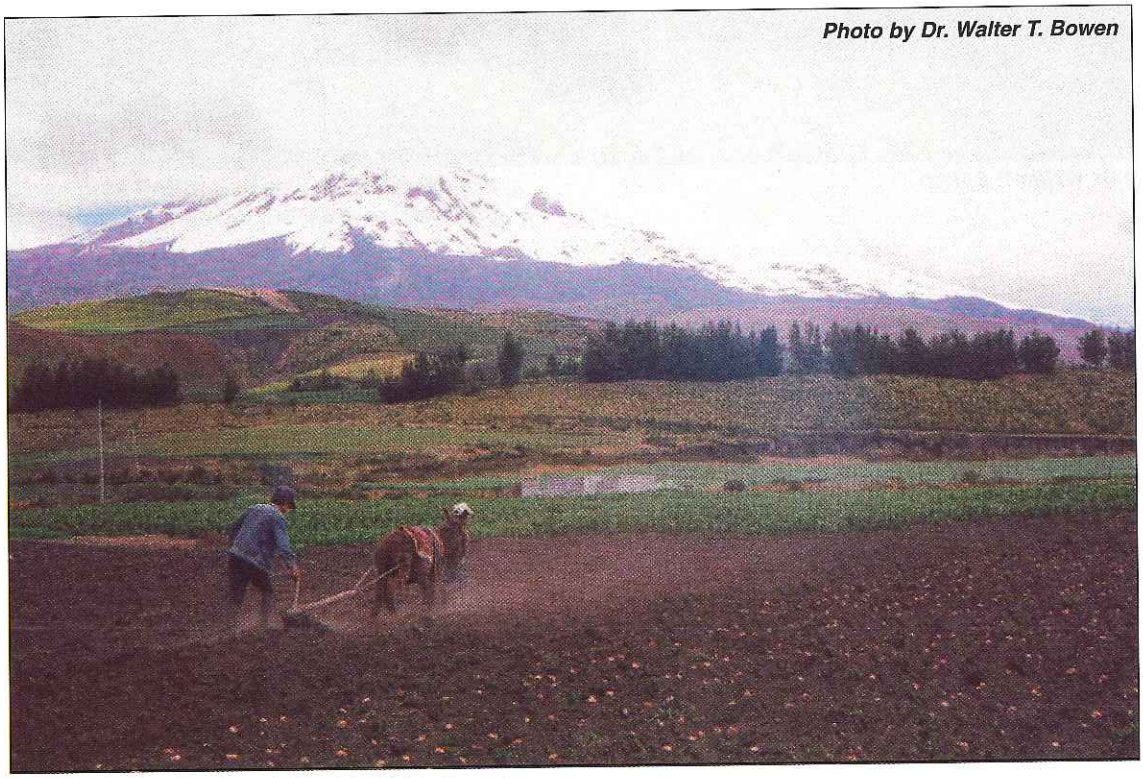
Recognizing the need for a more fundamental understanding of nutrient cycling processes in mountain agro-ecosystems, IFDC has developed with CONDESAN partners a regional network of scientists who are collaborating on soil fertility research in the Andes. The goal of the network, referred to as MOSAndes (Management of Soils in the Andes),

is to develop soil management practices that will preserve and enhance the productivity of Andean soils and improve the livelihoods of poor farmers. Presently, the MOSAndes network has eight coordinators representing 50 researchers from seven countries—Bolivia, Colombia, Ecuador, Peru, Venezuela, Spain, and Cuba. The international centers collaborating with MOSAndes include IFDC, CIP, and the International Center for Tropical Agriculture (CIAT).

Initiated during 2001, MOSAndes has contributed to the training of Ecuadorian scientists in the isolation, quantification, and identification of mycorrhizal species, the screening of different potato clones for yielding ability on volcanic ash soils (Andisols) with high phosphorus fixation, and the gathering of experimental data for improving the water and nitrogen balance components of the SUBSTOR-Potato crop growth simulation model. In addition, MOSAndes partners have jointly prepared several research proposals in the hope of obtaining additional funds to study other topics such as the influence of land use on soil biology and the fertility of Andean soils, the potential for conservation farming in the Andes, the use of composting in urban and periurban agriculture, and the application of nutrient management decision support systems.

Through its partnerships with CIP, CONDESAN, and Montana State University, IFDC has applied its expertise in simulation models and systems research towards the development of effective decision support systems (DSS) that link biophysical and economic information for assessing the impact of changes in agricultural production on human health and the environment. Application of the DSS in Ecuador demonstrated how changes in policies and technologies related to pesticide use in potato production would be expected to impact on human health. In Peru, an application of the DSS showed how different soil conservation policies and technologies would be expected to impact on farmer incomes and long-term soil productivity.

In preparation for the International Year of Mountains (2002), IFDC contributed to the development of a multimedia product that compares watershed dynamics across eight different watersheds in the Andes and the Himalayas. Together with CONDESAN, IFDC expects this effort to be expanded and eventually lead to the development of watershed analysis tools that will help mountain communities better manage their natural resources.



An Ecuadoran farmer plows his field; Mount Chimborazo is in the distance.

IFDC Staff—The Center's Most Valuable Asset
A Profile of One Staff Member

"My vision is one based on service to humanity in the hope of achieving a future where all people can live dignified lives with access to food, education, employment, and a clean environment. I hope that my contribution, although only a small part of such a big picture, is one that helps us better understand how to live in harmony with both nature and each other."

Dr. Walter T. Bowen
Leader, Soil and Nutrient Dynamics Program

When I was growing up in South Carolina, I never thought that I would be involved in development work today. But, like most children, my imagination could have me flying a jet, working as a doctor, building houses, policing the neighborhood, or doing any of the myriad tasks we all picture ourselves carrying out as adults. My imagination, however, was limited by my view of the world then. As a child, and having not grown up on a farm, I was unaware of the important role that agricultural research scientists play in securing our food supply and ending hunger. It was only later in life, after I entered university, that I took an interest in agricultural science and international development. Nevertheless, my early childhood did instill in me a love for the outdoors, the desire to serve society in a useful way, and a tremendous curiosity about the world beyond South Carolina.

It is difficult to point to any one person or event that initiated my desire to work with other cultures and in other countries. My parents were of course a big influence in that they provided a nurturing environment for developing an inquisitive mind and an interest in world events and places. To some degree, however, my interest in other cultures and global issues can be traced to my growing up in the United States during the Vietnam War era. The debates and protests that surrounded U.S. involvement in this war also encouraged more open and critical discussion of development issues, particularly world hunger and the environment. For me, it was exposure to debate and discussion about the plight of poor people in both developed and undeveloped nations, their hunger, and concerns about the negative impacts development was having on the environment that led me to be proactive and seek to address these issues as a professional.

Several forces were at play in my life to influence me to move into international work. First, when I was a senior at Clemson University in 1976, I had the opportunity to spend hours talking with the Peace Corps recruiter on campus and a returning volunteer—a graduate student. Not yet sure of what I wanted to do after graduating with a degree in plant science, my

Dr. Walter T. Bowen, Leader, Soil and Nutrient Dynamics Program, inspects a potato crop with CIP scientists near Quito, Ecuador.

Photo by Dr. Edward C.A. Runge

conversations with them convinced me that going to a developing nation as a Peace Corps volunteer was the opportunity I was looking for. Although my father had passed away only one year before, and I was the oldest of six children, my mother provided her unequivocal support for my taking advantage of this opportunity. Since my father's death we had grown much closer together, and as we discussed my desire to join the Peace Corps she let me know that she too, as a young person, had considered working overseas, but as a missionary. Without my mother's support and encouragement, I'm not sure now if I would have joined the Peace Corps. I also received encouragement for joining the Peace Corps from professors with whom I consulted at Clemson.

In the Peace Corps, I served as a pasture agronomist for 2 years in Malaysia. During that time I received support for a 1-month study tour in Queensland, Australia, to learn more about pasture seed production. I then remained in Malaysia a third year to conduct the technical training program for a new group of Peace Corps volunteers and to work as an interviewer and caseworker with the Vietnamese boat people, who were then landing on the shores of Malaysia. After Malaysia I began my graduate program (M.S./Ph.D.) in Agronomy at Cornell University. Upon completing my M.S. and coursework for the Ph.D., I then went to Brasilia, Brazil, for 2 years to do field research for my Ph.D. Upon completion of my Ph.D., I joined the faculty at Cornell University and moved back to Brazil to coordinate research activities in both the savannas and Amazon of Brazil. The Brazil project was completed after 3 years. I then accepted a position at the University of Florida, first as a visiting scientist then as a postdoctoral associate. The position at Florida afforded me the opportunity to obtain modeling experience to complement my extensive field experience. This combination probably helped me obtain a position with IFDC in 1992. After working on various projects from Headquarters for about 3 years, I moved to CIP-Lima and then CIP-Quito to conduct collaborative IFDC/CIP activities.

My greatest pleasure and satisfaction comes from working with people, whether they are poor farmers with little access to resources or scientists trained at some of the world's best universities. The world is truly a small place, with many complex problems that threaten our ability to lead healthy and productive lives, and which need addressing at all levels of society. Working as a trained scientist I gain tremendous satisfaction knowing that although I do not have all the answers, I am working in partnership with others toward understanding and solving some of these problems.

The greatest challenge I have faced, which is probably true for many of us, is raising a child. I have found that wanting to ensure that our children have a happy future is the glue that binds us all, regardless of culture. Children are perhaps the most important driving force we have for building a shared understanding of what it means to be human.

My approach to research is one based on building partnerships and strategic alliances with local institutions, whether they are national research institutions, universities, nongovernmental organizations, communities, or farmer groups. As a scientist at IFDC, I consult with such partners to better identify what it is that IFDC could bring to the table to strengthen their own efforts. I see IFDC playing a strategic and catalytic role that allows the local institutions and people to address relevant problems more effectively. In our efforts to understand better what it takes to increase and sustain the productivity of soils, I think we all realize now that we must involve farmers in the research process. Research needs to be participatory in that the farmer helps to identify problems and may also conduct research and interpret results.

If an organization is to succeed in development work, it must adhere to a people-centered approach. Development efforts will succeed only if the local people are empowered, if they are consulted, if they are trained, and if they are given the opportunity to become self-reliant.

My vision is one based on service to humanity in the hope of achieving a future where all people can live dignified lives with access to food, education, employment, and a clean environment. I hope that my contribution, although only a small part of such a big picture, is one that helps us better understand how to live in harmony with both nature and each other.

Photo by Dr. Hugo De Groote, CIMMYT

Ladies of the Kitanga Woman's Group evaluate low-N, drought-tolerant maize varieties in "Mother-Baby" trials near Machakos, Eastern Kenya.

Agronomic Research in East Africa Helps Farmers Overcome Food Production Problems

Farmers in East Africa are constantly challenged by infertile soils and drought. Yet the cost and accessibility of fertilizers and the risk of crop failure due to drought limit the amount of fertilizer used by resource-poor farmers in the region. Since 1998, IFDC has collaborated with CIMMYT in East and Central Africa to help poor farmers overcome these difficult problems. CIMMYT breeders have developed maize varieties that are able to tolerate drought and low soil fertility and produce higher yields with less fertilizer inputs.

Farmer Participatory Maize Variety Evaluation

IFDC's soil scientist/agronomist in Nairobi works closely with CIMMYT breeders and socio-economists and national agricultural research system (NARS) scientists in the region to test these new maize varieties on-farm with direct farmer participation in so-called "Mother-Baby" trials. In 2001, about 700 farmers tested new varieties on their farms under their own management in small 4-6 plot "Baby" trials. The farmers also had the opportunity to see the potential of these varieties when planted in their community by researchers with optimal fertilizer management in "Mother" trials. The "Mother-Baby" trials serve the three-fold purpose of evaluating advanced new varieties under diverse conditions, exposing farmers to new varieties, and incorporating their criteria and evaluation in the selection process. Based on this exposure and farmer feedback, several new varieties have entered the national certification process in Kenya for release.

Soil and Water Conservation for Drought Mitigation

To help farmers gain the most from these drought and infertile soil-tolerant varieties, IFDC and CIMMYT work with NARS scientists in the East and Central Africa Maize and Wheat (ECAMAW) Network to test and disseminate cultural practices that improve soil fertility and conserve soil moisture. Much emphasis is placed on the use of organic sources available or produced on-farm and on the integration of fertilizers with organic sources. During the past 3 years, trials by network scientists in Ethiopia, Uganda, Tanzania, and Kenya have tested grain legumes, green manure/cover crops, animal manures and composts in combination with inorganic fertilizers in over 250 on-farm and on-station trials. These trials have exposed farmers to new legume species (such as soybeans) with which they were previously unfamiliar, and many are enthusiastically adopting them to the extent that they are growing them in monoculture. Locally adapted green manure species have also been

identified and tested in different systems with maize and in comparison and combination with fertilizer nitrogen sources. Based on this research, ECAMAW scientists are promoting "Best Bet" systems on farmers' fields with new low-N-tolerant maize varieties to take greater advantage of the nitrogen derived from legume components in the system.

Research is also being undertaken to adapt water-harvesting methods for the dry land, maize-producing areas of East Africa. Tied ridges are being tested in combination with drought-tolerant maize varieties from the CIMMYT breeding program. In these environments, fertilizer use is much riskier than in more favorable environments. However, use of soil moisture conservation practices, in combination with stress-tolerant varieties, potentially reduces risk of crop failure and makes investments in soil fertility improvement more possible. In northern Tanzania, ECAMAW scientists have promoted the tied ridge technology with farmers for three seasons. While many have seen the benefits of the technology during drought years, they have not had the appropriate tools to economically prepare the land. During 2002, 20+ farmers are comparing tied ridges with conventional land preparation on large half-hectare plots using a locally adapted implement and drought-tolerant maize varieties. Scientists are hopeful that the implement and increased production with new varieties will lead to greater adoption of the technology in the future.

Agronomic Strategies for *Striga* Control

Striga is a flowering parasitic weed that attaches to the roots of young maize plants, draining them of water and nutrients and injecting phytotoxins, which further stunt the plant's growth. *Striga* affects the welfare and livelihood of millions of people in sub-Saharan Africa where yield loss due to *Striga* damage ranges from 20% to 80% and complete crop loss is not uncommon.

Striga infestation is associated with poor soil fertility and continuous monocropping with host crops such as maize. Research on various *Striga* control methods pre-dated IFDC's collaboration with CIMMYT but have continued under the direction of the regional agronomist and include both agronomic and biotechnological methods. Among the agronomic approaches developed to control *Striga* are those that improve soil fertility through rotations and intercrops of maize with legumes, which stimulate *Striga* germination but do not host the parasite. On-station and farmer-managed on-farm trials in Western Kenya during 1998 to 2001 have shown that intercropping combined with hand weeding of *Striga* plants before they set seed to avoid replenishment of the *Striga* seed bank in the soil can be an effective technique of increasing farm productivity and controlling *Striga* in maize-based systems. Intercrops with a dense canopy and a creeping growth habit such as cowpea are most effective. Rotations with crops such as peanut, soybean, sunflower and pigeon pea that do not host *Striga* have also been shown to reduce the *Striga* seed bank in the soil and increase farm productivity. These agronomic *Striga* control methods were promoted among farmers in Nyanza Province in western Kenya during the 3-year project funded under the System-wide Program on Participatory Research and Gender Analysis of the Consultative Group on International Agricultural Research (CGIAR). During 2000/2001, more than 200 extension staff members were trained in the methods, and they in turn trained several thousand farmers on *Striga* control and biology. Working through CARE-Kenya, the project trained 204 group resource persons and 26 local management committees, who in turn trained some 6,500 farmers in agricultural shows and field days organized to disseminate *Striga* control methods. An extension bulletin was published and disseminated to project workers.

Recent and Upcoming IFDC/CIMMYT Collaborative Activities

During the past 4-5 years, CIMMYT's maize-breeding program in collaboration with NARS breeders in the ECAMAW Research Network has developed maize varieties and hybrids with high-yield potential and tolerance to low soil fertility, drought, and common biotic stresses such as *Striga*, borers, and streak virus. Several varieties have been released or are in the process of being released in Kenya, Ethiopia, Tanzania, and Uganda. With new funding from BMZ, increasing emphasis is being placed on improving resource management to extract the full potential of this new germplasm. During 2002 new Network regional projects, coordinated by IFDC's soil scientist/agronomist, have been initiated on four themes: (1) development of optimal nitrogen rates for new nitrogen-use efficient maize varieties in different agroecologies in East and Central Africa; (2) evaluation of "best-bet" maize-legume systems based on conclusions from the earlier Network results and incorporating nitrogen-use efficient maize varieties; (3) evaluation of tied ridges in combination with drought tolerant, nitrogen-use efficient varieties on large plots in farmers' fields; and (4) determination of the effects of increasing plant population density with early drought-tolerant varieties and tied ridges and fertility to improve productivity in dry mid-altitude agroecologies.

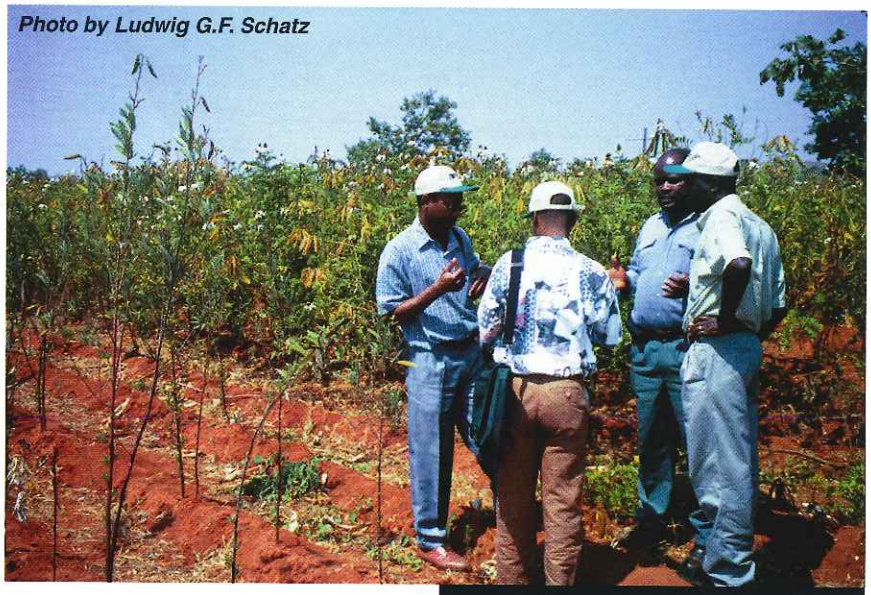
Recently much attention has been given to the possibility of using quality protein maize (QPM) to improve the nutrition of infants, young children and nursing mothers in areas of East and Central Africa where maize forms the bulk of the family's diet. QPM is a maize type that has a more balanced content of essential amino acids than normal maize. CIMMYT breeders are beginning to improve drought and low nitrogen tolerance in QPM to adapt varieties to these important abiotic stresses in East and Central Africa. A large component of the project will involve on-farm evaluation and dissemination of new QPM varieties in the region, with attendant development of appropriate agronomic recommendations in collaboration with IFDC.

IFDC Offers Global Training for Soil Fertility and Agricultural Development

During 2001-2002, IFDC demonstrated a continued commitment to global agricultural development by conducting training, study tours, and workshops aimed at improving fertilizer production systems, fertilizer distribution and marketing, and environmentally responsible fertilizer use. These efforts contributed to mitigating a severe shortage of trained personnel in work related to fertilizer production and use in developing countries.

IFDC conducted 14 global and specialized training programs, workshops, and study tours in the areas of soil fertility and agricultural development. The programs benefited 368 representatives of agricultural organizations and institutions in 70 countries. Global training programs on agricultural input marketing, fertilizer distribution and handling, fertilizer marketing, direct application of phosphate rock, fertilizer production technology, and fertilizer use recommendations were held on four continents and were conducted in the countries of Ghana, Mali, the United Kingdom, France, Vietnam, the United States, Malaysia, Belgium, Malawi, and South Africa. Specialized and individual training programs on soils, irrigation, plant nutrition, fertilizer production technology, phosphate rock, and fertilizer marketing and forecasting were conducted in the United States and Tunisia.

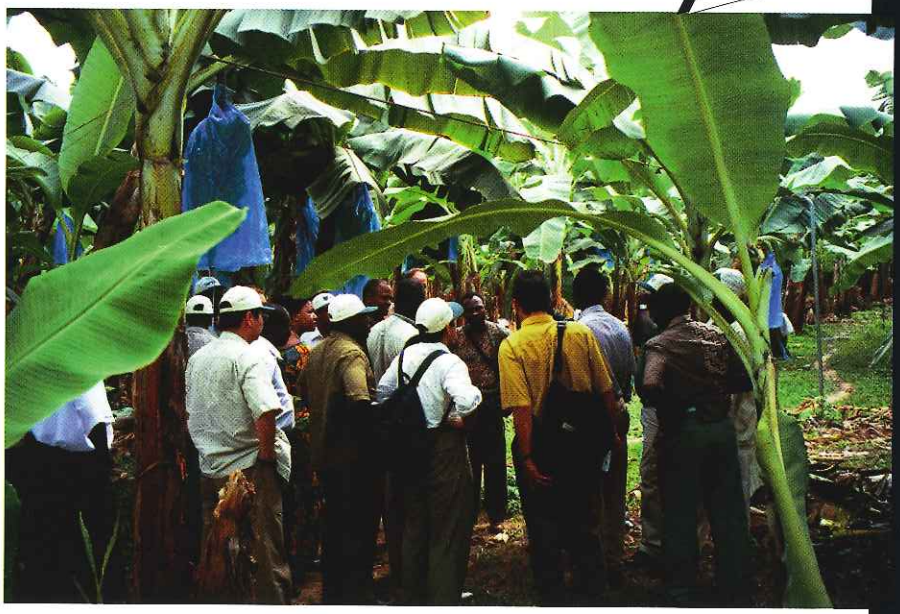
Photo by Ludwig G.F. Schatz



Participants in IFDC's Fertilizer Recommendations for Optimum Crop Production Training Program visit a Malawian farmer's field.

During 2001/02, IFDC's training participants represented 70 countries

Algeria, Angola, Argentina, Australia, Austria, Bahrain, Bangladesh, Belgium, Bhutan, Brazil, Cameroon, China, Colombia, Côte d'Ivoire, Denmark, Egypt, Ethiopia, France, Germany, Ghana, Guinea, Guyana, Iceland, India, Indonesia, Iran, Israel, Japan, Jordan, Kenya, Korea, Kuwait, Laos, Latvia, Lithuania, Malawi, Malaysia, Mali, Morocco, Mozambique, Nepal, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Poland, Portugal, Qatar, Rwanda, Saudi Arabia, Senegal, Singapore, South Africa, Spain, Sri Lanka, Tanzania, Thailand, Togo, Trinidad, Tunisia, Turkey, Uganda, United Arab Emirates, United Kingdom, Venezuela, Vietnam, Zambia, and Zimbabwe.

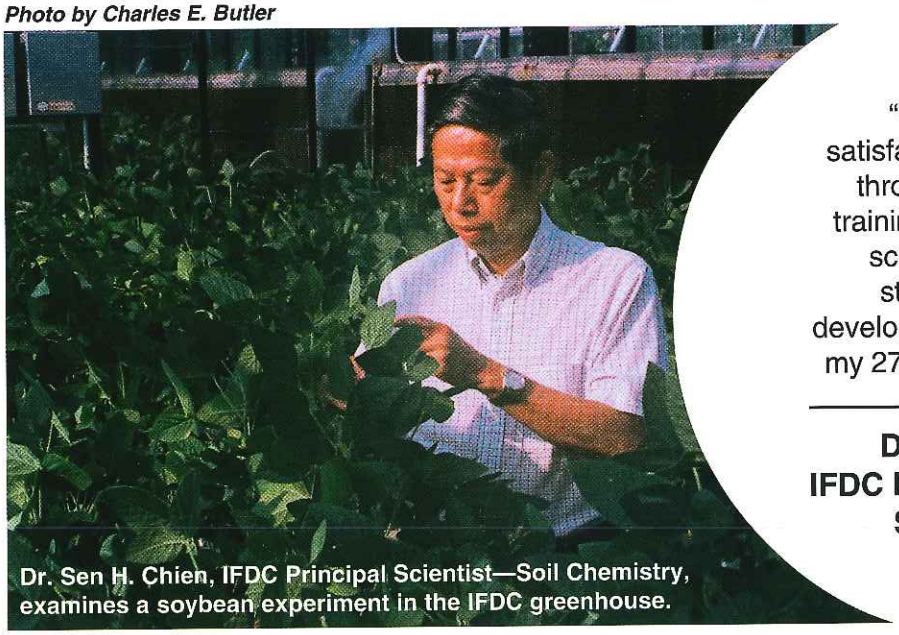


Participants in the International Training Program on Agricultural Input Marketing in Ghana visit a banana plantation.

Photo by Ludwig G.F. Schatz

IFDC Staff—The Center's Most Valuable Asset
A Profile of One Staff Member

Photo by Charles E. Butler



Dr. Sen H. Chien, IFDC Principal Scientist—Soil Chemistry, examines a soybean experiment in the IFDC greenhouse.

"One of my greatest satisfactions has been gained through working with and training more than 25 visiting scientists and graduate students from various developing countries throughout my 27-year career with IFDC."

Dr. Sen H. Chien
IFDC Principal Scientist—Soil Chemistry

When I was growing up in a small farming village near Taichung, Taiwan, I could have never imagined being where I am today. As a small child I gained my first experience in agriculture while helping my family in our small garden.

I earned my B.S. from National Taiwan University (1963), M.S. from University of New Hampshire (1968), and Ph.D. from Iowa State University (1972). My major professor at Iowa State was interested in phosphate rock research because he felt it was the basis for phosphate fertilizers. After receiving phosphate rock samples from the Tennessee Valley Authority and conducting phosphate research, I was offered a position at IFDC in 1975 and have continued my research in this field for the past 32 years.

After joining IFDC, I got my first taste of international work in Quito, Ecuador. There I saw poor people—probably native Indians from the countryside—who were sleeping on the street and begging for food. I was touched by this scene and was determined to find a way to contribute in some small way to help them improve their lives.

My greatest satisfaction comes from having trained and worked with more than 25 visiting scientists and graduate students from various developing countries during my 27-year career at IFDC. I am very pleased to share my knowledge of phosphate rock with other researchers and government officials in the developing countries. Indirectly, I hope that it can have a favorable impact on the phosphate industry and farmers. After I conducted two seminars in Malaysia in 1996 and 1997, the Malaysian Government revised the fertilizer regulations for phosphate rock use following my recommendations. This had a significant impact on the country where more than one-half million tons of phosphate rock has been the main source of phosphate fertilizer for estate crops—oil palm, rubber, etc.

My greatest challenge is to provide new information on phosphate rock use to the scientific community through publications and seminars before my retirement in 4 years. One discovery that I have made is that medium or high reactivity phosphate rock or a mixture of phosphate rock and water-soluble phosphates can be an effective fertilizer on canola in alkaline soils. This information can be useful to farmers in countries having phosphate rock deposits and alkaline agricultural soils. In addition, I have found that bulk blending of NPK compound fertilizers decreases cadmium uptake by crops as compared with the same fertilizers when they are granulated.

My vision for the future is for resource-poor farmers in the developing countries to someday be more prosperous and thus improve their standard of living. More than 40-50 years ago farmers in Taiwan were also very poor; today they are rich in comparison. My dream is for farmers in the developing countries to be as rich.

At a Malaysian phosphate rock meeting in July 2001, two professors from Iran presented me with a gift and referred to me as the "Father of Phosphate Rock." In Brasilia in 2002, I was attending a meeting of the Food and Agriculture Organization of the United Nations (FAO)/International Atomic Energy Agency (IAEA) when I was introduced by one scientist to another as the "Father of Phosphate Rock." If people remember me in this way, I hope that I will have used my experiences and knowledge to contribute to increased food production and the overall betterment of humankind.

IFDC Project Portfolio, 2001/2002

Project	Objective	Donors	Collaborators	Location
Integrated Natural Resource Management in Mountain Agroecosystems	To increase and improve productive and sustainable natural resources management in selected mountain areas	USAID, World Bank, IDRC, CYTED	CIP, CIAT, CONDESAN	Ecuador, Peru, Bolivia, Colombia, Venezuela
Tradeoffs Project	To develop decision support system for assessing tradeoffs between agricultural production and impact on environment and human health	USAID	Montana State University, CIP, CIAT, Wageningen University, INIAP PRONAMACHS	Peru Ecuador
MOSAndes Project	To develop soil management practices to enhance productivity of Andean soils	CYTED	CIP, CIAT, and universities, NARIs, and NGOs in Bolivia, Peru, Ecuador, Colombia and Venezuela	Bolivia, Colombia, Ecuador, Peru, Venezuela
East and Central Africa Maize and Wheat Network Project	On-farm evaluation of maize varieties; soil fertility enhancement; soil moisture conservation; agronomic methods to control Striga	CIDA BMZ UNDP/IFAD	CIMMYT NARS scientists	Kenya, Ethiopia, Tanzania Uganda
IDSS for Uruguay	Land feasibility studies; national/ regional crop yield forecasts; drought/flood alert systems; agronomic recommendations	Government of Uruguay	INIA, IAPAR, INTA, NASA	Uruguay
COSTBOX Project	To develop methodologies to encourage systems approaches in SSA	Ecoregional Fund	NARES, universities	Togo, Benin, Ghana, Nigeria
CNDC I Project	To combat nutrient depletion of soils in SSA	Norway, Netherlands, Switzerland	TSBF, CIAT, NARES, universities	Burkina Faso, Mali, Ghana, Togo, Benin, Nigeria
CNDC II Project	To combat nutrient depletion of soils in SSA	SWNM/CIAT BMZ	TSBF, CIAT, NARES	Togo, Benin
ISFM Project (which combines the F&SAD and FfF projects)	To promote ISFM strategies at the village and regional levels and to develop sustainable linkages of farmers to input/ output markets	IFA, USAID	NGOs, NARES, farmers, bankers, traders, and policymakers	Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria, Togo
ANMAT Project	To promote the adoption of balanced fertilizer use and improved efficiency of fertilization in Bangladesh, Nepal, and Vietnam	IFAD	NGOs, extension services	Bangladesh, Nepal, Vietnam
FASEPE Project	To promote sustainable agricultural production and market development by improving necessary socio-economic and policy conditions	DGIS	Farmer-based organizations	West Africa
AAATA	To nurture private sector-led growth in agriculture and agri-business in Albania	USAID	Entrepreneurs, decision makers	Albania
AAATA Development of Agricultural Statistics	Support the Ministry of Agriculture of Albania in development of sustainable services in agricultural statistics	USAID	Public and private sector offices and NGOs	Albania

IFDC Project Portfolio, 2001/2002 (Continued)

Project	Objective	Donors	Collaborators	Location
KAED	To support the development of agro-input dealers and increase agricultural production through use of improved technologies	USAID	Agro-input dealers, decision makers	Kyrgyz Republic
AMDA	To improve agro-input marketing and accessibility in Azerbaijan	USAID	Agro-input dealers, farmers	Azerbaijan
KADP	To establish in Kosovo a trade association support network for agri-input and agribusiness development	USAID	Agro-input dealers	Kosovo
Emergency Supply of Fertilizer	To assist Afghanistan in resurrecting its critical agricultural sector	USAID	Ministry of Agriculture, ICARDA, NGOs	Afghanistan
AIMS Project	To improve market conditions for agricultural inputs	USAID	Decision makers	Mozambique
Promoting Sustainable Agricultural Inputs Markets in SSA	To produce practical guide for fostering open, private sector, competitive, and reliable distribution networks for agri-inputs	USAID, SG 2000	Agri-input dealers	Nigeria, Malawi, Ghana, Mali
Developing Agro-Input Markets in Nigeria	To improve policies and regulatory regimes related to agri-inputs and to develop systems for providing market information and access to credit	Government of Nigeria, USAID	IITA, farmers	Nigeria
Policy Reform to Enhance Trade of Agricultural Inputs in West Africa	To promote regional fertilizer and seed trade associations in West Africa and synchronized trade policies governing agri-inputs	USAID	USDA, ASTA	West Africa
Development and Dissemination of Sustainable Integrated Soil Fertility Management Practices for Smallholder Farms in SSA	To improve plant nutrient management in resource-poor areas of SSA	IFAD	TSBF	West Africa
Farmers for the Future	To increase productivity, profitability, and sustainability of agricultural production for small farmers	USAID, IFA	Farmers	West Africa
GISD	To increase access to geo-spatial data and tools that can help increase agricultural production and food security	USAID	USGS, AfriCover, Open GIS Consortium	Headquarters
Café Project	To develop a framework using remote-sensing observations and climate and biophysical models for predicting seasonal-to-interannual climate fluctuations	Columbia University	Columbia University	Uruguay
Institutional Capacity Building Agro-Input Market Development in Malawi	To strengthen agro-input markets by deepening policy reform, establishing regulatory systems, developing capacities of private sector dealers, and expanding market information systems	USAID	Agri-input dealers;	Malawi

IFDC Publications, 2001/2002

FSR-1 *Africa Fertilizer Situation.*
FSR-2 *Asia Fertilizer Situation.*
FSR-3 *Latin America Fertilizer Situation.*
FSR-5 *North America Fertilizer Capacity.*
FSR-6 *Eastern Europe Fertilizer Situation.*
FSR-7 *Worldwide Urea Capacity Listing by Plant.*
FSR-8 *Worldwide DAP and MAP Capacity Listing by Plant.*
FSR-9 *Worldwide Potash Capacity Listing by Plant.*
FSR-10 *Worldwide Ammonia Capacity Listing by Plant.*
FSR-11 *Worldwide Directory of Fertilizer Traders, Importers, and Organizations.*
FSR-12 *A Guide to Fertilizer Products for Traders.*
FSR-14 *Worldwide Ammonium Nitrate and Calcium Ammonium Nitrate Capacity Listing by Plant.*
FSR-15 *Recent Fertilizer Project Announcements: Worldwide.*
FSR-16 *Global and Regional Data on Fertilizer Production and Consumption, 1961/62-1995/96.*
FSR-18 *Western Europe Fertilizer Situation.*
FSR-19 *Former Soviet Union (FSU) Fertilizer Situation.*
FSR-20 *North America Fertilizer Situation.*
FSR-21 *China Fertilizer Situation .*
FSR-22 *Worldwide NPK Capacity Listing by Plant.*
FSR-23 *Worldwide Phosphoric Acid Capacity Listing by Plant.*
A-4 *Fertilizer Use by Crop*, FAO, jointly with IFDC, IPI and PPI (2002).
G-1 *IFDC Publications Catalog* (2002).
P-22 *Improving Agricultural Input Supply Systems in Sub-Saharan Africa: A Review of Literature* (2001) [CD-ROM].
P-23 *Agricultural Input Markets in Nigeria: An Assessment and a Strategy for Development* (2001).
P-24 *An Action Plan for Developing Agricultural Input Markets in Ghana* (2002) IN PRESS.
P-25 *An Action Plan for Developing Agricultural Input Markets in Malawi* (2002) IN PRESS.
S-24 *IFDC Corporate Report 2000-2001* (2001).
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Financial Highlights, 2001

The following is a summary of financial information for the year ended December 31, 2001. The full financial statements and the independent auditors' reports are available from IFDC upon request.

Balance Sheet

For the year ended December 31, 2001

	US $'000
Assets:	
Cash and cash equivalents	749
Contributions receivable	1,043
Contracts receivable, net of allowance for doubtful accounts	1,011
Other receivables	163
Supplies inventory	114
Prepaid expenses	17
Total current assets	3,097
Buildings and equipment, net	1,463
Contributions receivable, noncurrent	
Total assets	4,560
Liability and Net Assets:	
Accounts payable	346
Accrued annual and sick leave	363
Deferred revenue	509
Total current liabilities	1,218
Unrestricted net assets	3,334
Permanently restricted	8
Total liabilities and net assets	4,560

Statement of Revenue and Expenses

For the year ended December 31, 2001

	US $'000
Revenue and Support:	
CGIAR/Centro Internacional de Agricultura Tropical	88
European Agency for Reconstruction	42
International Fertilizer Industry Association	116
International Fund for Agricultural Development	582
Ecoregional Fund	143
Netherlands Minister for Development Cooperation (DGIS)	794
The Fertilizer Institute	94
The World Bank	181
U.S. Agency for International Development	7,792
U.S. Department of Treasury	459
Training Programs	390
Others	584
Total revenues and support	11,265
Expenses:	
Field programs	1,834
Research	2,254
Outreach	5,328
Support activities	2,047
Total expenses	11,463
Decrease in unrestricted net assets	**(198)**

IFDC Revenue Sources, 2001/2002

Bundesministerium für Wirtschaftliche Zusammenarbeit of the Federal Republic of Germany (BMZ)
CGIAR/Centro Internacional de Agricultura Tropical (CIAT)
CGIAR/International Food Policy Research Institute (IFPRI)
Columbia University
Ecoregional Fund
Englehard Corporation
Engro Chemical Pakistan Ltd.
European Agency for Reconstruction
Government of Togo
Instituto Nacional de Investigación Agropecuaría (INIA), Government of Uruguay
International Atomic Energy Agency (IAEA)
International Fertilizer Industry Association (IFA)
International Fund for Agricultural Development (IFAD)
International Minerals and Chemical (IMC)
Japan International Research Center for Agricultural Sciences (JIRCAS)
Netherlands Minister for Development Cooperation (DGIS)
Norwegian Agency for Development (NORAD)
Pecom Energia S.A.
Sasakawa Global 2000
Saudi Arabian Mining Company (MA'ADEN)
Société Senegalaise des Phosphate de Thies (SSPT)
Swiss Agency for Development and Cooperation (SDC)
The Arab Fertilizer Association (AFA)
The Fertilizer Institute (TFI)
The World Bank
United States Agency for International Development (USAID)
United States Department of Agriculture (USDA)
U.S. Department of Treasury
Wesfarmers CSBP Ltd.
ZEF Universitat Bonn

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Bidjokazo Fofana, Agronomist Researcher – Representative IFDC in Burkina Faso
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Marco C.S. Wopereis, Program Leader – Integrated Intensification Program
Charles F. Yamoah, Project Leader – Sustainable Integrated Soil Fertility Management Project[1]

1. Left during 2001/2002.
2. Retired during 2001/2002.
3. Short-term staff, 2001/2002.
4. On extended leave.
5. Deceased, 2001/2002.
6. Student Attachment.
a. Seconded to IFDC by Netherlands Minister for Development Cooperation (DGIS).
b. Seconded to IFDC by Agricultural University (Netherlands).
c. Seconded to IFDC by Deutsche Entwicklungsdienst (DED).

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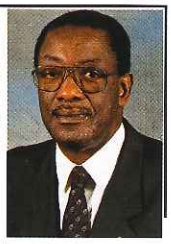

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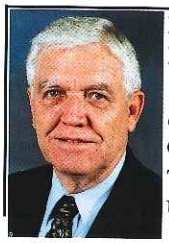

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Structure

IFDC's organizational structure is comprised of the following three operating divisions:

1. Resource Development—This division conducts strategic and applied research and training in soil and nutrient dynamics, crop modeling, and fertilizer materials.
2. Market Development—This division concentrates on technical assistance and technology transfer under the Institutional Development and Economics and Policy Development Programs.
3. Africa—Located at Lomé, Togo, this division addresses the constraints to improving soil fertility and agricultural productivity of countries in Africa, particularly those in the western region.

In addition to these divisions, the Training and Workshop Coordination Department coordinates global training programs and workshops. The Finance and Administration Department coordinates the accounting, personnel, purchasing, word processing, graphics, support services, and visitor relations for IFDC.


Photo by Dr. Walter T. Bowen


Photo by M. Feisal Beig

Locations and Funding

Besides its Headquarters in Muscle Shoals, AL (U.S.A.), IFDC has offices and/or staff stationed in Afghanistan, Albania, Azerbaijan, Bangladesh, Belgium, Burkina Faso, Kenya, Kosovo, Kyrgyzstan, Malawi, Mali, Mozambique, Nigeria, Togo, Uganda, and Uruguay. The Center collaborates with the international agricultural research centers (IARCs), numerous national organizations, private-sector and NGOs around the world. Partners and clients are diverse and include bilateral and multilateral development agencies, host-government institutions, and private enterprises. Much of the Center's revenue is generated from long-term, donor-funded, market development projects through which its staff members transfer policy and technology improvements in emerging economies.

Vision

The vision of IFDC focuses on contributing significantly to food security and economic progress by promoting sustainable agricultural development across the world through the efficient and environmentally sound management of plant nutrients in conjunction with other agricultural inputs and natural resources.

Mission Statement

To facilitate the sustainable improvement of agricultural productivity through the development and transfer of effective and environmentally sound plant-nutrient technology and agricultural marketing expertise.

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