



Africa Fertilizer Summit Proceedings

Abuja Declaration On Fertilizer For An African Green Revolution

The New Partnership for Africa's Development has declared that the vision of economic development in Africa must be based on raising and sustaining higher rates of economic growth (7 percent per year). To realize this vision, the African Heads of State and Government adopted the Comprehensive Africa Agricultural Development Programme, which calls for a 6% annual growth in agricultural production, as a framework for the restoration of agricultural growth, food security and rural development in Africa.

Africa's farmers face a variety of constraints including low productivity, limited access to new agricultural technologies and weak inputs. Without adequate inputs, farmers often cannot meet the needs of their families, let alone those of the growing African population. To feed themselves and their families, farmers must produce more, low-yielding, extensive production systems must be replaced by higher-yielding practices, with increased use of improved seeds, fertilizers and irrigation.

A move to... begin by addressing its severely depleted soils. Due to



Abuja, Nigeria, June 9-13, 2006

Africa Fertilizer Summit Proceedings

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Preface

Africa Fertilizer Summit

June 9-13, 2006

The Africa Fertilizer Summit grew out of a conviction that a Green Revolution for Africa is long overdue. It is our responsibility—African Heads of States and Ministers, government officials, and development partners—to start it now. It will be accomplished only with the commitment of us all.

Our people are suffering from food insecurity—a terrible state that is worsening in only one region of the world: sub-Saharan Africa. African soils are old. In recent decades they have also grown tired as our rural populations have multiplied. Farmers are now forced to grow crops on the same fields year after year without letting the soil rest to regain fertility, and without replenishing the plant nutrients. The results are low yields and meager returns, and increasing encroachment on forested lands.

At the national levels, we have failed to achieve our development objectives because agriculture has not become the engine of growth it should be, considering that two-thirds of our people exist by growing crops or raising livestock. We must focus on agriculture if we are to improve nutrition, education, income, and peace and stability on our continent.

The Green Revolution in Asia and Latin America, spearheaded by my friend Dr. Norman Borlaug four decades ago, was the inspiration for this Summit. A year in the making, the Summit was organized with the leadership of the African Union's New Partnership for Africa's Development (NEPAD) and implemented by the International Fertilizer Development Center (IFDC) and the National and Local Organizing Committees in Nigeria.

We knew that we could meet our objectives only by involving global as well as African leaders. Therefore, we invited key leaders from around the world to form the Eminent Persons' Advisory Group. The President of the Rockefeller Foundation, Dr. Judith Rodin, hosted a meeting of the group in New York City in March 2006 to discuss and plan strategies for the Summit. The meeting sparked interest and media coverage worldwide. We realized that in 2006 the world is finally ready for the *uniquely African Green Revolution* called for by UN Secretary General Kofi Annan. The meeting also catalyzed Summit participation by African Heads of States and Ministers and other leaders from governments and the private sector. Many of the Eminent Persons participated in the Summit.

We also knew that only our people truly understand and can articulate our current problems and can prioritize actions to overcome them. That's why we asked governments and Regional Economic Communities to prepare strategies for increasing fertilizer use. Half of the countries and almost all Regional Economic Communities answered our call and presented strategies at the Summit. We also ensured strong and enthusiastic representation of farmers and farmer organizations.

Because the problems facing us are complex, we needed the advice of experienced scientists and development experts. That is why we established a Technical Advisory Committee to take the lead in Summit preparations. Many of these experts also wrote background papers analyzing current situations and showing us possible ways forward.

The Summit produced a roadmap for achieving the African Green Revolution: the *Abuja Declaration on Fertilizer for an African Green Revolution*. The Abuja Declaration affirms the commitment of governments to increase fertilizer use in sub-Saharan Africa from today's average of 8 kilograms to at least 50 kilograms per hectare by 2015. Without such a significant increase we cannot achieve the Comprehensive Africa Agriculture Development Program (CAADP) goal of 6% annual growth in agricultural productivity, nor the Millennium Development Goals. The Abuja Declaration also shows that we agree on ways to increase fertilizer use: harmonizing policies and regulations, developing networks of input dealers, establishing national and transcontinental financing mechanisms, increasing national and regional fertilizer production and trade, and improving farmers' access to all inputs.

Only 6 months after the Summit, we have seen many positive developments toward achievement of the African Green Revolution. The establishment of the Africa Fertilizer Development Financing Mechanism at the African Development Bank is one example. Another is plans for new private fertilizer production and blending facilities in Africa. Also encouraging is a bold new initiative of the Bill and Melinda Gates Foundation and The Rockefeller Foundation: AGRA, or the Alliance for a Green Revolution in Africa.

But we cannot become complacent and focus only on what has been done. Instead, I challenge you to continue the work that we started at the Africa Fertilizer Summit. The African Green Revolution cannot be achieved in a few months—it will require years of hard work.

In 6 years we expect to look back and see the true role of the Summit as an instigator of the African Green Revolution, one that will have enabled our continent not only to feed itself but also to achieve all basic necessities for its people: education, safe drinking water, health care, and peace and stability. We can achieve this only if we focus our attention on agriculture. Now is the time to commit ourselves to these sustained efforts.

The Summit was a success. Thank you all for your dedication and tireless efforts.

*His Excellency Olusegun Obasanjo
Grand Commander of the Order of the Federal Republic (GCFR)
President, Federal Republic of Nigeria
Former Chairman, The African Union
Former Chairman, New Partnership for Africa's Development*

Africa Fertilizer Summit

Abuja, Nigeria
June 9-13, 2006

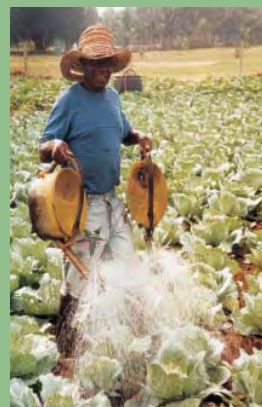


Nourish the soil, feed the continent.



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Acronyms and Abbreviations

ABDP	Agri-Business Development Program	FCT	Federal Capital Territory
ACFD	African Center for Fertilizer Development	FGN	Federal Government of Nigeria
AFA	Arab Fertilizer Association	FSSA	Fertilizer Society of South Africa
AfDB	African Development Bank	GDP	gross domestic product
AGRA	Alliance for a Green Revolution in Africa	ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
AISSA	Agricultural Intensification in Sub-Saharan Africa	IFA	International Fertilizer Industry Association
APCI	Africa Productive Capacity Initiative	IFAD	International Fund for Agricultural Development
APRM	African Peer Review Mechanism	IFC	International Finance Corporation
AU	African Union	IFDC	International Fertilizer Development Center (An International Center for Soil Fertility and Agricultural Development)
AUC	African Union Commission	IFPRI	International Food Policy Research Institute
CAADP	Comprehensive Africa Agriculture Development Program	IGNRM	Integrated Genetic and Natural Resource Management
CASE	Competitive Agricultural Systems and Enterprises	ISFM	Integrated Soil Fertility Management
CET	common external tariff	JICA	Japan International Cooperation Agency
CGIAR	Consultative Group on International Agricultural Research	KBR	Kellogg Brown and Root
CIMMYT	International Maize and Wheat Improvement Center	MDG	Millennium Development Goal
COMESA	Common Market for Eastern and Southern Africa	MIR	Marketing Inputs Regionally
DAIMINA	Developing Agri-Input Markets in Nigeria	NAFCON	National Fertilizer Company of Nigeria
DFID	Department for International Development	NARES	National Agricultural Research and Extension Systems
DGIS	Directorate General for Development Cooperation	NEEDS	National Economic Empowerment Development Strategies
ECA	Economic Commission for Africa	NEPAD	New Partnership for Africa's Development
ECAPAPA	Eastern and Central Africa Program for Agricultural Policy Analysis	NERICA	New Rice for Africa
ECCAS	Economic Community of Central African States	NGO	non-governmental organization
ECOWAS	Economic Community of West African States	NPK	nitrogen – phosphorus – potassium
FANR	Food, Agriculture, and Natural Resources	OAU	Organization of African Unity (now African Union)
FAO	Food and Agriculture Organization of the United Nations	PASS	Program on Africa's Seed Systems
FARA	Forum for Agricultural Research in Africa	PRSA	Regional Program for Food Security
		PRSPs	Poverty Reduction Strategy Papers
		RECs	Regional Economic Communities

RFFD	Regional Fund for Fertilizer Development	SSA	Sub-Saharan Africa
ROPPA	West African Network of Farmers and Producers Organizations	TSBF	Tropical Soil Biology and Fertility Institute of CIAT
SAADA	Strategic Alliance for Agricultural Development in Africa	UBA	United Bank of Africa
SACCOs	Savings and Credit Cooperatives	UEMOA	West African Economic and Monetary Union
SADC	Southern African Development Community	UNDP	United Nations Development Program
SFMS	Sustainable Farming Management System	UNECA	United Nations Economic Commission for Africa
SIP	Strategic Investment Program	USAID	United States Agency for International Development
SLM	sustainable land management	WFP	World Food Program
SMS	short message service	WTO	World Trade Organization

Abuja Declaration on Fertilizer for an African Green Revolution

**Africa Fertilizer Summit
African Union Special Summit of the Heads of State and Government
Abuja, Nigeria, 13 June 2006**

The New Partnership for Africa's Development has declared that the vision of economic development in Africa must be based on raising and sustaining higher rates of economic growth (7 percent per year). To realize this vision, the African Heads of State and Government adopted the Comprehensive Africa Agricultural Development Programme, which calls for a 6% annual growth in agricultural production, as a framework for the restoration of agricultural growth, food security and rural development in Africa.

Africa's farmers face a variety of constraints including low productivity, limited access to new agricultural technologies and weak markets. Without adequate inputs, farmers often cannot meet the food needs of their own families, much less those of a rapidly growing population. To feed themselves and their countries, farmers will need to shift from low-yielding, extensive land practices to more intensive, higher-yielding practices, with increased use of improved seeds, fertilizers and irrigation.

A move toward reducing hunger on the continent must begin by addressing its severely depleted soils. Due to decades of soil nutrient mining, Africa's soils have become the poorest in the world. It is estimated that the continent loses the equivalent of over \$4 billion worth of soil nutrients per year, severely eroding its ability to feed itself. Yet farmers have neither access to nor can they afford the fertilizers needed to add life to their soils. And no region of the world has been able to expand agricultural growth rates, and thus tackle hunger, without increasing fertilizer use.

In Africa, use of fertilizer averages only eight kilograms per hectare; this is only 10% of the world average. In short, Africa is trapped in a fertilizer crisis. Addressing Africa's fertilizer crisis therefore requires urgent and bold actions. Africa is ready for the Green Revolution. Today, African leaders have convened to show their strong and unanimous commitment to achieving the African Green Revolution by taking immediate actions to solve Africa's fertilizer crisis.

The African Union Ministers of Agriculture convened in Abuja on 12 June 2006 for the Africa Fertilizer Summit:

Recognizing that Africa needs a Green Revolution which is long overdue and yet constitutes the way of getting African farmers out of the poverty trap by achieving food security and other relevant the Millennium Development Goals;

Recognizing that fertilizer is crucial for achieving an African Green Revolution in the face of rapidly rising population and declining soil fertility;

Realizing that most farmers in Africa are poor, have virtually no access to fertilizer and that the poorest of them urgently need special attention;

Recognizing the urgent need for a strategic investment program to increase the availability and use of fertilizer alongside with other inputs to usher in the Green Revolution on the African continent;

Declare fertilizer, from both inorganic and organic sources, a strategic commodity without borders; and

Resolve that the African Union Member States will accelerate the timely access of farmers to fertilizers:

1. Given the strategic importance of fertilizer in achieving the African Green Revolution to end hunger, the African Union Member States resolve to increase the level of use of fertilizer from the current average of 8 kilograms per hectare to an average of at least 50 kilograms per hectare by 2015.
2. By mid-2007, the African Union Member States and the Regional Economic Communities should take appropriate measures to reduce the cost of fertilizer procurement at national and regional levels especially through the harmonization of policies and regulations to ensure duty- and tax-free movement across regions, and the development of capacity for quality control. As an immediate measure, we recommend the elimination of taxes and tariffs on fertilizer and on fertilizer raw materials.
3. By mid-2007, the African Governments must take concrete measures to improve farmers' access to fertilizers, by developing and scaling up input dealers' and community-based networks across rural areas. The Private Sector and Development Partners are hereby requested to support such actions.
4. By 2007, the African Union Member States must take concrete measures to specially address the fertilizer needs of farmers, especially women, and to develop and strengthen the capacity of youth, farmers' associations, civil society organizations, and the private sector.
5. With immediate effect, the African Union Member States must improve farmers' access to fertilizer, by granting, with the support of Africa's Development Partners, targeted subsidies in favor of the fertilizer sector, with special attention to poor farmers.
6. The African Union Member States should take immediate steps to accelerate investment in infrastructure, particularly transport, fiscal incentives, strengthening farmers' organizations, and other measures to improve output market incentives.
7. The African Union Member States should establish national financing facilities for input suppliers to accelerate access to credit at the local and national level, with specific attention to women.
8. The African Union Member States, hereby request the establishment of Regional Fertilizer Procurement and Distribution Facilities with the support of the African Development Bank, the Economic Commission for Africa, the Regional Economic Communities and the Regional Development Banks, through strategic public-private partnerships by the end of 2007.
9. Given the extensive fertilizer raw material resources in Africa and the fact that they are underutilized in many parts of the continent, the African Union Member States undertake to promote national/regional fertilizer production and intra-regional fertilizer trade to capture a bigger market and take advantage of economies of scale through appropriate measures such as tax incentives and infrastructure development. This should be supported by the African Development Bank, the Economic Commission for Africa, the Regional Development Banks, the Regional Economic Communities, other Development Partners, and the Private Sector.
10. The African Union Member States should take specific action to improve farmer access to quality seeds, irrigation facilities, extension services, market information, and soil nutrient testing and mapping to facilitate effective and efficient use of inorganic and organic fertilizers, while paying attention to the environment.
11. The African Development Bank, with the support of the Economic Commission for Africa and the African Union Commission, is called to establish, by 2007, an Africa Fertilizer Development Financing Mechanism that will meet the financing requirements of the various actions agreed upon by the Summit. We, the African Union Member States, undertake to support the establishment of this facility and will pledge resources for its immediate operation.
12. The African Union Member States request the African Union Commission and the New Partnership for Africa's Development to set up a mechanism to monitor and evaluate the implementation of this resolution. This should be done in collaboration with the Economic Commission for Africa and the African Development Bank. The African Union Commission should give progress report to the African Heads of State at every sixth-monthly African Union Summit, starting in January 2007.

Declaration d'Abuja sur les Engrais pour une Révolution Verte Africaine

Sommet spécial des chefs d'Etat et de gouvernement de l'Union Africaine

Abuja, NIGERIA, 13 juin 2006

Le Nouveau Partenariat pour le Développement de l'Afrique fonde la vision du développement économique du Continent sur l'augmentation durable des taux de croissance économique (7% par an). Pour réaliser cette vision, les Chefs d'Etat et de gouvernement africains ont adopté le Programme global de développement de l'agriculture Africaine (CAADP) comme cadre pour relancer la croissance agricole, la sécurité alimentaire et le développement rural en Afrique. Ce programme fixe un objectif de croissance de la production agricole de 6% par an.

Les paysans africains sont confrontés à de multiples contraintes dont la faible productivité des sols, la difficulté d'accès aux nouvelles technologies agricoles, l'étroitesse et l'inefficacité des marchés. Sans des intrants en quantité suffisante et de la qualité requise, les paysans sont souvent incapables de satisfaire les besoins alimentaires de leurs familles, encore moins ceux d'une population en rapide croissance. Pour nourrir leurs familles et leurs pays, les paysans doivent passer des pratiques agricoles extensives à faible rendement à des pratiques plus intensives à haut rendement, avec une plus forte utilisation des semences améliorées, des engrais et de l'irrigation.

Tout effort visant à réduire la faim sur le continent, doit d'abord passer par la restauration des sols très épuisés. En effet, les sols d'Afrique sont devenus les plus pauvres du monde du fait de l'épuisement des éléments nutritifs depuis des décennies. Selon les estimations, le continent perd l'équivalent de plus de 4 milliards de dollars en éléments nutritifs chaque année : un phénomène qui mine la capacité du continent à se nourrir. Or, les agriculteurs n'ont pas les moyens d'acquérir les engrais nécessaires pour redonner vie à leur sol. Et aucune région du monde n'a pu augmenter son taux de croissance agricole et réduire ainsi la faim sans une croissance substantielle de l'utilisation des engrais.

En Afrique, la consommation moyenne d'engrais est de 8 kilogrammes d'éléments nutritifs par hectare ; ce qui ne représente que 10% de la moyenne mondiale. Par conséquent, la crise des engrais en Afrique nécessite des actions urgentes et audacieuses. L'Afrique est prête pour une Révolution Verte. Aujourd'hui, les dirigeants africains se sont réunis pour affirmer de façon unanime leur ferme engagement à réaliser la Révolution Verte Africaine, en menant des actions susceptibles de résoudre la crise des engrais en Afrique.

Les Ministres de l'Agriculture de l'Union Africaine, réunis à Abuja le 12 Juin 2006 dans le cadre du Sommet de l'Afrique sur les Engrais :

Reconnaisant qu'une Révolution verte, depuis si longtemps nécessaire en Afrique, constitue le moyen de briser la spirale de la pauvreté pour les agriculteurs africains, ceci par la réalisation de la sécurité alimentaire ainsi que d'autres Objectifs de Développement du Millénaire ;

Reconnaisant que l'utilisation des engrais est primordiale pour réaliser une Révolution Verte Africaine face à la croissance rapide de la population et au déclin de la fertilité des sols ;

Conscients que la majorité des agriculteurs en Afrique sont pauvres et n'ont quasiment pas accès aux engrais et que les plus pauvres d'entre eux nécessitent une attention particulière ;

Reconnaisant l'urgence d'un programme d'investissement stratégique en vue d'augmenter la disponibilité et l'utilisation des engrais ainsi que d'autres intrants pour impulser la Révolution Verte sur le continent africain ;

Déclarons l'engrais, tant de source inorganique qu'organique, produit stratégique sans frontières ; et

Décidons que les Etats membres de l'Union Africaine vont accélérer l'accès des agriculteurs aux engrais en temps utile ;

1. Compte tenu de l'importance de l'engrais dans la réalisation de la Révolution Verte Africaine pour éliminer la faim, les Etats membres de l'Union Africaine s'engagent à augmenter le niveau d'utilisation d'engrais de la moyenne annuelle actuelle de 8 kilogrammes d'éléments nutritifs par hectare à au moins 50 kilogrammes par hectare d'ici à 2015.
2. D'ici à mi-2007, les Etats membres de l'Union Africaine et les Communautés Economiques Régionales doivent prendre des mesures adéquates pour réduire le coût d'achat des engrais au niveau national et régional, en particulier grâce à l'harmonisation des politiques et des réglementations afin d'assurer la circulation des engrais hors douane et hors taxe entre les régions et de favoriser le développement des capacités en matière de contrôle de qualité. Comme mesure immédiate, recommandons l'élimination des tarifs et taxes sur les engrais et les matières premières fertilisantes.
3. D'ici à mi-2007, les gouvernements africains doivent prendre des mesures concrètes en vue d'améliorer l'accès des agriculteurs aux engrais en développant et en multipliant les réseaux de distributeurs d'intrants et ceux des communautés locales dans les régions rurales. L'appui du secteur privé et des partenaires au développement est requis pour appuyer ces actions.
4. D'ici à 2007, les Etats membres de l'Union Africaine doivent prendre des mesures concrètes pour prendre en compte les besoins des agriculteurs, en particulier des agricultrices, et pour développer et renforcer les capacités des jeunes, des associations paysannes, des organisations de la société civile et du secteur privé.
5. Avec effet immédiat, les Etats membres de l'Union Africaine doivent améliorer l'accès des agriculteurs aux engrais en accordant des subventions au secteur des engrais, avec le soutien des partenaires au développement de l'Afrique, en mettant l'accent sur les agriculteurs pauvres.
6. Les Etats membres de l'Union Africaine doivent prendre des mesures immédiates pour accélérer l'investissement dans les infrastructures, de transport en particulier, les incitations fiscales, le renforcement des organisations paysannes et d'autres mesures susceptibles d'améliorer les incitations sur les marchés agricoles.
7. Les Etats membres de l'Union Africaine doivent mettre en place des facilités de financement pour améliorer l'accès des distributeurs d'intrants au crédit au niveau local et national, avec un accent particulier sur les femmes entrepreneurs.
8. Les Etats membres de l'Union Africaine, appellent à l'établissement de centres régionaux d'achat et de distribution d'engrais, avec l'appui de la Banque Africaine de Développement, la Commission Economique pour l'Afrique, les Communautés Economiques Régionales et les Banques Régionales de Développement par le biais de partenariats stratégiques entre le secteur public et le secteur privé avant la fin de l'année 2007.
9. Compte tenu de la sous-exploitation des abondantes ressources en matières premières fertilisantes dans diverses régions d'Afrique, les Etats membres de l'Union Africaine doivent entreprendre de promouvoir la production locale/régionale d'engrais et le commerce intrarégional des engrais pour accaparer un marché plus vaste et bénéficier des économies d'échelle grâce à des mesures appropriées telles que les incitations fiscales et le développement des infrastructures. La Banque Africaine de Développement, la Commission Economique pour l'Afrique, les Communautés Economiques Régionales, les Banques Régionales de Développement, le secteur privé et d'autres partenaires au développement sont appelés à soutenir ces initiatives.
10. Les Etats membres de l'Union Africaine doivent mener des actions spécifiques visant à améliorer l'accès des agriculteurs aux semences de qualité, aux infrastructures d'irrigation, aux services de vulgarisation, aux informations sur le marché et aux analyses et cartes des sols pour faciliter l'utilisation effective et efficiente des engrais inorganiques et organiques tout en veillant aux aspects de protection de l'environnement.
11. La Banque Africaine de Développement, avec l'appui de la Commission Economique pour l'Afrique et la Commission de l'Union Africaine, est appelée à mettre en place, d'ici à 2007, un Mécanisme Africain de Financement du Développement des Engrais qui réponde aux besoins en financement liés aux diverses actions retenues d'un commun accord dans le cadre du Sommet. Nous, les Etats membres de l'Union Africaine, nous engageons à soutenir la mise place de ce mécanisme et à assurer les ressources nécessaires pour son fonctionnement immédiat.
12. Les Etats membres de l'Union Africaine exhortent la Commission de l'Union Africaine et le Nouveau Partenariat pour le Développement de l'Afrique à établir un mécanisme de suivi et d'évaluation pour la mise en oeuvre de cette résolution. Ceci devra se faire en collaboration avec la Commission Economique pour l'Afrique et la Banque Africaine de Développement. La Commission de l'Union Africaine devra rendre compte aux Chefs d'Etat africains de l'état d'avancement de la mise en oeuvre des résolutions à chaque Sommet semestriel de l'Union Africaine et ce, à partir de janvier 2007.

A Cimeira Africana Sobre os Fertilizantes a Cimeira Especial dos Chefes de Estado e Governo da União Africana

ABUJA, NIGÉRIA, 13 DE JUNHO DE 2006
AS DECLARAÇÕES DE ABUJA SOBRE A REVOLUÇÃO VERDE AFRICANA

Anova parceria para o Desenvolvimento Africano, declarou que a visão do desenvolvimento econômico na África requer um aumento e sustentação de um índice de crescimento econômico elevado, de aproximadamente 7% ao ano. Para concretizar essa visão, os Chefes de Estados e do Governo Africano, adotaram o Programa Compreensivo para o Desenvolvimento Agrícola da África (CAADP), que visa um crescimento anual por volta de 6% na produção agrícola, como base na restauração do crescimento agrícola; a segurança alimentar e o desenvolvimento rural na África.

Os agricultores africanos enfrentam vários problemas, inclusive a baixa produtividade; o acesso limitado a novas tecnologias agrícolas e a debilidade dos mercados. Na ausência de insumos adequados, os agricultores dificilmente conseguem satisfazer as necessidades alimentares de suas próprias famílias, muito menos numa população em rápido crescimento. Para se alimentar assim como seus países, os agricultores deverão abandonar os métodos rudimentares de baixo rendimento, para adaptarem práticas mais intensivas que garantam maior produtividade através do aumento do uso de sementes melhoradas, fertilizantes e irrigação.

Qualquer iniciativa para a redução da fome no continente deveria ter como base a resolução do problema de debilitação dos solos. Durante décadas a degradação de seus nutrientes ligada à atividade mineira, os solos africanos tornaram-se os mais pobres do mundo. Estima-se que o continente perde o equivalente a 4 bilhões de dólares americanos em nutrientes do solo por ano, debilitando seriamente sua capacidade de se alimentar. Porém, os agricultores africanos não conseguem adquirir, muito menos custear os fertilizantes necessários para revitalizar os solos. Nenhuma região do mundo tem sido capaz de expandir o índice de crescimento agrícola e atacar a fome, sem o aumento do uso de fertilizantes.

Na África, o índice médio do uso de fertilizantes é de apenas oito quilogramas por hectare. Resumindo a África é refém de uma crise de fertilizantes ; isso representa apenas 10% da média mundial. Combater essa crise de fertilizantes na África, requer ações urgentes e audaciosas.

O ministro da Agricultura no seio da União Africana, reunidos em Abuja aos 12 de junho de 2006, para a Cimeira Africana sobre Fertilizantes:

Reconhecem que a África precisa de uma Revolução Verde que está atrasada demais, e ainda constitui um meio dos agricultores africanos saírem da armadilha da pobreza através da realização da segurança alimentar e de outros objetivos relevantes ao Desenvolvimento do Milênio ;

Reconhecem também que os fertilizantes são críticos para a realização de uma Revolução Verde Africana, em relação ao rápido crescimento da população e a debilitação da fertilidade do solo ;

Cientes de que a maioria dos agricultores africanos são pobres, não conseguem adquirir fertilizantes e que os mais pobres precisam uma atenção especial e urgente;

Reconhecem a necessidade urgente de um programa de investimento estratégico para maior disponibilidade e o aumento do uso de fertilizantes inclusive outros insumos com o objetivo de implantar o Programa da Revolução Verde, no continente africano ;

Declararam que os fertilizantes orgânicos e inorgânicos, é um recurso estratégico sem fronteiras; e

Decidiram que os Estados Membros da União Africana devem acelerar o acesso dos agricultores aos fertilizantes:

1. Dada a importância estratégica dos fertilizantes para a realização da Revolução Verde Africana para terminar a fome, os estados membros da União Africana resolveram aumentar o nível do uso dos fertilizantes, da média de 8 quilogramas por hectare, para no mínimo 50 quilogramas por hectare, até o ano de 2015.
2. Em meados do ano 2007, os países membros da União Africana e as Comunidades Econômicas Regionais, devem tomar providências necessárias para a redução do custo dos fertilizantes em níveis nacionais e regionais, principalmente através da harmonização das políticas e dos regulamentos para assegurar a circulação isenta de impostos e de taxas através de nossas regiões e o desenvolvimento da capacidade de controle da qualidade. Como uma medida de urgência, recomendamos a eliminação de taxas e impostos sobre os fertilizantes e sobre todos os materiais para a produção de fertilizantes.
3. Em meados do ano 2007, o Governo Africano deve tomar providências concretas para melhorar o acesso dos agricultores aos fertilizantes, através do desenvolvimento e aumento de varejistas e das redes comunitárias em todas as zonas rurais. Pede-se ao Setor Privado e aos Parceiros de Desenvolvimento, para apoiarem essas ações.
4. Para o ano de 2007, os Estados Membros da União Africana, devem tomar providências concretas para tratar das necessidades de fertilizantes dos agricultores, especialmente as mulheres, e para desenvolver e fortalecer a capacidade da juventude, associações de agricultores, organizações da sociedade civil, e dos setores privados.
5. Com efeito imediato, os Estados Membros da União Africana devem melhorar o acesso dos agricultores aos fertilizantes, através da concessão, com o apoio dos Parceiros de Desenvolvimento da África, das subvenções almejadas a favor do setor dos fertilizantes com atenção especial aos agricultores pobres.
6. Os Estados Membros da União Africana, devem tomar providências imediatas para acelerar os investimentos em relação à infra-estrutura, particularmente o transporte, incentivos fiscais, o fortalecimento das organizações de agricultores, e outras medidas para melhorar os incentivos de rendimentos dos mercados.
7. Os Estados Membros da União Africana, devem estabelecer as estruturas de financiamento Nacional, destinadas aos fornecedores de insumos em vista de permitirem o acesso ao crédito a nível Nacional, prestando uma atenção especial às mulheres.
8. Os Estados membros da União Africana, exigem o estabelecimento por meio das Instalações de Compras e Distribuições Regionais dos fertilizantes, com o apoio do Banco do Desenvolvimento Africano; da Comissão Econômica Africana (CEA); das Comunidades Econômicas Regionais, e dos Bancos de Desenvolvimento Regionais, através da parceria do setor público-privado para o ano de 2007.
9. Em vista dos recursos extensivos da matéria prima, a produção de fertilizantes e o fato desses recursos estarem subutilizados em muitas partes do continente, os estados membros africanos concordam em promover a produção regional/ nacional de fertilizantes e o mercado de fertilizantes intra-regional para assegurar um mercado maior e aproveitar os benefícios da economia de escala, através de medidas adequadas, tais como: os incentivos de impostos e o desenvolvimento de infra-estrutura. Esse deve ser apoiado pelo Banco de Desenvolvimento Africano; dos Bancos de Desenvolvimento Regionais; das Comunidades Econômicas Regionais; outros Parceiros de Desenvolvimento; e do Setor Privado.
10. Os Estados Membros da União Africana, devem tomar ação específica para melhorar o acesso de sementes de qualidade; estruturas de irrigação; dos serviços de extensão; informações do mercado e avaliação dos nutrientes do solo e o mapeamento para facilitar o uso efetivo dos fertilizantes orgânico e inorgânico, ciente o ambiente.
11. O Banco de Desenvolvimento Africano, com o apoio da Comissão Econômica Africana e da Comissão da União Africana é chamado a estabelecer, para o ano de 2007, Mecanismo de Financiamento Africano para o Desenvolvimento dos Fertilizantes, que satisfaçam os requisitos financeiros de várias ações concordadas na Cimeira. Nós, Estados Membros da União Africana, concordam em apoiar o estabelecimento dessa instalação e prometem fornecer os recursos para a sua operação imediata.
12. Os Estados Membros da União Africana, requer da Comissão da União Africana e a Nova Parceira para o Desenvolvimento Africano, o estabelecimento de um mecanismo de monitoria e avaliação da execução dessas resoluções. A Comissão da União Africana, deveria fornecer um relatório de acompanhamento anual, para os Chefes de Estados Africanos, durante a sua Cimeira bi-anual, a partir de Janeiro de 2007.

مؤتمر القمة الأفريقي للأسمدة

المؤتمر الخاص لرؤساء دول وحكومات الاتحاد الأفريقي

أبوجا - نيجيريا 13 يونيو 2006

ميثاق أبوجا حول الأسمدة الزراعية لتحقيق ثورة خضراء في أفريقيا

أعلنت "منظمة التشارك الجديد للتنمية الأفريقية (نيباد)" أن تحقيق التقدم الاقتصادي في أفريقيا يعتمد على رفع معدل التنمية الاقتصادية (بمعدل 7% سنوياً) بتواتر مستمر. ولتحقيق هذا الهدف فقد أجمع رؤساء الدول والحكومات الأفريقية على تبني "برنامج التنمية الزراعية الشامل" في أفريقيا، والذي يدعو إلى رفع الإنتاج الزراعي بنسبة 6% سنوياً كإطار لتحقيق النمو الزراعي والأمن الغذائي والتنمية الريفية.

يواجه المزارعون في أفريقيا عدة معوقات، منها الإنتاجية المنخفضة للمحاصيل، وندرة التزود بالتقنيات الزراعية الحديثة، وضعف وسائل التسويق. فبدون توافر ما يكفي من مدخلات الإنتاج الأساسية لا يستطيع المزارعون الحصول على ما يكفي لأسرهم، ناهيك عما يحتاجه الآخرون من غذاء لعدد متزايد من سكان القارة الإفريقية. ولتوفير الطعام الكافي للمزارعين ولشعوبهم يجب تغيير منهجية الإنتاج الزراعي المنخفض على مساحات شاسعة إلى إنتاج مرتفع على مساحات أقل وذلك بواسطة استخدام متسارع لمدخلات زراعية حديثة مثل التقاوي المحسنة والأسمدة ووسائل الري.

إن البرامج التي تهدف إلى خفض حالات الجوع في القارة الإفريقية يجب أن تبدأ بإيجاد حل مناسب لنضوب خصوبة التربة بسبب الاستنزاف المستمر. لقد أصبحت حالة خصوبة التربة في أفريقيا من الأسوأ في العالم بسبب استنزاف للعناصر الغذائية المعدنية من التربة عبر عقود من الزمن بحيث تقدر قيمة ما تخسره القارة بنحو 4 بليون دولار من العناصر الغذائية سنوياً، مما يؤثر بشدة على قدرة القارة على إطعام نفسها. ومع كل ذلك فإن المزارعين لا يجدون حاجتهم من الأسمدة الزراعية لتعويض هذا الاستنزاف، وإن وجدوها فليس لديهم القدرة على شرائها. إن الوضع الحالي يحتم عليهم استعمال المزيد من الأسمدة الزراعية خصوصاً أنه لا توجد أي منطقة في العالم زاد إنتاجها الزراعي وتغلّبت على الجوع بدون استخدام متزايد للأسمدة. إن متوسط معدل استخدام الأسمدة في أفريقيا حالياً لا يزيد عن 8 كيلوغرام لكل هكتار مما يؤكد وباختصار أن أفريقيا تعاني من أزمة كارثية في استخدام الأسمدة، وخصوصاً أن هذا المعدل يمثل فقط 10% من متوسط الاستخدام العالمي. إن هذا الوضع يتطلب إجراءات سريعة وجريئة. فقد باتت أفريقيا مستعدة للثورة الزراعية. ولهذا السبب وعلى هذه الخلفية فقد اجتمع الرؤساء الأفارقة في هذه القمة للإعلان عن إجماعهم على الالتزام الكامل والقوى لإحداث الثورة الزراعية الإفريقية الخضراء ولاتخاذ الإجراءات اللازمة والسريعة لحل معوقات استخدام الأسمدة في أفريقيا.

وقد اجتمع وزراء الزراعة الأفارقة في أبوجا يوم 12 يونيو 2006 في مؤتمر قمة الأسمدة الأفريقي ووافقوا بالإجماع على إصدار الميثاق التالي:

- نظراً لحاجة أفريقيا منذ زمن بعيد إلى ثورة زراعية خضراء طال انتضارها كطريق وحيد لتخليص المزارعين الأفريقيين من شبكة الفقر وتوفير لهم الأمن الغذائي، وتحقق لهم أهدافاً أخرى من الأهداف التنموية للألفية،
- ونظراً لأن الأسمدة تشكل عاملاً أساسياً لتحقيق ثورة خضراء في أفريقيا لمواجهة التزايد المتسارع في السكان، ومواجهة انخفاض خصوبة التربة،
- ونظراً لأن معظم المزارعين الأفارقة فقراء وغير قادرين على التزود بالأسمدة، ويحتاج الأفقر منهم إلى عناية خاصة وحثيثة،
- وإقراراً بالحاجة الملحة لبرنامج استثماري لتوفير الأسمدة وزيادة استخدامها واستخدام مدخلات الإنتاج الأخرى إيداناً بانطلاق الثورة الزراعية الخضراء في القارة الأفريقية،
- فإننا نعلن أن الأسمدة، عضوية كانت أو معدنية، سلعة إستراتيجية لا تخضع للحدود السياسية.

● كما نقرر نحن دول الاتحاد الأفريقي أننا سوف نسارع في تمكين المزارعين من الحصول على الأسمدة في الوقت المناسب وذلك من خلال مايلي:

1. تقرر الدول الأعضاء في الاتحاد الأفريقي أن ترفع معدل استخدامات الأسمدة مما هو عليه الآن ليرتفع من 8 كيلو جرام إلى حوالي 50 كيلو جرام للهكتار بحلول سنة 2015 .
2. يجب على الدول أعضاء منظمة الاتحاد الأفريقي و الدول أعضاء اللجان الاقتصادية الإقليمية إتخاذ الإجراءات المناسبة بحلول منتصف سنة 2007 لتقليل تكلفة الحصول على الأسمدة في كل دولة وكل إقليم في أفريقيا من خلال التوافق والتنسيق بين السياسات والتشريعات لإعفاء الأسمدة من الضرائب وفتح الأسواق لتداول الأسمدة حول القارة بدون جمارك. وكحل سريع نوصي بإلغاء جميع أنواع الضرائب على الأسمدة وموادها الأولية.
3. يجب على الحكومات الأفريقية بحلول منتصف سنة 2007 إتخاذ خطوات فاعلة لتمكين المزارعين من الحصول على الأسمدة من خلال تنمية وتشجيع وتوسيع الاتجار في كل مستلزمات الإنتاج في شبكة تجارية تغطي المجتمعات الريفية المعنية في جميع القرى. وفي سبيل ذلك يطلب من القطاع الخاص وشركاء التنمية دعم هذه الخطوات.

4. يجب على الدول أعضاء الاتحاد الأفريقي بحلول سنة 2007 أن تجد حلاً نهائياً شلمشكلة حصول المزارعين على الأسمدة وخاصة النساء، ولتنمية قدرة الشباب وجمعيات الزارعين ومنظمات المجتمع المدني والقطاع الخاص في هذا المجال.

5. يجب على الدول أعضاء الاتحاد الأفريقي أن تباشر فوراً في تحسين فرص حصول المزارعين على الأسمدة بمساعدة منظمة شركاء التنمية في أفريقيا بتقديم الدعم المادى لقطاع الأسمدة مع التركيز على المزارعين الفقراء.
6. على الدول أعضاء الاتحاد الأفريقي إتخاذ خطوات مباشرة لتسريع عملية الاستثمار فى تطوير البنية التحتية خاصة المواصلات، وتقديم الحوافز المالية لتقوية تنظيمات الزراعيين وتفعيل العوامل الأخرى لتقديم حوافز تسويقية للمخرجات الزراعية.
7. على الدول الأعضاء فى الاتحاد الأفريقي تأسيس صناديق تسهيلات مالية وطنية لموردى الأسمدة لتسريع حصولهم على قروض على المستوى الوطنى والإقليمي مع تركيز خاص على التسهيلات للنساء.
8. تطالب الدول أعضاء الاتحاد الأفريقي بتأسيس هيئة إقليمية لشراء وتوزيع الأسمدة بتمويل من بنك التنمية الأفريقي والمفوضية الاقتصادية الأفريقية والمنظمات الاقتصادية الإقليمية وبنوك التنمية الإقليمية من خلال مشاركة إستراتيجية بين القطاعين العام والخاص وذلك قبل نهاية 2007.
9. بالنظر لتواجد واسع للمواد الخام لإنتاج الأسمدة فى أفريقيا ونظراً لقلّة استغلال هذه المصادر فى كثير من البلدان الإفريقية، فإن الدول الأعضاء فى الاتحاد الأفريقي تأخذ على نفسها تعزيز الإنتاج الوطنى والإقليمي من الأسمدة وتسهيل التبادل التجارى بين الأقاليم للوصول إلى أسواق أكبر، والاستفادة من فرص الإنتاج والتوزيع الأوسع وذلك من خلال أساليب ملائمة مثل الإعفاءات الضريبية وتطوير البنية التحتية المناسبة؛ على أن يتم ذلك بتمويل من بنك التنمية الأفريقي والمفوضية الاقتصادية الأفريقية وبنوك التنمية الإقليمية والمنظمات الاقتصادية الإقليمية وشركاء التنمية الآخرين والقطاع الخاص.
10. على الدول أعضاء الاتحاد الأفريقي اتخاذ الإجراءات اللازمة لتمكين المزارعين من الحصول المدخلات الزراعية الضرورية مثل التقاوى الجيدة، مستلزمات الري، خدمات الإرشاد الزراعى، المعلومات التسويقية، خدمات اختبارات التربة وإعداد الخرائط المرتبطة بمستويات خصوبة التربة وذلك لتسهيل الاستخدام الأفضل والأمثل للأسمدة المعدنية والعضوية مع مراعاة الأبعاد البيئية.
11. توجيه نداء إلى "بنك التنمية الأفريقي" للتعاون مع "المفوضية الاقتصادية الأفريقية" و"منظمة الاتحاد الأفريقي" لتأسيس هيئة تمويل لتنمية استخدام الأسمدة فى أفريقيا خلال عام 2007، وذلك لتوفير التسهيلات المالية اللازمة لتنفيذ الأنشطة التى تم الاتفاق عليها فى هذا المؤتمر. والدول أعضاء الاتحاد الأفريقي يتعهدون بتأييد إنشاء هذه الهيئة ويتعهدون بتوفير الموارد لإنشائها فوراً.

12. تطلب الدول أعضاء الاتحاد الأفريقي من منظمة الاتحاد الأفريقي ومنظمة التشارك الجديد للتنمية الإفريقية، "نيباد"، وضع آلية لمتابعة وتقييم مدى تنفيذ هذه القرارات، على أن يتم هذا بالتعاون مع المفوضية الاقتصادية الإفريقية وبنك التنمية الأفريقي. كما يطلب من منظمة الاتحاد الأفريقي أن تقدم تقريراً عن إنجاز العمل إلى رؤساء الدول الإفريقية في اجتماعات القمة التي تعقدها منظمة الاتحاد الأفريقي كل ستة أشهر بدءاً من يناير 2007.

Part I
Initiating an African Green Revolution

Initiating an African Green Revolution

“LET US GENERATE A UNIQUELY AFRICAN GREEN REVOLUTION—A REVOLUTION THAT WILL HELP THE CONTINENT IN ITS QUEST FOR DIGNITY AND PEACE.”

Kofi ANNAN, FORMER SECRETARY GENERAL, UNITED NATIONS

“If high yielding dwarf wheat and rice varieties are the catalysts that have ignited the green revolution, then chemical fertilizer is the fuel that has powered its forward surge.”

NORMAN BORLAUG, 1970 NOBEL PEACE PRIZE LAUREATE

“It gives me great pleasure to address you about an exciting major African-led initiative, which has great potential to be a prime mover in changing the current reality of Africa from a continent plagued by hunger and poverty to a continent that can feed itself. I want to urge you to join hands with us to make this dream a reality.”

PRESIDENT OLUSEGUN OBASANJO, 14th OF NOVEMBER,
MEETING OF THE EXECUTIVE COUNCIL OF THE
INTERNATIONAL FERTILIZER INDUSTRY ASSOCIATION (IFA),
SEVILLE, SPAIN

I. The Need for a Green Revolution in Africa

More than 40 years ago, a remarkable process started in Asia and Latin America—a Green Revolution. Sizeable increases in agricultural productivity were achieved through a fairly simple innovation: a combination of high-yielding varieties of rice and wheat, inorganic fertilizer and other inputs, good management practices, appropriate institutions, and a conducive policy environment. Within a decade, significant adoption of improved varieties and fertilizer were achieved, with consequent spectacular impacts on agricultural productivity, and thereby on food security and economic development. Average national yields in many of these countries have shown enormous growth and have almost tripled. These developments enabled India and China to evade the famine that had been widely predicted for the closing part of the 20th century and also arguably made possible today’s rapid economic development in these two countries.

In contrast to Asia and Latin America, Africa never experienced a Green Revolution. In the past decade, increases in agricultural production in Africa have largely been attributed to area expansion because African farmers have traditionally pursued shifting cultivation in response to population growth and declining soil fertility. For instance, between 1961 and 2001, more than 90% of the increase in cereal production in sub-Saharan Africa (SSA) was due to increases in area. This has meant encroachment into marginal lands and deforestation, as well as worsening soil fertility on already existing farmland. This has led to a grave toll on its people. Low agricultural productivity has resulted not only in frequent, intermittent famines but also in widespread, chronic food insecurity, which in turn has undermined health, reduced ability to work, lessened mental capacities, and worsened poverty. From the national to the continental level, low agricultural productivity has resulted in stagnating and worsening economies.

Few would say that the current situation in Africa is sustainable, and it definitely is not desirable. Poverty and food insecurity on the continent are rampant and, without drastic changes, will continue to worsen. Agriculture contributes 30%-60% of Africa’s GDP, employs 60%-90% of the population, and contributes 25%-90% of the export earnings. With 70% of the economically active population in agriculture, much of the origin of the continent’s plight can be found in agriculture—and in reverse, agriculture is the best basis for spurring development on the continent. The following will describe the status of agriculture in Africa, factors contributing to it, and its impacts.

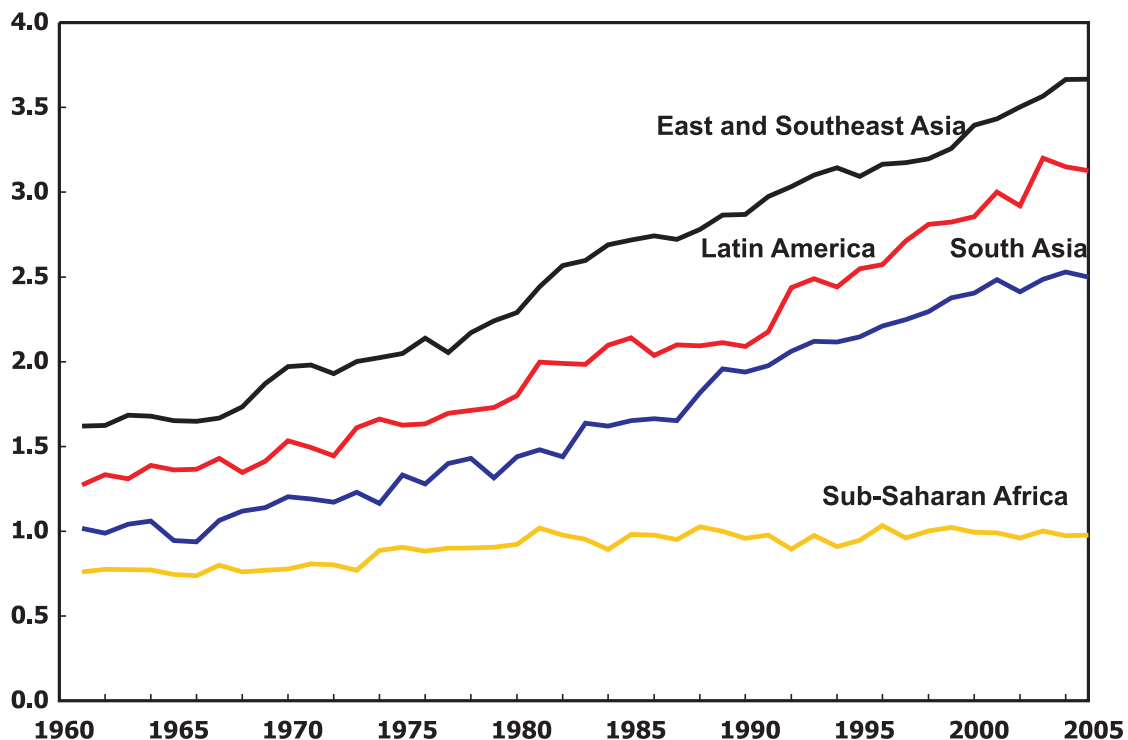
Current Situation

Stagnating Staple Crop Productivity

There are three common ways to examine production of agricultural crops. Production, the result of area in cultivation and its yield, expresses the total volume of the produce. This volume divided by the number of inhabitants, commonly in a country, results in per capita food production, which shows the domestic availability of production per capita. Finally, a concept that is of particular importance in efforts for agricultural development is crop productivity, which reflects production per unit of fixed resources, usually land area expressed in hectare or acre. A large part of efforts in the development of agriculture have focused on increasing yield per area through improved management and inputs (including seed). Such yield increases allow for increase in total production, and therefore per capita production, without a need to expand agricultural production into new areas.

In Africa, all three measures for agricultural production exhibit worrisome trends. Cereal yields on the continent have stagnated in the past 45 years (Figure 1). Roots and tubers, important staples in sub-Saharan Africa accounting in many places for 20% of caloric consumption, have experienced a slightly larger yield increase, but current yields per hectare greatly lag behind those in the other regions. Although cereal production in Africa has experienced far greater growth rates since 1960, with total growth almost 150% between 1960 and 2005, due to the rapidly increasing population, per capita food production in sub-Saharan Africa has in fact declined in the past decades.

A comparison between factors contributing to total agricultural production in Asia (where the Green Revolution occurred) and in Africa (where it has not) shows striking differences. Whereas the great strides in agricultural production in South Asia were mainly caused by increased cereal yield per area of cultivated land, the modest gains in sub-Saharan Africa in the same period were attributable mainly to area expansion to lands that were not previously cultivated. In South Asia, the agricultural area dedicated to cereal production increased only by 15% between 1961 and 2001 (from approximately 111



Source: World Bank.

Figure 1. Cereal Yields in Different Developing Regions From 1960 to 2005

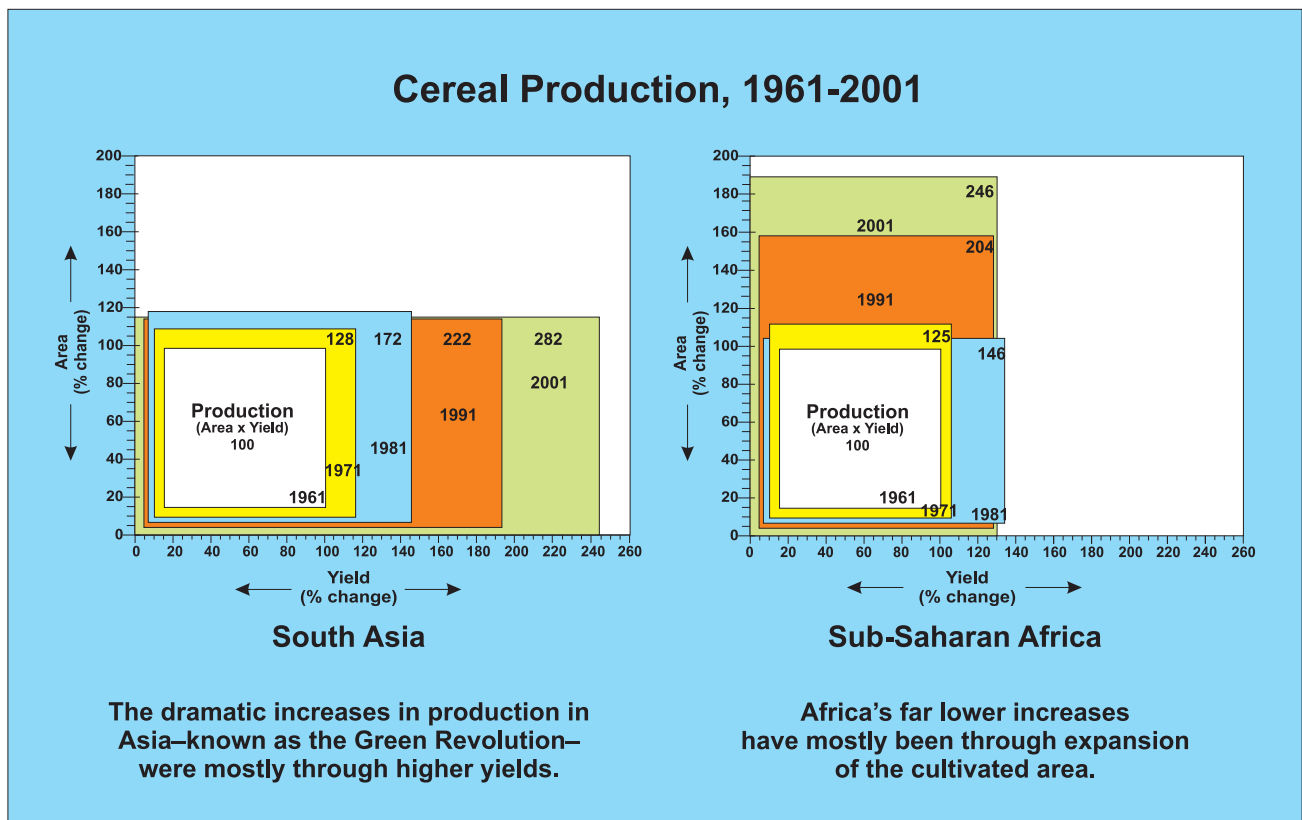
to 128 million hectares), but yields increased from approximately 1.2 to 2.5 tons per hectare or by 144%. Total South Asian cereal production almost tripled, from approximately 113 million tons to 318 million tons.

In the same period, sub-Saharan Africa increased its production of cereal crops (maize, rice, sorghum, millet, and others) by almost 146%, from 31 to 77 million tons. Increases in cereal crop yield, however, were modest, from 760 to 990 kg/ha, and therefore accounted for only 30% of that increase. Instead, the greater source of increased cereal production in the region was area expansion because the area harvested increased by 89%, from 41 million hectares to 78 million hectares. Figure 2 depicts this stark contrast in sources of growth between South Asia and sub-Saharan Africa, with the 1961 yield and area indexed to 100. This same trend of slower growth-from-yield is true also for many of Africa's other crops, such as roots and tubers (1970-2000 annual area expansion was 1.7% whereas average annual growth rate yield was 1.0%), vegetables (1.9% vs. 0.8%), oil crops (0.9% vs. 0.7%), and fruits (1.6% vs. 0%).

In other words, in the 40-year period from 1961 to 2001, African food production rose mainly because more land was brought under cultivation, but crop yields per hectare stagnated. Due to a larger population and the consequent rising pressure on land, in many areas of the continent continued area expansion of agricultural land is no longer an option. Instead, as in Asia, agriculture needs to intensify by increasing productivity, i.e., yield per hectare.

High Population Growth Rate

Africa's annual population growth, at 2.4%, is the highest of all continents. The United Nations predicts that the population of the continent will increase by 70%, equaling 490 million new inhabitants, between 1995 and 2020. Growth rates between the countries vary from 2000 to 2005. For example, Angola and Mali showed a relatively high growth at 2.8%-3.0%, and Nigeria, Kenya, Ethiopia, and South Africa, a lower rate of 0.8%, indicating differing future population



Source: IFDC.

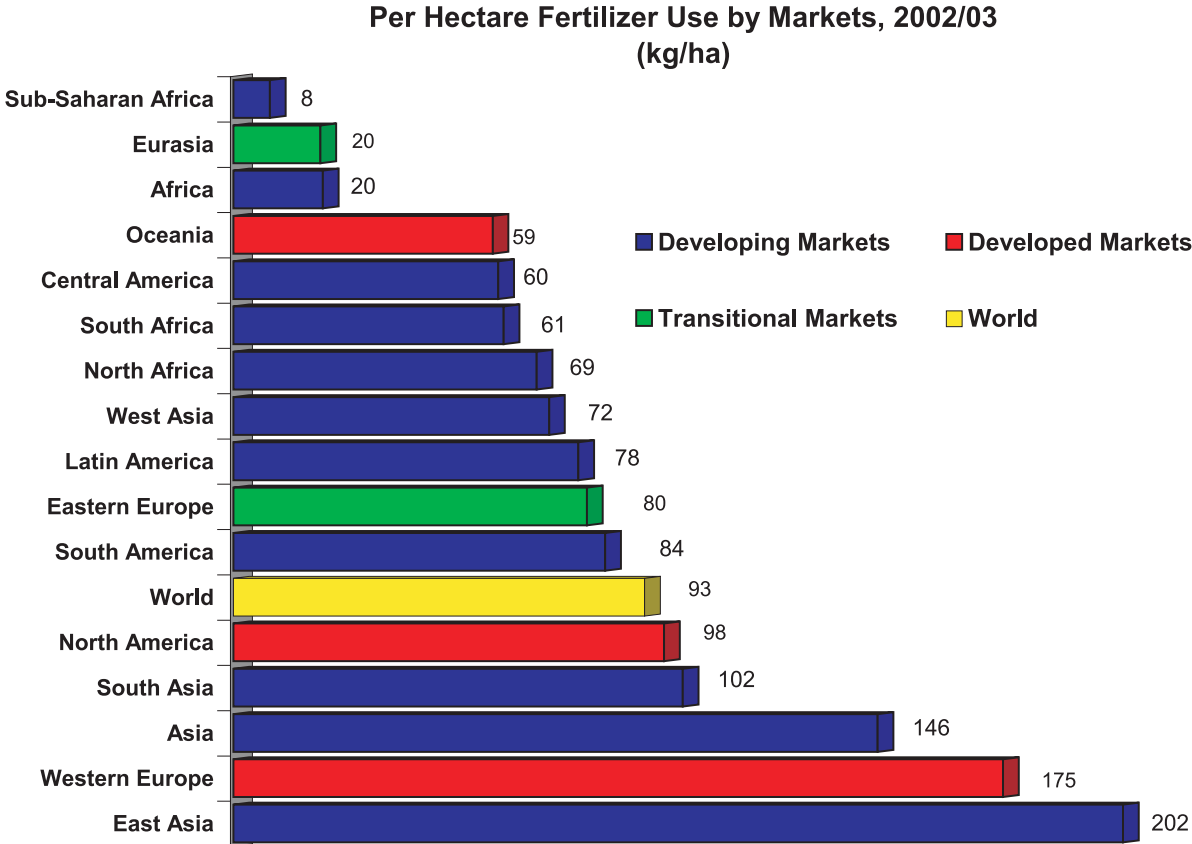
Figure 2. Growth of Cereal Yield and Area in Cereal Production in South Asia and Sub-Saharan Africa Between 1961 and 2001 (1961=100 for yield and area)

pressures. Lower population rates in several cases are tied to a high incidence of HIV/AIDS, and thereby to greater suffering and lower prospects for agricultural development. Particularly high increases are currently experienced and also predicted in urban growth rates (e.g., urban vs. rural population growth rates, respectively, 2000-2005: Kenya, 4.4% vs. -0.4%, Nigeria, 4.4% vs. 1.0%, Mali, 5.2% vs. 2.0%, and Angola, 5.0% vs. 2.0%). These increases are exerting pressures on the urban infrastructure and also on the need for greater production by those remaining in rural regions that, in the absence of effective measures to increase land productivity, will result in greater land degradation.

Low Use of Fertilizer

Africa consumes the least amount of inorganic fertilizer, both in absolute terms and per hectare, of all regions. Across the continent, the average use rate is 20 kg of nitrogen, phosphorus, and potassium (NPK) per hectare (Figure 3). In contrast, the average worldwide rates are 93 kg of NPK per hectare and those in South Asia, 102 kg/ha. Average use rates in East Asia are very high, at 202 kg of NPK per hectare, and a cause for concern due to potential negative environmental impacts.

Regional differences within Africa are great, ranging from North Africa and South Africa, which consume 61 and 69 kg/ha, respectively, to the sub-Saharan region where average consumption is just 8 kg/ha. Fertilizer use is particularly low in the production of staple foods, important for the food security of the poorest. Higher rates of fertilizer use can be found in peri-urban vegetable production and in export crops such as cotton, cocoa, and horticultural crops.



Source: IFDC.

Figure 3. Average Per Hectare Fertilizer Use Rates as Kilograms of Nutrients (NPK) Per Hectare by Fertilizer Markets in 2002/03

Impacts of Stagnating Agricultural Productivity

Food Insecurity

Although the agriculture sector in sub-Saharan Africa has experienced a long period of decline, its performance has improved in recent years. But production increases have been through bringing more land into production—not through higher yields. Sub-Saharan Africa’s slow rate of increase in agricultural productivity, coupled with its high population growth rate, means that there is an acute food security crisis on the continent. The rapid population growth lowers per capita food availability even in those countries with positive agricultural productivity gains. Africa is the only continent where, year after year, the number of those affected by food insecurity is on the increase. The problem is multifaceted, comprising deficiencies of calories, protein, and/or micronutrients, with varied impacts on different segments of the population. Its causes are also varied, typically involving insufficient production, lack of purchasing power, and/or lack of availability of foods. Regional differences are great. One third of the population in sub-Saharan Africa is undernourished, whereas this figure is only 6% in North Africa. Chronic undernourishment is the continent’s perennial silent killer, while acute periodic famines require international intervention, capture more media attention, and affect up to 40 million Africans yearly.

Nutrient Mining

The stagnating agricultural productivity, low fertilizer use, and high population growth have led to another crisis on the continent, one that has received far less attention and one that is insidiously depleting the very basis of food production in Africa—the continent’s soils. Traditionally, farmers in sub-Saharan Africa had cleared land from forest, grown a few seasons of crops, and then left the land fallow for many years. This bush fallow system was sustainable and effective in the pre-modern conditions of low population density. Due to the population growth in recent decades, however, the pattern has changed, the fallows have shortened, and in many locations, farmers are now growing one crop after another on the same tired plots of land.

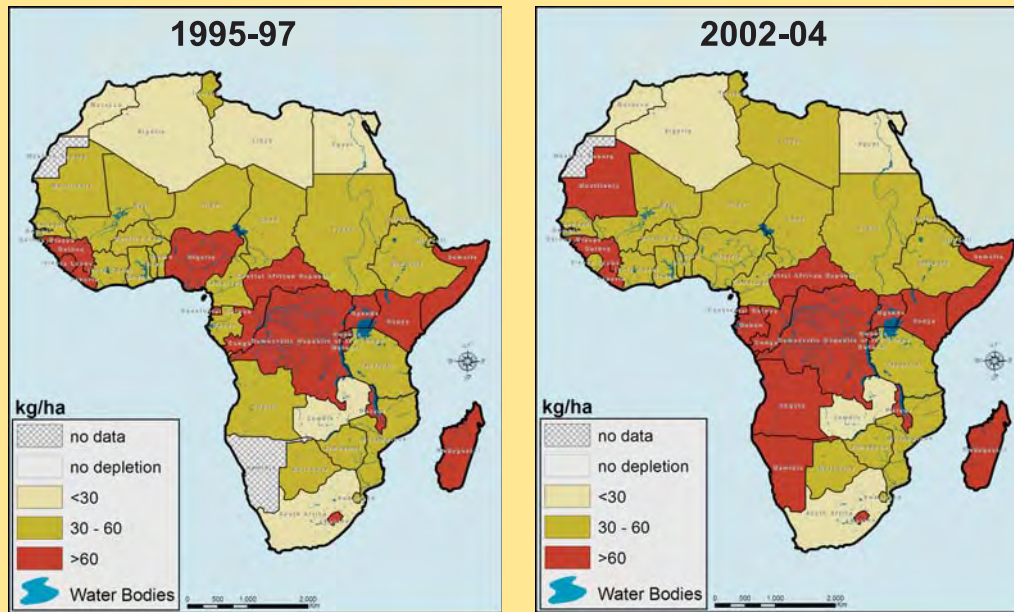
As a consequence, soil nutrient depletion is quickly worsening and affecting a growing area of Africa’s farmland. Its effects are particularly hard felt in a continent where inherently poor soil fertility prevails. As discussed by Bationo et al. in one of the Summit Background Papers, currently only 16% of Africa’s soils are estimated to be of high quality and 13% of medium quality; this 29% supports 45% of Africa’s population. At application rates of less than 10 kg of nutrients per hectare in sub-Saharan Africa and with most farmers having insufficient organic resources of good quality—such as animal or green manures—the capacity of these soils to produce cannot be maintained. Diminishing nutrient content in the soil results in declining crop yields, further degrading the soil and increasing soil erosion due to diminished crop cover.

The term “nutrient mining” refers to the situation where the nutrients extracted from the soil are not fully replenished. A Summit background paper by Henao and Baanante, which was released at the Africa Fertilizer Summit, documents the widespread nature and severity of soil nutrient mining. During the 2002-04 cropping seasons, 85% of African farmland had annual nutrient mining rates exceeding 30 kg/ha of nutrients, and 40% of farmland had rates considered severe, exceeding 60 kg of nitrogen, phosphorus, and potassium (NPK) per hectare yearly (Figure 4). The situation since the previous assessment in 1995-97 had worsened in most countries.

The report demonstrates the variability in the extent of nutrient mining, with the sub-humid savannas of West Africa and the highlands and sub-humid areas of East Africa having the highest rates. In contrast, the North Africa region and South Africa have lower rates, from 0 to 30 kg of NPK lost per hectare. The total amount of nutrients mined annually in sub-Saharan Africa is estimated at about 8 million tons of NPK.

Other studies have similarly documented high soil nutrient depletion and degradation rates. Altogether, the net value of nutrients lost in Africa in terms of the cost of commercial fertilizer that would be needed to replace them is estimated at \$4 billion per year. The authors conclude: “The evidence leaves no doubt that the very resources on which African farmers and their families depend for their welfare and survival are being undermined by soil degradation caused by nutrient mining and associated factors such as deforestation, use of marginal lands, and poor agricultural practices.” Without drastic measures taken, soil nutrient mining will further decrease yields and thereby further increase food insecurity. It will continue to force farmers to move on to clear new, often more marginal lands, causing further deforestation, loss of wildlife habitat, and soil degradation.

Nutrient Mining in Agricultural Lands of Africa



About 75% of the farmland in sub-Saharan Africa is severely degraded by soil nutrient mining. Africa loses \$4 billion worth of soil nutrients every year.

Source: Henao and Baanante, 2006.

Figure 4. Nutrient Mining in Agricultural Lands of Africa, 1995-97 vs. 2002-04

Economic and Political Impacts

With over 70% of Africa's poor living in rural areas, the vast majority of whom rely on agriculture as their source of livelihood, the farmers' poverty trap translates into a national poverty trap. As Henao and Baanante point out, "continued nutrient mining of soils would mean a future of even increased poverty, food insecurity, environmental damage, and social and political instability." Some of the political and economic impacts of the decreasing agricultural productivity are briefly summarized below:

- *Continued poverty*—Of the world's 50 Least Developed Nations, 34 are in Africa. Almost one-half of its population, 47%, live on less than \$1 per day and the World Bank estimates that 70 million Africans joined the ranks of the absolute poor during the 1990s. In recent years the general economic performance has been positive, but the International Food Policy Research Institute (IFPRI) projects that Africa's average per capita income will rise from \$279 in 1995 to \$359 in 2020; a mere 28% rise. The next region in severity of poverty, South Asia, is expected to increase its per capita income by 137%, to \$830.
- *High and increasing level of food imports*—Since food production has not kept pace with the population growth rate, cereal imports have grown greatly in the continent, from 21.5 million tons in 1980, to 27.6 million tons in 1990, and 43 million tons in 2003. Food imports are sapping countries of valuable hard currency and further worsening economic performance. In 2003 Africa's cereal imports cost \$7.5 billion; the largely agrarian countries of sub-Saharan Africa alone (excluding South Africa) imported 19 million tons at \$3.8 billion. For rice, a crop which is quickly gaining popularity on the continent but which the sub-Saharan African countries are struggling to produce sufficiently, average self-reliance ratios have fallen from 72% to 49% between the 1960s and today, indicating that currently, one half of the rice consumed in the region is imported. Without a decisive change in the next decade, food imports to

Africa are expected to increase to 60 million tons at a cost of \$14 billion, with 34 million tons of it going to sub-Saharan Africa excluding South Africa.

- *Low levels of investment*—As pointed out by President Obasanjo in the March 30, 2006 preparatory meeting for the Africa Fertilizer Summit at the individual and national level, low incomes give little opportunity to invest. “This in itself is one of the roots of poverty and underdevelopment in Africa: the lack of surplus to invest in production, research, innovation, recreation and savings. This further curtails Africa’s ability to effectively respond to health calamities such as HIV/AIDS and malaria or make the needed investments in education, infrastructure, and other development priorities.”
- *Political instability*—Often associated with conditions of poor economic growth, political instability afflicts the region and further exacerbates poverty. The number of sub-Saharan countries suffering from war or severe conflicts went from 11 in 1989 to 22 in 2000. In countries with (or emerging from) armed conflict, undernourishment rates were over 50% during 1999-2001.

These continental struggles are repeatedly mirrored in regional and national struggles and, finally, in the lives of individual African farmers who find themselves in a poverty trap—working hard for insufficient and uncertain yields. It is those struggles—of the continent, the countries, and the farmers—that the African Green Revolution will assist by empowering African farmers with tools to increase their productivity and thereby lift themselves out of poverty, produce a surplus they can trade domestically and regionally, and eventually become a viable part of the global agricultural community.

II. The Elements of the African Green Revolution

Africa largely lacks the characteristics that fostered the initiation of the Asian Green Revolution. Much of the Asian Green Revolution took place in fertile alluvial plains in conditions where there was a heavy reliance on two crops—rice and wheat—and where irrigation was accessible in 40% of the areas. Transport infrastructure in the region was far more developed, with relatively good networks of roads and railroads that connected the rural regions to functioning markets. Agricultural research and extension systems were developed, and input supply and grain marketing systems functioned.

A 2004 InterAcademy Council study¹ summarized the unique features of African agriculture, in both its biophysical and socioeconomic environment. The biophysical factors include:

- Prevalence of weathered soils of poor inherent fertility.
- Lack of a single dominant farming system on which food security largely depends.
- Predominance of rainfed agriculture as opposed to irrigated agriculture.
- Heterogeneity and diversity of farming systems and the importance of livestock.

Three factors of economic nature are also mentioned:

- Lack of functioning competitive markets.
- Under-investment in research and development and infrastructure.
- Lack of economic and political enabling environments.

Finally, four social factors set Africa apart from Asia:

- Key roles of women in agriculture and in ensuring household food security.
- Large and growing impact of human diseases on agriculture.
- Low and stagnant labor productivity and minimal mechanization.
- Predominance of customary land tenure.

It is these conditions that the African Green Revolution needs to target. In the following, we briefly review each element of the African Green Revolution and how these factors and characteristics need to be taken into account.

¹“Realizing the Promise and Potential of African Agriculture: Science and Technology Strategies for Improving Agricultural Productivity and Food Security in Africa,” was presented to the United Nations on June 25, 2004. Then Secretary General Kofi Annan requested that the InterAcademy Council prepare the report.

Summit Sponsor

THE ROCKEFELLER FOUNDATION™

The Rockefeller Foundation was pleased to have been a major sponsor of the first-ever Africa Fertilizer Summit, held in Abuja, Nigeria, and chaired by His Excellency, President Olusegun Obasanjo.

The Rockefeller Foundation looks forward to working with the Bill and Melinda Gates Foundation and other partners in solving the fertilizer crisis and soil fertility problems in Africa and to achieving broader agricultural growth and development on the continent through the newly established Alliance for a Green Revolution in Africa (AGRA).

The Technical Elements

Element 1: High-Yielding Varieties

Asian experience: Dr. Norman Borlaug, “the Father of the Green Revolution” and a Nobel Peace Prize Laureate, has called the high-yielding and pest- and disease-resistant varieties “the catalysts that ignited the Green Revolution.” Indeed, it was the development of the new varieties, for wheat, through the collaborative programs between the Mexican government and the Rockefeller Foundation, and for rice, through the Philippine government and the Rockefeller and Ford Foundations, that was the first step in the realization of the Green Revolution of Asia.

African approach: Africa needs its high-yielding varieties, but it needs them for the *multitude of crops* that form the staples of its growing population: maize, cassava, sorghum, rice, banana, yams, beans, and groundnuts, among others. Due to Africa’s more difficult environment, these varieties need to exhibit *tolerance to the continent’s constraints*: drought, diseases and pests, and poor soil fertility. Today, we are fortunate because many high-yielding, pest- and disease-resistant, and/or drought-resistant varieties of Africa’s key crops have already been developed. Promising crop innovations include the New Rice for Africa (NERICA), high-yielding cassava varieties, pest- and disease-resistant maize varieties, and tissue-culture banana. These can be the building blocks of an African Green Revolution. We are also fortunate to witness the renewed interest and commitment by donors to develop, multiply, and disseminate improved crop varieties for Africa. This is evidenced by The Rockefeller Foundation and the Bill and Melinda Gates Foundation collaboration in the Alliance for a Green Revolution in Africa (AGRA), a program to improve Africa’s seed systems. These are good starts, that we can build on.

Element 2: Inorganic Fertilizer and Other Inputs

Asian experience: Dr. Borlaug has characterized fertilizer as “the fuel that has powered ... the forward surge” of the Green Revolution. As mentioned above, no modern country, industrial or developing, has improved its agricultural productivity and economic well-being significantly without increasing its inorganic fertilizer use. Worldwide, studies indicate that one-third of the current global cereal production can be attributed to fertilizer and related factors of production. It is estimated that fertilizer accounted for a full 50% of yield growth in Asia during the Green Revolution.

African approach: Of all inputs, fertilizer is the key one in Africa, due to its current low use and the poor soil fertility in much of the continent. The increase in fertilizer use has to be fast and drastic. NEPAD has estimated that for Africa to achieve the first Millennium Development Goal, halving poverty by 2015, African agricultural productivity needs to increase annually by 6%. According to the calculations of IFDC, this requires an increase in fertilizer use from the current 20 to 47 kg of nutrients per hectare, an annual growth rate by 6%. In sub-Saharan Africa, increase should be from the current 8 kg to at least 50 kg/ha.

Element 3: Crop Management and Associated Factors

Asian experience: The Asian Green Revolution relied on good management of the cereal crops and, increasingly as the greater productivity benefited farmers, on mechanization (handheld tools, small machinery, and larger equipment), as well as irrigation. Irrigation allowed double and even triple cropping, either of the cereal or cereal-vegetable/legume combinations, further improving food security and giving marketable surpluses of crops to the farmers.

African approach: Africa’s yield gap—the difference between what can be achieved on farmers’ fields and what is actually achieved on average—is vast. The International Center for Maize and Wheat Improvement (CIMMYT) estimations for potential yields in the various maize-growing environments (highland/transitional, midaltitude/subtropical, and tropical) are 4.5-7 ton/ha, whereas average farmer yields are only 0.7-2.6 ton/ha. These differences are caused by the lack of inputs, by drought, and by weeds. Great attention in Africa must be given to decreasing the yield gap through improved crop management. This will require effective backing by research and extension. Additionally, irrigation offers great potential for raising yields in Africa, by both increasing yields of a crop and allowing for double- and triple-cropping. Currently only 4% of Africa’s cultivated land is irrigated, whereas up to 20% has potential for irrigation.

The Non-Technical Elements of the Green Revolution

Whereas improved crop varieties, fertilizers and other inputs, and good crop management are the essential ingredients of the Green Revolution, their use can only be fostered if the right policies are in place—and there is the political will to implement these policies. These two elements are discussed below.

Element 4: Fostering Policies

Asian experience: The Asian Green Revolution relied on policies that fostered support to effective agricultural research and extension systems; policies that ensured that farmers were getting adequate and stable prices for their produce; and policies that often did subsidize the agriculture.

African approach: Policies in Africa need to ensure that Africa's Green Revolution takes into account the complex nature of Africa's special characteristics. This requires the implementation of a comprehensive and holistic policy approach to address a broad array of infrastructural, biophysical, and socioeconomic constraints to rapid growth in crop productivity. In essence, policies must be supportive of the efficient and timely supply of fertilizers and other modern inputs to farmers at the least possible cost. Special consideration should be given to inputs supply and technical assistance to farmers in remote rural areas. In addition, policies must also focus on improving produce markets so that farmers receive prices that make it profitable for them to invest in agriculture by purchasing improved inputs. This effort will be particularly challenging in Africa, due to its undeveloped road and transport infrastructure and undeveloped markets. This effort will require an ingenious combination of reliance on private sector initiative to develop sustainable markets and on public sector involvement to regulate them and to develop the necessary infrastructure to foster them.

In the fertilizer sector, the following three issues need to be addressed simultaneously:

- *Improve farmer access to fertilizer*—Measures to improve the efficient supply of fertilizers to farmers in terms of volume, diversity, as well as cost and quality. Particular efforts are needed to move fertilizer into remote rural areas using efficient commercial channels to bring them to the poor farmers.
- *Increase affordability of fertilizer by farmers*—Measures to reduce the price farmers pay for fertilizer and other complementary inputs in order to make them accessible to the rural poor.
- *Create incentives for fertilizer use*—Farmers will have better incentives to use fertilizer if output markets function well, and farmers can find good and stable prices for their produce. Incentives for fertilizer use will also be improved through fostering research and extension that improve their effectiveness. For instance, this can be achieved through the provision of location specific fertilizer recommendations and the adaptation and exploitation of new techniques such as micro-dosing, modified fertilizer products, and Integrated Soil Fertility Management (ISFM). In many places, policies fostering the expansion of areas under irrigation will reduce the risks of fertilizer use associated with the unreliability of rainfall, increasing farmers' incentives to use fertilizer.

In recent years, African governments have become increasingly committed to fostering fertilizer and other input use through the implementation of effective policies. In this regard, an increasing number of positive developments are taking place such as: increasing agro-input dealers, improving credit access, fostering private sector production, and development of output markets. Moreover, it is important to note that African institutions, such as the African Union and its Commission, its new program NEPAD, and regional economic organizations, have been reinvigorated and, as shown through their leadership in the Summit, intend to provide leadership to spur agricultural development on the continent.

Amid this relative consensus regarding the policies that Africa needs at the moment, the issue of fertilizer subsidies continues to be debated. At one extreme are those who advocate large-scale subsidies to all due to (a) the prevalence of poverty and (b) the undeniable impact of fertilizer use on productivity and thereby food security and income. At the other extreme are those who are against subsidies of any kind, pointing to (a) their cost and lack of sustainability and (b) the market distortions and misallocation of resources they cause and their leakages. Recently, a relative consensus seems to be emerging on two issues: for the poorest, subsidies are appropriate, but when they are introduced, they should be implemented in ways that do not distort the market. There should also be an exit strategy for subsidies.

Element 5: The Political Will

It is perhaps this last element of the African Green Revolution that will be the hardest to achieve but on which the initiation of the African Green Revolution depends. During the Africa Fertilizer Summit, African leaders spoke and

committed themselves to increasing fertilizer use through the development and implementation of policies that will create the enabling environment for the Green Revolution. This was a good start.

Now, 6 months after the Africa Fertilizer Summit initiated numerous activities that *can* result in an African Green Revolution, the question that still remains is two-fold:

Will those policies be created that will instigate, foster, and sustain the African Green Revolution? And, perhaps more important, is there political will to implement those policies?

Repeatedly, we have seen that fertilizer, other inputs, and indeed, all agricultural commodities, are also used as political commodities. Their fates, fortunes, and misfortunes therefore become instruments of political parties or groups. This distracts attention and can counteract their true potential: to improve *all* citizens' food security, lift people out of poverty, and develop a flourishing national economy for all. This is a great challenge that lies before us now.

The need for leadership and commitment was raised by His Excellency President Obasanjo before the Africa Fertilizer Summit during an IFA Council Meeting in Seville, Spain, held November 14-18, 2005. His brief address is reprinted on page 14. In addition, during the Summit, Dr. Borlaug, in his third and final Summit address during the session for the Heads of State, asked:

“Who were the people that made the changes? The leaders! It was the leaders who made the science and technology useful ... Are there two or three, hopefully many more, who have the courage to take the recommendations on the use of fertilizer forward?”

Without the correct policies and without the political will to implement them the African Green Revolution will not happen. Therefore, however important the improved varieties, fertilizer, and other inputs are, they alone will not initiate the African Green Revolution.

III. The Africa Fertilizer Summit

Goal and Content

To reverse decades of hunger and poverty on the African continent, United Nations Secretary General Kofi Annan appealed to the world community in June 2005 to focus its attention and resources on initiating a Green Revolution in Africa. The Africa Fertilizer Summit, held in Abuja, Nigeria, June 9-13, 2006, was a response to Kofi Annan's call for a uniquely African Green Revolution. Greater use of fertilizer is a must to have an African Green Revolution, to reach NEPAD's Comprehensive Africa Agriculture Development Program (CAADP) goal of 6% annual agricultural growth, and to reach the first Millennium Development Goal of halving poverty and hunger by 2015. Evidence suggests that no region worldwide has been able to achieve food security without significantly increasing the use of fertilizer. Although fertilizer consumption in Africa has increased fourfold between 1961 and 1999, it remains the lowest in the world. Use of mineral fertilizers in Africa amounts to less than 10 kg/ha whereas annual fertilizer application rate in Asia is in the order of 200 kg/ha. To meet Africa's fertilizer challenge, NEPAD called for concrete and creative action: the Africa Fertilizer Summit.

The Summit offered the African community an opportunity to raise awareness worldwide of the plight of African small-holder farmers and to see the potential of fertilizers in improving their conditions. It brought together African Heads of State, African ministers, and heads of international donor organizations, private-sector firms, farmers' organizations, and senior policymakers. This cooperative effort was to build a consensus around the key issues surrounding fertilizer use in Africa and to agree on a strategy to improve incentives for access to and affordability of fertilizer. The ultimate goal of the Summit was to accelerate the access of millions of poor farmers to fertilizer and other complementary inputs, in order to help them raise their farm production and achieve food security.

More specifically, the Summit's objectives were to:

- Affirm the critical importance of fertilizer in contributing to rapid and sustainable pro-poor agricultural productivity growth in Africa.

His Excellency President Olusegun Obasanjo of Nigeria Addresses Meeting of the International Fertilizer Industry Association Regarding the Africa Fertilizer Summit

“Greetings from Nigeria—It gives me great pleasure to address you about an exciting major African-led initiative, which has great potential to be a prime mover in changing the current reality of Africa from a continent plagued by hunger and poverty to a continent that can feed itself. I want to urge you to join hands with us to make this dream a reality.

As has been starkly exemplified by the recent situation in the Niger Republic, food insecurity is a serious problem in Africa. Per capita food production in Africa has declined over the past 3 decades. The main reason for Africa’s food shortages is soil nutrient depletion. Africa loses about \$4 billion worth of plant nutrients from its soils each year due to continuous cultivation without nutrient replenishment. If Africa is to rapidly enhance its ability to feed itself, we need what the U.N. Secretary General Kofi Annan has called for—a uniquely African Green Revolution. This will require an increase in the use of fertilizer. Today, fertilizer use in sub-Saharan Africa is extremely low at about 8 kg/ha annually.

Therefore, African governments have decided to take action to catalyze a large-scale adoption of fertilizer. The Africa Fertilizer Summit is being called for and convened by the African Union’s New Partnership for Africa’s Development (NEPAD) initiative. We have asked IFDC, an institution that all of you know well, to coordinate and implement the Summit. The Africa Fertilizer Summit will assemble high-level stakeholders, including African Heads of State, fertilizer producers, private agribusiness firms, farmers’ organizations, and development agencies to highlight the crucial role of fertilizer in stimulating productivity growth in African agriculture and determine the most promising strategies for rapidly increasing fertilizer use by African farmers. The goal of the Summit is to build a consensus around the key issues constraining increased fertilizer use in Africa and to agree on a strategy for developing an African fertilizer action plan and national fertilizer action plans. This will accelerate the access by millions of poor farmers to inorganic fertilizers and other complementary inputs in order to help them raise their farm production and achieve food security.

The goal of the Summit and the successful implementation of the action plans cannot be achieved without the support of the private sector. The only way to increase the availability of and access to fertilizers in Africa is through well-functioning private sector-led input marketing systems.

International fertilizer companies should care about developing agricultural practices in sub-Saharan Africa to complement the efforts of African governments that are embarking on bold steps to transform the agricultural sector and create new opportunities to expand the use of modern farm inputs. By investing in African fertilizer markets now, these companies will be preparing the way for tomorrow’s growth market.

The fundamental mission of the international fertilizer industry is to help feed the world. This is the reason it came into existence, and there is nowhere today that the industry’s help is more needed than in Africa. In this way, we can make a Green Revolution happen. Together we can work to change African agriculture and offer new hope for millions of our people who depend on agriculture for their livelihoods.

It will be my pleasure to personally chair the Africa Fertilizer Summit. This Summit is critical for African agricultural development, and the support of the international fertilizer industry association and its members is vital to ensure its success.

I look forward to warmly welcoming you as partners to the Africa Fertilizer Summit, which will be held in Abuja, Nigeria, from June 9 to June 13, 2006. You will be most welcome.”

- Review the evidence on the use of fertilizer in African agriculture and identify the primary policy, institutional, finance, infrastructural, and market constraints that limit the access of fertilizers by poor farmers, including perspectives from farmers themselves.
- Assess innovative approaches that have been used to build rural input market infrastructure to supply agricultural inputs to the rural poor.
- Agree on a strategy for developing an African fertilizer action plan to accelerate the access of millions of poor farmers to chemical fertilizers and other complementary inputs.

The Summit consisted of a Technical Session (June 9-10), Ministerial Session (June 12), and Heads of State Session (June 13). Altogether, more than 550 participants attended the Technical Session. In addition to presentations by global experts on issues related to food security, agricultural production, and fertilizer in Africa, the Technical Session also included panel discussions and working groups, organized thematically and by Africa's Regional Economic Communities (RECs).

Leadership and Organization

The Summit was an African-led initiative, with leadership by the African Union, its New Partnership for Africa's Development (NEPAD) program, and the Summit chair, H.E. President Olusegun Obasanjo. The Federal Government of Nigeria hosted the Summit.

Summit preparations were guided by an advisory panel of world leaders in African development (Text Box 1). A technical committee consisting of government officials, technical experts, and representatives of donor institutions advised and oversaw the Summit preparations (Text Box 2). In addition, there was a local organizing committee made up of individuals who sought to make the Summit successful (Text Box 3). Prior to the Summit, its organizers also interacted individually and in larger meetings with numerous stakeholders to raise awareness on and support for the goals of the Summit.

NEPAD's Vision for Africa's Agriculture in 2015

Attain food security (in terms of both availability and affordability and ensuring access of the poor to adequate food and nutrition).

- Improve the productivity of agriculture to attain an average annual growth rate of 6%, with particular attention to small-scale farmers, focusing especially on women.
- Have dynamic agricultural markets among nations and regions.
- Integrate farmers into the market economy with better access to markets to make Africa a net exporter of agricultural products.
- Achieve more equitable distribution of wealth.
- Be a strategic player in agricultural science and technology development.
- Practice environmentally sound production methods and have a culture of sustainable management of the natural resource base (including biological resources for food and agriculture) to avoid their degradation.

Source: CAADP document.

Text Box 1. The Eminent Persons Advisory Group

Chair: H.E. Olusegun Obasanjo, President of the Federal Republic of Nigeria

Ambassador Ibrahim Ali Hassan, Assistant Foreign Minister, Egypt

Mr. Lennart Båge, President, International Fund for Agricultural Development (IFAD)

Rt. Hon. Hilary Benn, Secretary of State for International Development, United Kingdom

Dr. Norman Borlaug, President, Sasakawa Africa Association

Honorable Jimmy Carter, Former President of the United States, The Carter Center

Honorable Joaquim Chissano, Former President of Mozambique

Sir Gordon Conway, Chief Science Adviser, Department for International Development (DFID)

Dr. Jacques Diouf, Director-General, Food and Agriculture Organization of the United Nations (FAO)

Mr. Abdoulie Janneh, Executive Secretary, Economic Commission for Africa

Dr. Donald Kaberuka, President, African Development Bank

Honorable Alpha Oumar Konaré, Chairperson of the African Union Commission

Dr. Graca Machel, Former First Lady, Republic of South Africa

Mr. Luc Maene, Director General, International Fertilizer Industry Association (IFA)

Rt. Hon. Donald McKinnon, Secretary General, Commonwealth, UK

Mr. Peter McPherson, Co-Chair, Partnership to Cut Hunger and Poverty in Africa

Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD)

Mr. Andrew S. Natsios, Former Administrator, United States Agency for International Development (USAID)

Mrs. Sadako Ogata, President, Japan International Cooperation Agency (JICA)

Dr. Rudy Rabbinge, Dean, Graduate Schools, Wageningen University

Dr. Mamphele Ramphele, Chairperson, Circle Capital Ventures

Dr. Judith Rodin, President, The Rockefeller Foundation

Dr. Jeffrey Sachs, Director, The Earth Institute, Columbia University and Director, UN Millennium Project

Mr. Yohei Sasakawa, President, The Nippon Foundation

Dr. M. S. Swaminathan, Chairman, M. S. Swaminathan Research Foundation

Mr. Paul Wolfowitz, President, The World Bank

Text Box 2. Technical Advisory Committee of the Africa Fertilizer Summit

Chair: Amit Roy (IFDC)
 Richard Mkandawire, Vice Chair (NEPAD)
 Akin Adesina (The Rockefeller Foundation)
 Tchambakou Ayassor (UEMOA)
 Ousmane Badiane (IFPRI)
 Joel Beassem (ECCAS/PRSA)
 Mohamed Beavogui (IFAD)
 Sule Alhaji Bello (Federal Ministry of Agriculture and Rural Development, Nigeria)
 Derek Byerlee (World Bank)
 Arne Cartridge (Yara)
 Lance Crist (IFC)
 Josue Dione (UN Economic Commission for Africa)
 Daniel Eklu (CEDEAO/ECOWAS)
 Mohamed El-Fouly (National Research Center, Egypt)
 Edward Heinemann (IFAD)
 Julie Howard (Partnership to Cut Hunger and Poverty in Africa)
 Monty Jones (FARA)
 William Kalema (Uganda Investment Authority)
 Philip Kiriro (Eastern Africa Farmers Federation)
 Eben Makonese (Chemplex Corporation, Ltd.)
 Richard Masundire (SADC)
 Isaac Minde (ECAPAPA)
 Uzo Mokwunye (ICRISAT)
 Michael Morris (World Bank)
 Samuel Muchena (ACFD)
 Cris Muyunda (COMESA)
 Brave Rona Ndisale (AU)
 Njabulo Nduli (Department of Agriculture, South Africa)
 Jan Poulisse (FAO)
 Marco Quiñónes (SG 2000)
 Nteranye Sanginga (TSBF)
 Gert van der Linde (FSSA)

Text Box 3. Local Organizing Committee—Africa Fertilizer Summit

Chair: Pepple, A. I., Permanent Secretary of Agriculture and Rural Development, Federal Republic of Nigeria

Abdullahi, A. A.	Emmanuel, Ojo O.
Abdullahi, Moukhtar Isa	Gamawa, Buba M.
Abdulsalam, Alhaji	Hassan, U. A.
Abubakar, S. U.	Irokalibe, S. C.
Alaiyeghami, F. O.	Jayeoba, O.
Alhaji, Ahmed Rabiw Kwa	Kole-James, Pius
Aliyu, A.	Kwa, Alhaji Ahmed Rabiw
Alkaleri, Dr. Umaru	Mahmod, Dr. Aisha U.
Alkali, B. G.	Mandu, (Mrs.) N. H.
Angulu, H. A.	Mbadiwe, J. C.
Anyaduba, E. T.	Njar, R. A.
Asikpate, F. O.	Odandu, J. A.
Auchan, A. A.	Ofoegbu, (Mrs.) N.
Ayoola, Prof. G. B.	Ogbonna, C.
Babangida, J. A.	Oghenekaro, S. E.
Bello, M. A.	Ogutuga, Adebola O.
Bello, Sule Alhaji	Okeke, Uche Ajulu
Chibuago, Ogbonna	Okigbo, M. E.
Chikweidu, H. E.	Oladipo, S. O.
Chude, Prof. V. O.	Osemene, S. C.
Chukwudum, N. G.	Osho, A. O.
Dalhat, K.	Sadiku, F. A.
Ekwueme, E. E.	Zakari, S.G.B.



The entrance to the Abuja Conference Center during the Summit.

Summit Sponsor



Fighting poverty through agriculture

Approximately 800 million of the world's 1.1 billion extremely poor people live in rural areas of developing countries and rely on agriculture and related activities for their survival.

To meet the Millennium Development Goal target of halving the proportion of people living in extreme poverty and hunger by 2015, the world must address

the needs of poor rural people and increase investments in agricultural and rural development.

IFAD is a specialized agency of the United Nations dedicated to enabling poor rural people to overcome poverty themselves. Today, there are 94 ongoing IFAD-supported rural poverty eradication programmes and projects throughout Africa.



Enabling the rural poor
to overcome poverty

Via del Serafico, 107 – 00142 Rome, Italy
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E-mail: ifad@ifad.org
www.ifad.org



Dr. Maria Wanzala
NEPAD AFS Secretariat

IFDC, an International Center for Soil Fertility and Agricultural Development, implemented the Summit while numerous donors, notably the Rockefeller Foundation, provided support for this initiative (see Text Box 4 for full list of sponsors). Two Secretariats, one based at NEPAD in South Africa and another at IFDC in the United States, directed the day-to-day technical work, while the National and Local Organizing Committees (Appendix III) in Nigeria took the lead in making the local arrangements. A multi-institute Communication Strategy Group involving representatives of the Rockefeller Foundation, Burness Communications, NEPAD, IFDC, and the Local Organizing Committee, raised worldwide awareness of the initiative, resulting in global media coverage for the Summit.

Summit Preparations

The Summit preparations involved political leaders, policymakers, and leading technical experts on African agricultural development from Africa and elsewhere. The preparations, spanning a period of 9 months, involved consultative meetings, writing of numerous papers on fertilizer sector development in Africa, as well as development of fertilizer strategies by countries and RECs. They are briefly described as follows.



Dr. Oumou Camara
IFDC AFS Secretariat

Text Box 4. The Summit Sponsors

Federal Republic of Nigeria
The Rockefeller Foundation
African Development Bank
AgriTerra
Arab Fertilizer Association (AFA)
Commonwealth Secretariat (UK)
Directorate General for Development Cooperation (DGIS), Netherlands
Department for International Development (DFID), UK
Economic Commission for Africa
Fidelity Bank (Nigeria)
Food and Agriculture Organization of the United Nations
The William and Flora Hewlett Foundation
International Fertilizer Industry Association
International Fund for Agricultural Development
Notore Chemical Industries
Oceanic Bank International PLC
Partnership to Cut Hunger and Poverty in Africa
Sasakawa-Global 2000
Shell Canada Limited
United Nations Economic Commission for Africa
United Bank for Africa PLC
U.S. Agency for International Development (USAID)
The World Bank

Eminent Persons Group Meeting—March 2006, New York

The Eminent Persons Advisory Group meeting, held March 30, 2006, in New York City, was chaired by H.E. Olusegun Obasanjo, the President of Nigeria, and hosted by Dr. Judith Rodin, the President of the Rockefeller Foundation. Fifteen members of the Eminent Persons Group participated in this meeting, which received remarkable attention worldwide. Within a week of the event, over 40 articles were published in global, regional, and local coverage; additionally, at least 20 websites reported the event worldwide.

The meeting consisted of speeches and round-table discussions, where the Summit preparations were reviewed and numerous strategic issues related to the Summit, including possible foci of work for the post-Summit period, were considered. The Eminent Persons discussed the approach of the Summit, raising the following important points:

- Importance of political will—Political will is paramount to achieving the Summit objectives. This includes will of the donors, whose official development assistance to the continent has consistently failed to meet the required target of 0.7% of gross domestic product.
- Need for a continued scientific research—To ensure that the Summit objectives are met, research and technology development must be pursued. The Asian Green Revolution cannot be directly replicated in Africa because conditions are very different in the two continents. Numerous issues such as drought tolerance should be addressed.
- Importance of using market forces in the approach—Vouchers, credit provision, and fertilizer distribution should be implemented together with the private sector; only under extraordinary circumstances should fertilizer be given for free.
- Importance of seeing fertilizers in a wider framework—The bulk of the fertilizers produced in Africa are exported. One needs to consider the issue of low demand, with private sector involvement in the effort.



The Summit's Eminent Persons Advisory Committee met at the Rockefeller Foundation headquarters in New York City on March 30, 2006.

After a welcome address by President Rodin, H.E. President Obasanjo delivered the keynote speech, “Feeding Africa: A Call for Action to Meet Africa’s Fertilizer Challenge.” This was followed by a description of the role of the African Union and NEPAD in the Summit by H. E. Konaré and Prof. Mucavele, respectively. Text Box 5 presents highlights of the speeches and presentations. Many of the members of the Eminent Persons Group also attended the Summit.

Text Box 5. Highlights of the Speeches by Eminent Persons, March 30, 2006

From “Feeding Africa: A Call for Action to Meet Africa’s Fertilizer Challenge” by H.E. President Olusegun Obasanjo

“It is equally befitting that this meeting is taking place at the Rockefeller Foundation, which is known worldwide for its leadership in agriculture and for its role in helping to usher in the Green Revolution in Asia.

“It is interesting that we’re meeting in New York, a marvelous symbol of American industry and prosperity. Much of the prosperity is built on the success of U.S. agriculture. The world calls this place ‘The Big Apple.’ I don’t know why—but it may have something to do with fertilizer ...

“The simple but brilliant approach to improve crop yields—high-yielding varieties that respond to key inputs, especially fertilizer—still has not found its home in our vast continent of 900 million people. Crop productivity in Africa has mostly remained stagnant over the past 4 decades, while cereal yields in Asia have risen three-fold, to 3.5 tons per hectare, in the same period. Our malnutrition has worsened, and stability is increasingly difficult to maintain.

“Africa’s low fertilizer use is also environmentally unsustainable. Not only does it lead to increasingly depleted soils, it also contributes to deforestation. With poor productivity of existing farmlands, more and more forests must be cut to feed our growing population.

“Our farmers will eagerly use fertilizer if they can find access at a price they can afford. They understand fertilizers will increase their yields and improve their lives. African leaders recognize that with access, affordability, and incentives, farmers will use fertilizers, improved seeds, and agriculture will become the engine for pro-poor growth, just as it has been in Asia, Latin America—and just a few generations before, here in the United States and Europe.

“We therefore have a dream, a vision for our African future. But we also know we have the right approach; agriculture must be the engine for growth in Africa. Most of our people depend on agriculture for their living, and agriculture is the most direct way to improve their well-being. Agriculture must be productive and competitive.

“But to feed our people, we must first feed the soil.

“This will be an action-driven Summit with strong political commitment from African Heads of State. The Summit will result in concrete actions to improve the fertilizer of our soils through more efficient use of both organic and mineral fertilizers.

“This is the hour for Africa. Let’s take this bold step together and expand food security and income opportunities across Africa.”

From “Welcome Address” by Dr. Judith Rodin

“We come together today with determination and the expectation that—through our combined energy and effort—we can and will make a difference in the lives of millions.

“As we have this important discussion today, I hope we can commit ourselves to unified action. Because these are not national problems—they are transnational. Tackling them requires big thinking. It requires big ideas. And it requires a vision of how our collective commitment and our collaboration can make a difference.”

From the summarized presentation “The African Union and the Africa Fertilizer Summit” by H.E. Alpha Oumar Konaré

On the eve of the Summit, President Konaré questioned the existence of political will and raised the following issues:

1. Fertilizer should be considered in a larger context of agricultural inputs and their availability, production, imports, and access in time and space.
2. Fertilizer should be affordable, but “I am not saying it should be free.”
3. We must insist on the profitability of agriculture for farmers.

“The private sector should be encouraged to produce fertilizer and other agricultural inputs within Africa and to facilitate fertilizer imports. Africa should also develop infrastructure and harmonize markets.”

“Governments should understand that rural producers are partners ...”

From the summarized presentation “The New Partnership for Africa’s Development (NEPAD) and the Africa Fertilizer Summit” by Prof. Firmino Mucavele

“In the spirit and principles of NEPAD, the Africa Fertilizer Summit has two principles:

1. The Summit is an action-oriented initiative to make fertilizer available and economically accessible to farmers; and
2. The Summit is an Africa-led initiative.”

From the summarized presentation “Building Input Supply Systems to Improve Access for Farmers” by Dr. Akin Adesina

The paradox of markets in rural Africa is evident in its stores. Coca-Cola—a luxury item with little relevance to improving people’s lives—is widely available in Africa but fertilizer and seed—key items to help the rural poor escape the poverty trap—are lacking. In parts of Malawi, the average distance a farmer must travel to buy fertilizer is 40 km.

The challenge is that selling Coke and selling fertilizer are not the same thing. To sell fertilizers, one needs a far greater amount of knowledge on the products and their storage. But with training and networks, fertilizer use can be increased.

Finally ... even with these efforts, subsidies will still be needed for the poorest. Such subsidies should be delivered through market-friendly avenues such as voucher systems.

From the summarized presentation “Achieving an African Green Revolution” by Dr. Norman Borlaug

In Asia... adoption of modern varieties of wheat and rice increased from nil in 1965 to 20% of the area in 1970. By 1990, the area in modern wheat varieties was 70% while that of rice was 65%. In the same time period, fertilizer use increased vastly, from 5 (1965) to 10 (1970) to 54 (1990) million tons.

Africa’s infrastructure development needs particular attention Extremely high rates of adult illiteracy are another obstacle to Africa’s development.

Without well-performing agriculture, there will be no peace. As the first FAO Director General, the Nobel Peace Prize Laureate John Boyd Orr once said, “You cannot build peace on empty stomachs.”

“All of these have to come together and we have to make them come together. President Obasanjo, let’s make it happen!”

From the question-and-answer session with media

With this Summit, we recognize that the problem with fertilizer is linked with other issues, such as water, production, and accessibility, especially for the poorest. We therefore plan to use an integrated approach. Dr. Jacques Diouf (summarized answer)

You can grow flowers and improve food security. We need to improve productivity of agriculture and that in itself will improve food security. Dr. Donald Kaberuka (summarized answer)

Technical Committee Meetings

Technical Committee meetings formed another important preparation for the Summit. Two meetings were held, one in Johannesburg (November 28-29, 2005) with attendance by 16 Technical Committee members, and a second, attended by Technical Committee and Local Organizing Committee members in Abuja, Nigeria (February 8-10, 2006). The Technical Committee members laid the technical foundations for the Summit by discussing general foci of the Summit; outlining the main features of the Country and Regional Strategy process; drafting the Summit agenda; and deciding the foci and authors of the Summit background papers. Many Technical Committee members were active participants in the Summit itself.

Country and Regional Fertilizer Strategies

An important aspect of preparations for the Summit was the development of Country Fertilizer Strategies by numerous African countries and the preparation of Regional Fertilizer Strategies by the RECs.

These strategies outline the present status of the fertilizer sector in countries and RECs and propose concrete actionable programs to induce rapid growth in the regional and national fertilizer sectors.

The strategy drafting process started 6 months prior to the Summit, in December 2005. The Summit Secretariats in NEPAD and IFDC coordinated the effort and provided technical backstopping in the process. Altogether, 17 Country and three Regional Strategies were presented and discussed at the Summit. The development of the strategies is an ongoing process, and new strategies have been initiated after the Summit, resulting in 25 strategy documents completed at the time of publication of these proceedings. The received strategies were synthesized in May, and an overview of the shared challenges and common priorities was prepared for the Summit session chairpersons to serve as a basis for discussion in the break-out sessions. Currently, many actions identified as priorities in these strategies to improve the fertilizer sector at



Participants at the Second Technical Advisory Committee meeting.

the national or regional levels are being developed into projects. Greater information of the progress achieved since the Summit is provided in the next sections.

Background Papers

Prior to the Summit, eight new background papers had been commissioned from experts, many of them worldwide leaders in their fields, to examine Africa's fertilizer sector, its performance, constraints, and possible solutions. These commissioned papers, along with some other key papers on Africa's fertilizer sector, were made available to the Summit participants and were posted on the Summit website. The 15 background papers and their authors are presented in Text Box 6.

Text Box 6. Summit Background Papers by Category

Understanding Africa's Fertilizer Sector

Achieving an African Green Revolution: A Vision for Sustainable Agricultural Growth in Africa by Marjatta Eilittä

Overview of the Fertilizer Situation in Africa by Oumou Camara and Ed Heinemann

Factors Affecting Supply of Fertilizer in Sub-Saharan Africa by D. Ian Gregory and Balu L. Bumb*

Factors Affecting Demand for Fertilizer in Sub-Saharan Africa by Valerie A. Kelly*

Fertilizer Raw Material Resources of Africa by Steven Van Kauwenbergh**

Linkages of Africa's Fertilizer Sector to Soil, Environment, and Water Resources

African Soils: Their Productivity and Profitability of Fertilizer Use by Andre Bationo, Alfred Hartemink, Obed Lungu, Mustapha Naimi, Peter Okoth, Eric Smaling, and Lamourdia Thiombiano

Agricultural Production and Soil Nutrient Mining in Africa: Implications for Resource Conservation and Policy Development by Julio Henao and Carlos Baanante

Fertilizer Use and the Environment in Africa: Friends or Foes? by Eric Smaling, Moctar Toure, Nico de Ridder, Nteranya Sanginga, and Henk Breman

Improving Water and Fertilizer Use in Africa: Challenges, Opportunities, and Policy Recommendations by Dennis Wichelns

Diverse Approaches to Promoting Fertilizer Use on the Continent

Alternative Approaches for Promoting Fertilizer Use in Africa by Eric W. Crawford, Thomas S. Jayne, and Valerie A. Kelly*

Alternative Approaches for Promoting Fertilizer Use in Africa, With Particular Reference to the Role of Fertilizer Subsidies by Eric W. Crawford, Thomas S. Jayne, and Valerie A. Kelly*

Increasing Fertilizer Use in Africa: What Have We Learned? by Colin Poulton, Jonathan Kydd, and Andrew Dorward*

Input Subsidies and Agricultural Development: Issues and Options for Developing and Transitional Economies by Balu L. Bumb, S. Kofi Debrah, and Luc Maene

Promoting Increased Fertilizer Use in Africa: Lessons Learned and Good Practice Guidelines by The World Bank

The Role of Input Vouchers in Pro-Poor Growth by Ian Gregory

* Published also as World Bank ARD publications.

** A book published by IFDC.

The Summit Outcomes

The salient outcome of the Summit, the *Abuja Declaration on Fertilizer for an African Green Revolution*, adopted by more than 40 Heads of State and governments, demonstrates the commitment of Africa's leaders to increase fertilizer use on the continent and lays out the roadmap for its achievement.

The Abuja Declaration

The Summit resulted in the *Abuja Declaration on Fertilizer for an African Green Revolution*, which can be found in the four AU languages (English, French, Portuguese, and Arabic) on pages viii-xvii. In the Declaration, the African leaders committed to increasing fertilizer use on the continent from the current average of 8 kg/ha to at least 50 kg/ha by 2015 (Article 1) through a set of agreed-upon actions. These actions can broadly be grouped into those targeting farmers directly, those addressing constraints at the national level, and those strengthening the fertilizer sector at the regional and continental levels.

Measures Directly Addressing the Needs of Farmers

Clearly, an important impetus for the Summit was the plight of Africa's smallholder farmers. Consequently, the Technical Session participants focused on numerous actions that directly benefit smallholder producers and emphasized the special needs of those in disadvantaged groups. The Ministerial Session and the Summit of the Heads of State shared this concern, agreeing on several articles that directly address the needs of the farmers:

- Improving farmers' access to fertilizer by developing and scaling up input dealer networks and community-based networks across rural areas (Article 3).
- Addressing the fertilizer needs of farmers, especially women, and to develop and strengthen the capacity of youth, farmers' associations, civil society organizations, and the private sector through concrete measures (Article 4).
- Targeting subsidies with special attention to poor farmers (Article 5).
- Increasing farmer access to inputs and extension (Article 10).

Actions at the National Level

Several bottlenecks to fertilizer sector development are most effectively relieved at the national level through policies, investments, and establishment of facilities:

- Reduction of procurement cost at national and regional levels to ensure duty- and tax-free movement across regions, and the development of capacity for quality control. Immediate elimination of taxes and tariffs on fertilizer was recommended (Article 2).
- Investment in infrastructure, particularly transport; fiscal incentives; strengthening of farmers' organizations; and other measures to improve output market incentives (Article 6).
- Establishment of national financing facilities for input suppliers to increase credit access (Article 7).

Actions at the Regional and Continental Levels

The African leaders also emphasized the need to work at higher levels, both within the RECs and at the continental level to ensure that effective policies and facilities are in place to foster fertilizer sector development:

- Establishment of Regional Fertilizer Procurement and Distribution Facilities, with support of continental and regional organizations (Article 8).
- Promotion of national/regional fertilizer production and intra-regional fertilizer trade, again with support of the continental and regional organizations, development partners, and the private sector (Article 9).
- Establishment of a proposed Africa Fertilizer Development Financing Mechanism by the African Development Bank, with support of the Economic Commission for Africa and the African Union Commission (Article 11).
- Setting up of a monitoring and evaluation mechanism for the implementation of the resolution (Article 12).

A significant commitment made during the Summit was the declaration by President Obasanjo that Nigeria commits \$10 million for the establishment of the Africa Fertilizer Development Financing Mechanism.

Immediate Summit Follow-Up Activities

The past 6 months since the Summit have seen the continuation of numerous activities started during the Summit, at the continental, regional, and national levels, as well as the initiation of new activities. A progress report on the implementation of the Abuja Declaration at the General Assembly of the African Union in January 2007 noted encouraging progress at this early phase of implementation.

At the continental level, preparations for the Africa Fertilizer Development Financing Mechanism are ongoing at the African Development Bank and it is expected that this mechanism will be established by the middle of 2006. Notably, the African Union Commission and NEPAD have also agreed to collaborate on the preparation of a draft business plan to facilitate the implementation of the Abuja Declaration in collaboration with the Economic Commission of Africa and the African Development Bank.

Importantly, NEPAD has created a coordinator post for its agricultural input markets development program to work with the African Union Commission to facilitate the implementation of the strategies.

At the regional level, four RECs have submitted their Strategies to date. Other encouraging developments include the anticipated action plan by the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA) for regional procurement and distribution. ECOWAS has already initiated steps to harmonize regional policies and regulations to ensure duty- and tax-free movement of fertilizers across regions.

At the country level, progress has also been rapid. Twenty-five countries have already developed their strategies, and many are integrating them into agricultural development programs. Several countries are also converting the strategies into actionable programs. At the country level, particular focus has been on improving farmer access to fertilizer by developing and scaling up input dealers' networks through subsidies and by improving access to complementary inputs and services.

Moreover, it has been encouraging to see the recent growing interest of the private sector in fertilizer development in Africa. Several private entrepreneurs have begun investigating the establishment of fertilizer production facilities using local resources; encouraging developments have taken place in Nigeria, Mozambique, Malawi, and Togo.

Finally, donor attention on agricultural development in Africa has been excellent. A promising development following the Summit is the partnership of the Bill and Melinda Gates Foundation and The Rockefeller Foundation in establishing the "Alliance for a Green Revolution in Africa" (AGRA) – a long-term commitment of the Foundations to achieving a Green Revolution in Africa. AGRA has launched an initial investment of \$150 million for promoting the development of improved crop varieties, seed systems, and rapid development of agrodealers (a major Summit recommendation) across rural Africa. AGRA is currently developing a major initiative on Soil Health for Africa which will help to translate several of the Summit recommendations into implementation. This will be followed by a major initiative on development of output markets for farmers. These are exciting developments.

Future Actions

Much remains to be done, however, and we need to increase our efforts. Throughout the Summit preparations and during the Summit, those involved emphasized that the Summit was about action, not about talk, and that it should result in the initiation of the Green Revolution on the African continent. The Summit resulted in political commitment by Africa's leaders. Now it is time to begin in earnest the work needed to start a Green Revolution on the continent.

In the years following the Summit, we call on all partners involved in agricultural development in Africa to undertake effective actions to implement the Summit resolutions and thereby initiate the African Green Revolution. In doing so, there are three principles that are particularly important to bear in mind:

1. *Although fertilizer has an important role in the African Green Revolution, fertilizer alone is not enough.* As in the case of Asia, fertilizer will need to be combined with high-yielding varieties, with organic inputs, with good management, and, given that a large share of Africa has low and erratic rainfall, with irrigation.

2. *African Green Revolution must be unique to Africa.*

3. *Initiating a Green Revolution on the African continent is a task where simple solutions are neither appropriate nor effective.* The Asian and Latin American Green Revolutions were complex, involving efforts and actors at different levels, from extension to policies. Due to Africa's more challenging environment, initiating Africa's Green Revolution will be far more complex. Proposals for a green revolution in Africa should focus on multiple approaches in order to address the complexity of African agriculture and farmers socio-economic constraints. While fertilizers must play a significant role they need to be combined with organic inputs in order to ensure efficient use and build up of soil organic matter. Attention must also be put on developing infrastructure, markets and other supportive policies for the agricultural sector.

These proceedings record the background as well as discussions and recommendations of the Africa Fertilizer Summit. Part I began with a short description of the Summit, its background, objectives, actors, and immediate results. Then we looked beyond the Summit to discuss the building blocks of the African Green Revolution. Part II provides an account of the presentations and speeches presented by Session. Highlights of the background papers can be found toward the end of Part II, and their brief summaries are in Appendix II. Due to their volume, the Country and Regional Fertilizer Strategies, prepared by numerous African countries and RECs as an important input to the Summit, are not presented here. We present a brief overview of their content on pages 77-92.

As emphasized, the Summit was just the first step toward the initiation of the African Green Revolution. Excellent progress has been achieved since the Summit, but much remains to be done by all. But judging from the compelling and overwhelming political leadership, vision and support at the Africa Summit is clearly on its way to a Green Revolution.

Summit Sponsor

Let's Work Together to Make the Abuja Declaration a Reality



The Abuja Declaration on Fertilizer for an African Green Revolution is a valuable roadmap for improving farmer access to fertilizers, increasing agricultural production and nurturing Africa's soils. The ambitious targets set by African governments require cooperation among many stakeholders: farmers, workers, villagers, local entrepreneurs, all types of agribusiness, governments and development aid donors, to name but a few.

What can partnership with the fertilizer industry achieve?



- **Providing data and expertise for sound policy and economic decisions**

IFA is the guardian of a unique depository of information about fertilizers and their role in agriculture. The Association's expertise could help determine priorities and sequencing for the concrete measures laid out in the Abuja Declaration. The fertilizer industry's experience doing business can be harnessed to help governments design interventions that assist poor farmers while driving the transition to a functioning agricultural market.

- **Removing supply bottlenecks**

The fertilizer industry has already participated in innovative programmes to reduce transaction costs related to the purchase of fertilizers. Agri-input dealers, fertilizer companies, African governments and donors can work together to establish regional procurement and distribution centres.

- **Promoting efficient and responsible production and use of crop nutrients**

IFA publishes materials that assist fertilizer companies to achieve high levels of efficiency, safety, occupational health and environmental protection. The fertilizer industry has also developed guidelines to help farmers understand how to use fertilizers in order to improve their crop yields in a profitable manner that respects local conditions and contributes to human well-being.

IFA believes that, given the right tools, knowledge and opportunities, African farmers can feed their families and communities sustainably. Fertilizers are an essential piece of Africa's development puzzle. The fertilizer industry is committed to working in partnership to help Africa fight hunger and poverty.



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Part II
Proceedings



Technical Sessions

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Session 1: Opening Session

Summary

After the Summit video, representatives of some of the key organizations involved with the Summit—the Nigerian government, the African Union Commission, and the Rockefeller Foundation—gave welcome remarks and goodwill messages. Thereafter, focus turned to the background on Africa's fertilizer crisis, the Comprehensive Africa Agriculture Development Program (CAADP), and the Africa Fertilizer Summit initiative—its purpose, actors, and objectives. In his Keynote Address, Dr. Norman Borlaug compared and contrasted Africa's current situation with that of Asia in the 1960s, and urged all those present to help begin the African Green Revolution now. The panel of eminent scientists gave their perspectives on important ingredients of and lessons for Africa's Green Revolution. The final presentation of the session was by a farmer representative who reminded the participants of the central role of farmers in the African Green Revolution: It will have to be the farmers who nourish the soil.

The presentations by Hon. Adamu Bello, Ms. Ama Pepple, Hon. Rosebud Kurwijila, Dr. Gary Toenniessen, Prof. Firmino Mucavele, and Mr. Ndiogou Fall are edited versions of their written speeches. For the presentations of Dr. Amit Roy, Dr. Norman Borlaug, Dr. Pedro Sanchez, and Dr. Florence Wambugu, summaries of their original presentations are included.

Co-Chairpersons

Dr. Ahmadu Babagana, Director of Rural Economy and Agriculture, African Union Commission, Ethiopia

Chief (Mrs.) Chinyere Asika, Head, New Partnership for Africa's Development (NEPAD)/Nigeria

Rapporteurs

Dr. Mohamed El-Fouly, Professor, National Research Centre, Egypt

Dr. Monica Ifeyinwa, University Lecturer, University of Nigeria-Nsukka, Nigeria

Opening Address

by Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

Welcome Remarks

by Ms. Ama Pepple, Permanent Secretary of Agriculture and Rural Development, Federal Republic of Nigeria

Goodwill Message

by Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia

Goodwill Message

by Dr. Gary Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.

The New Partnership for Africa's Development (NEPAD) and the Africa Fertilizer Summit

by Professor Firmino Mucavele, Chief Executive, NEPAD Secretariat, South Africa

Africa Fertilizer Crisis: Summit Background and Process

by Dr. Amit Roy, President and Chief Executive Officer, International Fertilizer Development Center (IFDC), U.S.A.

Keynote Address "Achieving an African Green Revolution"

by Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico

Vote of Thanks

by Mr. Sule Bello, Director, Fertilizer Department, Ministry of Agriculture and Rural Development, Federal Republic of Nigeria

Remarks on the African Green Revolution: Panel of Eminent Scientists

by Dr. Pedro Sanchez, Director of Tropical Agriculture and Millennium Villages Project, The Earth Institute at Columbia University, New York; *World Food Prize Laureate*

Remarks on the African Green Revolution: Panel of Eminent Scientists

by Dr. Gary Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.

Remarks on the African Green Revolution: Panel of Eminent Scientists

by Dr. Florence Wambugu, Chief Executive Officer, A Harvest Biotechnology Foundation, Kenya

It Is Farmers That Will Nourish the Soils

by Mr. Ndiogou Fall, Chairman, The West African Network of Farmers and Producers Organizations (ROPPA), Senegal

Summit Sponsor



ARAB FERTILIZER ASSOCIATION

afa

A F A

AFA Vision:

*World Food Security &
Hunger Fighting*

AFA a non-profit, non-government Arab International Organization established on 1975. AFA is operating under the umbrella of Council of Arab Economic Unity and has the status of a body corporate fully competent with more than 149 member companies in 29 countries around the world. AFA aims to coordinate and develop technical and all relations in the field of fertilizer industry, raw materials and fertilizer use and applications.

Mission

Our mission is to provide distinctive services to our members, supporting them to achieve optimum utilization of natural resources and human performances, together with the effective use of latest and clean technology, maintaining safe and environmentally sound practices through:

- Improve fertilizer quality & increasing agriculture production.
- Increasing awareness of the efficient fertilizer use & safety awareness and improve conditions in this concern.
- Contributing to the development of the regional fertilizer industry.
- Encouraging industrial investments.

Environment

There is no doubt that fertilizer industry becoming one of the most important industries due to its increasing role in social and economical development mainly in the development countries.

And in the field of the environment AFA strongly believe that the chemical production of fertilizer is essential for the nutrition of mankind, have to be done with a minimum impact on the environment available technology, well-trained staff, and the best fertilizer use. Considerable efforts have been made by the fertilizer industry in order to put an end to any extremes from its part by improving technologies and promoting product quality.

In such a concern, the benchmarking study, carried out by AFA in 2005, clarified the distinguished level of Arab factories and the increase in performance rates in comparison to international standards in most fields: production, maintenance, quality, occupational health and safety and environment. The former reflects decision-takers keenness on using the best available technologies achieving productivity efficiency and promotion and maintaining both safety & environment.

Email: info@afa.com.eg - Website: www.afa.com.eg

Opening Address

**Honorable Adamu Bello, Minister of Agriculture and Rural Development,
Federal Republic of Nigeria**



Let me join others once again, to welcome you all to Abuja to attend the Africa Fertilizer Summit. Your prompt response to His Excellency, the President of the Federal Republic of Nigeria, Chief Olusegun Obasanjo's invitation clearly demonstrates your commitment to African farmers and indeed the African continent and a new Green Revolution for Africa. Africa is lagging behind other continents in all aspects of agricultural production and, worse still, African soils are rapidly being depleted of the nutrients necessary to sustain productivity. It is no wonder that some parts of the continent are faced with food-deficit situations, hunger, and malnutrition.

I am very encouraged, however, and hopeful that the expertise, experience, and caliber of eminent

persons gathered this morning will provide us a platform to critically choose the options to increase agricultural productivity and improve the quality of life for African farmers.

The African agricultural environment is characterized by poor infrastructure including poor roads, communication, warehousing, capital, knowledge, and security, etc. All these factors aggregate and make farm inputs, especially fertilizer, unaffordable to most of our farmers who are poor, uneducated, and often malnourished.

Despite these numerous obstacles, one finds a number of success stories in Africa that can be multiplied and replicated in other countries. We, therefore, expect the experts to work hard to share knowledge and experience and develop options that can help the farmer have access to production-enhancing technologies that are appropriate and affordable. I am confident that the African political leadership is ready and willing to look at all the options developed by the Technical Session. I assure you that my fellow

Ministers and I are looking forward to the beginning of an African Green Revolution.

I thank you very much!



IFDC staff members in the Africa Hall.



African farmers must be able to produce for markets to lift themselves from poverty.

Welcome Remarks

Ms. Ama Pepple, Permanent Secretary of Agriculture and Rural Development, Federal Republic of Nigeria



Let me warmly welcome you to the first ever Fertilizer Summit in Africa, initiated and hosted by Chief Olusegun Obasanjo, President of the Federal Republic of Nigeria. I am particularly delighted to see the large turnout of world-renowned scientists and leaders of industry that have responded to Mr. President's call to come to Abuja to share their vast knowledge and expertise so that Africa's degraded soils can be reclaimed and the productivity of our teeming resource-poor farmers can be increased and enhanced.

Nigeria's indefatigable Minister of Agriculture and Rural Development, Mallam Adamu Bello, has brought a lot of passion and good leadership to the position and has taken a very active interest and commitment toward a successful Summit. In

addition, he contributed to the successful arrangement of the Eminent Persons Advisory Group meeting held in New York, U.S.A., which was chaired by President Obasanjo. The Eminent Persons Group has been supporting the President by devoting time and resources in mobilizing world leaders and development partners to support the Fertilizer Summit and the African Green Revolution. I would like to sincerely welcome your Excellencies to Abuja, and I know that the Summit will benefit from your contributions.

The New Partnership for Africa's Development (NEPAD) has, within its short life, launched the Comprehensive Africa Agriculture Development

Program (CAADP) to address issues of food insecurity and poverty in Africa. Last year, NEPAD, in conjunction with other stakeholders, organized a highly successful Fish for All Summit in Abuja.

The Africa Fertilizer Summit has NEPAD, IFDC, and the Rockefeller Foundation as major stakeholders, and it is our hope that the Summit will achieve its desired objectives. I, therefore, would like to sincerely welcome and acknowledge the tremendous support of these institutions, especially their technical input.

Let me also welcome the organized private sector, especially the fertilizer producers and suppliers (in

particular O'Secul Fertilizer Company*), as well as representatives of our banking sector (UBA, Fidelity, and Oceanic) who have taken a very keen interest in the Summit and provided resources for its success.

Last but not least, we welcome all farmers' organizations that found time in their busy schedules to attend and make their voices heard.

It is our collective hope and desire that this Summit will provide us the opportunity to critically examine our agricultural endowment and develop workable plans that will reinvigorate our African agricultural sector.

*Currently Notore Chemical Industries Limited.

I am particularly delighted to see the large turnout of world-renowned scientists and leaders of industry that have responded to Mr. President's call to come to Abuja.



Permanent Secretary Ms. Ama Pepple interacting with Chief (Mrs.) Chinyere E. Asika, Senior Special Assistant to the President (NEPAD) and head of NEPAD Nigeria on the gala night.

Goodwill Message

Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia



Let me take this opportunity to underscore that Africa is a continent with both overwhelming challenges and opportunities, which if properly harnessed would make Africa's hunger and poverty history. We are faced with the high incidence of poverty, high levels of undernourishment, and persistent food insecurity. The main underlying factor is the poor performance of the agricultural sector.

Poor soil fertility has been the most limiting factor to the realization of an "African Green Revolution." Our use of organic and mineral fertilizer is extremely low, with sub-Saharan average fertilizer use at 8 kilograms per hectare compared with an average of 120 kilograms per hectare in Asia. The inherent fragility of African soils, the continent's climatic variability, and the uneven distribution and

availability of water resources complicates the low agricultural productivity even more.

Africa needs to address low farm productivity through integrated approaches combining increased use of organic matter, mineral fertilizer, high-yielding cultivars/seeds, and irrigation. This Summit is tackling the issue of fertilizer and the replenishing of Africa's soils in a holistic manner by also focusing on critical issues needed to address the fertilizer challenges. These challenges include national and regional policies, markets, infrastructure, and financing. As experts, the greatest challenge is related to our responsibility and primary obligation to effectively respond to Africa's urgent needs.

The African Heads of State and Government have already set the stage by committing to achieve a 6% annual agricultural growth through the Comprehensive Africa Agriculture Development Program (CAADP) of the New Partnership for Africa's Development (NEPAD). They have also adopted the Sirte Declaration on Agriculture and Water in Africa, which

complements the CAADP framework by stressing the importance of the enabling conditions for African agricultural development. Such factors outlined in the CAADP-Sirte framework include the importance and availability of capacity, technology, enabling policy, and institutional frameworks, both technical and financial.

The African Union Commission and NEPAD are ready to serve as a catalyst of change. This can be done by seeking to drum up and upscale action and provide political leadership to ensure coherence of policies and unified actions. We must advocate and equip Africa to deal with the critical challenges of low agricultural productivity, growth, and development. The aim is to make Africa prosperous and free from hunger and political instability.

A fertilizer initiative of this scale is not new in Africa. In 1980, the policy decision to establish a center for research and development on fertilizer and soil fertility was approved at the First Economic Summit of the Organization of African Unity (OAU) held in Lagos, Nigeria, within the

framework of the Lagos Plan of Action. The Center, currently in Zimbabwe, aims to achieve technology transfer for improved fertilizer production. It also demonstrates the role that fertilizer must play for improved agriculture and provides technical support to the fertilizer sector through an information base. The achievements of the Center so far are commensurate with the level of resources available.

The new initiative aims for an integrated approach by recognizing that the problems with fertilizer are linked to other factors, such as water, infrastructure, markets, and accessibility, especially for the poor. In

Africa needs to address low farm productivity through integrated approaches combining increased use of organic matter, mineral fertilizer, high-yielding cultivars/seeds, and irrigation.

our discussions for the way forward, we should take critical lessons learned from this previous initiative and examine the potential role that the African Center for Fertilizer Development can play in the follow-up to this Summit.

The global context has changed and so should our approach. The Africa Fertilizer Initiative has come at a time when African countries are seeking and rethinking new forms of functional association. Advancing the fertilizer sector in Africa is quite overdue. Thus, we must formulate new strategies and methods which will generate effective coherent agreement and attain the neces-

sary actions at the national and regional levels. I am greatly encouraged to note that several countries and Regional Economic Communities (RECs) have developed strategies to address this problem. All are indications of the growing commitment to increasing agricultural productivity and reducing hunger.

The next 2 days will be an opportune time for experts to share their immense experience through discussions and eventually define and recommend concrete, implementable actions to the Ministers.

We are looking forward to a framework of implementable actions at the

national, regional, and continental levels with the roles of farmers, the private and public sectors, civil society, and development partners well defined and articulated. From this meeting we expect a

framework of action that will assist African governments in ensuring that policies are led from within Africa and by the continental, regional, and national institutions of Africa in the spirit of NEPAD.



Summit participants interacting in the Summit Hall.

Goodwill Message

Dr. Gary Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.



The Foundation, along with the Nigerian government, is one of the main supporters of the

Summit. In fact, the Foundation has been supporting soil fertility research in Africa for over a decade. Recently we commissioned an external review of that research, which led us to conclude that African farmers desperately need greater access to fertilizer. Integrated Soil Fertility Management (ISFM) works but requires fertilizer to provide farmers with sufficiently increased production to warrant the extra labor.

We asked my colleague, Dr. Akin Adesina, to take the lead to resolve Africa's fertilizer crisis. As he talked to African scientists and leaders, he learned that they too saw that the lack of fertilizer did not just cause low yields but also soil degradation. We need to address Africa's fertilizer crisis at the highest levels—President Obasanjo said, "Sign me up." The time was right. With his backing and that of President Konaré of the African Union and Professor Mucavele of the

New Partnership for Africa's Development (NEPAD), plans for this Summit began.

Many have worked hard to make it happen. I would like to give special thanks to the staff of IFDC—An International Center for Soil Fertility and Agricultural Development, NEPAD, the local organizing committee, the Nigerian Ministry of Agriculture and Rural Development, and Dr. Adesina.

The real impact will come from implementing the recommendations all of us will generate over the next 5 days.

This Summit is just the beginning. The real impact will come from implementing the recommendations all of us will generate over the next 5 days. The Rockefeller Foundation looks forward to working with all of you to make that impact a reality.



Dr. Gary Toenniessen of The Rockefeller Foundation.

The New Partnership for Africa's Development (NEPAD) and the Africa Fertilizer Summit

Professor Firmino Mucavele, Chief Executive, NEPAD Secretariat, South Africa



Many of your institutions, associations, and organizations are already well-acquainted with NEPAD's priorities and principles; however, many are new to the partnership. As we work collectively to bring about sustained economic growth and development in Africa, we must have a common understanding of our

history, goals, priorities, and principles.

NEPAD, an integrated program of the African Union (AU), emerged as African leaders' response to the worsening debt crisis and marginalization of the continent. Africa has experienced deteriorating terms-of-trade, sharp increases in international interest rates, stagnation, and a decline in net transfers of external resources. The program depends on Africans' determination to free themselves and the continent from underdevelopment and exclusion in a globalizing world. NEPAD is the socioeconomic program and mandated initiative of the AU as well

as a mechanism for the reconstruction of Africa. NEPAD believes that Africans must take charge of their destiny and determine a development plan. The plan should tackle Africa's core challenges, such as conflicts, weak states, poverty, corruption, illiteracy, and disease. NEPAD's core principles and unique features set it apart from other development strategies. Also, African Heads of State themselves have outlined a clear set of commitments.

NEPAD's core principles include:

- African ownership and leadership.
- Self-reliance and reduced dependency on aid,

which would anchor Africa's development of its resources.

- Partnership among African people.
- Accountable leadership and responsible governance, including democracy and human rights protection.
- Development and promotion of gender equality.
- Partnership between Africa and the developed world.

NEPAD's priorities include:

- Peace, security, and post-conflict reconstruction.
- Standards and guidelines for the African Peer Review Mechanism (APRM).
- Health.
- Education.
- Agriculture.

- Infrastructure development.
- Science and technology.
- Environmental action.
- Tourism.

Strategically, the Regional Economic Communities are building blocks for Africa’s sustainable development and integration. The NEPAD Secretariat works extensively with the AU Commission and Regional Economic Communities to elaborate priorities, mobilize resources, and coordinate the implementation of plans.

In conceptualizing NEPAD, African leaders embarked on the long-term and complex process of transforming the continent. Several challenges and significant progress have both occurred in the past 5 years. Preconditions for sustainable development—including security, governance, and conflict resolutions—have advanced considerably since 2001.

You are here as esteemed technical experts to develop solutions to improve rural fertilizer markets and lower transaction costs of accessing fertilizers in Africa.

Gains also include the consolidation of democracy and improved macroeconomic management across Africa. Successful elections occur in Africa every year. Recently, peaceful changes of leadership took place in Liberia, Mozambique, and Namibia, among others. The African Peer Review Mechanism has received international acclaim, and the number of participating countries continues to increase. Progress is being made in market access to address issues of trade, investment, and production diversification. The Africa Productive Capacity Initiative (APCI) was launched to ensure that African economies raise the manufacturing value addition to 17% GDP. This would help African countries achieve the targeted annual economic growth rate of 7% GDP. Thus, African products would be more competitive in international markets. In addition, infrastructure, science and technology, regional economic integration, and agriculture have become NEPAD’s top priorities. In other words, through NEPAD, African leaders have fundamentally changed the development paradigm. NEPAD is encouraged by the private sector initiatives in several African countries. For example, public-private partnerships, contract farming, and other models are now being used to address policy issues.

NEPAD has progressed from a concept to policy development and implementation, particularly in the agriculture sector. African Heads of State and Government endorsed NEPAD’s Comprehensive Africa Agriculture Development Program (CAADP) in 2003 as the continent’s framework for promoting food security and fostering sustainable agricultural development.

CAADP focuses on four principles, which include:

- Extending the area under sustainable land management and a reliable water control system.
- Improving rural infrastructure and trade-related capacities for market access.
- Increasing food supply and reducing hunger.
- Conducting agricultural research and technology dissemination and adoption.

CAADP is established internationally and continentally, both at the regional and country levels. African governments have made firm commitments to increase national budget allocations to agriculture to 10% per year over 5 years. The NEPAD Secretariat and the AU Commission are working together to monitor these commitments. CAADP is advancing at all levels. At the national level, governments are establishing frameworks and structures for countries

to accelerate CAADP implementation. These include aligning existing efforts, improving sector policies, and increasing investment. At the community level, the NEPAD School Feeding Program is alive and growing. School feeding is based on local production and is ongoing in Nigeria and Ghana. The program successfully creates markets for local farmers while providing basic nutrition to growing children. At the regional level, development partners are supporting the activities and priorities of Regional Economic Communities. The African Development Bank (AfDB) facilitates investments in both the Southern African Development Community (SADC) and the Economic Community of West African States (ECOWAS) for irrigation and public infrastructure for water control. The Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), the World Bank, the United States Agency for International Development (USAID), and the World Food Program (WFP) provide significant support for CAADP.

One of CAADP’s primary goals is to increase agricultural productivity to a 6% average annual growth rate. Modern farm inputs, including organic and mineral fertilizers, are essential solutions to

Africa's productivity challenges. Questions remain:

- How will we carry out the Africa Fertilizer Summit's initiative to increase fertilizer access to farmers?
- How do we ensure that fertilizer is made available in an environmentally responsible manner?
- How do we develop the fertilizer sector so that small farmers and women play a role across the entire value chain?
- How do we ensure the quality of fertilizers, whether imported or produced locally?
- How do we create economies of scale?
- How do we arrange finances for those seeking credit facilities?
- How do we achieve a uniquely African Green Revolution that draws on the expertise of international and African scientists?
- How do we introduce fertilizers to communities who have never used them?



Hon. Minister Adamu Bello and Professor Firmino Mucavele interacting during the Opening of the Technical Session.

We are not here to rehash the problem or to engage in endless ideological debate. You are here as esteemed technical experts to develop solutions to improve rural fertilizer markets and lower transaction costs of accessing fertilizers in Africa. We hope you will generate concrete, action-oriented, and balanced strategies that are consistent with NEPAD principles.

Your recommendations will form the basis for the entire Summit.

Your contributions will enable our Ministers and Heads of State and Government to accelerate fertilizer and input access to rural farmers to achieve food security, and to meet CAADP goals.

The outcomes and opportunities created by this Summit must reach those who were unable to join us in Abuja. We must not forget to spread the message to rural farmers, schools, universities, radio stations, etc. Our responsibility is to keep all Africans informed.

Africa Fertilizer Crisis: Summit Background and Process

Dr. Amit Roy, President and CEO, IFDC, U.S.A.



Background

Sub-Saharan Africa is experiencing an agricultural crisis. In the 40-year period from 1961 to 2001, average cereal yields in South Asia almost tripled whereas in sub-Saharan Africa, they rose by only one-fourth, to an average of 1.0 tons per hectare.

What is striking is how differently the production has increased in the two regions. In Asia, 80% of the greatly increased cereal production was due to improved crop yields and only 20% to increasing the area under cultivation. In Africa, most of the production increase has come from increased area under cultivation. This has resulted in worsening deforestation, encroachment on fragile lands, and continuous land use, all of which have increased nutrient mining of African

soils. One decade ago, more than 60 kg of nutrients per hectare were removed from the soil annually in 40% of African countries; now this high rate of removal is occurring in more than 75% of the countries. But some countries, such as Nigeria, have reversed this trend through leadership and commitment.

This low fertilizer use contributes to soil nutrient mining and low agricultural productivity. Fertilizer use rates in Africa (20 kg/ha), and particularly the rates in sub-Saharan Africa (8 kg/

In Africa, most of the production increase has come from increased area under cultivation. This has resulted in worsening deforestation, encroachment on fragile lands, and continuous land use, all of which have increased nutrient mining of African soils.

ha), are far lower than the world average (93 kg), and the average for Asia (146 kg), especially East Asia (202 kg). Both extremes of fertilizer use cause environmental problems, although of different kinds, so intermediate rates should normally be the goal.

The high price of fertilizers is often mentioned as a constraint to fertilizer use in Africa. Fertilizers are indeed expensive on the continent, because inland freight charges, operational costs, and other costs are usually higher in Africa than elsewhere. These costs might be decreased through various interventions,

The Summit's guiding principle is that while inorganic fertilizers are essential to achieve an African Green Revolution, efforts to only increase their availability are not enough.

including increased market competition, which was seen recently in Malawi. Utilization of indigenous fertilizer resources has also been of interest, both for nitrogen and phosphorus. Africa has 70% of the world's phosphate resources and significant natural resources for

nitrogen and potash production.

Summit Preparations

The Summit's guiding principle is that while inorganic fertilizers are essential to achieve an African Green Revolution, efforts to only increase their availability are not enough. Instead, a holistic approach is needed, including improvement of farmer access to fertilizer, affordability of fertilizer, and incentives for fertilizer use through better output markets. This approach needs to involve efforts to supply farm inputs, to increase production, and to improve marketing and processing of farm outputs.

The Summit will consist of 4 days of activities, with a Technical Session (June 9–10) followed by a Ministerial Meeting (June 12), then the Meeting of the Heads of State (June 13). No formal activities are planned for June 11.

The Summit is bringing together numerous actors. It is chaired by H.E. President Obasanjo and convened by the African Union (AU) and New Partnership for Africa's Development (NEPAD). H.E. President Obasanjo is also the chair of the Eminent Persons' Group, consisting of world-renowned scientists, policymakers, and development specialists. The Eminent Persons' Group has set the overall vision

for the Summit, has advised on the structure and conduct of the Summit, and guides the follow-up actions. The Group met once before the Summit, in March 2006, in New York City. The 29-member Technical Committee, consisting of representatives of national and international organizations, with a majority based in Africa, has been extremely active and has given its input on the Summit agenda, participants, exhibits, and key papers in two meetings: in Johannesburg, South Africa, in November 2005 and Abuja, Nigeria, in February 2006.

Summit preparations have been led by two Secretariats, one at IFDC headquarters in Alabama, U.S.A., another at the NEPAD Secretariat in Johannesburg, South Africa. In Nigeria, the National and Local Organizing Committees have been closely involved with the Summit preparations in Abuja. A Communications Strategy Group, consisting of representatives from NEPAD, the Rockefeller Foundation, IFDC, the International Fertilizer Industry Association (IFA), the Local

Organizing Committee, and the Burness Communications, has communicated about the Summit and its importance to local, national, and world media.

Summit preparations have been complex. Numerous African countries and four Regional Economic Communities have prepared Country and Regional Fertilizer Strategies and the Summit Secretariats have coordinated the preparation of diverse Summit papers. These include the "Vision Paper," which outlines the background, key actors, and objectives of the Summit, as well as several other papers focusing on important aspects of the fertilizer sector in Africa. The Strategies and background papers have been fed into the Summit Technical Session, which combines keynote addresses, panels, and concurrent panel sessions.

Finally, this Summit will be action-oriented. The key output of the Technical Session will be the definition of the way forward—the future actions that should be taken in the fertilizer sector in Africa. These actions will be presented at the Ministerial Meeting on June 12.

This Summit will be action-oriented.

Keynote Address “Achieving an African Green Revolution”

**Dr. Norman Borlaug, Nobel Peace Prize Laureate
President, Sasakawa Africa Association**



Fertilizer use should be a cohesive part of any agricultural production strategy. This was demonstrated in Asia and elsewhere during the Green Revolution—modern varieties and fertilizer were the key production factors. Adoption of modern varieties of wheat and rice increased from nil in 1965 to 20% of the farmed area by 1970. By 1990, 70% of the wheat area and 65% of the rice area were planted in modern varieties. In the same time period, fertilizer use increased greatly—from 5 million tons in 1965 to 10 million in 1970 to 54 million tons in 1990. Total fertilizer use in Asia was 77 million tons in 2005. Consequently, cereal production almost tripled from 1965 to 2005.

In Asia, the intensification of agricultural production on already cultivated land has left vast areas unexploited. From 1950 to

2000 cereal production tripled, from 650 million tons to 1,900 million tons. More than 660 million hectares were in agricultural production in 2000, and 1.1 billion hectares of land were spared from agricultural production due to increased productivity. Thus, high-yielding agriculture and forestry help protect wildlife and natural resources.

The Green Revolution in Africa should be different from that in Asia. One cannot simply replicate the efforts of Asia in Africa. When the Asian Green Revolution was initiated, there was an extensive irrigation infrastructure, with 40 million hectares in irrigation. The transport infrastructure was generally good, and public input supply and grain marketing boards were active. In Asia, there were also many production subsidies, as well as a large unmet commercial market demand. In contrast, Africa’s agriculture is mainly rainfed and the transport infrastructure is poor. Africa’s input supply and grain marketing systems are market-driven, production subsidies are few, and there is little unmet commercial market demand.

Africa’s infrastructure development needs particular attention. For example, the road infrastructure is extremely limited. Roads do not necessarily have to be paved; all-weather roads work fine. Roads have other benefits and can help initiate development in many ways. Extremely high rates of adult illiteracy are another obstacle to Africa’s development; 40% of all adults are illiterate and 45 million children of primary school age are not in school.

One effort to increase agricultural productivity in Africa has been the Sasakawa-Global 2000 project, which, with funding from the Nippon Foundation in Japan, has worked in 15 African countries. Its purpose is to build a commercial smallholder farming sector. The efforts first focused on high potential farmers and

....and 1.1 billion hectares of land were spared from agricultural production due to increased productivity. Thus, high-yielding agriculture and forestry help protect wildlife and natural resources.

involved increasing productivity of staple food crops, reducing commercial costs, diversifying farm enterprises, and adding more value to primary production. Yields in demonstration plots have been double and even triple those of national averages.

To improve agricultural productivity, Africa needs to increase its fertilizer use from the current low average of 8 kilograms per hectare. Other countries have done it; for example, China more than quadrupled its fertilizer use starting in the 1970s. Promoting fertilizer use does not mean that other technologies should not be used. Integrated Soil

Africa’s infrastructure development needs particular attention.

Fertility Management practices should be demonstrated and disseminated to smallholder farmers, and supplemented by the development of smallholder input delivery systems. Social investments in land and watershed rehabilitation should be made through food-for-work programs.

Conservation tillage is another promising tool with beneficial effects on soil organic matter, erosion, moisture conservation, and labor and fuel use. We also need to improve efficiency of fertilizer—not only in fertilizer use but also in its supply. In addition, we need to build smallholder input retailer systems with business development

assistance, multiple products and services, commercial credit lines, technical advisory services, and service providers. Finally, Africa should develop its water resources. Africa has the potential to irrigate 20% of its arable land, but only 4% is now irrigated. Small-scale irrigation systems, generally the most cost-effective, should be promoted.

Finally, I share with President Olusegun Obasanjo the vision of African agriculture:

“As long as farming remains only marginally rewarding, young men and women will drift away from the rural areas to increase the battalions of the urban

poor. The idea, therefore, that African agriculture should be based only on a half hectare holding is, to say the least, unappetizing. I want to see the evolution of young, emergent, commercial farmers who will be holding, not a half hectare of land, but 5 to 10 to 20 hectares of land, and for whom the city will have no big attraction.”

Achieving this is imperative; to quote John Boyd Orr, the first Director General of the Food and Agriculture Organization or FAO, “You cannot build peace on empty stomachs.”

Finally, Africa should develop its water resources. Africa has the potential to irrigate 20% of its arable land, but only 4% is now irrigated.



Dr. Norman Borlaug during the proceedings of the Technical Session.

Remarks on the African Green Revolution: Panel of Eminent Scientists

Dr. Pedro Sanchez, Director of Tropical Agriculture and Millenium Villages Project, The Earth Institute at Columbia University, New York, U.S.A.; World Food Prize Laureate



The Secretary General of the United Nations, Mr. Kofi Annan, has called for a 21st century, “uniquely African” Green Revolution. This Revolution must have numerous components to succeed, from agriculture, nutrition, and markets to environment, policies, and politics.

To effectively increase the agricultural productivity of food-insecure farmers, we must simultaneously invest in soil health, small-scale water management, improved seeds, and effective extension.

Inorganic fertilizer will be an important component of the effort to increase agricultural productivity. There is nothing wrong with inorganic fertilizer when it is properly used; the plant does not care where the nitrate and phosphate ions come from. Inorganic fertilizer,

particularly phosphorus, is needed to correct soil deficiencies.

The main problem with inorganic fertilizers is their high cost, which is caused mostly by high transport costs. Farmers will therefore need marketable crops to purchase fertilizer. An alternative is to access nutrients in ways that lower transport costs, such as through the use of indigenous, high-reactivity phosphate rock and exploitation of biomass transfers, such as with the Mexican sunflower.

“Fertilizer trees” have zero transportation costs. Today, 400,000 farm families in eastern and southern Africa use agroforestry. The way forward will involve the use of inorganic fertilizers in combination with such organic fertilizers as cover crops and fertilizer trees.

The Millennium Villages Project of the United Nations is a way to empower African villages to reach the Millennium Development Goals, or MDGs. The project is characterized by:

- Political legitimacy. The project has been supported at the highest level

in the United Nations.

- Compelling objectives to reach the MDGs.
- Science-based solutions.
- Integrated approaches to development, covering all important sectors, such as health and agriculture.
- Setting quantitative targets; for example, achievement of the MDGs by 2015.
- Focus on hotspots, where more than 20% of the children under 5 suffer from malnutrition. Africa has 230 such hotspots, with 100,000 villages of about 5,000 inhabitants each. In these hotspots, 88% of the children are underweight, and poverty and disease rates are high.

The cost of reaching all MDGs has been estimated to average \$110 per person, with targeted coverage by households at \$10 and by governments at \$30. Donor support is expected for the remaining \$70, distributed as 15% for agriculture and nutrition, 30% for health, 20% for infrastructure, 20% for education, and 15% for water, sanitation, environment, and other items.

There is nothing wrong with inorganic fertilizer when it is properly used; the plant does not care where the nitrate and phosphate ions come from.

The Millennium Villages are located in diverse agro-ecological zones. The communities lead the science-based development efforts in the villages, with village committees being trained in empowerment, management, governance, and technical aspects of development. Agricultural productivity has greatly increased in the Millennium Villages, and storage facilities have been constructed to store the produce. Agricultural efforts in the Millennium Villages projects are not handouts—villages co-pay the project costs.

Medical clinics have also been built, and home-grown feeding programs have been implemented, which suit local tastes and increase demand for agricultural produce. Other interventions include energy-efficient stoves, safe

But true poverty elimination may finally result as an ability to trade: "...and they will buy fishing equipment."

drinking water, and wireless Internet services. These interventions allow farmers to transform themselves from subsistence producers to small-scale entrepreneurs. In Malawi, where fertilizer is subsidized by 75%, we can see signs of a Green Revolution starting.

Improving agricultural productivity will be far cheaper than food aid for the country's poor. Farmer assistance with seed, water, and improvement of soil fertility involves an expenditure of \$40 per family. Food aid costs would be tenfold, or \$400 per family.

Traditional food aid creates dependency because it requires continuous assistance: "Give people a fish and they will eat for a day." Empowerment comes from teaching people the means to obtain their livelihoods: "Show people how to fish and they will eat for a lifetime." But true poverty elimination may finally result as an ability to trade: "...and they will buy fishing equipment."

Remarks on the African Green Revolution: Panel of Eminent Scientists

Dr. Gary Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.



The African Green Revolution must differ from the one in Asia. The breeding approach must be different and, due to the current poor performance of markets on the continent, greater emphasis should be on market development. Increasingly, inputs in Africa must be delivered by markets and surplus outputs consumed by markets. If you combine higher and more stable yields with fair and efficient markets, the results are greater farm incomes and better household food security. This is a very simple concept—but not so simple to implement. Nevertheless, progress is being made.

The approach in crop genetic improvement in Africa needs to be different from Asia. As Dr. Borlaug indicated, the work in Asia focused on rice and wheat

varieties that were broadly adaptable to irrigated areas. In Africa, we will have to develop improved varieties of 10 or more important crops. Since Africa does not have the vast areas of irrigation like Asia does, those varieties must be fine-tuned to local conditions. This implies that Africa needs an agro-ecologically based breeding system producing numerous varieties of each crop. The development of the varieties in Africa must focus on limiting losses rather than on increasing yield potential, as was done in Asia. In Africa, we need to move farmer yields from one to two or three tons per hectare. Almost any current variety has the potential to yield two to three tons per hectare. The problem in Africa is the high crop losses during the growing season, causing varieties not to achieve their potential. Therefore, breeding needs to focus on reducing losses. Finally, in Africa the varietal development program should be linked to seed delivery, which often means a market-based system.

The judicious use of inorganic and organic inputs done within an integrated soil fertility

management (ISFM) program is the key to enhance soil productivity. This needs to include fertilizer. Only when fertilizer is part of the package do farmers get a sufficient return to warrant their investment in better seeds and additional labor.

Next, we need to let the farmers integrate these technologies—the organic inputs, the mineral fertilizers, and the new varieties. Farmers are better at farming than scientists are! We should therefore give the farmers access to these technologies and teach them how to use them. In return, they will show us how to integrate them into an effective farming system under local conditions.

We also need, as suggested before, markets to deliver the seeds and fertilizers. We need wholesale markets, but we also need retail markets. Experience

Africa needs an agro-ecologically based breeding system producing numerous varieties of each crop.

indicates that rural stockists who traditionally sell cigarettes, soaps, and soda can be trained as agro-dealers to do a good job delivering new technology to farmers while making profits selling seeds and fertilizers.

Finally, once the farmers use these technologies and increase production, they need access to profitable markets to make money and

get a return on their investment. That is what farming is all about—making money and feeding the family. Storage mechanisms, such as cereal banks, should be available so that a quality product sells when the prices are high, not at harvest when prices are lowest. For perishables, such as cassava and bananas, we need food processing technologies to convert them into products

with longer shelf life and higher profits.

Uganda's President Museveni thanked the Rockefeller Foundation for helping scientists achieve significantly increased banana production in his country. Nevertheless, he asked, "What are we going to do with all these bananas? We've got bananas rotting in the streets because of the increased

production!" This is due to a lack of processing industry for the surplus production. That is where we are currently placing a great deal of emphasis—on the development of output markets to absorb a surplus and generate income for farmers.

Remarks on the African Green Revolution: Panel of Eminent Scientists

Dr. Florence Wambugu, Chief Executive Officer, A Harvest Biotechnology Foundation, Kenya



Africa Harvest is a nonprofit international foundation with a global mission and an African focus. We fight hunger by using science and technology, including biotechnology. We know that we also need fertilizer and water to achieve our vision. That is why we are here.

The African Green Revolution is long overdue and will be achieved through all the components discussed in the previous presentations. Important other components include good governance, policies, regulatory framework, biosafety, increased funding for agricultural development, research, extension, infrastructure, and human capacity development. No country has developed without scientific and technological innovation, and Africa is not different. Therefore, agricultural inputs—such as water and fertilizer—are part of sustainability and the way forward for Africa.

Africa will not achieve the Green Revolution by using only two crops. Instead,

Africa must achieve "mini revolutions" with crops such as banana, cassava, sweet potato, NERICA rice, maize, and beans. All mini revolutions together will cause the "mega revolution" that we are looking for. We must exploit the diverse agro-ecological areas in Africa by improving productivity in the already-farmed rainfed areas and by using irrigation in the drier areas.

To achieve this, we have to increase the number of breeders in the continent. There are now very few African breeders. We also need to increase breeding efforts. But breeding alone will not give us what we are looking for. We should also use other technologies such as biotechnology to control

All mini revolutions together will cause the "mega revolution" that we are looking for.

pests. Therefore, what is needed is a diversity of crops and technologies, to improve crop productivity.

Networking is an important priority in the effort to achieve the African Green Revolution. Not many African countries have the capacity to improve crop productivity when working in isolation. Therefore, networking through north-south partnerships and public and private sectors is very important.

The importance of nurturing a strong African leadership cannot be overemphasized. Dr. Norman Borlaug said, “How can we find the leaders?” To tackle these issues, to move the way forward, and to bring people along, we need scientific leaders, not just political leaders. Scaling up and scaling out successes from other projects—such as NERICA rice, cassava, and the tissue culture banana—will also be important. We also need to look at the research we have done already to see how we can commercialize its outcomes. This will open up considerable resources. At the same time, we need to continue to pursue strategic research to generate intellectual property so that we will not have to continue to pay for

intellectual property in the areas of crop improvement.

The fertilizer-driven Green Revolution is the only way we can increase productivity. Fertilizer will be catalytic, but at the same time, we must face such challenges as increased costs for farmers, fertilizer quality, costs and availability, credit, distribution networks, and farmer knowledge levels. Fertilizer must be viewed as a technology based on information, and it must therefore be provided with extension services so farmers will know when, how, and what kind of fertilizer to apply.

What can we do? We can continue to talk, but our actions are more important. In fact, the Green Revolution has already started.

Now we need to scale up and increase our efforts. In that context, we will focus on a project we have been working on with the Rockefeller Foundation in Kenya for the past 10 years. The length of time with sustainable funding was necessary to advance so that results could be scaled out. The project focuses on banana, a major African crop and one that should be a big business leader. But, due to a poor technological base, soil fertility problems, and other constraints, only two African countries, Cameroon and Côte d’Ivoire, are involved in the international banana business. Traditionally, African farmers use suckers for propagation, but they have disease problems, and their productivity is low. In contrast, tissue culture bananas, together with good

agronomic practices, information outreach, and improved soil fertility can result in tripling or quadrupling banana yields and in increased quality, allowing countries to enter the export markets.

This project has been successful because it is built on partnerships with numerous organizations and is led by the Rockefeller Foundation. The project has received recognition, but, more important, it aims at increasing food security, economic empowerment, and entrepreneurship. Today, many young people do not want to be farmers, but they do get excited about becoming entrepreneurs and therefore join the project.

It is important that the new technology has a demonstrated greater value. With tissue culture, the productivity costs are a bit higher, but the economic rewards are significantly higher. With small farmers, it is also important to use a strategy involving the whole value chain with a focus on three issues: good agronomic practices, access to markets, and information outreach. One needs to work with micro-credit, extension, and institutions in post harvest issues and marketing, and to link with private sector and distribution networks. Finally, markets cannot be overemphasized; for example, farmers will accept credit only if markets are there.



Behind the scenes at the Summit.

It Is Farmers That Will Nourish the Soils

Mr. Ndiogou Fall, Chairman, The West African Network of Farmers and Producers Organizations (ROPPA), Senegal



Today, African farmer organizations are gathered to participate in the Africa Fertilizer Summit. We voice our support for this conference, but express some critical issues that should also be considered.

This Summit brings together key stakeholders in agriculture, African Heads of State, African Ministers, presidents and heads of international donor organizations, private sector firms, senior policymakers, and farmers. This Summit will discuss the food challenges of Africa and its soil and fertilizer crises. The purpose of the Summit is to increase the awareness of the role that fertilizer can play in stimulating sustainable pro-poor productivity growth in African agriculture and to discuss approaches for rapidly increasing efficient

fertilizer use by smallholder farmers. It will map out regional and national strategies within the framework of agricultural sector development plans and financing mechanisms. This Summit's slogan is: "*Nourish the soil, feed the continent.*"

We acknowledge the importance of this Summit and the involvement of key stakeholders. We know that there is a need for increased use of inputs for African agriculture to achieve national economic development and to reduce poverty. We support measures to improve supply-side constraints, including the need for more regional integration and trade, and the harmonization of rules and regulations to reduce the cost of agricultural inputs.

While fertilizers are an important input, we feel that the Summit is giving

The reason behind apparent "unawareness" is that farmers do not have the incentive to invest in their soils.

more attention to addressing supply-side constraints and less to demand-side constraints affecting small- and medium-scale farmers. Some of the demand-side issues that are not adequately addressed are:

- The development of well-functioning agricultural output markets.
- Access to agricultural services (research, extension, soil sampling, credit facilities, etc.).
- Adequate infrastructural development to facilitate the movement of inputs, outputs, and information for small- and medium-scale farmers.
- High cost of inputs.

Although we acknowledge that this is a fertilizer summit, we do feel that the focus of the Summit should be more on soil fertility management, combining both organic and inorganic fertilizers to achieve agricultural intensification to assure the livelihoods of the farmers of today and future generations and to protect the environment.

Farmers are perceived as beneficiaries and target groups and not as actors that are increasingly organized. It is not a lack of knowledge of farmers in the first place that is an obstacle for development in

agriculture. The reason behind apparent "unawareness" is that farmers do not have the incentive to invest in their soils.

Finally, we think that an appeal for an African Green Revolution is not right; a series of "rainbow evolutions" are needed, adapted to the circumstances and the conditions of various regions of Africa and the farmers of Africa.

What farmers would like:

- More and better focused research for agriculture is needed. Research should be linked to the operational needs of the farmers and the farmer organizations.
- Small- and medium-scale farmers would like to become involved in policy formulation from conceptualization to implementation.
- Small- and medium-scale farming should be promoted to harness and strengthen the entrepreneurial spirit of small- and medium-scale farmers.
- Fertilizer use should be seen within the context of integrated soil fertility management; the use of fertilizer is a part but not the only part.
- Appropriate packaging and distribution.

- Reduce undisclosed interests.
- Development of African capacity to produce fertilizers.
- Farmers should have special credits and/or systems of financing fertilizer use.
- Farmers and farmer organizations should play their roles as partners in agricultural development, among others through capacity building and organizational support.
- Appropriate and accessible agro-services (research, extension, credit, etc.) should be developed.
- Articulation of demand for inputs such as fertilizers, which will create economies of scale and, as a consequence, create the conditions for the private sector to do business in rural areas.
- Participation in adaptive research and farmer-to-farmer extension programs to improve the relationship between research, production, and marketing within the agricultural sector.
- Setting-up of saving and credit cooperatives to facilitate access of poor farmers to agricultural inputs.

What farmers would like to contribute:

- Organization of the commercialization and transformation of agricultural products, to the benefit of consumers and governments.
- Participation in interactive processes of policy development in agricultural production.

We hope that our contribution to this Summit will pave the way for more attention and investment in the agricultural sector of African countries. Because only in that way will we be able to fight hunger, malnutrition, and poverty.



Richard Kachikwu of IFDC/Nigeria prepares conference bags.



Most farmers in sub-Saharan Africa work hard for little gain.

Session 2: Perspectives on Fertilizer Sector Development

Summary

This session focused on appropriate policies and successful interventions for fertilizer sector development. Although the performance of Africa's agricultural sector in general is poor, there have been numerous successful experiences on which future efforts can be modeled, both at the policy level and at the community and farm levels; many of these were presented during the session. Impacts of fertilizer use on the environment receive considerable public attention and therefore deserved a focused presentation in the context of the Summit. Finally, although presented in Session 3 during the Summit, two presentations relevant to this session's themes—one on Millennium Development Goals, another on Sustainable Land Management—are included in the following pages.

The presentations of all speakers have been summarized in the following.

Co-Chairpersons

Dr. Gary Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.

Dr. Mpoko Bokanga, Executive Director, Africa Agricultural Technology Foundation, Kenya

Rapporteurs

Dr. Nteranye Sanginga, Director, Tropical Soil Biology and Fertility Institute (TSBF) of the International Center for Tropical Agriculture (CIAT), Kenya

Dr. M. M. Jibrin, Associate Professor, Ado Bayero University, Nigeria

Policies for Stimulating Rapid Growth in Fertilizer Use in Africa
by Dr. Karen Brooks, Sector Manager, The World Bank, U.S.A.

Fertilizers and the Environment: Friends or Foes?
by Dr. Eric Smaling, Professor of Sustainable Agriculture, International Institute of Geo-Information Science and Earth-Observation, The Netherlands

Successful Interventions for Fertilizer Sector Development
Building Input Supply Systems to Improve Access for Farmers
by Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya

Successful Interventions for Fertilizer Sector Development
Developing Fertilizer Interventions for Semi-Arid Areas
by Dr. William D. Dar, Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India

Successful Interventions for Fertilizer Sector Development
Integrated Soil Fertility Management/Competitive Agricultural Systems and Enterprises
by Dr. Victor Clottey, Agricultural Intensification in Sub-Saharan Africa (AISSA), Ghana

Successful Interventions for Fertilizer Sector Development
Building Africa's Institutional Capacity for Fertilizer Sector Development
by Dr. Samuel C. Muchena, Managing Director, African Center for Fertilizer Development (ACFD), Zimbabwe

Summit Sponsor

Farmers nourish the soils and feed the continent

Agriterra facilitated farmers' active participation to the Africa Fertilizer Summit so that farmers could present their perspectives and proposals, with the aim to arrive at resolutions that would reflect farmers' views and interests.

Agriterra was founded by Dutch rural people's organisations. We believe that strong and representative agricultural organizations are indispensable for the promotion of democracy, for a better distribution of income and for the economic development of a country. In developing countries a lot of people live and work in rural areas. They can make an important contribution to development. We offer assistance to farmer organizations and cooperative societies in Africa, Asia, Latin America and Eastern Europe. We provide them with project funding and offer expert advice in the field of organizational strengthening, economic initiatives and lobbying. Consultancy services are provided by experts of Dutch agricultural organizations and cooperatives. Development cooperation does not occur through government structures or mediators, but immediately from farmer to farmer, from rural woman to rural woman, from cooperative to cooperative.



AGRITERRA

Farmers contributions to the Summit

The regional farmers' federations of East, West, Southern and Central Africa (EAFF, ROPPA, SACAU and PROPAC) and Nigeria met several times to prepare themselves well. Twelve farmers' leaders from all over the continent actively participated in the Summit. Farmers delivered one of the key note addresses. The Presidents of EAFF and ROPPA participated in the Ministerial Meetings. A so-called 'Green Book', presenting African farmers' perspectives on the Summit theme was elaborated. This book, which contained 19 cases from 10 countries, was largely distributed (1000 copies in English and in French). A booklet containing East-African farmers' perspectives on fertilizer use was also elaborated and widely distributed during the seminar. Farmers' representatives participated in all break out sessions during the Summit and presented their views according to the Farmers' Declaration that was elaborated beforehand. Farmers had an Information Booth in the entrance hall that received a lot of visitors. Farmers organised a panel discussion that was attended by 60 participants and a press conference that was attended by 15 journalists.

Outcome

Farmers' viewpoints and activities have received a lot of attention during the Africa Fertilizer Summit. The combined effect of the different farmers' contributions gave a powerful message. Several farmers' proposals have been taken into account in the final declaration of the Summit. Before the Summit, farmers were not really considered as crucial participants. It is expected that the participation of farmers organisations during the Summit has encouraged governments, business partners, donors and development organisations to work more intensively with rural people's organizations.



Follow-up

Summit resolutions are just a start. Joint action of different stakeholders, at regional, national and local level, is now the major challenge in order to translate commitments into action. For practical results at farm and household level, the capacity of farmers' organisations to mobilize the skills and motivation of producers should be harnessed. Joint advocacy, for instance of input dealers and farmers' organisations, can be envisaged, in order to create a more conducive environment for agricultural intensification. Farmer cooperatives can play an important role in the identification of fertilizer needs, training and distribution. Indeed, farmers are actors and not mere target groups or beneficiaries. For many, current farm practices are part of the problem of soil depletion in Africa. Maybe they are. However, farmers are above all part of the solution, because, after all, it is farmers that nourish the soils and feed the continent.

More information about Agriterra

For further information about our work check our website: www.agriterra.org. Would you like to be kept up-to-date to the latest news concerning Agriterra? If so, please send an email with your name to communicatie@agriterra.org



Policies for Stimulating Rapid Growth in Fertilizer Use in Africa

Dr. Karen Brooks, Sector Manager, The World Bank, U.S.A.



Fertilizer is a part, but not all, of the solution to problems of productivity. Public money spent on promotion of fertilizer alone will yield low returns.

The World Bank supports growth in agricultural productivity in Africa and recognizes that fertilizer, well used, is a part, but not the entire, solution to Africa's productivity problem. With the Department for International Development (DFID) and others, the World Bank has developed a fertilizer toolkit, an interactive compendium of good practice.

That Africa's agricultural productivity is stagnant or even declining is well known. It is less well known that, at 3.3% (1990-2003), African agriculture in gross terms is actually growing rather rapidly. Nevertheless, the growth is not rapid enough to meet the ambitious targets of the countries in the region and, due to high population growth, to lead to significant improvements in per

capita food supply or income.

With stagnant productivity, output can grow only with area expansion; this is what is happening in Africa. Area expansion in land-abundant regions can be appropriate, associated with labor productivity growth. It can also become a basis for economic growth, as has happened historically in some regions. This is not the case recently in Africa where it has replicated the low input/low output production on increasingly marginal lands. Where intensification has happened, it is often partly based on soil mining. This is not sustainable.

Africa's current level of agricultural growth is therefore neither environmentally sustainable nor conducive to poverty reduction. African farmers

are not using technology in appropriate ways due to weak agricultural research systems, weak extension, lack of inputs, high financial risks, lack of irrigation, and poor infrastructure. Efforts are underway to strengthen many of these factors. Again, fertilizer is a part, but not the entire, solution to problems of productivity. Public money spent on promotion of fertilizer alone will yield low returns.

Fortunately, commitment to address the full agenda is higher now than in the past several decades, both at the regional level (through NEPAD and the Comprehensive Africa Agriculture Development Program [CAADP]) and at the national level (e.g., increased public spending on agriculture, national programs focusing on bottlenecks, and sound macroeconomic management). Comprehensive sectoral programs are expensive but are a very good use of scarce resources because they build the foundation for long-term rural growth.

When a country wants to promote fertilizer use, the World Bank tries to work with it to provide guidance. The basic guidelines include:

- Distinguish between areas with poor vs. good long-term commercialization potential as well as between people needing safety nets vs. those needing a boost into marketable production. Intensive input use may not be desirable in remote areas. Fertilizer may play a role in safety nets, but not for all households.
- In areas with high potential and reasonably good market access, support the demand and supply side of fertilizer markets simultaneously.
- Select demand-side interventions that will build future commercial clientele for purchased inputs, including technology demonstrations, producer training, improved market information, and others.
- Select supply-side interventions that bring down the costs of delivery to a growing number of clients, including reducing trade barriers, enhancing transparency in regulations and standardizing them over larger areas, and improving infrastructure, among others.

With such interventions, is there a role for subsidies? A subsidy is simply the use of public money for

something that is not purely or even primarily a public good or service. Many of the interventions noted above are subsidies and World Bank is supporting several of these, e.g., matching grants for technology adoption, weather insurance, and public-private partnership in irrigation investment. These belong to what we call market-smart subsidies; i.e., they are consistent with longer term market development. They can be targeted; their impact should be reviewed regularly and publicly; and they should be designed with exit strategies.

Not all subsidies are market-smart. The traditional price subsidy encourages overuse, or underuse, or sole use of fertilizer; it rarely allows for targeting smallholders and is expensive. Pan-territorial pricing, a price subsidy to cover transport costs to remote areas, has no exit strategy without infrastructure investment, is administratively expensive and cumbersome, and results in late deliveries and in substantial leakage. Unless carefully targeted (difficult except through public works), free fertilizer distribution undercuts the development of commercial sales. When

distribution is done during election campaigns, the private sector receives a strong signal of the likelihood of periodic interventions by government, increasing risk for private investment. Free fertilizer may also be of a wrong type or producers may not know how to use it. Each of these subsidies is not sustainable and has lower impact and higher potential for diversion and corruption than market-smart subsidies.

African clients of the World Bank have already begun to seek increased funding for investments in agriculture. The World Bank is re-

sponding positively while ensuring that efforts are consistent with longer-term productivity growth or, alternatively, with the design of viable safety nets. There is no standardized approach. However, all World Bank programs are country based. As the participants consider post-Summit modalities, it will be important to keep in mind the ways in which various institutions may be involved in implementation. Finally, the success of the Summit will very much depend on inclusion of the views of both producers and the private sector.

Fertilizers and the Environment: Friends or Foes?

Dr. Eric Smaling, Professor of Sustainable Agriculture, International Institute of Geo-Information Science and Earth-Observation, The Netherlands



We can examine the issue of fertilizers and the environment from the perspective of the ecosystem services, a term that has been used during the Millennium Eco-Systems Assessment. The

question is: Are Millennium Development Goal 1 (MDG1) (focusing on the eradication of extreme hunger and poverty) and Millennium Development Goal 7 (MDG7) (ensuring environmental sustainability) incompatible?

Eradicating extreme hunger and poverty is not progressing well in sub-Saharan and North Africa. Unlike in Asia, it may be after 2015 before hunger will be reduced. Therefore, there are three options for realizing MDG1 in Africa:

- Bring the people to the food through immigra-

tion. This is undesirable as we have recently seen with events in the Canary Islands.

- Bring the food to the people through normal imports or food aid. Imports without sufficient exports will result in a lasting deficit in balances of payment—another undesirable situation.
- Allow the people to grow enough food for themselves in the region. This is the ethical option, because people will be capable of looking after their own village, country, and region. This

requires the use of public-private investments and fertilizer.

To monitor progress on MDG7, environmental sustainability, we will monitor changes in vegetation and land use. For Africa, the indications are not good. The continent contains three major landmarks where deterioration has been well-monitored and documented: Mt. Kilimanjaro, Okavango inland delta, and Lake Chad. Certain human actions often deteriorate natural processes, as in the case of desert margins,

where natural wind erosion worsens and causes several problems, including those affecting health. Another area of concern is the forest margin. Originally, the problem developed only from shifting cultivation and was cyclic. However, forest margins are now under severe environmental threats from all sides.

So, what is the nexus between MDG1 and MDG7—fertilizers and the environment? Two cases must be dealt with: overuse and underuse. Both have negative impacts on the environment. A balance of fertilizer use is, therefore, an optimal quantity.

Excessive fertilizer use encompasses not only quantity, but also inefficiency and unbalanced nature of fertilization. Often, too much nitrogen is applied in comparison to phosphorus, resulting in low nitrogen recovery and groundwater and aquifer pollution. This extensively debated issue is a significant problem on almost all continents. Additional problems include volatile emissions and acidification. In Africa, inefficient and unbalanced fertilizer use may take place in some irrigated systems, such as Egypt, and in some urban systems elsewhere on the continent. The only other problem in this category in Africa is acidification, which is caused not as much by the high use of

fertilizer, but by cropping on lands where vegetation has been stripped.

Fertilizer use is low on most of the African continent. This leads to poor yields and nutrient mining, which results in the expansion of agriculture into new lands. This causes decreased vegetation cover, loss of biodiversity, loss of forest products, and the decline of general organic matter both above and below ground. Most of the production increase in the continent is due to area expansion, not increased productivity. The natural vegetation is disappearing at a more rapid rate than if farmers had a good crop.

This low fertilizer use is taking place on a continent with inherently low soil fertility. Soil fertility in the arable lands of sub-Saharan Africa is twice as high as the soil fertility of non-arable lands of Africa. This has nothing to do with agricultural use, but results from the fact that Africa is more than two billion years old, the oldest continent on the earth. Africa is also more acidic, with its average acidity one unit below the average of Europe.

Promising avenues to increase environmentally safe fertilizer use include the following:

- Create awareness of Africa's low soil fertility to those involved in

international and political debate.

- Revisit the subsidy paradigms and indicate what aspects of fertilizer use contribute to global public and environmental benefits.
- Build regional strategies on fertilizer use and the environment. In West Africa, for example, issues related to urbanization and sufficient food production are urgent.
- Develop better knowledge management, monitoring and evaluation, and research and development tools.
- Develop reward systems for protecting non-market ecosystem services.
- Build synergies and linkages among the Global Environmental Facility (GEF) focal areas and three major conventions on biodiversity, climate change, and desertification and land degradation.
- Develop regional fertilizer policies, which may be more appropriate than country policies, particularly in regions such as West Africa, where agro-ecological zones cut across most countries. The Economic Community of West African States (ECOWAS) could also play a role here.
- Integrate existing water and soil fertility strategies for greater efficiency.

The second category of avenues is the on-the-ground investments. Some examples include:

- Phosphorus recapitalization. This would address the root cause, after which other investments, following the law of the minimum, would have a good payoff.
- Building landscapes of protected areas where ecosystems exist near agricultural systems. This can be on a village, water-shed, or river-basin scale.
- Increasing and utilizing information related to soil fertility and fertilizer response.

Many pathways, feedbacks, synergies, and externalities are involved in these issues. Land degradation has numerous serious repercussions. The removal of vegetation not only contributes to carbon emissions, but it also affects the atmospheric circulation and reduces rainfall. These feedbacks and externalities must be quantified and assessed in detail to show the need for increasing fertilizer use on the continent.

Addressing MDG1 and MDG7 simultaneously helps us reach numerous targets at once. Examples of successful applications include:

- Fertilizing with micronutrients, which also improves health.

- Creating mosaic landscapes, with numerous activities together on an area of land. An example is developing forestry, tree plots, and tea cultivation on a watershed.
- Integrating diverse crops in the same system, with one crop benefiting from fertilizer applied to a previous year's crop.
- Integrating water and soil fertility management via the Zai system to raise water and nutrient-use efficiency.
- Improving the ring management systems of West Africa. For example, by extending the heavily manured area near the homestead, a part of the bush field with low fertility can be left uncultivated.
- Focusing on inner valleys with good water availability, where one can gain significantly from timely application rates and quantities.

These are some possibilities in working with fertilizer and the environment. Finally, fertilizer and the environment are friends rather than foes. An increased and targeted higher fertilizer use can help reduce deforestation and improve biodiversity conservation. This has both private gains and global environmental benefits. To make this continent a bit more fertile, we need just a fraction of the money that is currently spent on the military.

Successful Interventions for Fertilizer Sector Development

Building Input Supply Systems to Improve Access for Farmers

Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya



The challenge now is how to address issues of access, affordability, and incentives for the millions of farmers in the rural areas.

Dr. Borlaug called fertilizer the fuel enabling the Green Revolution in Asia. Africa lacks the fuel to achieve the African Green Revolution. Researchers have developed new productive varieties, but one thing no researcher has been able to do is develop varieties that can grow on air. All these varieties need nutrients.

Researchers have developed new productive varieties, but one thing no researcher has been able to do is develop varieties that can grow on air.

Moreover, the challenge of African agriculture is that the continent's soils have been annually losing \$4 billion worth of nutrients for almost 20 years, causing a real crisis. As Dr. Borlaug also discussed, there is a direct positive correlation between fertilizer use, agricultural productivity, rural economic transformation, and economic growth. Clearly, without fertilizers Africa absolutely has no chance. There is no point in competing in an Olympic race without shoes. It is time for Africa to have its own shoes, to produce and feed itself, and to make a difference for all its rural people.

This is a vast task. The 6% agricultural productivity growth rate put forth by the Comprehensive Africa Agriculture Development Program (CAADP) will

require a huge fertilizer use increase—in fact, the tripling of annual fertilizer use from 1.4 to 5.2 million tons. This means that Africa has to address issues of access, affordability, and incentives for fertilizer use. The challenge is enormous because there are many constraints. Two major constraints are: on the demand side, lack of small fertilizer packages; and on the supply side, lack of rural stockists that bring inputs close to farmers. We have to correct these.

There is talk about the successes of market liberalization. It is true that gains are being made, but we should not forget that with liberalization, the private sector was supposed to take over. They have—but only in the high potential areas where it makes business sense. The challenge now is how to address issues of access, affordability, and incentives for the millions of farmers in the rural areas.

The paradox in Africa is that you can find Coke and Pepsi for sale anywhere, but no seed and fertilizer. Although the same sellers could also be selling inputs,

selling inputs is more demanding because it requires knowledge of purchase locations, product quality, storage, and safe use. Capacity building, both in technical knowledge and business skills, is therefore crucial to building viable enterprises that can be linked to input supply companies through a credit guarantee facility. This is what the Rockefeller Foundation has been doing in Malawi, and the work has resulted in a credit guarantee facility with very high (16:1) capital leverage. Despite this success, agro-dealer networks in Malawi still tend to concentrate in high potential areas.

We have discussed the issue of subsidy. It is clear that

poor farmers, not using improved seeds and fertilizers, are locked in a poverty trap. There is every reason to give them public support to get them out of this poverty trap. The question is how do you do that? In Kenya, the Farm Input Promotion Service has provided fertilizer in bags starting at one kilogram for poor farmers. After a demonstrated effect, many farmers have graduated into higher use levels. This has also been profitable for the agro-dealer.

Africa must reduce the high cost of fertilizer and improve its value-to-cost ratio. Increased prices caused a decline in the value-to-cost ratio from 1980 to 2000. The high cost is partly due to high

import cost, caused by the small amounts imported, and partly due to high transport costs to (and within) the continent. Joint procurement and distribution are essential but not enough because structural constraints, particularly infrastructure, also need to be addressed. Finally, local fertilizer manufacturing, with private sector participation, is another option to reduce cost.

To summarize, efforts at both national and regional levels can contribute toward a market system to reach millions of poor in the continent. Promising targets for these efforts include:

- At the national level: improve agro-dealer networks; establish

agricultural input credit guarantee schemes; improve output price incentives; and establish smart subsidies.

- At the regional level: initiate joint fertilizer procurement and distribution; invest in roads, rail, and ports; and harmonize policies, focusing, in particular, on fertilizer regulations and tariffs.

If all of this works, and we are able to lower the cost of fertilizer arriving on the continent, improve the efficiency of transport, and provide better output incentives, then Africa will be a happy Africa.

Successful Interventions for Fertilizer Sector Development

Developing Fertilizer Interventions for Semi-Arid Areas

Dr. William D. Dar, Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India



The potential of African agriculture can be tapped by harnessing science and technology to increase agricultural productivity, profitability, and sustainability. There are tools to empower African farmers to combat adversities and play a central role in developing agriculture into a vibrant economic sector that could banish hunger and malnutrition

from the continent. The Future Harvest Alliance of the Consultative Group on International Agricultural Research (CGIAR) Centers is an important partner in the African Green Revolution, working not only in collaboration among 15 other CGIAR centers but also with National Agricultural Research and Extension Systems (NARES), non-governmental organi-

zations (NGOs), and the private sector.

The question many ask is, Why must we use fertilizer? The simple answer is that without fertilizer, Africa cannot hope to feed itself. Judicious use of fertilizer inputs gives an immediate response and helps farming households achieve food self-sufficiency and produce surpluses for sale.

Why must we use fertilizer? The simple answer is that without fertilizer, Africa cannot hope to feed itself.

Intensification is the key to self-sufficiency. One example is rice. Presently, the 7.6 million hectares in rice production in sub-Saharan Africa could produce 18.8 million tons of milled rice, requiring 0.74 million tons of fertilizer nutrients (NPK). Current consumption in sub-Saharan Africa is 11.9 million tons, of which about 50% (valued at US \$1.5 billion) is imported annually. Therefore, with resolve and right interventions, SSA could have a surplus of 6.9 million tons.

The Alliance is working on fertilizer usage in the drier areas, because these areas are home to the most vulnerable and food-insecure households in Africa. The soils are deficient in nitrogen and phosphorus and have per hectare cereal yields of less than 1 ton, often less than 500 kg. Many current fertilizer recommendations are based on crop responses in more reliable rainfall areas. Consequently, farmers in drier areas find fertilizer too expensive and risky. In addition, there has

been little investment in developing marketing strategies for these regions.

Traditionally, agronomists and soil scientists consider fertilizer quantities in relation to output goals. In contrast, farmers consider how to best use a small amount of fertilizer that they can afford, after having sold, for example, two chickens. Hence, a new research question arises: how much fertilizer can the farmers afford, and where and how should they use it? Answering this requires

Soil fertility management alone cannot solve all of Africa's problems. It is essential that agronomists and soil scientists work closely with crop breeders and social scientists to ensure that appropriate crop varieties are developed for the various farming systems.

working with farmers and appreciating their circumstances and concerns.

In Mali, microdosing (20 kg per hectare of diammonium phosphate [18:46:0]) produced 80% more cereal grain (an additional 35,000 CFA [\$70] per hectare) than

farmers' current practices, with further gains achieved in combination with manure and better water management, such as Zai pits. Farmers can also adopt crop-livestock diversification, agroforestry, crop rotation, intercropping, and targeted niche breeding. Worldwide, manure annually contributes the equivalent of US \$1.5 billion in inorganic fertilizer—mainly nitrogen, phosphorus, and organic matter. However, manure benefits crops most when it is combined with inorganic fertilizer. Legumes also have a major role to play, but work on them should be accompanied by market development efforts to ensure that surplus legumes are sold.

Soil fertility management alone cannot solve all of Africa's problems. It is essential that agronomists and soil scientists work closely with crop breeders and social scientists to ensure that appropriate crop varieties are developed for the various farming systems. This is known as the Integrated Genetic and Natural Resource Management (IGNRM) approach.

Over the last few years, the Alliance of the CGIAR Centers has been working with various partners to support many large-scale relief programs. Much work is now being done on linking on-farm promotion of fertilizer usage with input supply. For example,

Africa must have the will, the right policy environment, and a roadmap for future actions to make this African Green Revolution a reality.

in West Africa, the Food and Agriculture Organization of the United Nations (FAO) Warrantage Project works to ensure that farmers have access to inputs by breaking large packs into smaller packs that farmers can afford. As one farmer said, "Without fertilizer, I produce nothing." More than 10,000 farmers are now using phosphorus fertilizer in the Sahel of West Africa. The next step will be to continue to build and strengthen our strategic partnerships and scale up and out.

Therefore, the challenge to this Summit is this: how can we increase the average per hectare fertilizer usage from 8 kg to 50 kg, using a holistic approach involving accessibility, affordability, and incentives? Africa must have the will, the right policy environment, and a roadmap for future actions to make this African Green Revolution a reality. You can count on the 15 centers under the CGIAR Alliance to be your partners for a food-secure Africa.

Successful Interventions for Fertilizer Sector Development

Integrated Soil Fertility Management/Competitive Agricultural Systems and Enterprises

Dr. Victor A. Clottey, Agricultural Intensification in Sub-Saharan Africa (AISSA), Ghana



Agricultural intensification is a necessity in Africa today due to the high population growth and increasing urbanization and industrialization in the continent. Intensification of agriculture is also needed to reach the NEPAD target of 6% growth in agricultural productivity. Many actions to develop agriculture have been taken at the macro and meso levels, but far fewer at the grassroots level. To induce agricultural development, the development policies need to be translated into actions at the grassroots levels. An example of how it can be done is the focus of this presentation.

Grassroots actions comprise both technology and institutional development. This work started with

Fertility Management (ISFM), where a combination of inorganic and organic fertilizer was used to boost nutrient levels and to improve nutrient and water-use efficiency. However, the work with farmers showed that besides low soil fertility, numerous other factors hamper agricultural intensification. These include: inadequate access to credit, problems related to glut, inadequate negotiation power by lower actors, lack of information on prices and trade avenues, low commodity prices, few value-adding enterprises, and commodity cartels that control trade expansion. As a consequence, a more integrated approach to agricultural intensification was adopted, which involves three components:

- Simultaneous promotion of technology and institutional development.
- Encouragement of ownership by local actors—producers and entrepreneurs, both in input and produce markets.
- Linking farming systems to specific business sectors.

This approach, called Competitive Agricultural Systems and Enterprises (CASE), consists of the following activities:

- Formation of agribusiness clusters at the local level.
- Integration of farmers and local entrepreneurs into commodity value chains.
- Strengthening support services and financing facilities.
- Advocacy for favorable institutional environment.
- Strengthening organizations of producers and local entrepreneurs.

These activities are currently being implemented in seven countries of West Africa, with different commodities targeted in different areas. The Agricultural Intensification in Sub-Saharan Africa (AISSA) network has been established as a forum to join forces and focus on common areas of interest and to exchange experiences, information, tools, and skills.

However, the work with farmers showed that besides low soil fertility, numerous other factors hamper agricultural intensification.

Many challenges remain. Particularly important will be efforts focusing on local governance. An enabling environment for agricultural development needs to be created at this level by strengthening local and external markets, improving infrastructure, supporting job creation, and improving information and communication networks. The approach presented here shows promise in inducing economic growth, improving food security, and can be effectively utilized in grassroots development projects.

Successful Interventions for Fertilizer Sector Development

Building Africa's Institutional Capacity for Fertilizer Sector Development

Dr. Samuel C. Muchena, Managing Director, African Center for Fertilizer Development (ACFD), Zimbabwe



The African Center for Fertilizer Development (ACFD) is an intergovernmental agricultural research and development institution set up by the Organization of African Unity (OAU; now African Union), as a part of a broader strategy in implementing the 1980 Lagos Plan of Action. The mandate of ACFD is to promote fertilizer consumption in African agriculture and thereby reduce widespread hunger and malnutrition. ACFD also wants to make an impact on rural

The mandate of ACFD is to promote fertilizer consumption in African agriculture and thereby reduce widespread hunger and malnutrition.

poverty through increased crop yields and farmers' incomes. The Center started its activities in 1991.

The mission of the Center is to contribute to economic empowerment of African farmers through development of affordable and accessible technologies for crop yields improvement. Its objectives are to:

- Develop affordable and accessible technological solutions to improve agricultural production in Africa, through the proper and adequate use of fertilizers and local organic materials.
- Develop collaborative research marketing, and soil fertility management projects with national, regional, and international organizations.
- Conduct, foster, and support training in all aspects of plant nutrient resource development, marketing, and use.
- Conduct research on soil fertility management leading to improved and sustainable agricultural production and environmental protection.

The Center is located in Zimbabwe, on land donated by the Zimbabwean government. Its major

donors have been the Zimbabwean government, OPEC Fund for International Development, the Rockefeller Foundation, the Kellogg Foundation, the Food and Agriculture Organization (FAO), and the United Nations Development Program (UNDP). The Center has also earned royalties from the production and marketing of its technologies.

The ACFD has the following categories of activities:

- **Agri-Business Development Program (ABDP):** This program is geared toward training and networking of rural entrepreneurs to build capacity of the private sector to improve agricultural support services in rural markets. The program offers short-duration training courses, technology demonstrations, micro-finance activities, and linkage development. The program now operates in Zimbabwe, Malawi, and Zambia.
- **Sustainable Farming Management System (SFMS):** Designed to support farmers in the achievement of multiple goals, the work has three components: (1) proper and timely use of agro-inputs, (2) conservation farming, and (3) diversified farming systems. A pilot in a village near Harare is being scaled up.
- **Development of Drought-Resistant Dwarf Maize Varieties:** Developed in collaboration with local universities, these varieties are high yielding and efficient in nutrient use. Farmer reception has been good and the Zimbabwean government has recently provided a farm for seed multiplication. Linkages have been developed to several institutions, and the varieties have been tested in numerous countries of the region.
- **Developing and Promoting Micronutrients:** ACFD has collaborated with the Khalahadi Resource Development Company of Botswana on the development and use of micronutrients. ACFD undertook preliminary agronomic and market development studies.
- **Organic Fertilizer Development:** ACFD has plans to pursue this issue by establishing the quantities of available organic resources and developing a strategy to recycle, market, and use

organic products to augment inorganic fertilizer.

- **Regional Fertilizer Networking:** Many regional fertilizer conferences have been organized in collaboration with FAO, the Rockefeller Foundation, and SADC Food, Agriculture, and Natural Resources (FANR) Directorate. The purpose was to achieve a greater understanding of fertilizer sector issues and constraints; a regional consensus on the importance of collaboration in procurement and distribution; and creation of a framework for continued information exchange, resource sharing, and networking.
- **Fertilizer Industry Studies in the SADC Region:** Using the network created during the above-mentioned conferences, with FAO funding, ACFD conducted studies on fertilizer industries of seven SADC countries.

Lack of adequate funding has been a major constraint to an effective functioning of the Center. The Center has developed a financial sustainability program, which is mainly based on marketing of its technologies. With AU recommendations and support, and with the additional land provided by the Zimbabwean government, it is hoped that the funding constraint will be overcome.



Staff of The Rockefeller Foundation at the Summit.



Dr. Marjatta Eilittä was adviser to the IFDC AFS Secretariat, and prepared the Summit Proceedings.

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MARKETS



***...making Agribusiness work
for Nigerian Farmers***

Although agriculture contributes more than 40% to Nigeria's GDP, its long-standing poor performance stems from the use of low-input/low output techniques; high post-harvest losses; limited access to appropriate processing and value-adding technologies, which are in turn poorly linked to demand. Farmers and entrepreneurs also lack access to critical service markets. Private sector growth is constrained by a weak enabling environment, attrition of Nigeria's competitiveness, and marginal growth in domestic markets.

USAID designed and is financing **MARKETS** (Maximizing Agricultural Revenues and Key Enterprises in Targeted Sites) – a five year project, to address these issues in order to alleviate poverty and contribute to the overall development of Nigeria's agricultural sector. **MARKETS** is working with a wide-range of partners and clients to achieve this mandate by increasing productivity, enhancing value-added processing and increasing commercialization through private sector-led growth.

Summary

The preparations for the Summit repeatedly emphasized the need for action, not talk, as an outcome of the Summit. It was therefore appropriate to have a forum within the Summit for all stakeholders to discuss the issues and identify what those actions may be. In this session, participants were asked to discuss and detail actions that should be undertaken in the context of five identified approaches to increase access to, affordability of, and incentives for fertilizer use by the millions of smallholder farmers in Africa. The parallel session outputs were then presented and discussed in a plenary session.

The outputs of the parallel sessions are summarized versions of the presentations that were given in the plenary session. Two presenters, Dr. Jeffrey Sachs and Dr. Remi Cole, gave presentations at the end of this session; summarized versions of their presentations are also included.

Session 3: Solutions to Africa's Fertilizer Crisis: Parallel Dialogue Sessions

Co-Chairpersons

Dr. Moise Mensah, Former Minister of Finance, Benin

Mr. Baba Dioum, General Coordinator, Conference of West and Central African Ministers of Agriculture (CMA/WCA), Senegal

Rapporteurs

Dr. Andre Bationo, Soil Scientist, Tropical Soil Biology and Fertility Institute (TSBF) of CIAT (International Center for Tropical Agriculture)

Dr. M. M. Jibrin, Associate Professor, Ado Bayero University, Nigeria

Professor A. Agbede, Dean, Faculty of Agriculture, Nasarawa State University, Nigeria

Parallel Session 1: Reducing Fertilizer Procurement Cost at the National and Regional Levels

Parallel Session 2: Improving Access to Finance for Fertilizer Market Development

Parallel Session 3: Improving Access Via Development of Input Dealer Networks

Parallel Session 4: Developing Regional Financing Mechanism for Fertilizer Sector Development

Parallel Session 5: Improving Access for Poor Farmers by Smart Public Policies

Wrap-Up of Parallel Discussion Sessions

Closing Presentations

Africa's Green Revolution and the Millennium Development Goals: The Importance of the Fertilizer Summit

by Dr. Jeffrey Sachs, Director of the Earth Institute, Columbia University, U.S.A.

Sustainable Land Management and Fertilizers: Responding to Challenges of Sustainable Land Management—the TerrAfrica Initiative

by Professor Richard Mkandawire, Agricultural Advisor, NEPAD, South Africa

by Dr. Remi Cole, Lead Specialist on SLM, The New Partnership for Africa's Development (NEPAD)

Parallel Session 1: Reducing Fertilizer Procurement Cost at the National and Regional Levels

Co-Chairpersons

Dr. Uzo Mokwunye, Consultant and Past Chair, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Board of Trustees, Ghana

Mr. Jan Poulisse, Senior Economist, Land and Water Development Division, Food and Agriculture Organization of the United Nations (FAO), Italy

Rapporteurs

Dr. Georges Dimithé, Policy Economist, IFDC

Professor Enwerem Dike, Professor of Economics, Nnamdi Azikiwe University, Nigeria

The group of this Parallel Session was diverse and included fertilizer importers and dealers. The group discussed identifying priority areas for action to improve access to, availability of, and incentives for fertilizer use. Three priority areas were identified:

- **Declaration of fertilizer as a strategic commodity.**

This would allow free movement of fertilizer within and across all the Regional Economic Communities. Actions should be taken by all Regional Economic Communities and the African Union. This should be done by the end of 2006.

- **Use of local phosphate rock for phosphate capitalization of African soils.**

Crop productivity is limited by the low phosphorus content in African soils. Approximately 70% of the world's phosphate resources are in the continent, and there

are many studies showing positive results from phosphorus recapitalization. One needs to consider how the phosphorus resources can be utilized technically and economically. Action should be taken by the AU with NEPAD. The plan for phosphorus capitalization should be produced before the end of 2006.

- **Building and operation of 200 subregional fertilizer depots.**

This would be done across the continent for a period of 10 years. This should be done as a contract to a reputable fertilizer trading company. This would guarantee an even supply of fertilizer and minimize the common delays in fertilizer distribution. Producer organizations, linked to a certain crop, could be used as a link. Action should be taken by the AU and regional banks before the end of 2006.

Approximately 70% of the world's phosphate resources are in the continent, and there are many studies showing positive results from phosphorus recapitalization.



A session in the Africa Hall. Three screens were used for presentations.

Parallel Session 2: Improving Access to Finance for Fertilizer Market Development

Co-Chairpersons

Dr. William Kalema, Chairman, Uganda Investment Authority, Uganda

Mr. Lance Crist, Division Manager, Oil, Gas, Mining and Chemicals Department, International Finance Corporation (IFC), U.S.A.

Rapporteurs

Dr. Simeon Ehui, Lead Economist, The World Bank, Nigeria

Professor A. O. Ogungbile, Professor of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Nigeria

For fertilizer use to increase in Africa, numerous actors in the sector need to have better access to capital: fertilizer producers, fertilizer importers and distributors, and finally, the farmers.

For fertilizer use to increase in Africa, numerous actors in the sector need to have better access to capital: fertilizer producers, fertilizer importers and distributors, and finally, the farmers. Thirty-one people of different disciplines and backgrounds took part in this Parallel Session. They discussed constraints of the different actors in accessing finance (Text Box 1) and reviewed different successful experiences that improved access to finance for fertilizer market development (Text Box 2). The group made the following recommendations

on the most effective ways to improve access to capital in fertilizer business:

- Create a development fund, from which banks can borrow to lend to the private sector for fertilizer procurement and distribution.
- Address the multitude of policy constraints, and establish a framework for micro-credit regulation, taxes and tariffs, and interest rates.
- Create awareness of possible sources of funds.
- Train target beneficiaries on how to prepare bankable proposals that can qualify for funding.
- Improve knowledge by bankers on agriculture and skills needed to manage agricultural loans.
- Use collateralization of imported fertilizers in warehouses to reduce risk of default on bank loans.
- Improve access to fertilizer through input dealers, based on experiences of successful projects (Text Box 2).
- Use a holistic approach to input procurement.



Six press releases were produced during the Summit, and the event stimulated more than 100 articles and broadcasts, including in the *New York Times*, *Radio Nigeria*, *AllAfrica.com*, and *Agence France Press*. In the press room are (left to right) Dr. Amit Roy, IFDC President; Dr. Thomas Hargrove, Coordinator, IFDC Information and Communications Unit; and Jeff Haskins and Ellen Wilson of Burness Communications, U.S.A.



Women farmers in Africa have little access to agricultural inputs.

Text Box 1. Constraints Faced by Different Actors in the Fertilizer Sector

Manufacturers/producers:

- High cost of capital (19%-20%).
- Undeveloped networks of input dealers.
- Frequent government interventions.
- Ignorance of donor funds.
- Poor infrastructure development.
- High taxes and tariffs.
- Low profit margins.
- High production cost.
- High cost of raw materials and energy.
- Unavailability and high cost of spare parts.

Importers:

- Banks' reluctance to advance loans to agricultural projects.
- High cost of capital (19%-20%).
- Undeveloped networks of dealers.
- Frequent government interventions and unfavorable policies.
- Ignorance of donor funds.
- Poor infrastructure for transport and storage.
- High taxes and tariffs.
- Low profit margins.

Distributors:

- Poor institutional network.

Farmers:

- Lack of collateral to access credit.
- Lack of market and credit-source information.
- Absence of micro-credit policy.
- Low produce prices.

Text Box 2. Success Stories that Can be Replicated in Future Efforts

- Developing Agri-Input Markets in Nigeria (DAIMINA), in pilot schemes in four states in Nigeria, facilitated input accessibility, built human capacity for market development, linked agro-dealers to the bank, and supervised repayment of the voucher scheme to enhance fertilizer purchase.
- Rural Sector Enhancement Program (RUSEP), also in Nigeria, enhanced farmer income, linked farmers to both input and output markets, and conducted training for capacity building and a holistic approach to business.
- Fadama development project in Nigeria, which utilized matching funds.
- Guarantee funds in Malawi.



Dr. Akin Adesina of The Rockefeller Foundation (left) and Hon. Adamu Bello, Nigeria's Minister of Agriculture.

Parallel Session 3: Improving Access via Development of Input Dealer Networks

Co-Chairpersons

Mr. Eben Makonese, Chief Executive Officer, Chemplex Corporation Ltd., Zimbabwe

Dr. Rita Laker-Ojok, Executive Director, AT-Uganda, Uganda

Rapporteurs

Dr. Roy Steiner, Senior Program Officer, Bill and Melinda Gates Foundation, U.S.A.

Mr. Augustine Nnameka, Former Commercial Manager, Federal Superphosphate Company, Nigeria

The main goal of the group was to identify priority actions that will build sustainable input marketing systems. Priorities include availability of the correct fertilizer for small-scale African farmers at the right time and place, in appropriate packages, and at affordable prices. The group reviewed strengths and weaknesses of various approaches to provide access to fertilizer, either physically or financially. Three concrete priority actions that must be undertaken to develop input dealer networks were identified.

Due to time constraints, it was possible to develop only a listing of possible approaches to strengthening access to fertilizer through input dealers. The issues were discussed in three sub-groups, each focusing on a different set of issues—policy, demand, and supply. It was emphasized that simultaneous activities would have to be undertaken in all areas. These three areas are discussed as follows.

The objective is to create a stimulating environment for the development of dynamic input dealer networks that will encourage farmers to increase production.

Policy Issues

In the policy arena, the objective is to create a stimulating environment for the development of dynamic input dealer networks that will encourage farmers to increase production. Specific objectives and associated activities follow:

- Develop a regulatory framework for agricultural inputs and ensure truth-in-labeling (e.g., a bureau of standards, spot checks, and training for enforcement).
- Facilitate access of input dealers to capital (e.g.,

soft loans and loan guarantees).

- Establish accreditation for input dealers (e.g., setting up accreditation authorities and schemes, and stimulating and facilitating training of agro-input dealers in product knowledge, safe use and handling, and business management).
- Stabilize markets for agricultural produce (e.g., purchase of excess production, food security programs, and school feeding programs).
- Establish input and output pricing policies with attractive profit margins for both input dealers and farmers (e.g., a stakeholder pricing board).
- Establish policies and conduct advocacy to encourage private-sector friendly government interventions and to promote sustainable commercial access to inputs.

Demand Issues

In the demand arena, the development objective is to promote market-oriented

agro-input uptake by smallholders in Africa. To facilitate improvements in fertilizer demand, the following objectives and activities would need consideration:

- Demonstrate the effectiveness of fertilizer to smallholders through a social marketing approach, including radio, television, web sites, short message service (SMS) access to marketing information, and field demonstrations.
- Link farmers to profitable output markets. Given that demand for fertilizer is a derived demand, profitability of production needs to be im-

Given that demand for fertilizer is a derived demand, profitability of production needs to be improved by linking farmers to commodity value chains....

proved by linking farmers to commodity value chains, encouraging the development of producer marketing organizations, providing market information, and piggybacking input supply onto contract farming arrangements.

- Improve product knowledge training for dealers and lead farmers through activities such as dealer training and certification, offering smart subsidies to trained dealers, building effective links between input dealers and extension farmer groups, and encouraging input dealers to gain the trust of the organized farmers.
- Encourage a national agro-dealer census and needs assessment, including assessing

factors impacting demand; linking dealers to a national organization with local branches; establishing a national database, identification cards, and credit referral system; and establishing a referral mechanism for credit guarantee through local association members providing guarantees.

- Make rural financial markets work for farmers through activities such as a warehouse receipt system, weather-indexed crop insurance, support to agricultural banks, Savings and Credit Cooperatives (SACCOs) and village banks, and facilitating linkage to rural micro-finance.
- Support availability of small quantities of fertilizer for farmers in

Make rural financial markets work for farmers....

ways that take into account the national laws on packaging. In general, this objective should be intensively promoted, weighed bulk sales should be encouraged where allowed, quality control mechanism should be strengthened, and a code of good conduct by input dealers should be encouraged.

Supply Issues

Finally, supply constraints should be addressed through the following objectives and activities:

- Improve capacity and performance of stockists

by activities discussed above, i.e., mapping of distribution, training, association building, and greater knowledge of networks.

- Increase capacity and performance of supply chains through the following activities: improving transport infrastructure, joint sourcing and warehousing, creating credit guarantees, building relationships all along the entire supply chain, encouraging dealers not currently selling inputs to start selling them, establishing and strengthening a conducive regulatory environment, and increasing access to input pricing information.



Hon. Minister Bello of Nigeria at the end of a Session, in the Africa Hall.

Parallel Session 4: Developing Regional Financing Mechanism for Fertilizer Sector Development

Chairperson

Dr. Josue Dione, Director of Sustainable Development Division, United Nations Economic Commission for Africa (ECA), Ethiopia

Rapporteurs

Dr. Michael Morris, Senior Economist, The World Bank, U.S.A.

Professor M. T. Adetunji, Professor of Soil Science, University of Agriculture, Abeokuta, Nigeria

The group focused on the creation of a regional financing mechanism for fertilizer sector development. The Summit is expected to propose the establishment of the Africa Fertilizer Development Financing Mechanism, which will fund the development of the fertilizer sector in Africa and thereby help spur the African Green Revolution. It has been proposed that the mechanism be based within the African Development Bank with funding from bilateral and multilateral donors and regional development banks. Beneficiaries would compete for funds to implement their proposed programs.

The group reacted to this detailed and concrete proposal by stepping back and discussing the need for—or lack of it—for such a mechanism, as well as the most desirable functions for it.

After discussion, the consensus was that, indeed,

there may be a need for this mechanism. The key function would be the mobilization of financing, on a large scale, for multi-country markets. Such markets would be inherently less risky than single-country markets. Many participants felt that rather than lack of financing, the constraint to lending is the risk associated with lending. This mechanism would allow for pooling of risks across countries, and may therefore help overcome some of these problems.

There was agreement on some of the key activities of the fertilizer financing

This mechanism would allow for pooling of risks across countries, and may therefore help overcome some of these problems.

mechanism. In the short term, it would help finance bulk importing, with recognition of the need to initiate blending in the medium term, and thereafter move to local fertilizer manufacturing. The mechanism would also support building fertilizer distribution networks. Due to the long lag time between mobilization of credit for and repayment of credit by distributors, there is a problem with advanced financing; this should also be a key function. The mechanism would also lower the price of fertilizer to farmers. The session participants agreed that there must be a clear distinction between the provision of public goods and private goods.

The operational aspects of the regional financing mechanism were also discussed. Three models were discussed:

- A multilateral bank model, as proposed in the guidelines.
- Regional economic commission model.

There was quite a bit of discussion on how a regional grouping could raise funds and whether it would be wise to rely on annual or periodic contributions; this could create dependency. Alternatively, a taxation mechanism, based on e.g., ear-marked tax, could be used, especially in regions with petroleum-exporting countries.

- A public-private partnership model.

The group had a limited discussion on the level of financing required and came to a conclusion that it would be very difficult to estimate this without a more detailed analysis. The group therefore proposed that as a follow-up to the Summit, a detailed study should be commissioned to explore the functions, as well as strengths and weaknesses of alternative ways to constitute and finance such a mechanism.

Parallel Session 5: Improving Access for Poor Farmers by Smart Public Policies

Co-Chairpersons

Dr. Karen Brooks, Sector Manager, The World Bank, U.S.A.

Professor Francis Idachaba, Vice Chancellor, Kogi State University, Nigeria

Rapporteurs

Mr. Edward Heinemann, Regional Economist, International Fund for Agricultural Development (IFAD), Italy

Professor E.C. Nwagbo, Professor of Agricultural Economics and Rural Sociology, University of Nigeria, Nigeria

This was a vibrant group, which discussed the issue of subsidies in great detail. The group reviewed and discussed positive and negative aspects of subsidies (see Text Box 1), and thereafter considered whether subsidies are justifiable and necessary.

A consensus was reached that subsidies are justified and needed, but a choice on their use should be made on the basis of economic grounds and a careful needs assessment. The issue therefore is one of feasibility and the need to identify appropriate mechanisms for the application of subsidies.

A consensus was reached that subsidies are justified and needed, but a choice on their use should be made on the basis of economic grounds and a careful needs assessment.

Subsidies can become affordable for governments if they reallocate funds from other areas, such as military expenditure. Finally, in the formulation of subsidies, the participants considered particularly the development of an exit strategy.

In defining smart policy options for improving the access to, affordability of, and incentives for fertilizer use, the group identified three possible options:

- Non-subsidy roles of the governments—This includes investments in infrastructure (e.g., rural roads and electrification, storage facilities), technology development, soil testing, promotion of weather insurance, provision of fiscal incentives to encourage local fertilizer production, and regulation of fertilizer market and quality control. Government investments should be strategic to reduce transaction costs for the private sector.
- Government role in pricing—Two contrasting

views were expressed in the groups: some considered that to promote fertilizer use and ensure its profitability to small farmers, governments need to guarantee, stabilize, and subsidize output prices, whereas others emphasized the importance of making markets more competitive and therefore prices lower in rural areas through market development.

- Government support for farmer organizations and their service providers—This involves technical training, support for micro-credit, and linking fertilizer manufacturers and suppliers to rural dealers and farmer groups.

The final focus of the discussion was on the need for universal vs. targeted subsidies; most thought that both are necessary. Expenditures on public goods, such as roads, training, and quality control, benefit everyone. Certain targeted expenditures are also needed for the poor and

most vulnerable. Ways to ensure that subsidies reach the poorest were also discussed, and possible methods for it suggested, such as the involvement of farmer organizations in developing the subsidy policy, of agro-input dealers in the application of the subsidies, and the need to target them through public works. The inadequacy of focusing only on fertilizer was emphasized. Instead, farmers need to find access to all agricultural inputs, but seed in particular.

Finally, the group tackled the issue of preventing leakages, such as vouchers and smart cards, redeemable at agro-dealers, who invoice government for unsubsidized retail price. It was noted that the private sector should be involved in the planning of a subsidies program and in fertilizer distribution through agro-dealers. However, with this approach, problems may arise in two cases: in remote areas without agro-dealers and when agro-dealers create secondary markets for vouchers. Vouchers or

Text Box 1. Positive and Negative Aspects of Fertilizer Subsidies

These positive aspects of subsidies were discussed:

- A necessary prerequisite for agricultural growth: Subsidies are necessary because farmers are poor and subsidizing fertilizers can lead to adoption of fertilizer use and increases in production that reduce levels of poverty.
- A necessary element of a national strategy to achieve food security: Linked to this argument was the notion that it is more effective to subsidize production than consumption of imported crops. In the national economy, subsidies are in effect an income transfer from the wealthier to poorer.
- A way to assist the disadvantaged, the women farmers, and those living in the most remote and marginal areas: This can result in better gender relations and improving of agricultural productivity of the poorest producers.
- A way to prevent urban migration.
- A global phenomenon: Numerous session participants emphasized, quite forcefully, the fact that the Organization for Economic Cooperation and Development (OECD) countries subsidize their agricultural sector and African countries should do likewise.

There was also a range of arguments raised against subsidies:

- Failure of impact: Despite application of subsidies in numerous countries, they have not worked in most cases.
- Subsidies as political instruments: In many countries, subsidies become used as political instruments—wheeled out before elections or used to build up the support for politicians.
- Subsidies as an exhaustor of national budgets: As a consequence, subsidies can crowd out allocations to the agricultural sector, often considered as a fixed amount of the national budget.
- Subsidies as an agent of corruption: Subsidies have been associated with corruption in the public sector institutions, with linkages of resources to the institutions and individuals within them.
- Subsidies missing their targets: Often, subsidized fertilizers go to the wrong people—those who can afford to purchase those fertilizers—and sometimes they are transported to the wrong countries.
- Subsidies encouraging wastage: When there is wasteful fertilizer use, either through inappropriate application rates or combinations, this wastage is subsidized also.
- Subsidies can become permanent: Once introduced, subsidies are difficult to remove.
- Subsidies for majority difficult to implement: To contrast the analogy made with OECD countries, a point was made that unlike in OECD countries, a majority of the population in Africa is involved in agriculture; they would be subsidized by a minority of the population.

smart cards can also be distributed through farmer groups in ways that avoid the possibility of fertilizer resale. Whatever the system used needs to be closely monitored. Particular attention should be made to ensuring that fertilizer arrives in targeted areas and that adequate quantities are available to prevent the possibility of hoarding or resale.

Finally, the group identified priority actionable programs for the three actors involved:

- Farmers and their associations—Provide training to strengthen their capacity to organize themselves for purchasing, negotiating with sellers, and reducing risks and transaction costs for micro-financial service providers.
- Private sector—Strengthen its capacity in rural areas through business and technical training; develop innovative financial mechanisms to help dealers; and strengthen input dealer groups.
- Governments—Should assume roles in assurance of quality control and regulatory systems; development of marketing infrastructure; investment in technology; and strengthening of services to small farmers through research, extension, and soil analysis.

Africa's Green Revolution and the Millennium Development Goals: The Importance of the Fertilizer Summit

Dr. Jeffrey Sachs, Director of the Earth Institute, Columbia University, U.S.A.



The talk of more studies is misplaced because the urgency of the issues is extraordinary. It is a shame that the world is watching every year as the food crisis deepens, the soil crisis deepens, the lack of fertilizer use continues, the crop yields remain horrendous, and there is no action.

Africa is confronted by an extreme food crisis. When we look at the 2005 emergency sites for the United Nations system, essentially all of sub-Saharan Africa was in an extreme food crisis. Most of the rural farmers in Africa are impoverished. The counterparts of hunger are disease and death. Countless diseases are surging in Africa, but every one of them is controllable through basic meals and medicines.

The per capita food production in Africa has

fallen, and the yields have not improved in 40 years. Actual average yields are 0.5 ton per hectare for a group of nine countries, whereas on-station experimental plots yields are 3-5 tons per hectare with improved seed, fertilizer, and best management options. However, fertilizer use in sub-Saharan Africa is very low, particularly in comparison to East Asia. This results in soil nutrient mining, averaging 70-80 kilograms of nutrients per hectare every year. The rain forest is being cut down because soils are depleted and farmers have to expand the farming area.

Dr. Norman Borlaug is absolutely right—if you want to save the environment, you had better get fertilizer there.

We, of course, also need to invest in infrastructure. But are we going to spend 20 years waiting for the roads to be built? There must be subsidies for fertilizer for the poorest; those are the African smallholder farmers. Otherwise, death will continue.

The market-based theory has been tried for 20 years. If you look back at the Asian Green Revolution, every Asian country

subsidized its fertilizer and this fertilizer was paid for by the American Government.

The basic idea behind the Green Revolution is well-known. Now almost everything is planted to basic staples, and maybe a small amount to cash crops. With the Green Revolution and increased yields, area planted to food crops decreases, and on the rest of the land, the farmer can earn cash income. This is how it worked in Asia; this is how it needs to work in Africa. But we need to start with food security—it is not the end of the story; it is the beginning of the story. Smallholder farmers need help with basic inputs (seed and fertilizer), agricultural extension, and small-scale water management, and they will more than triple their yields. Then they will be able to shift their production also to cash crops. Once they are above subsistence, they can save for the future, obtain micro-finance, and invest in their farms. Let them rise above subsistence and then bring in micro-finance and market orientation—then you've transformed Africa.

This requires a change of direction. We are getting people into the market who

Smallholder farmers need help with basic inputs (seed and fertilizer), agricultural extension, and small-scale water management, and they will more than triple their yields.

are too poor to be part of the market. We must get inputs to the farmers so that they can be productive enough to feed themselves, help their children to survive, and have enough to sell in the market. That is exactly the Asian approach.

The proposal would therefore be: Next year each government should commit to guaranteeing its smallholder farmers basic inputs—10 kg of seed, 50 to 100 kg of the appropriate fertilizer, and agricultural extension. It can be done by a voucher, a smart card, and by agro-dealers. The important thing now is to focus on how to do it.

The donors should pay for this. The most vibrant markets in the world today are in Asia because Asia

helped its impoverished farmers get inputs and rise above subsistence levels. This is the promise that was made at Gleneagles last year—\$25 billion extra aid for Africa, more than enough for inputs plus other investments. The question is, What will that \$25 billion be used for?

The African governments represented here should say that they need the seed and

the fertilizer. What the governments have to do is to take the leadership now. Participants should go back to their countries with this commitment: Africa must have its own Green Revolution. And it can't wait any longer. Africa should put aside ideology and get to the practical needs. Nobody wants aid forever, but the current trajectory is the endless aid trajectory.



Summit display banners at the entrance of the Africa Hall.

Sustainable Land Management and Fertilizers: Responding to Challenges of Sustainable Land Management—The TerrAfrica Initiative

Dr. Remi Cole, Lead Specialist on Sustainable Land Management, The New Partnership for Africa's Development (NEPAD)



Land degradation affects about 65% of the population in sub-Saharan Africa, and it is estimated that if no action is taken, two-thirds of the arable land in sub-Saharan Africa will become non-productive and 25 countries will become water scarce by 2025. The Millennium Ecosystem Assessment affirmed the link between poverty and degradation of ecosystem services. It is

It is estimated that over 3% of GDP, or \$9 billion in gross annual income, in Africa is lost annually as a direct result of soil and nutrient loss.

estimated that over 3% of GDP, or \$9 billion in gross annual income, in Africa is lost annually as a direct result of soil and nutrient loss.

To reverse these trends, and thereby address a major obstacle to economic growth in sub-Saharan Africa, scaling up of Sustainable Land Manage-

ment (SLM) will be necessary. However, past experiences point to a range of barriers—related to institutional, financial and sector issues, knowledge management, and implementation—which need to be dismantled for an effective and efficient scaling up to happen. Through work with partners, TerrAfrica aims to address these bottlenecks and thereby create an enabling environment for the scaling up and mainstreaming of SLM at the country level.

The TerrAfrica approach is people-centered, integrated, multi-scale and multi-level, based on partnership and responsibility, and focused on the removal of bottle-

necks. It is coordinated and aligned within existing processes. TerrAfrica's work is organized around three mutually reinforcing "Activity Lines":

- Coalition building.
- Knowledge management.
- Investments.

The TerrAfrica platform involves an Executive Committee (built from diverse African and donor representatives); Consultative Forum involving civil society, African governments and Regional Economic Communities (RECs), private sector, and science and research organizations; as well as a Secretariat.

The Strategic Investment Program (SIP) is the

investment arm of TerrAfrica. An interagency funding mechanism to support integrated Natural Resources Management, it is also a vehicle to strengthen coordination between Global Environmental Facility and other funding mechanisms. The SIP contributes to achieving TerrAfrica's activities, especially the Investment Activity Line, but also selectively the other two. In turn, the SIP will benefit from the TerrAfrica platform of partnership, advocacy, and knowledge sharing.

At the country level, the SIPs add value in numerous ways:

- As a catalytic resource to finance the incremental cost associated with SLM.
- As a mechanism to coordinate interventions, allowing for better planning and implementation.

- As a way to reduce transaction costs to African governments.
- As a way to place land and environmental issues at the core of the development agenda.

The SIP will attract additional funding through creating a greater coherence in a country's SLM portfolio, a better enabling environment (e.g., policy incentives), greater efficiencies and lower transaction costs, and allowing for consecutive and complementary projects that advance scale-up. At the program level, use of monitoring and evaluation will help guide country efforts.

For SIP, NEPAD will be the coordinating body and it will help advocate for SLM at the country level by promoting country-level partnerships that can leverage SIP. Countries will plan funding as they would

normally, but with the help of their own country-level SLM Investment Frameworks and supported by the TerrAfrica Platform. At the country level, the various projects all feed into the program-level monitoring and evaluation.

Where will fertilizer fit in this framework? This initiative has highlighted the need to build and maintain fertility through numerous means:

- Integrated soil fertility management.
- Enabling policy environment.
- Sustainable investment in land management.
- Networking development.

Africa's soil crisis affects food production, and a clear solution is the intensification of agricultural production. As stressed in this Summit, increased fertilizer use must be achieved in integrated

packages, addressing both direct and indirect limiting factors, such as improved varieties and pest control. The TerrAfrica initiative intends to address these issues through a comprehensive analysis recognizing the equal importance of an enabling environment and technical measures. The numerous factors must be addressed in parallel, and there is a need for a more integrated approach to sustainable land management.

The SIP, TerrAfrica's investment arm, is in a position to work with its Summit partners in defining the role of mineral fertilizers in the context of sustainable land management to respond adequately to increasing food production in Africa.



Summit participants in the Africa Hall of the International Conference Center.

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Summary

For the 6 months prior to the Summit, numerous African countries were involved in preparations of fertilizer strategies that reviewed their fertilizer sector and its performance. Actions were identified to improve accessibility to, affordability of, and incentives for fertilizer use among smallholder farmers. Seventeen Country Strategies were presented in the Summit. Thereafter, the process continued and, at the time of compiling these proceedings, 25 Country Strategies had already been drafted. The 17 strategies were discussed in parallel sessions that were organized by Regional Economic Communities. An overview of the issues identified is presented in the following pages.

Session 4: Country Strategies

Co-Chairpersons

Dr. Cris Muyunda, Senior Agricultural Advisor, Common Market for Eastern and Southern Africa (COMESA), Zambia

Dr. N. P. Sicilima, Director, Department of Crop Development, Ministry of Agriculture, Tanzania

Rapporteur

Professor A. Agbede, Dean, Faculty of Agriculture, Nasarawa State University, Nigeria

Parallel Session 1: Economic Community of West African States Country Members

Co-Chairpersons

Dr. Timothy Williams, Advisor and Head, Special Advisory Services Division, Enterprise and Agriculture Section, Commonwealth Secretariat, United Kingdom

Dr. Daniel Eklou, Director, Economic Community of West African States (ECOWAS), Nigeria

Rapporteurs

Dr. Saidou Koala, Director for West and Central Africa, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Niger

Dr. I. Y. Amapu, Associate Professor, Ahmadu Bello University, Nigeria

Parallel Session 2: Economic Community of Central African States Country Members

Co-Chairpersons

Mr. Mohamed Beavogui, Director, West and Central Africa Division, Programme Management Department, International Fund for Agricultural Development (IFAD), Italy

Dr. Haile Gabriel Abeba, Director for the African Union Specialized Technical Office on Semi Arid Agriculture Research and Development, Burkina Faso

Rapporteurs

Mr. Joel Beassem, Secretariat, Economic Community of Central African States (ECCAS), Gabon

Professor P. D. Ngoddy, Professor of Food Science and Technology, University of Nigeria-Nsukka, Nigeria

Session 4: Country Strategies (Continued)

Parallel Session 3: Union of Arab Maghreb Country Members

Co-Chairpersons

Mr. Abdelmajid Slama, Former Director, Near East, North Africa and Europe Division, International Fund for Agricultural Development (IFAD), Tunisia; member, IFDC Board of Directors

Mr. Mohamed Fathi El-Sayed, Assistant Secretary General, Arab Fertilizer Association, Egypt

Rapporteurs

Dr. Mohamed El-Fouly, Professor, National Research Centre, Egypt

Professor G. B. Ayoola, Policy Analyst, MIR Project, IFDC, Nigeria

Parallel Session 4: Southern African Development Community Country Members and Common Market for Eastern and Southern Africa Country Members

Co-Chairpersons

Dr. Wilberforce Kisamba-Mugerwa, Director of International Service for National Agricultural Research of the International Food Policy Research Institute (ISNAR/IFPRI), Ethiopia

Dr. Harris Mule, Chancellor, Kenyatta University, Kenya

Rapporteurs

Dr. James Nyoro, Executive Director, Tegemeo Institute, Egerton University, Kenya

Professor E. A. Aduayi, Dean, Faculty of Agriculture, Bowen University, Nigeria

Country Strategies

Role and Components

The Country Fertilizer Strategies, prepared before the Summit and presented and discussed during it, were a central element of the Summit process. These Strategies identify the most important actionable programs in policy and market development that a country wants to implement in the short term (within 3 years) to revive its fertilizer sector and to accelerate access to affordable fertilizers in a timely manner. As such, they represent the steps necessary to establish private sector-led fertilizer markets in African countries to meet the CAADP target of 6% annual growth in agricultural production.

The main objective of the Country Fertilizer Strategies is to turn the Summit's vision, ideas, and commitments into concrete policies and actions.

Each country was asked to focus on four issues:

- Primary constraints in policy, institutions, financing, infrastructure, and market that limit poor farmers' access to fertilizers.
- Existing measures and interventions in the fertilizer sector.
- Bold actions to improve fertilizer access, affordability, and incentives.

- Strategy integration and implementation within the national agriculture sector programs.

Preparatory Process

The development of Country Fertilizer Strategies began 6 months before the Summit. The process is ongoing and strategies are currently being developed into actionable programs.

The Summit Technical Committee defined the objectives, roles, and format of the Country Fertilizer Strategies in its first meeting in November 2005. Guidelines were later developed into Terms of Reference and sent to all African Union member countries in December 2005. During the next 6 months, the Summit Secretariats provided support to the Ministries of Agriculture, while the IFDC field offices in Africa provided technical assistance to countries that requested it. Several countries held stakeholder meetings to validate their reports before submitting them.

The submitted strategies were synthesized in May 2006, and an overview of shared challenges and common priorities was prepared for Summit discussion. Altogether, 17 countries presented their

Country Fertilizer Strategies at the Summit.

When these proceedings were compiled, 25 Country Fertilizer Strategies had been drafted. These include strategies from Egypt, Malawi, Angola, Cameroon, Ethiopia, Madagascar, Togo, and Zambia. Ghana, Lesotho, and Sierra Leone were in the process of writing their strategies.

Summit Presentation

The Country Fertilizer Strategies were presented and discussed in five parallel sessions organized by the Regional Economic Communities (RECs)

(Table 1). The country delegations consisted of the Permanent Secretary, national technical experts, and other representatives. About 37 countries were represented in these sessions.

The sessions focused on three issues:

- Strategy presentations which cited three important actions that the country intends to undertake.
- Discussions on innovative approaches to increase fertilizer use and supply.
- Identification of bold actions to accelerate fertilizer access,

affordability, and incentives for use.

Constraints and Actions

The countries identified five categories of constraints in their fertilizer sector:

- Weak farmer demand.
- Poor farmer access to fertilizer.
- Underdeveloped production capacity, despite abundant resources in the continent.
- Limited trade in fertilizer markets.
- An institutional vacuum resulting from Structural Adjustment Programs, with no existing struc-

tures left to improve fertilizer availability.

These are further elaborated in Text Box 1.

The discussions named 10 broad priority areas and actions. The 10 priority areas are:

- Develop national fertilizer production and/or blending capacity.
- Improve fertilizer supply through the private sector.
- Link input and output markets.
- Create an effective demand for fertilizers.
- Improve the policy environment.

Table 1. Groupings of the Countries by Regional Economic Community (REC) in the Country Fertilizer Strategy Sessions (Countries Highlighted in Yellow Presented Their Strategies)*

RECs	ECCAS	ECOWAS/UEMOA	UMA/CENSAD	COMESA/EAC/IGAD	SADC
	Burundi	Benin	Tunisia	Comoros	Angola
	Cameroun	Burkina Faso	Algeria	Djibouti	Botswana
	Central African Republic	Cape Verde	Libya	Egypt	Lesotho
	Congo	Cote d'Ivoire	Mauritania	Eritrea	Madagascar
	Democratic Republic of Congo	Gambia		Ethiopia	Malawi
	Gabon	Ghana		Kenya	Mauritius
	Guinée Equatoriale	Guinea		Tanzania	Mozambique
MEMBERS	Rwanda	Guinea-Bissau		Somalia	Namibia
	Sao Tomé et Principe	Liberia		Seychelles	South Africa
	Chad	Mali		Sudan	Swaziland
		Mauritania		Uganda	Zimbabwe
		Niger		Zambia	
		Nigeria			
		Senegal			
		Sierra Leone			
		Togo			

*Some countries belong to more than one REC.

- Improve access to finance.
- Create rural agro-dealer networks.
- Develop infrastructure.
- Develop market information systems and improve extension services.
- Strengthen human capital in the fertilizer sector.

Specific actions for each priority area are in Text Box 2.

After the Summit, countries have worked to develop strategies into bankable projects, while focusing on resolving problems identified during the Country Fertilizer Strategy process.

Text Box 1. Constraints in the Fertilizer Sector

Africa's fertilizer production capacity is underdeveloped. Although the continent has abundant raw materials for fertilizer production, it relies heavily on imported fertilizer. Africa is home to the largest phosphate rock reserves in the world and Nigeria has large oil and gas reserves. However, sub-Saharan Africa imports over 90% of the fertilizers it uses. Egypt is, by far, the largest nitrogen producer in Africa. Sub-Saharan Africa's nitrogen production declined from 407,000 tons in 1992/93 to only 110,000 tons in 2002/03. Phosphate is produced in Burkina Faso, Côte d'Ivoire, Nigeria, and Senegal. Côte d'Ivoire ceased producing phosphate in 1994/95. Nigeria and Burkina Faso followed in 1999/2000 and 2001/02, respectively. Production plants closed in these countries, because—against a backdrop of fluctuating world market prices—they failed to achieve the consistently high operating rate that is critical for profitability.

Structural adjustment programs have resulted in an institutional vacuum in many African countries. Parastatals that previously supplied farmers with inputs have been dismantled. Because no structures were created to replace them, many farmers experienced more problems with fertilizer availability, prices, and other inputs.

Farmer demand for fertilizer is weak, particularly for subsistence crops. Current fertilizer application rates are less than 10 kg/ha in 10 of the 25 countries which submitted strategy papers. Most of the 10 countries are landlocked, namely Burkina Faso, Central African Republic, Niger, Uganda, Burundi, Chad, and Mali. Also, more than half of fertilizer use is on cash crops, such as potatoes, wheat, coffee, cotton, and tobacco.

Farmers lack access to fertilizer for several reasons, including:

- Fertilizer's high cost.
- Low output prices and the absence of output markets for some crops (e.g., millet in remote rural areas).
- Long distances that farmers must travel to purchase fertilizer and sell output (e.g., up to 30 km in peri-urban areas and up to 500 km in rural areas).
- Lack of fertilizer in small, affordable packages at the right time.
- Lack of quality information on fertilizer application rate, price, and availability.
- Limited purchasing power resulting from low income levels, non-membership in associations, and lack of access to credit.
- Uncertainty concerning fertilizer delivery time.

Fertilizer markets lack trader involvement for numerous reasons including:

- Uncertain policy environment due to government and donor involvement in inputs markets, including fluctuations in foreign exchange rates, interest rates, price control policies, subsidies, tenders for importation, import tariffs, and duties; continuous procedural changes for registration, labeling, packaging; and in-existent or non-enforced fertilizer legislation and regulation.
- Lack of information on fertilizer prices, imports and exports, and availability.
- Lack of access to credit due to strict lending terms, high interest rates, exhaustive collateral requirements, lengthy application procedures, and a small number of associations.
- High transportation costs.
- High storage expenses.
- Weak links among actors such as importers, wholesalers, and dealers.

Text Box 2. Overview of Priority Areas

1. Develop national fertilizer production and/or blending capacity.

- Assess the availability of raw material resources.
- Promote organic fertilizers.
- Provide fiscal incentives for investors in fertilizer production.
- Use phosphate rock deposits.

2. Improve fertilizer supply through the private sector.

- Reduce import costs through joint procurement.
- Organize the consolidation of fertilizer importation orders.
- Improve access to credit.
- Improve fertilizer importation services.
- Develop marketing infrastructure.
- Improve storage, warehouse, and distribution infrastructure.
- Create a national trader network.
- Reduce port charges.
- Train traders in business and entrepreneurial skills.

3. Develop links between input and output markets.

- Promote small-scale agro-processing.
- Establish a national input supply and output marketing system.

4. Create an effective demand for fertilizers.

- Use starter kits to develop interest in fertilizer use.
- Strengthen farmer organizations and networks.
- Promote seed and fertilizer technology packages.
- Use water and nutrients efficiently.
- Establish better fertilizer recommendations.
- Train farmers on correct fertilizer use.
- Train extension agents.
- Increase support to research and extension services.
- Develop community-based farmer advisory systems.
- Conduct trials and field demonstrations.

5. Improve the policy environment.

- Stabilize the exchange rate.
- Eliminate import taxes and fertilizer subsidies.
- Liberalize output markets.
- Develop regulatory and legislative framework.
- Establish a regulation and quality control agency.
- Carefully select subsidy mechanisms and manage fertilizer donations.
- Develop codes of conduct for importers and distributors.
- Develop and enforce consistent laws and regulations.
- Develop and enforce quality control laws regarding fertilizer packaging and labeling requirements.

Text Box 2. Overview of Priority Areas (Continued)

6. Improve access to finance.

- Develop a financing mechanism.
- Establish fertilizer development funds.
- Rehabilitate agricultural banks.
- Create a national fertilizer fund.
- Open a fertilizer savings account with Village Savings Associations.
- Extend banking services to rural areas.
- Reduce interest rates and collateral requirements.
- Help traders receive credit.

7. Create rural agro-dealer networks.

- Provide financial and technical support to dealers.
- Establish dealer associations.

8. Develop infrastructure.

- Develop roads, telecommunications, and research infrastructure.
- Subsidize internal transport costs.
- Simplify registration procedures.
- Improve research capacity and soil fertility quality.

9. Develop market information systems and improve extension services.

10. Strengthen human capital for the fertilizer sector.

- Strengthen research institutions and output (site-specific fertilizer recommendations).
- Revitalize farmers' training.
- Build agro-dealer capacity.
- Provide funds for fertilizer demonstrations, trials, workshops, and seminars.
- Provide funds to equip fertilizer facilities.
- Improve dealers' knowledge and management skills.

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Session 5: Regional Strategies

Summary

Regional Strategies were another important input in the Summit process. Prepared by the Regional Economic Communities prior to the Summit, they identified those actions in Africa's fertilizer sector that would most effectively be undertaken at the regional level, through efforts designed and implemented by the Regional Economic Communities. Three Regional Fertilizer Strategies were developed prior to the Summit and were presented in this session.

An important component of this session was a plenary panel with private sector participants. The private sector will be a key player in efforts to improve Africa's fertilizer sector and will need to take a lead role in the production, importation, and distribution of fertilizer. The panel, chaired by the Director General of the International Fertilizer Industry Association, included representatives of a large international fertilizer producer, an emerging Nigerian company in fertilizer production, a Nigerian company that blends fertilizer, as well as three Nigerian banks. Each shared their views on Africa's fertilizer sector, its constraints, and potentials.

In the following pages, an overview of each of the Regional Strategies is presented, along with the summaries of the presentations of the private sector panelists.

Chairperson

Dr. Richard Mkandawire, Agriculture Advisor, New Partnership for Africa's Development (NEPAD), South Africa

Rapporteurs

Dr. Lawrence Chidi Anukam, New Partnership for Africa's Development (NEPAD), Nigeria

Dr. Tijani Onoto, Head of Farm Mechanization, Federal College of Soil Research Technology, Nigeria

Discussion Leader

Mr. Luc Maene, Director General, International Fertilizer Industry Association (IFA), France

Private Sector Panel Discussion

Panelists

Mr. Arne Cartridge, Senior Vice President, Yara International, Norway

Mr. Onajite Okolodo, Director, Notore, Nigeria

Mr. Saidre G.B. Zakari, National Sales Manager, Golden Fertilizer Company, Nigeria

Mr. Tony Elumelu, Managing Director, United Bank of Africa

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Regional Strategies

Rationale and Process

Regional Fertilizer Strategies were a key input into the Summit process. The rationale behind the development of Regional Fertilizer Strategies is based on the fact that certain constraints to fertilizer market development at the sub-national and national levels can be most effectively addressed at the regional level, through efforts designed and implemented by the Regional Economic Communities (RECs). Four broad categories of fertilizer market development constraints and possible regional solutions are envisioned, as presented below.

Three Regional Fertilizer Strategies were developed prior to and presented at the

Summit. Two RECs each developed their own strategies: the Economic Community of Central African States (ECCAS) and the Economic Community of West African States (ECOWAS). In addition, a third strategy was developed jointly by the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA). The special position of the Arab Maghreb Union countries should be noted. Instead of further development of their fertilizer sector, their focus in this Summit was the possible provision of fertilizer and expertise to the sub-Saharan countries; as a consequence, this REC did not develop a fertilizer strategy to the Summit.

The processes for preparing the regional and country

strategies were similar. After the initial guidelines from the Technical Committee, Terms of Reference were developed. The work was carried out by agricultural marketing specialists retained by the RECs with experience in the use and commercialization of fertilizers in the region. In addition, consultants, for a total of 1 month for each REC, were engaged by the IFDC and NEPAD Secretariats to assist the RECs between January 2006 and April 2006. During this period the teams traveled to the selected REC member countries to conduct data collection and analysis, interview stakeholders, and prepare the regional strategy documents.

The Regional Fertilizer Strategies were presented in the Summit and focused on the actions to be taken in

the fertilizer sector of each REC. A brief overview of all three strategies is presented as follows.

ECCAS Regional Fertilizer Strategy

The 11 ECCAS member states have a combined population of 120 million inhabitants. Average fertilizer use is 2.9 kg/ha, and the region accounts for 1.9% of total fertilizer consumption in Africa. Of this, Cameroon accounts for 40%. There is no fertilizer production in the ECCAS region despite resources of natural gas (7 of the 11 countries), phosphate rock (significant deposits in at least 8 countries), and potash (in Congo). Fertilizer blending facilities exist in the region.

ECCAS offers a vision for successful development of the fertilizer sector that

Table 1. Constraints to the Development of Fertilizer Markets and Ways to Address Them at the Regional Level

Constraint		Possible Regional Solution
Small consignments resulting in high price	→	Regional importation, procurement, and production to create economies of scale
High transaction cost due to agro-trade policies such as tariffs and taxes, as well as barriers to trade	→	Policy reform to remove or reduce trade barriers and allow for regional policy harmonization
National laws and regulations governing fertilizer industry restrictions on cross-border trade	→	Harmonization of legislation
Lack of regional market information by farmers and traders inhibits them taking advantage of regional opportunities	→	Regional market information systems

entails: a dense network of small retailers; wholesale trade throughout multi-country markets; a focus on importers, ports, and strategic markets; quality assurance; assistance to farmers to learn to diagnose soil conditions; and fertilizer production. To achieve this vision, the region's governments are urged to undertake initiatives of four kinds:

- Cut taxes, fees, and cost-inflating regulations.
- Promote competition.
- Enforce truth-in-labeling.
- Protect the environment.

Six priority actions were defined in the ECCAS policy.

Action 1: Establish multi-country importer trade associations for joint procurement.

The strategy urges the setting up of projects, with technical and financial support from partners, in strategic market countries (e.g., Cameroon and Democratic Republic of Congo [DRC]) to:

- Establish fertilizer dealer associations.
- Provide advice on importation procedures.
- Conduct advocacy to member state governments on policy, regulations, taxes, and other charges.
- Establish banking arrangements that will facilitate access to credit for importers and wholesalers.

Action 2: Promote establishment of national agri-input dealer associations.

Associations of fertilizer wholesalers and retailers must be established in countries with high market potential. These associations would have the following functions:

- Organize traders.
- Conduct business and marketing training to wholesalers and retailers.
- Facilitate access to credit to allow purchasing of stock.
- Conduct agronomic training to traders and farmers regarding how to identify soil nutrient deficiencies.

Action 3: Establish a regional fertilizer fund.

The strategy proposes the establishment of a regional fund for the promotion of fertilizers, in collaboration with the African Development Bank (AfDB) and the Development Bank of Central Africa's States.

Action 4: Establish regional Market Information Systems.

This recommendation focuses on the establishment of a subregional system of information on fertilizer markets, within the General Secretariat of ECCAS or in a member state to be agreed upon with the financial partners.

Action 5: Promote policies and regulations that facilitate regional fertilizer markets.

ECCAS proposes the establishment of a network of specialists responsible for conducting research and advising the region on fertilizer regulations, organized by a development institution with the relevant expertise, in coordination with agribusiness experts and economists in African and western universities.

Action 6: Develop and disseminate extension materials to allow farmers to identify macro- and micronutrient deficiencies.

To help dealers advise and educate farmers about how to diagnose nutrient deficiencies, ECCAS proposes preparation of extension materials on the identification of nutrient deficiencies.

ECOWAS Regional Fertilizer Strategy

A grouping of 15 countries and 250 million people, ECOWAS has total fertilizer use of 1,500,000 tons, of which half is used in Nigeria. On a per hectare basis, nutrient utilization is 13 kg/ha.

There is no current production of nitrogen fertilizer from natural gas because manufacturing in Nigeria was discontinued in 1999; the recently privatized factory is about to commence production again.

There are significant phosphate rock deposits in the region, amounting to 2.26 billion tons, which are commercially exploited in Togo and Burkina Faso, among others.

The vision of ECOWAS consists of a productive and sustainable agriculture through the promotion of fertilizer use. The ECOWAS general objective is to promote the efficient use of fertilizers to increase agricultural productivity on a sustainable basis to ensure food security and fight against poverty in West Africa.

The regional strategy is based on three pillars: (1) improving the regional business environment for the fertilizer market, (2) stimulating effective demand for fertilizers, and (3) stimulating the supply of fertilizers.

Four priority areas were identified in the strategy, each with several expected results.

Priority Area 1: Improve the physical environment for optimal use of fertilizers.

This priority area envisions the physical environment for optimal fertilizer use to be improved through the achievement of the following expected results:

- Harmonization of norms for fertilizer use.
- Updating formulas and recommended fertilizer

doses according to agroecological zones and crops.

- Setting up a regional system to monitor the impact of fertilizer use on the environment.
- Promotion of integrated soil fertility management.

Priority Area 2: Improve the institutional, regulatory, and business environment for fertilizer.

The following expected results characterize how to achieve these priorities:

- Adoption of a regional regulatory framework and quality control of fertilizers.
- Harmonization of tax policies to facilitate the free movement of fertilizers in the region and facilitate smallholders' access to fertilizers.
- Fight corruption through an ethical code of conduct charter.
- Create a Regional Fund for Fertilizer Development (RFFD).
- Build capacity in Market Information Systems.

Priority Area 3: Stimulate a creditworthy demand.

The objective is to provide incentives to agricultural producers and commercial companies to increase their demand for mineral fertilizers substantially. The expected results are:

- Develop demand within agricultural value chains.
- Strengthen capacities of the farmer organizations, thus enabling them to

better negotiate fertilizer purchases on international and regional markets.

- Encourage commercial banks and financial institutions to support producer access to credit to purchase fertilizers on a larger scale.

Priority Area 4: Stimulate the supply.

The objective is to increase fertilizer supply in the West African region through attainment of the following expected results:

- Make the regional market attractive for investment in fertilizer supply.
- Facilitate studies to assess the feasibility of local fertilizer production and facilitate investment in local fertilizer production.
- Build capacity of national distributors to supply products that meet the needs of smallholders and agricultural companies.
- Encourage commercial banks and other financial institutions to increase their financing to the agro-input business sector.
- Promote fertilizer trade between RECs whenever profitable and between countries in West Africa and North Africa in particular.
- Promote the development of regional infrastructure to reduce transportation costs.

SADC/COMESA Regional Fertilizer Strategy

SADC is composed of 14 member states with a population of 228 million, and COMESA has 20 member states with a population of 370 million people. COMESA member states account for 50% of the African fertilizer consumption, with Egypt using a full 60% of that amount. SADC member countries account for one-third of the fertilizer nutrient consumption within Africa, with South Africa using 70% of that amount.

Fertilizer production in SADC and COMESA represents 12% and 39%, respectively, of the African total. One member state in each grouping—South Africa in SADC and Egypt in COMESA—represents almost the entirety of this production. Production facilities in most of the other countries (Zimbabwe, Kenya, Malawi, and Mauritius) are minor and not competitive with international producers. The exception is nitrogen production in Libya. Several small blending plants are situated throughout the SADC/COMESA region. In terms of natural resources for fertilizer production, coal for ammonia production is available in South Africa, Zambia, and Zimbabwe. Natural gas is available in Angola, Egypt, Ethiopia, Libya, Mozambique,

Madagascar, and Sudan. Larger phosphate rock deposits are found in seven countries (South Africa, Angola, Egypt, Uganda, Zambia, Zimbabwe, and Tanzania), but only South Africa and Zimbabwe are currently internationally viable. The numerous small phosphate rock deposits throughout the region are confined to local use for direct application. Potash salts are found in Egypt, DRC, and Ethiopia.

The joint SADC/COMESA strategy is seen as a part of a broad regional strategy for improving availability of key inputs, with an objective to increase agricultural productivity and regional food security through increased and efficient use of fertilizers, both mineral and organic, by farmers in the regional communities. Six priority areas are identified in the strategy.

Priority Area 1: Initiate bulk procurement.

This involves actions to encourage the development of bulk purchasing through the private sector at the regional level to achieve economies of scale that will lower fertilizer costs.

Priority Area 2: Improve the efficiency of the importation and distribution network.

The actions in this priority area focus on lowering the transaction and transportation costs of fertilizer

within the RECs. Specific actions should include removal of non-tariff fiscal and bureaucratic constraints to fertilizer cross-border trade and infrastructure development—roads, railways, rail wagons, port facilities, warehousing—to improve the efficiency of distribution systems.

Priority Area 3: Establish a regional legal and policy framework.

The priority area focuses on the harmonization of national fertilizer policies

and regulations to lower transaction costs and increase intra-regional trade in fertilizers. Specifically, the following actions would be taken:

- Harmonization of grades and standards.
- Harmonization of tariffs.
- Elimination of taxes in each country.

Priority Area 4: Develop regional fertilizer Market Information Systems.

The strategy proposes that regional market information systems will be incorpo-

rated into a planned regional agricultural sector market information system to support regional procurement and policy development.

Priority Area 5: Conduct feasibility studies for regional fertilizer production.

As a first step, feasibility studies should be conducted to assess the potential of fertilizer production.

Priority Area 6: Provide support services.

As a final priority area, diverse support services are recommended, including enhancing research and extension services, providing business and technical training to agro-input dealers, building capacity of farmer organizations, and investing in soil and plant testing and quality control.

Introduction

Comments by

Mr. Luc Maene, Director General, The International Fertilizer Industry Association (IFA), France



The mission of the International Fertilizer Industry Association (IFA) is to actively promote the efficient and responsible production and use of plant nutrients; to improve the operating environment of the fertilizer industry in the spirit of free enterprise and fair trade; and to collect, compile and disseminate

statistics and other information relevant to the fertilizer industry. IFA's membership is wide:

- Producers of nitrogen, phosphorus, potassium, sulfur, and micronutrient fertilizers; raw materials and intermediates; soil amendments; and organic fertilizers.
- Marketing organizations, traders, consultants, shippers, engineering companies, and suppliers of materials and plant equipment.
- Research institutes, associations, and government departments.

The 470 IFA members are globally distributed in Africa (9%), Middle East (14%), South Asia (9%), East Asia (12%), China

(5%), Oceania (4%), Eastern Europe and Central Asia (12%), Western and Central Europe (16%), North America (12%), and Latin America (7%).

The Association's 2006 annual conference in Capetown, South Africa, was the first one in the African continent. Held just prior to the Summit, it brought together 300 companies from over 70 countries. The conference discussions included the organization of the fertilizer industry representation in Africa, the economic prospects for Africa, and the ways in which the industry can contribute to the agricultural market development in the continent. IFA has declared

Fertilizers have three principle contributions: supporting agricultural productivity, increasing nutritional value, and fighting land degradation.

the year 2006 as the Year for Africa.

At IFA we believe that fertilizers are essential for the elimination of poverty and hunger. We see that fertilizers have three principle contributions: supporting agricultural

productivity, increasing nutritional value, and fighting land degradation. Fertilizer should be used within an integrated soil fertility management framework, adapted to local conditions, as the work in West Africa by the International Center for Soil Fertility and Agricultural Development (IFDC) demonstrates.

An important debate around stimulating fertilizer use in Africa has been whether to focus on increasing supply or converting the latent demand into an effective demand. Currently, despite the significant reserves of natural gas and phosphate

in the continent, Africa's fertilizer consumption and production are extremely limited in global terms.

Given the right tools, knowledge, and opportunities, African farmers can thrive. Fertilizers are an essential component for growth because no country has ever shaken off poverty without adequate soil fertility. This panel focuses on the supply and demand issues affecting the fertilizer crisis in Africa, with four assumptions to be discussed by the panel participants. In order to fight hunger and poverty most effectively:

- African farmers must be able to shift en masse from subsistence to entrepreneurship.
- Governments must provide transport infrastructure and appropriate regulation.
- Farmers and agro-retailers need affordable credit.
- Farmers need market opportunities for their crops.
- What is the single most important step that fertilizer producers should take to increase farmers' access to fertilizers?
- What is the single most important step that policymakers should take to increase farmers' incentives to invest in fertilizers?
- What is the single most important step that distributors and retailers should take to increase farmers' ability to invest in fertilizers?

In the panel presentations and ensuing discussion, four important questions should be addressed:

- What is the single most important constraint to greater fertilizer use?

Comments by
Mr. Arne Cartridge, Senior Vice President, Yara International, Norway



The focus of this presentation is on Yara's present initiatives supporting an African Green Revolution. Yara (formerly Norsk Hydro) is a 100-year-old fertilizer company. Today it is the world's leading plant nutrients company with annual sales of 22 million

tons of mineral fertilizer to more than 120 countries. Africa represents about 8% of the total sales volume.

For the past 20 years, Yara's strong position in many African markets is based on two key strengths: Yara sees beyond the region's inherent uncertainties (political upheavals, economic fluctuations, and poor customer solvency) to business opportunities and is willing to take the risks to realize them. This sometimes means moving quickly and being bold. At other times, it means exercising caution, reducing activities, and being patient. This takes ability.

Nevertheless, an optimal combination of business models, people, products, and knowledge is not enough to ensure Africa's success. The continent places special demands on flexibility, endurance, and risk management.

In the late 1980s and early 1990s, at the time of the liberalization and structural adjustment program, Yara registered companies in several countries to import fertilizer and build a distribution system. Yara then considered that the private sector could handle the fertilizer issue because African farmers had suffered enough due to

problems in the fertilizer sector. Yara expected the economy to grow and farmers to prosper as a result of agricultural sector growth. We all know where we are today.

But what is important now is to go forward. The small-scale farmer is the most essential part of the system. Farmers can only buy and produce if they can sell a surplus production. We need to help smallholder farmers become small-scale entrepreneurs.

The ideal model for the smallholder input delivery system no longer involves the supplier developing the

distribution channels to the farmers. In this system, the risk is too high and the funds required are too great. In addition, farmers may not make money from farming. Therefore, focus should be on agricultural output markets at the local, regional, and international levels. If farmers can sell their produce profitably, they will produce more and make money—this is the “pull” factor for inputs. Without guaranteed payment for their work, the farmers will remain at a subsistence level harming farmers and economic development.

Yara is now working with two Norwegian development organizations, the Dutch bank Rabobank, and the Rockefeller Foundation to find ways to improve access to and distribution of fertilizer in Tanzania. The ambition is to launch the program on August 31 during the Oslo Conference for an African Green Revolution, a 3-day conference focusing on public-private partnerships. The Yara Foundation also supports two of the Millennium Villages and awards the Yara Prize for an African Green Revolution, which will be announced on June 15 and will go to grassroot initiatives. Yara hopes that through its commercial activities, private-public partnerships, and philanthropic initiatives, it can help bring a Green Revolution to Africa.

Comments by *Mr. Onajite Okolodo, Director, Notore Chemical Industries, Nigeria*



During the past 7 years, there has been no fertilizer production in Nigeria. With the acquisition of the NAFCON fertilizer plant by Notore Chemical Industries last year, production of urea is expected to resume in 2007. This presentation gives a brief history of the NAFCON fertilizer plant, an update on the current situation, and describes the plans of Notore in regard to fertilizer production in Africa.

NAFCON began in 1981 as a joint venture between the Federal Government of Nigeria (FGN; 70%) and Kellogg Brown and Root (KBR; 30%). The plant started production in 1987 and official launching took place in 1988, with design capacity of 1,500, 1,000, and 1,000 tons per day for urea, ammonia, and NPK, respectively. The FGN approved plans in 1991 for NAFCON II—a second, identical plant to be located

adjacent to NAFCON. In 1993, the original plant went into decline and closed down in July 1999 following key equipment failure. In 2000, some funds were paid to KBR for rehabilitation, but soon thereafter KBR pulled out. In 2002, the FGN approved privatization of NAFCON. After two unsuccessful privatization attempts and following liquidation in August 2005, Notore Chemical Industries acquired NAFCON assets, including, among others, a plant and factory complex, gas turbines, corporate headquarters and other buildings, land, and the NAFCON estate including housing and other resources.

The vision of Notore is to spearhead the African Green Revolution by making fertilizer more available to the African farmers and to become the leading integrated natural gas and chemicals solutions provider in the company's chosen markets. The plan is to provide employment to 1,000 local people, which is expected to ease some of the current tension in the Niger Delta. This project is expected to act as a catalyst to revolutionize Nigeria's agriculture by supporting the transition from subsistence farming to a sophisticated agro-based industry. Agriculture and gas are

focus areas of the New Partnership for Africa's Development (NEPAD). Notore straddles both areas and expects to be strategic to Nigeria's economy and future.

The 2004 annual consumption of urea, the most popular fertilizer globally, was 110 million tons; in 2010, the total demand is expected to rise to 150 million tons. Notore will be the only plant producing urea in sub-Saharan Africa, with expected markets locally, regionally, and globally. The United States is an important fertilizer importer, averaging over 4 million tons per year of imports in 2001-2004, and with fertilizer imports expected to rise. In 2000-2004, European annual imports averaged 4 million tons, whereas potential Nigerian annual markets are expected to be 2.5 to 3 million tons. Current annual consumption in Nigeria is only 550,000 tons, with supply constraints limiting the market size.

Agriculture is a key sector of the Nigerian society, providing 40% of the GDP and employing over 60% of the population. In contrast, oil contributes only 10% of the GDP but accounts for over 80% of the government revenue. The current fertilizer use in the country

is only about one-tenth of the world average. The Nigerian government is keen to develop agriculture to reduce oil dependency and increase revenue. At the same time, about 60% of the natural gas produced in Nigeria is flared. The government is committed to abolishing flaring by 2008; therefore, utilization of gas has become an important priority. Natural gas constitutes over 90% of the fertilizer raw materials. Notore has signed a 20-year contract with the Nigerian government for gas.

The objective of the project is to build an integrated fertilizer-producing company with related products and auxiliary linkages. The plan is to produce for local markets 1,700 tons of urea per day by May 2007, and by 2010, initiate production in a new plant at the Onne site, enabling production levels of 3,500 tons per day and satisfying both local and regional markets. A longer term plan involves the development of a new world-scale plant in a site and at a date to be announced, enabling production levels of 6,500 tons per day for the company. The company's progress in the past year has been rapid. By June 2007, the company will have developed a business plan, selected its technical partners, completed an environmental assessment, and signed a gas contract.

Comments by **Mr. Saidre G.B. Zakari, National Sales Manager, Golden Fertilizer Company**



Until 1996, the dominant actors in the procurement and distribution of fertilizer in Nigeria were the federal and state governments. In 1996, the sector was privatized, which has led to the establishment of several private fertilizer import companies and 24 blending plants. Golden Fertilizer Company, established in 1998 with corporate headquarters in Apapa, is one such company. Golden Fertilizer now has two blending facilities, the Iganmu Sackett plant (with capacity of 60 tons per hour) and the Apapa Nectar plant (180 tons per hour). The combined annual blending capacity is 240,000 tons. The company sales figures have increased from about 150,000 tons in 2001 to about 230,000 tons in 2005. Federal and state

government orders constitute 15% to 25% of the company's fertilizer sales.

The private sector has been active and vibrant in the fertilizer sector since the liberalization. But, the continued participation of the federal and state governments in the fertilizer sector should be closely monitored and reviewed, particularly regarding fertilizer subsidies, which are causing unhealthy competition between the government-subsidized fertilizer and the private sector unsubsidized goods. For the private sector to be successful in the fertilizer business, the public sector must consider a complete withdrawal from the fertilizer business over a period of 3 years. The Nigerian government should also improve the country's transport system and place greater emphasis on the railway and rural feeder road systems. This will directly reduce farmgate fertilizer cost and thereby have a positive impact on agricultural production.

The private sector is ready to take the lead in the fertilizer industry in Nigeria. A proper enabling

But, the continued participation of the federal and state governments in the fertilizer sector should be closely monitored and reviewed,

environment is required to give the private sector the necessary tools, and investors should seek more resources. Notore has already taken over the National Fertilizer Company of Nigeria (NAFCON) at Onne in River State and is ready to start production by the second quarter of 2007. Golden Fertilizer is poised to improve its blending facility and plans to reach a production capacity of 250,000 tons by 2007. All stakeholders are invited to participate in the improvement of the Nigerian agricultural system.

**Comments by
Mr. Tony Elumelu, Managing Director, United Bank of Africa**



The United Bank of Africa (UBA) is one of Nigeria's leading banks with total assets of more than 600 million naira (US \$4.7 million). Clearly the banking industry in this part of the world has not fully supported agriculture and therefore, indirectly fertilizer market development. This is despite the fact that agriculture is one of the most important sectors in the economy and fertilizer, the most important farm input.

To meet the Millennium Development Goals, agricultural growth, including increasing fertilizer use, is key. A major gap exists in fertilizer production; in Nigeria alone, current consumption is estimated at less than 10% of the potential demand. Even if fertilizer is being produced, it often does not get to the right people at the right time and at the right prices. This applies to Nigeria as well, although with Notore's recent acquisition of the National Fertilizer Com-

pany of Nigeria (NAFCON), we expect production to begin soon.

Farmers and other actors in Nigeria's fertilizer market have found it difficult to access finance from banks. Poor private sector participation has been caused by agriculture's long cycle, poor return on investment, non-competitive production processes, poorly developed markets, and lack of capacity to develop feasibility studies or business plans. Policy inconsistencies, including subsidies, have led to market distortions, whereas absence of policy enforcement, quality control, and monitoring results in malpractice. Significant capital requirements have excluded the smallholder farmer and high landing charges increase the product price to the end user. High transportation costs and lack of storage

facilities are other major challenges in fertilizer sector development. Infrastructure development is key and banks should support these efforts. Finally, due to poorly functioning extension services, farmers may be unaware of the importance of and ways to use fertilizer.

The funding challenge in the fertilizer sector should not be tackled in isolation but should be a key component of an approach involving:

- Micro-credit schemes for smallholder farmers.
- Foreign exchange stabilization due to current dependency on imports.
- Regional trade policy and harmonization efforts. For example, to encourage export from Nigeria, the Common External Tariff (CET) of the West African countries with zero duty on fertilizer

from one country to another must be sustained.

Finally, the support of the international development community is vital to improving Africa's fertilizer market.

Poor private sector participation has been caused by agriculture's long cycle, poor return on investment, non-competitive production processes, poorly developed markets, and lack of capacity to develop feasibility studies or business plans.



Most African farmers are women.

Session 6: The Way Forward

Summary

The Summit and its preparations produced a great deal of material for defining the actions that should constitute the way forward: the country and regional strategies, the thematic parallel sessions, and the many presentations and discussions. The final meeting of the Technical Session summarized the actions discussed and the recommendations made by the Summit Technical Session participants. In addition, three individuals, each with long experience and deep interest in the development of Africa's fertilizer sector, briefly presented their views on the Summit and what must follow it.

Summaries of the addresses by His Excellency Joaquim Chissano, Mr. Peter McPherson, and Dr. Rudy Rabbinge are presented, along with a synthesis of The Way Forward presented by Dr. Cyril Enweze.

Chairperson

Dr. Cyril Enweze, Vice President, International Fund for Agricultural Development, Italy

Rapporteurs

Dr. Marjatta Eilittä, Senior Soil Fertility Specialist, International Fertilizer Development Center (IFDC), U.S.A.

Professor M. T. Adetunji, Professor of Soil Science, University of Agriculture, Abeokuta, Nigeria

Address

by His Excellency Joaquim Chissano, Former President of Mozambique

Address

by Mr. Peter McPherson, Co-Chair, Partnership to Cut Hunger and Poverty in Africa, U.S.A.

Address

by Dr. Rudy Rabbinge, Dean, Graduate Schools, Wageningen University, The Netherlands

Synthesis and Plenary Discussions

by Dr. Cyril Enweze, Vice President, International Fund for Agricultural Development (IFAD)

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Address

His Excellency Joaquim Chissano, Former President of Mozambique



One of the shortcomings of Africa's agricultural sector is the low utilization of fertilizer. Africa needs to start using fertilizers, not only buying them abroad but also producing them on the continent. African regions should come together to share the risks of producing fertilizers. Everybody in the Summit understands why this is the case. The high transport costs result in excessive prices; a farmer in Mozambique may have to spend one month of his revenue to buy one kilogram of fertilizer. The only way to bring fertilizer closer to farmers is to produce it in the region. Efforts could be started with sufficient regional production, and thereafter distribute fertilizer throughout that region.

Poor infrastructure or transportation issues should not become excuses. Instead, when agricultural development is the focus, it becomes evident that it is necessary to have road and transport. We should not be

like the man who sent someone to a town to prospect the market for a shoe factory. His employee came back and said, "Don't bother going there to put up a shoe factory because what I saw there is not good." He said, "What did you see?" "The people are not wearing shoes."

Africans have to make the effort to organize the agricultural sector on the continent. However, at the moment, if you bring fertilizer to remote areas, people have no knowledge of how to use it. Some financial resources need to go into educating farmers of the usefulness of fertilizer. The African countries have to do that; the international community has to do that.

The perceptions of the bankers need to be changed also. In this Summit, a banker said "Oh, it is nothing—that is just the way the banks understand it." This means that the African banks do not understand Africa—but they are here to develop Africa. If they understand the business the same way as the Europeans, then investors come from abroad. Africa has the African Development Bank—what is its role today? Africans should not wait, instead they should take the initiative now and start factories in each region. Africa also should

take advantage of the South-South Corporation and work with those who have the know-how in Brazil, India, and China. At the moment, many studies are being done, but few are implementing actions. In view of the soil degradation in Africa, why is it so difficult to sit down and say, "Let us build this factory!"? All the other things may follow.

Let us modernize Africa's agriculture through the use of fertilizer and all other modern technologies. Once farmers use fertilizer, there is an incentive to buy machinery and use other inputs. At the moment, the banks understand that one can borrow money to buy a tractor, but they cannot understand that one can borrow money to buy fertilizer.

So let us reverse the situation and make plans to initiate action. Agriculture

is now seen by banks as high risk and it has to be converted into a reliable business. In this, the government and the private sector must work together.

I am here as a previous leader of government, but today I am also speaking like a man of civil service—as someone leading a foundation. Foundations have an important role in mobilizing the poor to become aware of what can be done better in agriculture. Today, I am also speaking as a businessman, ready to initiate business in the area of fertilizer production starting with the establishment of a bulk blending plant. This will start small and thereafter get larger, with others joining in: the government, the private sector, and banks in Mozambique and in the region. And it will be possible.

Within the Common Market for Eastern and Southern Africa (COMESA) region, fortunately some of the work has already started. This work should be done with the civil society, the private sector, and all the smallholder farmers who are at great risk. They will show the way out of this very difficult but not impossible problem.

Let us all take action and implement these ideas now.

The high transport costs result in excessive prices; a farmer in Mozambique may have to spend one month of his revenue to buy one kilogram of fertilizer.

Address

Mr. Peter McPherson, Co-Chair, Partnership to Cut Hunger and Poverty in Africa, U.S.A.



I am here today as the co-chair of the Partnership to Cut Hunger and Poverty in Africa—a relatively new group that is determined to solve, not just analyze, the problems that Africa faces. It is sad to see how little has changed in the past 20 years in Africa, since I was the administrator for the United States Agency for International Development (USAID). Not all has stayed the same; however, I am here to support this process of the African Union (AU), the New Partnership for Africa's Development (NEPAD), and the Comprehensive Africa Agriculture Development Program (CAADP). I do not agree with every little nuance of these efforts, but I do agree that Africans have produced a plan.

The working groups today have produced new ideas demonstrating a complexity of concepts that address the issues of Africa today.

The reality is that Africa lacks the structures needed to achieve growth—ones that were present in Asia. It is simplistic to say otherwise.

These ideas include how to improve the poor roads, the weak agricultural research and extension systems, and what is the correct role of targeted subsidies and the market. The working group solutions are in contrast to simple bullet approaches that are unable to solve the complex problems facing us.

The principal lesson we have learned over 50 years of development aid is that countries that take charge of their own futures have a much greater chance of having a better future. One may not agree with all these plans, but this is Africa's future, not other people's future. Africans need to take charge of it, and that is a major development concept.

In an earlier session, Dr. Jeffrey Sachs looked for lessons from the Green Revolution in Asia and called for using substantial

resources for fertilizer subsidies. Although it is true that USAID provided substantial fertilizer subsidies at that time, circumstances in Asia were very different. First, unlike Africa that today has the lowest road density in the world, Asian countries had developed extensive transportation infrastructure during the colonial period, which involved railroads and feeder roads. Second, their human resource base was stronger in the 1960s than the current base in Africa. Analysis conducted in the 1980s on the success of the newly emerging economies of Asia demonstrated that the successful countries, in addition to taking charge of their own futures, invested great resources in human capacity building. Finally, due to Africa's agro-ecological complexity and its mosaic of crops, climates, and soils, the achievement of Africa's Green Revolution is technologically more complicated.

The reality is that Africa lacks the structures needed to achieve growth—ones that were present in Asia. It is simplistic to say otherwise. A 1960s theory by a prominent Harvard economist focused on the need to alleviate developing

country "resource gaps" by adding resources—such as credit, fertilizer, and others—to stimulate economic activity and growth. This theory was widely discredited, but not before substantial resources went to subsidies for credit and fertilizer in the decades following independence in Africa and elsewhere. If there is no recognition of the important role of people, institutions, and infrastructure in the development process, there is no lasting growth.

Dr. Jeffrey Sachs also spoke of the past 20 years as an experimentation and failure with the private sector system. Frankly, this is not so. Twenty years ago, there was a significant effort to initiate change in economic policy that often resulted in benefit. Nevertheless, many then realized that good economic policies alone do not mean

If there is no recognition of the important role of people, institutions, and infrastructure in the development process, there is no lasting growth.

that the economy will necessarily respond. Without roads, without technology, without people, without institutions, there will be no growth.

It is to the shame of the donor community that over the last decade and a half, there has been a move away from long-term development involving infrastructure and technology, in favor of the shorter term inputs. For donors, it was politically easier to explain to their constituencies achievements such as feeding a child or giving medicine; it was much

harder to explain the importance of building a road or giving funds for Ph.D. training. At the same time, we saw both donors and many African countries move away from agriculture. This should not have happened.

It would be very unfortunate, indeed, if vast resources were directed into subsidies at the expense of the basic infrastructure—both human and physical—necessary for achieving growth. We do not want to look back in the next 10-15 years and see that we are in the same

position as now. Shame would then be on all of us.

In the coming years, Africans will be increasingly heard by donors. They will be able to make the case for fertilizer subsidies, and people will listen. But, as Africans make that case, it is critical to also make the case for the longer term investments. Without those, we will all be disappointed with the results.

Africans must take charge of their development. The previous presentations called for a sense of

urgency. This, in addition to the emphasis on agriculture, is most appreciated. The urgency that most of the participants in this Summit feel is very well-placed. With these longer term investments, there is a role for at least some subsidies. These are not prescriptions. Ultimately, these issues are ones that Africans must defend with their own budgets to the donors. It is time to focus on these issues for Africa now. The interest and attendance of the Summit's participants is to be congratulated.

Address

Dr. Rudy Rabbinge, Dean, Graduate Schools, Wageningen University, The Netherlands



This event is a turning point in agricultural development and the general development in Africa, if the right measures, the right statements, and the right commitments are being approved during the coming few days. As participants, we can be

witnesses of a historical moment; this is something that we should be proud of.

Three years ago, a group of scientists, with myself as the chair, was asked to conduct a study on the future of agricultural productivity and food security in Africa on behalf of the United Nations and Mr. Kofi Annan. The report completed 2 years ago is at the moment being implemented and put into action, demonstrating the confidence in the analysis that was done.

Africa is not Asia—Africa is different. Dr. Borlaug

indicated that yesterday and I agree. In the diagnosis of the report, the group made it clear:

- Everywhere else in the world, rice, wheat, and maize cover 80% of the food production; in Africa, they are less than 20%.
- Everywhere else in the world, you see agriculture taking place in young alluvial soils in river basins and coastal plains; in Africa, agriculture takes place in the old, deteriorated, and weathered soils, which need a great deal of investment in soil fertility so that they can produce.

- Everywhere else in the world, investment in agriculture is at least 2.5% of gross national product; not so in Africa, where it is less than 0.7%.

In Africa, agriculture takes place in the old, deteriorated, and weathered soils, which need a great deal of investment in soil fertility so that they can produce.

- Everywhere else in the world, there is a good logistics system; that is absent in Africa, where local and regional markets are not functioning. Yesterday, a speaker posed the question: “Why is it that a farmer in Minnesota is paying for the same kilogram of nitrogen one-fourth to one-seventh of what a farmer in Uganda is paying?”

Unlike elsewhere, there is a multitude of farming systems in Africa. There is almost no irrigated agriculture. The capacity of the scientists and the producers has been neglected and an enabling environment for agricultural production is nearly absent. And finally, property rights in Africa are such that it is very difficult to get access to credit offered by commercial banks.

This was our diagnosis and you could conclude that the situation in Africa is dreadful and hopeless. It is definitely not. We are now convinced that there is a way out because there is a willingness to invest and a willingness to overcome the problems. That food security can be solved by active policies has been demonstrated in Europe. Although the common agricultural policy of the European Union is now considered obsolete and causing difficulties, when it was created in 1957, it

helped overcome a situation where food security was not guaranteed. Within 15 years after its implementation, food security had become guaranteed; it was later that the same policies created problems because of overproduction. This situation should now be solved—and it will be solved because the political will is now there.

We have been discussing the Green Revolution for Africa, saying that there should be a second Green Revolution. In fact, this would be the fourth Green Revolution. The first one was in the 1930s in the Americas and in Europe; then again we saw it in the 1950s in Europe; and finally, in the 1970s in Asia. So this will be the fourth Green Revolution.

The analysis in the above-mentioned study therefore pointed out that it is too simple to think that one Green Revolution is possible in the African continent; rather, it will be a rainbow evolution of different activities in different cropping systems and farming systems. And there will be ample opportunities to accomplish them.

We are agreeing upon the objectives we have. Now the question is the means to achieve them. For that, we need a good discussion and debate. We need to be careful with the means. We

also need to realize that when the objectives have been reached, they need to be reconsidered, as has become necessary in Europe and the United States.

We also need to realize that not all can be done at the global level and instead, we need to distinguish among the global level, the intermediary level, and the micro level. At the global level, where the policymakers and macro economists are active, it is necessary to create a situation where the Johnson-Mellor Model is re-invented to ensure that, by promoting agriculture, it will become the engine of development. For that to happen, agriculture needs to be stimulated and investments in agriculture should be at least 7%. That has been agreed by the state leaders of Africa—now it should be implemented. At the intermediary level, it is important to work in different eco-regions and through diverse programs. It is at the micro level where the Green Revolution is going to happen—and it is the farmer who has to do it. The farmer has to have the opportunity to produce. Tomorrow’s farmer meeting at this Summit is therefore to be applauded.

There is ample proof that things are moving in the right way, that the way forward is there. The

political will that has been demonstrated here, as well as the new insights and possibilities we have, will help develop agriculture that is productive and an Africa that is food secure.

It will be important to strengthen the enabling environment and not only form public-private partnerships but also to make them active; the importance of these two has been demonstrated all around the world. Cooperatives in Europe have also had a key role in developing agriculture that is profitable and produces food cheaply for all.

These are some of the efforts that are needed to overcome the current, dreadful situation, which never should have happened—the current food insecurity needs to be eradicated.

The political will that has been demonstrated here, as well as the new insights and possibilities we have, will help develop agriculture that is productive and an Africa that is food secure.

Synthesis

Dr. Cyril Enweze, Vice-President, International Fund for Agricultural Development (IFAD), Italy



This presentation comes from the clear demand by Summit participants for urgent, concrete action. President Chissano, who is helping make fertilizer available to farmers, is an example of encouragement to all participants. To move forward and initiate an African Green Revolution, all participants must agree on key issues surrounding fertilizer use in Africa. Bold actions that increase fertilizer access for millions of poor farmers will allow Africa to take charge of its destiny.

Summit participants have agreed on several issues:

- Africa needs a Green Revolution now—not tomorrow, and not next year.
- While fertilizer is an essential ingredient of this Revolution, it is not the only component.
- A Green Revolution will get African farmers out of the poverty trap.

- The poorest African farmers need special consideration.

These conclusions have led to a consensus among Summit participants on the need for strategic investment programs to increase fertilizer use and other inputs to initiate the African Green Revolution. Summit participants are here to start this Revolution immediately—not to do more studies and conferences.

Together, participants have also agreed on numerous actions. Given the complex mission and multiple constraints involved, Summit participants are proposing an integrated, bold, and aggressive strategy that implements several actions at once. These actions were

Given the complex mission and multiple constraints involved, Summit participants are proposing an integrated, bold, and aggressive strategy that implements several actions at once.

developed in the past 2 days and during previous meetings, such as the March 2006 meeting of the Eminent Persons in New York City. These actions will take place at various levels and different time frames. Some can begin immediately, others require time for initiation, some are short term, others are long term.

These actions, defined by the Summit Technical Session participants in the past 2 days, are as follows:

Action 1—Reduce the cost of fertilizer at national and regional levels by:

- Declaring fertilizer a strategic commodity. For example, ensure that fertilizer has duty- and tax-free movement across regions and that the regulations on fertilizer are harmonized within a region.
- Increasing the use of local fertilizer materials, especially phosphate rock.
- Improving fertilizer distribution subregionally, through trading companies operating 200 subregional fertilizer depots across the continent for 10-year periods.

Action 2—Improve financial access for fertilizer market development by:

- Creating a fund to finance fertilizer procurement and distribution.
- Training those involved.
- Reducing risk by collateralization.
- Learning from successful experiences.

Action 3—Improve access via development of input dealer networks by:

- Formulating policies that assist agro-dealers (e.g., access to capital and quality control of fertilizer).
- Improving fertilizer demand through lobbying, dealer training, social marketing, knowledge training for farmers, improving rural financial markets, testing with small fertilizer packages, creating profitable output markets through producer marketing organizations, market information, contract farming, and assessing the extent of dealer networks, operations, and needs.
- Increasing fertilizer supply through improving capacity and performance of dealers and supply chains through

A strong consensus evident throughout this Summit Technical Session is this: The time for action by us all is now!

transport infrastructure, credit guarantees, regulatory framework, etc.

Action 4—Initiate a regional financing mechanism by:

- In the short term, conducting a study and a stakeholder consultation on the specifics of the facility, including its location, exact functions, model, and level of financing.

Action 5—Improve fertilizer access for poor farmers by making smart public policies, such as:

- Initiating targeted subsidies to enable input use through farmer organizations and agro-dealer networks. The delivery mechanism needs to be market-friendly and minimize leakages.
- Universal government investments such as infrastructure, fiscal incentives, regulations, fertilizer recommenda-

tions, and weather insurance.

- Focusing on farmer organizations and their service providers through technical training, micro-credit, and linking fertilizer manufacturers with suppliers. In this context, contract farming should be assessed as a way to access inputs.

A strong consensus evident throughout this Summit Technical Session is this: The time for action by us all is now!



A farmer watering vegetable crops for the market in Lomé, Togo.



Taking notes after a session are Dr. Andre Bationo (left), rapporteur; Dr. M. M. Jibirin, rapporteur; and Dr. Marjatta Eilittä, Adviser, IFDC AFS Secretariat.



Ministerial Sessions



Summit Sponsor



Sasakawa Africa Association



Mission:

To promote the scaling up of modern agricultural technologies that increase the productivity and incomes of resource-poor smallholder farmers in Africa without harming the natural resource base.

Strategy:

- Work through public agriculture sector organizations.
- Build public-private partnership programs that assist the growth of smallholder farmers enterprises.
- Focus on improving agricultural growth in potentially higher-yielding agro-ecological zones that have reasonable transport infrastructures in place.
- Support large-scale technology demonstrations on farmers' fields.
- Backstop frontline extension workers with training and strategic funding for operations.
- Assist in development of robust input delivery systems (especially in seed and fertilizer), preferably privately owned.
- Engage heads of state and ministers of agriculture and finance in dialog to accelerate smallholder agricultural development.

Summary

The Ministerial Session began with welcome remarks and goodwill messages by representatives of key institutions and organizations, the Federal Capital Territory of Nigeria, the African Union Commission (AUC), and the New Partnership for Africa's Development (NEPAD). After the Ministerial address by the Hon. Minister Adamu Bello, four presentations focused on the background to the Summit, principle features of its outcomes, and the results of the discussions in the Technical Session. In his keynote address, Nobel Peace Prize Laureate Dr. Norman Borlaug reminded the participants of the experience with the Green Revolution in Asia, the differences between Asia and Africa, and the crucial role of leadership in initiating the African Green Revolution.

The core of the Ministerial Session was the discussion centered on the draft resolution. After a presentation by the Hon. Minister Bello, there was lively discussion on the resolution. There were numerous changes proposed and accepted to the resolution. In the end, the report to the Heads of State was unanimously approved.

The presentations by Hon. Mallam Nasir El-Rufai, Hon. Rosebud Kurwijila, Hon. Adamu Bello, and Prof. Firmino Mucavele are edited versions of their written speeches. For the presentations of Dr. Norman Borlaug, Dr. Josue Dione, Dr. Akin Adesina, and Dr. Amit Roy, summaries of their original presentations are included.

Session 1: Opening Session

Co-Chairpersons

Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia

Rapporteur

Dr. Maria Wanzala, Africa Fertilizer Summit Adviser, New Partnership for Africa's Development (NEPAD), South Africa

Welcome

by Honorable Mallam Nasir El-Rufai, Minister of the Federal Capital Territory (FCT), Federal Republic of Nigeria

Goodwill Message

by Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia

Goodwill Message

by Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa

Ministerial Address

by Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

Vote of Thanks

by Honorable Bamidele Dada, Minister of State for Agriculture and Rural Development, Federal Republic of Nigeria

Session 2: Solutions to Africa's Fertilizer Crisis

Chairperson

Honorable Joseph Mungai, Minister of Agriculture, Food and Cooperative, United Republic of Tanzania

Rapporteur

Mr. Mohamed Beavogui, Director, West and Central Africa Division, Programme Management Department, International Fund for Agricultural Development (IFAD), Italy

Africa Fertilizer Crisis: Summit Background and Process

by Dr. Amit Roy, President and Chief Executive Officer, International Fertilizer Development Center (IFDC), U.S.A.

Framing of the Summit Outcomes

by Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya

Session 2: Solutions to Africa's Fertilizer Crisis (Continued)

Keynote Address “Achieving the African Green Revolution”

by Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico

Report from Technical Session: High-Level Dialogue

by Dr. Josue Dione, Director of Sustainable Development Division, United Nations Economic Commission for Africa (ECA), Ethiopia

Session 3: Implementing the Priority Actions for Solving Africa's Fertilizer Crisis

Chairperson

Honorable Adamu Bello, Minister of Agriculture and Rural Development, The Federal Republic of Nigeria

Rapporteurs

Dr. Moise Mensah, Former Minister of Finance, Benin

Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya

Welcome

**Honorable Mallam Nasir El-Rufai,
Minister of the Federal Capital Territory
(FCT), Federal Republic of Nigeria**



I have this privilege to welcome you to this epoch-making Summit to exchange ideas on this all important agricultural input—fertilizer.

It is with great pleasure that I, on behalf of the Federal Capital Territory (FCT), Abuja, have this privilege to welcome you to this epoch-making Summit to exchange ideas on this all important agricultural input—fertilizer. Our purpose here is to develop and harmonize sound homegrown policy frameworks for increased agricultural production in Africa. With recent advances in research and production technologies, coupled with increases in agricultural subsidies in the western world, this Summit on fertilizer would not have been more auspicious than now, hence the Summit theme: *Nourish the Soil, Feed the Continent*.

Recent studies by the United States Agency for International Development (USAID) indicate a very high correlation between

improvement in the agricultural sector and increased incomes in agriculture-based economies. This offers the best opportunity for the alleviation of poverty in those countries. The Nigerian economy is growing at a rate of 3%-5%. If the agricultural sector could overcome such key constraints as poor access to inputs and improved technologies among others, the Millennium Development Goal target rate of 7% could be attained. Consequently, the proportion of our people living in poverty would be greatly reduced. This is more profound considering that despite the rapid infrastructural and urbanization programs, the majority of Nigerians derive their livelihoods from agriculture and its related enterprises—farm cultivation, animal hus-

bandry, agro-processing, packaging, transportation, etc. Declining productivity of the agricultural sector is forcing many potential farmers to seek other means of livelihood and vocation elsewhere. This depletes the number of those actually remaining on the farms. This has tremendous implications for labor-saving devices and increased productivity. The average age of farmers is about 50 years and above. The output from poor soils and marginal lands is declining because of the continuous use of outdated tools and implements and overgrazing of pasturelands by large herds of livestock. This is frustrating the efforts of the few old farmers. There is a very pressing need to intensify cultivation using improved farm inputs such as fertilizers. This will not only increase production, but encourage the youths and new entrants into agricultural production. They are the ones who will be producing for the expanding market. Mr. President's strong commitment to agricultural development is amply demonstrated by his hosting of this Summit. In addition, he sponsored the meeting of the second technical committee last February. President Obasanjo supported several other initiatives to ensure concrete strategies to

increase availability and offer specific incentives for increased fertilizer use by resource-poor rural farmers.

The government's great concern for the continued improved performance of the agriculture sector is shown by the number of policy reforms recently articulated in our National Economic Empowerment Development Strategies (NEEDS).

The USAID/Nigeria country strategic plan for 2004-2009 indicated increased agricultural productivity as one of the intermediate results to be evaluated in terms of yield per unit of production. This has direct implications for increased access to fertilizer and other important production inputs.

With over 600,000 hectares of arable lands and a growing market within and around Abuja, the agriculture sector accounts for the livelihoods of over 60% of FCT inhabitants and over 78,000 farm families. This explains the government's rationale for according it a prime position in the economy of the Territory. Our policy thrust here is to empower mainly the rural populace in the implementation and execution of laudable agricultural projects supported by our international donor

As you "cross-fertilize" ideas, let our proposals and resolutions zero in on ensuring adequate food security, economic sustainability, and the eradication of poverty among African families.

utilization of fertilizers for private sector investments, I ask participants, stakeholders, and international partners to join with the Ministers of Agriculture and the organizers toward achieving the set goals of this Summit. Governments cannot do it alone. So, as you "cross-fertilize" ideas, let our proposals and resolutions zero in on ensuring adequate food security, economic sustainability, and the eradication of poverty among African families.

agencies. This can be done through the provision of basic inputs and an enabling environment.

Since opportunities abound in the manufacture, transportation, handling, efficient management, and

Once again, you are warmly welcome to Abuja, the Federal Capital City of Nigeria. I wish you fruitful deliberations and thank you for your attention.



Animal traction plays an important role in some African farming systems but is generally underutilized.

Goodwill Message

Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia



It is a great privilege for me to address you at this very important Ministerial Session of the Africa Fertilizer Summit. We are here to deliberate the means and ways of accelerating the accessibility and affordability of fertilizer to African farmers, and therefore, inducing an African Green Revolution.

Let me take this opportunity on behalf of the African Union Commission to welcome all of you to this meeting in Abuja. I would also like to express my heartfelt gratitude to President Obasanjo and the Federal Government of Nigeria for hosting this important Summit. On behalf of the African Union Commission, I wish to express my deep appreciation for your participation at this meeting despite your numerous commitments and demanding schedules. Our presence here today is a demonstration of our collective determination to

work together in addressing one of the challenges facing Africa and the agricultural sector.

Let me also thank the Rockefeller Foundation, other development partners, and technical agencies that have been essential to this Summit and all that have contributed financially and technically to the realization of this Summit. I wish to congratulate the NEPAD Secretariat, the International Fertilizer Development Center, and the local organizing committee for successfully organizing the Summit.

Africa remains the only continent where food production per capita has fallen in the last 4 decades. This has led to Africa's problem of hunger, malnutrition, and poverty and has robbed many of the African poor people of a decent life and dignity. Many factors have contributed to this predicament, but the main factor is low agricultural productivity. This has occurred due to limited and improper use of modern varieties and fertilizers. In addition, enabling environments for modern technologies and fertilizer use have not been put in place.

In most of our rural areas, land and unskilled labor are generally the principal assets. The rural farmer has limited ability and resources to invest in improved land management and adopt modern and appropriate technologies. In addition, as the size of family holdings declines due to population growth, the importance of agricultural intensification becomes more apparent and necessary.

Dependence on rainfed agriculture, poor rural transportation, and lack of a financial infrastructure have further limited Africa's ability to intensify agriculture. Because of the complex challenges that our continent faces, governments adopted a Comprehensive Africa Agriculture Development Program (CAADP). Africa needs to revamp and boost agricultural productivity and strive for a 6% annual agricultural growth. To achieve this growth, Africa needs a considerable increase in the use of modern inputs, including organic and mineral fertilizers. In addition, improvements in rural infrastructure are necessary to cut down the high transaction costs that impede the import delivery

system and consequently raise input costs including fertilizer. All these interventions need large investments in agriculture. The July 2003 Maputo Declaration on agriculture and food security allocated at least 10% of the annual national budget to agriculture and rural development. This hinges strongly on the commitments of African ownership and soliciting our own solutions to problems prior to seeking external support. It is apparent that our leaders have demonstrated political leadership by individually and collectively addressing Africa's stagnating agricultural growth and development.

Within this context, the technical session of the Summit brought together key stakeholders to discuss

It is apparent that our leaders have demonstrated political leadership by individually and collectively addressing Africa's stagnating agricultural growth and development.

and define in concrete terms bold actions that will accelerate the accessibility and affordability of fertilizer to increase farm productivity and improve food security and household income.

I wish to commend and congratulate our technical experts who for the past 2 days have discussed and agreed on key priority areas of action surrounding the

fertilizer crisis. They have also emphasized the importance of fertilizer availability in the right environment. Enabling factors like sound policy, irrigation, rural infrastructure, extension services, markets, and enhancement of the farmer's capacity for soil management are necessary for the realization of the African Green Revolution. However, it is my hope that you will

examine the recommendations made by our experts and propose priority actions that will be brought to the attention of Heads of State and Government for consideration. The African Union Commission and NEPAD, in collaboration with the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB) are poised to lead the process. The African

Union Commission and NEPAD will play a facilitation role by working closely with member states and development partners to ensure that priority action areas are followed up for implementation to address the fertilizer crisis and pave the way for the African Green Revolution. I thank you very much for your kind attention.

Goodwill Message

Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa



NEPAD is an integrated program of the African Union, developed by African leaders and based on partnership among African countries with the objective of promoting sustainable development in Africa. Sustainable development includes four dimensions: human development, social development, institutional development, and economic development. Strategically,

NEPAD contributes to Africa's goal to create a conducive environment for peace, security, and democracy. Our efforts within NEPAD are geared toward promoting good governance, investment in our people, and enforcing policies that accelerate economic growth and human development. NEPAD is committed to promoting peace and security in Africa, to building institutional capacity, to improving trade, and to utilizing our human and financial resources. Strategically, the Regional Economic Communities are feelers for development of countries and the building blocks for sustainable development and integration. Operationally, the NEPAD Secretariat works collaboratively and

extensively with the African Union Commission, Regional Economic Communities, and member countries in the deliberation of priorities, mobilization of resources, and coordination of implementation.

The key principles and methods of NEPAD are (1) African ownership and responsibility; (2) partnership among African citizens, among African countries, and with the international community for Africa's development; (3) self-reliance and emphasis on reducing dependence on aid through strengthening of the private sector; (4) self-confidence to implement programs; (5) self-esteem in our heritage and African history; (6) protection and promotion of democracy

and human rights; (7) good political, economic, and corporate governance; (8) people-centered development; (9) promotion and protection of human rights; (10) gender equality; (11) accountable leadership; and (12) action-oriented partnership.

Progress has been made in moving NEPAD from concept to policy development, and initial implementation is now in process in almost all countries. This is particularly true for the agricultural sector, where we have achieved significant results. The Comprehensive Africa Agriculture Development Program (CAADP) has set a target growth rate of 6% per annum for the agricultural sector. To achieve this growth rate, it is necessary

to increase crop yields by improving farmers' use of fertilizers and other modern technologies. It is CAADP that brings us here today, and the Africa Fertilizer Summit is convened within this framework. Similar to the spirit and principles of NEPAD, the Summit has two guiding principles. First, it is an action-oriented initiative to make fertilizer available and economically accessible to farmers. Second, the Summit is an African-led initiative.

During these 3 days, we consulted with civil society organizations and received six important recommendations. The civil society called first for organizations' involvement of farmers' organizations. They have recommended that the major priorities for action should include

Civil society organizations call for African governments to specifically target women, youth, and the poor in terms of agricultural inputs, subsidies, extension services, access to land, and credit facilities.

capacity building, policy formulation, and monitoring and evaluation. Civil society organizations also called for institutionalization of the tri-sector model, which includes the public and private sectors and civil societies utilizing the proper public-private sector partnership. Also, recommended is supporting the coordination of civil society organizations. They also recommend utilizing the skills of a civil society organization in capacity building. Civil society organizations call for African governments to specifically target women, youth, and the poor in terms of agricultural inputs, subsidies, extension services, access to land, and credit facilities. Subsequently, they also recommend gender, youth, and civil society offices in every African country. It was recommended that the government and the private sector put in place mechanisms for preservation of agricultural products, securing of markets, and extension. There should be accountability in management of human resources as well as resolution to create an enabling environment for agricultural productivity and food self-sufficiency.

It was not our intention to come to Abuja to brainstorm. NEPAD and our implementing partner,

IFDC, have been working since January with Regional Economic Communities and countries to identify concrete and practical actions to accelerate the accessibility, affordability, and incentives for millions of African farmers to increase fertilizer use. From the outset, it was our intention to meet to discuss solutions, not to re-hash problems that we all know.

Technical experts from across Africa and the world deliberated on Friday and Saturday to examine bold actions to address Africa's fertilizer crisis. On Sunday, civil society gave us an additional space to work and to achieve the objective of increasing productivity in agriculture and providing food security. A number of practical, concrete, and implementable actions have been identified that will ensure fertilizer use and supplies are expanded rapidly over the next 5 years.

Today's Ministerial Session will outline in detail the true recommendations that have been identified in addressing Africa's fertilizer crisis and in achieving 6% growth in agricultural production per annum. We are hopeful that you will support these recommendations and submit them to the Heads of State for endorsement.

Reversing the current trends will take time. However, with your continued leadership and support, Africa will successfully break the cycle of food insecurity and hunger.

Thank you for your continued leadership in the development of Africa. I would also like to recognize our partners from Africa and throughout the world and appeal for your continued partnership to implement the recommendations. I would like to recognize IFDC, which has worked with us in preparing this Summit. I also recognize The Rockefeller Foundation, the African Development Bank, the Department for International Development, and many other partners who continue to support our efforts. With your continued support, we will succeed.

Ministerial Address

Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria



Over the last 3 days eminent scientists, distinguished stakeholders from the fertilizer sector, development partners, and farmers have been meeting and developing strategies to address the fertilizer issue and how to put the African continent on a trajectory to an African Green Revolution. It is very clear—to paraphrase Dr. Norman Borlaug—“mineral fertilizer is the fuel” required to power the trajectory.

President Olusegun Obasanjo has the passion and commitment to facilitate Nigeria and, indeed, all sister African countries to develop the framework and strategies to achieve the CAADP targets. The responsibility to implement the Accra Plan of Action developed from the Maputo declaration rests squarely on our ministries and associated institutions.

I am happy to report that Nigeria has made substantial progress by recording a 7% annual growth in agriculture over the last 2 years. Our presidential initiative on cassava has resulted in large-scale adoption of cassava production with the subsequent downstream activities of processing, marketing, and storage. Other presidential initiatives on rice, cocoa, cotton, vegetable oil, and rubber are recording various levels of achievements. For example, Nigeria’s rice importation has been cut by half, while the importation of vegetable oil into the country has since been stopped. Just last month, Mr. President hosted a Cocoa Summit for cocoa exporting countries and action plans were adopted to enhance cocoa production, consumption, and exports.

Nigeria has developed a National Fertilizer Policy that incorporates all the expected outcomes of the Africa Fertilizer Summit, i.e., to enhance accessibility, affordability, and incentives in fertilizer production, marketing, and utilization.

We must strive to ensure that this Summit results in

concrete actions to improve Africa’s soil fertility through the efficient application of organic and mineral fertilizers. Our meeting should also focus on critical issues needed to address challenges facing the fertilizer sub-sector including, but not limited to, national and regional policies, markets, infrastructure, and financing.

This Summit will afford Africa the opportunity to coherently plan and make giant strides in improved agricultural production, improved nutrition and higher incomes for impoverished farmers, improved land and water yields, better land tenure security, enhanced rural financing systems, more efficient marketing, reduced urban bias of public spending, improved preservation and storage, better extension and research, enhanced roles for women, and countering donor fatigue in agriculture.

In Nigeria today, agriculture contributes over 40% of the GDP. It accounts for over 80% of non-oil exports and employs over 70% of our active labor force. In fact, the agricultural sector is a priority for the Obasanjo administration. Nigeria has made

We must strive to ensure that this Summit results in concrete actions to improve Africa’s soil fertility through the efficient application of organic and mineral fertilizers.

incremental strides to enhance fertilizer awareness and use. There was a gradual shift in the 1970s from fallow soil fertility regeneration to mineral fertilizer use owing to the concerted effort of the government to encourage farmers to use mineral fertilizers.

Over time, however, a pattern of ecological specifications has emerged, which matches geographical crop distribution patterns based on crop nutritional needs and soil fertility levels. We have now almost completed the production of soil characterization and soil fertility mapping of the country. This will provide information on the fertility levels of various soil types and nutrient requirements found in Nigeria’s agro-ecological zones.

The main thrust of Nigeria's fertilizer supply policy is to ensure a reliable and cost-effective supply of fertilizers for all. Consequently, efforts have been directed at stimulating local production based on natural resources and securing the shortfall between national requirements and local production through imports. Intervention support is now given to the fertilizer sub-sector in

The main thrust of Nigeria's fertilizer supply policy is to ensure a reliable and cost-effective supply of fertilizers for all.

view of the significant nature of inputs to agricultural production. By this, government intervenes in the sub-sector to stabilize market prices and cushion any adverse effects, which the gradual deregulation of the sub-sector may cause to farmers.

The potential demand for fertilizer in Nigeria is approximately 12 million tons per year. Current fertilizer use is also estimated at about 13 kg of nutrients per hectare per year for arable lands. Granted that the quantity of fertilizer used by farmers is still relatively low compared to the world average, the introduction of fertilizer use in Nigeria has generally been successful.

A critical part of the efficient utilization of

fertilizer is the availability of infrastructure. Core support is urgently needed in many African countries in the areas of transportation and markets and more so in countries such as Nigeria requiring extensive movement of the product across several distant locations. Warehouses and retail outlets are key aspects of market infrastructure vital to a sustainable policy on fertilizers. These inadequacies pose a great challenge for Africa's existing but insufficient infrastructure.

Our aspirations for sustained agricultural growth and food security through increased fertilizer use cannot be over-emphasized. We need to consider the cost implications and logistical requirements of a continent-wide infrastruc-

ture gap of this magnitude. The cooperation, financial resource commitment and genuine support of Africa's collaborating development partners towards the attainment of our aspirations for sustained agricultural growth and food security through increased fertilizer use cannot be over-emphasized. We therefore solicit your meaningful and genuine cooperation in this regard.

The time for concerted action is now. Let us take a bold step together to expand food security and income opportunities across Africa to the benefit of our people. I earnestly thank you all and once again, warmly welcome you to Abuja.



An agricultural input company displaying its products in the Summit Hall.

Africa Fertilizer Crisis: Summit Background and Process

Dr. Amit Roy, President and CEO, IFDC, U.S.A.



Background

Sub-Saharan Africa is experiencing an agricultural crisis. In the 40-year period from 1961 to 2001, average cereal yields in South Asia almost tripled whereas in sub-Saharan Africa, they rose by only one-fourth, to an average of 1.0 tons per hectare.

What is striking is how differently the production has increased in the two regions. In Asia, 80% of the greatly increased cereal production was due to improved crop yields and only 20% by increasing the area under cultivation. In Africa, most of the production increase has come from increased area under cultivation. This has resulted in worsening deforestation, encroachment on fragile lands, and continuous land use, all of which have increased nutrient mining of African soils. One decade ago, more than 60 kg of nutri-

ents per hectare were removed from the soil annually in 40% of African countries; now this high rate of removal is occurring in more than 75% of the countries. But some countries, such as Nigeria, have reversed this trend through leadership and commitment.

This low fertilizer use contributes to soil nutrient mining and low agricultural productivity. Fertilizer use rates in Africa (20 kg/ha), and particularly the rates in sub-Saharan Africa (8 kg/ha), are far lower than the world average (93 kg), and the average for Asia (146 kg), especially East Asia (202 kg). Both extremes of fertilizer use cause environmental problems, although of different kinds, so intermediate rates should normally be the goal.

The high price of fertilizers is often mentioned as a constraint to fertilizer use in Africa. Fertilizers are indeed expensive on the continent, because inland freight charges, operational costs, and other costs are usually higher in Africa than elsewhere. These costs might be decreased through various interventions, including increased market competition, which was seen recently in Malawi. Utilization of indigenous

fertilizer resources has also been of interest, both for nitrogen and phosphorus. Africa has 70% of the world's phosphate resources and significant natural resources for nitrogen and potash production.

Summit Preparations

The Summit's guiding principle is that while inorganic fertilizers are essential to achieve an African Green Revolution, efforts to only increase their availability are not enough. Instead, a holistic approach is needed, including improvement of farmer access to fertilizer, affordability of fertilizer, and incentives for fertilizer use through better output markets. This approach needs to involve efforts to supply farm inputs, to increase production, and to

improve marketing and processing of farm outputs.

The Summit will consist of 4 days of activities, with a Technical Session (June 9–10) followed by a Ministerial Meeting (June 12), then the Meeting of the Heads of State (June 13). No formal activities are planned for June 11.

The Summit is bringing together numerous actors. It is chaired by H.E. President Obasanjo and convened by the African Union (AU) and New Partnership for Africa's Development (NEPAD). H.E. President Obasanjo is also the chair of the Eminent Persons' Group, consisting of world-renowned scientists, policymakers, and development specialists. The Eminent Persons' Group has set the overall vision for the Summit, has advised on the structure and conduct of the Summit, and guides the follow-up actions. The Group met once before the Summit, in March 2006, in New York City. The 29-member Technical Committee, consisting of representatives of national and international organizations, with a majority based in Africa, has been extremely active and has given its input on the Summit agenda, participants,

The Summit's guiding principle is that while inorganic fertilizers are essential to achieve an African Green Revolution, efforts to only increase their availability are not enough.

exhibits, and key papers in two meetings: in Johannesburg, South Africa, in November 2005 and Abuja, Nigeria, in February 2006.

Summit preparations have been led by two Secretariats, one at IFDC headquarters in Alabama, U.S.A., another at the NEPAD Secretariat in Johannesburg, South Africa. In Nigeria, the National and Local Organizing Committees have been closely involved with the Summit preparations in Abuja. A Communications Strategy Group, consisting of representatives from NEPAD, the Rockefeller Foundation, IFDC, the International Fertilizer Industry Association (IFA), the Local Organizing Committee, and

the Burness Communications, has communicated about the Summit and its importance to local, national, and world media.

Summit preparations have been complex. Numerous African countries and four Regional Economic Communities have prepared Country and Regional Fertilizer Strategies and the Summit Secretariats have coordinated the preparation of diverse Summit papers. These include the “Vision Paper,” which outlines the background, key actors, and objectives of the Summit, as well as several other papers focusing on important aspects of the fertilizer

In Africa, most of the production increase has come from increased area under cultivation. This has resulted in worsening deforestation, encroachment on fragile lands, and continuous land use, all of which have increased nutrient mining of African soils.

sector in Africa. The Strategies and background papers have been fed into the Summit Technical Session, which combines keynote addresses, panels, and concurrent panel sessions.

Finally, this Summit will be action-oriented. The key output of the Technical Session will be the definition of the way forward—the future actions that should be taken in the fertilizer sector in Africa. These actions will be presented at the Ministerial Meeting on June 12.

This Summit will be action-oriented.

Framing of the Summit Outcomes

Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya



Fertilizer provided the upward thrust to stimulate agricultural

productivity all across Asia. African agriculture is stuck because there is nothing to fuel it. That is why this Summit is critical. Through the research efforts of diverse partners, we have the varieties that can create the African Green Revolution. But there are no varieties that can grow on air; they require nutrients. African soils are dead, and the natural capital stock has been depleted during the past 30 years. As Africa’s

population continues to grow, the productivity of agriculture continues to decline. Africans are tired of being poor and not having access to productive technologies that can make a difference in their lives.

There are three important points regarding fertilizer in Africa:

- Its use is almost nil, in stark contrast to Asia.
- It is not a silver bullet; instead, it is a golden bullet—the same bullet

But to justify the approach in Africa based on the current situation in Asia fails to take into account that although both have a problem, the solutions must be different.

that got Asian countries where they are today.

- Its environmental use is key, and organic fertilizers should be used when available.

But to justify the approach in Africa based on the current situation in Asia fails to take into account that although both have a problem, the solutions must be different. For example, a fat person and a thin person both have a weight problem, but each problem should be addressed differently. African agriculture must gain weight. The strong efforts to accomplish NEPAD's bold target for African agriculture are daunting tasks, requiring triple the fertilizer use.

A series of constraints limit Africa's ability to reach this goal: demand and supply, policy, institutional, financing, and infrastructure. This is not a review of them all, but two important constraints to mention are (1) on the demand side, the lack of fertilizer in small packages, and (2) on the supply side, the scarcity of shops selling inputs, particularly in rural areas.

Focus has to be on improving accessibility to, affordability of, and incentives for fertilizer use for farmers to get the inputs needed. Accessibility has to do with the quantity, quality, and the timeliness. Affordability means that they do not have to break a

bank to use fertilizer, and incentives mean that they profit from the raise in productivity with fertilizer. The paradox is that soft drinks can be found in any part of Africa, but not seed and fertilizer.

The challenge, of course, is that selling seed and fertilizer is not the same as selling Coke and Pepsi. To sell seed and fertilizer, you must have product knowledge and expertise to handle and store them properly and give advice to farmers. It also requires technical and business management skills.

This is what we have done in Malawi with our partners. We have trained agro-dealers to help increase their networks. We have improved availability of capital to them through a credit-guarantee mechanism. Still today, most agro-dealers are concentrated in high potential areas; we need to change that.

The problem is that 75% of the African population is locked in a poverty trap and cannot afford seed, fertilizer, or agri-chemicals. In western Kenya, only 1%-2% of the small farmers are using inputs. They are the targets of smart subsidies that do not destroy the market, but will get them out of the poverty trap.

Africans should not go to an Olympic race and run with no shoes. The shoes

should be there. The "shoes," in this case, are the sufficiently small packages of fertilizer and decreased price of fertilizer through joint procurement and distribution. We must also address structural supply capacity constraints, such as regional transportation infrastructure, and removal of all taxes and tariffs on fertilizer. Africa's supply capacity should be built through private-sector production capacity using 75% of the world's phosphate rock deposits that are on this continent.

The key elements of the way forward at the national level are:

- Improve access, affordability, and incentives through development and scaling up of the agro-dealer networks all across rural Africa.
- Establish input guarantee schemes to link the trained stockists to the input suppliers.
- Initiate smart subsidies that do not undermine the market.
- Package inputs in smaller sizes.
- Improve output prices for our farmers.

At the regional level, affordability must improve through:

- Joint procurement and distribution.
- Investment in infrastructure, such as roads and rail.

- Stimulation of local manufacture of fertilizers.
- Harmonization of all regulations.

Finally, all of this is going to cost money. This is a momentous period to turn African agriculture around. We need to free agriculture and our farmers and millions of people in rural areas from poverty, food insecurity, and high levels of vulnerability. You will be making landmark decisions today and tomorrow. You

The challenge, of course, is that selling seed and fertilizer is not the same as selling Coke and Pepsi.

will change the face of Africa. You will create a new voice, from that of hunger, misery, and poverty to one of hope. As you go to your offices, as you drive on your roads, as you go to your villages, you will see a new voice coming out in Africa. It will be a voice saying, as Martin Luther King said in the United States, "We are free, we are free at last." Thank God, African agriculture finally gets itself moving and we are free at last.

Keynote Address “Achieving an African Green Revolution”

Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico



The Green Revolution started in Pakistan and India, with more modest efforts taking place in other Asian countries. Its components were improved dwarf wheat and semi-dwarf rice varieties with high yield potential, which had been developed during previous decades with funding from the Rockefeller Foundation.

At the time the work was initiated, there was a sense of urgency originating from India’s high population growth rate and poor agricultural productivity. There was also much criticism of the effort. The on-farm testing showed good disease resistance and high yield potential, but without fertilizer there would have been no change. In 1965, 5 million nutrient tons were used in all developing countries of Asia. This increased by 15-fold to 77 million tons in

2006. With irrigation development and mechanization, production went from 368 million tons to 1 billion, 17 million tons. In India alone, it went from a static 11.5 million tons (1960-65) to 75 million tons. Consequently, self-sufficiency was quickly achieved in Pakistan for wheat and in India for wheat and rice. The final important ingredient was leadership by political leaders, the Prime Ministers, and the Heads of State. They gave leadership for the whole effort, including establishing fertilizer plants.

There is much misinformation on fertilizer, and a common one regards the potential role of organic fertilizer. One cannot solve these problems with organic fertilizer even if we use all the organic fertilizer available in the world. There is not enough of it! Focusing on organic fertilizer alone is nonsense and pure theory. For example, China, probably the world’s expert on the use of organic fertilizer, only saw a great increase in production when it started importing urea from Japan in the early 1960s, after which it built 1,200 small ammonia plants using coal as a raw material.

To help improve the situation in Africa, an understanding is needed of the factors that allowed the Green Revolution to take place in Asia. They are:

- Transport infrastructure.
- Irrigation infrastructure.
- Public supply and distribution system for grain.
- Marketing boards to facilitate food production problems.
- Production subsidies.
- Large commercial demand for food.

In Africa, colonial powers were not interested in food, but instead, in minerals, and they built transportation infrastructure that reflected this.

Of the essential ingredients for a Green Revolution in Africa, we already have available high-yielding varieties that produce well with a modest amount of fertilizer. There is, however, a lack of infrastructure for transport, causing inability to move food from

surplus areas to hungry areas. Fertilizer must be an important component, and Africa needs to increase its use from the extremely low current average. Available land is already there to increase production in Africa.

Now, there needs to be political will and determination to win the game on the food front. Otherwise, Africa will continue to stagnate in poverty and misery. Some may think that small farmers cannot do it. These farmers have seen the demonstrations of improved varieties, but if we do not have one of the important components—fertilizer—to harness the potential of these varieties, it is all wasted. We need therefore to put research to work to produce food to alleviate human suffering. The participants of this Summit and others working on agricultural development want to help.

The people on policy have to lead! Lead! Lead! Do it—don’t sit and talk! I’m tired of listening to talk about it and seeing hunger and poverty in many parts of the world where it doesn’t need to exist. It’s up to you!

China, probably the world’s expert on the use of organic fertilizer, only saw a great increase in production when it started importing urea from Japan in the early 1960s.

Report From Technical Session: High-Level Dialogue

Dr. Josue Dione, Director of Sustainable Development Division, United Nations Economic Commission for Africa (ECA), Ethiopia



I am honored to submit the outcomes of the Technical Session on actionable ways to confront the African fertilizer crisis by increasing availability and by improving access, affordability, and incentives for increased fertilizer use by African farmers.

This will be done against the background of NEPAD's vision for Africa's economic development, which is based on the increased and sustained economic growth rates of 7% per year. This vision also uses the CAADP as an avenue for agricultural growth, food security, and rural development. The target annual growth rate for the agricultural sector is 6%.

Yet, to realize that challenge, African farmers must face some considerable challenges including low productivity, limited access

to agricultural inputs and technologies, and also serious world market constraints. This is called the double disconnection of the African farmer:

from the markets backward to the input market and forward to the output market. With this double disconnection, there is no way to get agriculture moving. Consequently, African farmers find it very difficult to feed their families, let alone the growing African population. The African market is growing, but it is mainly due to urbanization and other factors. This growing market is being served by increasing the agricultural sectors outside of Africa. This is another significant consequence of the double disconnection of African farmers from their own markets.

To change the situation and develop the market, we must promote intensification through improved seeds, fertilizer, irrigation, and other measures. We must also address soil nutrient depletion. Africa's agriculture is suffering from the same ailments that

This is called the double disconnection of the African farmer: from the markets backward to the input market and forward to the output market.

African people are suffering from: hunger—our soils are suffering from hunger; thirst—our people have no adequate access to potable water; and poor markets—our products need to thrive in the global economy.

To fix these problems, Africa needs to face the fertilizer crisis. Given that we are mining \$4 billion per year from our soils, we must look at another critical issue here. Africa's economy is suffering from a kind of a triple bleeding: bleeding from the soils by mining those \$4 billion worth of fertilizer nutrients per year; bleeding in our foreign reserves by importing food that we could produce for our markets; and bleeding again in foreign reserves by importing fertilizer that we have materials to produce locally.

Honorable Ministers, these are the action recommenda-

tions that the Technical Session humbly, but very strongly, submits for your consideration. I thank you for your attention.

(After this speech, Dr. Dione presented the report from the Technical Session [draft resolution] to the Honorable Ministers).

Africa's agriculture is suffering from the same ailments that African people are suffering from: hunger—our soils are suffering from hunger; thirst—our people have no adequate access to potable water; and poor markets—our products need to thrive in the global economy.

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Heads of State Session



Summary

After welcome remarks by the Hon. Minister Bello, goodwill messages were delivered by representatives of key institutions affiliated with the Summit: His Excellency Alpha Oumar Konaré (Chairman of the African Union Commission), Hon. Jeanne Dambendzet (Minister of Agriculture, representing His Excellency General Denis Sassou-Nguessou, President of the Republic of Congo and Chairman of the African Union), Professor Firmino Mucavele (Chief Executive of NEPAD Secretariat), and Dr. Judith Rodin (President of the Rockefeller Foundation). President Jimmy Carter, 39th President of the United States, addressed participants by video, followed by the video *An African Green Revolution*. His Excellency President Olusegun Obasanjo then delivered the Presidential Address.

The report from the Ministerial Session was delivered by Hon. Adamu Bello and was discussed by the participants. Thereafter, representatives of six significant institutions on Africa's development delivered remarks. After the adoption of the Summit Resolution, the session was closed.

The presentations by H.E. Olusegun Obasanjo, Hon. Adamu Bello, Prof. Firmino Mucavele, Dr. Donald Kaberuka, Mr. Pat Fleuret, Dr. Hafez Ghanem, and Mr. Jan Vlaar are edited versions of their written speeches. For the presentations of H.E. Alpha Oumar Konaré, the Hon. Jeanne Dambendzet, Mr. Lennart Båge, and Dr. Norman Borlaug, summaries of their original presentations are included.

Session 1: Opening Remarks and Addresses

Chairperson

His Excellency Olusegun Obasanjo, President, Federal Republic of Nigeria

Welcome Remarks

by Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

Goodwill Message

by His Excellency Alpha Oumar Konaré, Chairman, the African Union Commission, Ethiopia

Goodwill Message

by Honorable Jeanne Dambendzet, Minister of Agriculture, representing His Excellency General Denis Sassou-Nguessou, President, Republic of Congo and Chairman, the African Union

Goodwill Message

by Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa

Goodwill Message

by Dr. Judith Rodin, President, The Rockefeller Foundation, U.S.A.

Video Address by President Jimmy Carter, 39th President of the United States and Founder, The Carter Center, U.S.A., then *An African Green Revolution (Video)*

Presidential Address

by His Excellency Olusegun Obasanjo, President, Federal Republic of Nigeria

Report on the Conclusions and Recommendations of the Ministerial Session

by Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

Remarks

Dr. Donald Kaberuka, President, African Development Bank (AfDB), Tunisia

Mr. Lennart Båge, President, International Fund for Agricultural Development (IFAD), Italy

Mr. Pat Fleuret, Mission Director, United States Agency for International Development (USAID), Nigeria

Dr. Hafez Ghanem, Country Director, The World Bank, Nigeria representing Mr. Paul Wolfowitz, President, The World Bank, U.S.A.

Mr. Jan Vlaar, DGIS, representing the Minister for Development Cooperation, The Netherlands

Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico

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Welcome Remarks

**Honorable Adamu Bello, Minister of Agriculture and Rural Development,
Federal Republic of Nigeria**



The Africa Fertilizer Summit could not have come at a better time—when African farmers are toiling under the hot African sun to eke out a living from the continent’s depleted soils. Hunger and malnutrition continue to remain persistently high in this great continent. Africa lags behind the rest of the world in improved agricultural technologies and

innovative agronomic practices that will nourish the soil, increase agricultural production, and improve the quality of life of its teeming farming population. The Africa Fertilizer Summit deserves the fullest support of all who live in Africa, all who travel the continent, and all who have the best interest of these people at heart.

Join me, therefore, to congratulate President Olusegun Obasanjo for providing the leadership and support to convene and chair the Africa Fertilizer Summit. I also acknowledge the exemplary roles of the Eminent Persons Group, the Rockefeller Foundation, the NEPAD Secretariat, and IFDC in

garnering and mobilizing international and African support for a successful and results-oriented fertilizer summit.

The government has put in place several measures to make fertilizers available and affordable to Nigerian farmers.

A major thrust of our fertilizer policy is to make the private sector the driver in fertilizer production and distribution. As part of this administration’s reform policy, the government has undertaken several measures to ensure fertilizer availability at competitive prices to farmers. For example, the National Fertilizer Company, NAFCON, and the Federal

Superphosphate Fertilizer Company were privatized and sold to private investors.

The President firmly believes that resourceful farmers should be able to access their fertilizer requirements at the right time. My Ministry, therefore, operates a fertilizer market stabilization program to make the product affordable to Nigerian farmers. I was privileged to chair the Ministerial Session. I concur with the passion and commitment of my colleagues to give total support to our President and Heads of State and governors to work to achieve the African Green Revolution.

Africa lags behind the rest of the world in improved agricultural technologies and innovative agronomic practices that will nourish the soil, increase agricultural production, and improve the quality of life of its teeming farming population.



Hon. Minister Bello and Dr. Norman Borlaug discussing exhibits in the Summit Hall.

Goodwill Message

His Excellency Alpha Oumar Konaré, Chairman, The African Union Commission, Ethiopia



Africa's present food insecurity requires government action and budgetary commitments. Various presentations in this Summit have shown that Africa must have a common position to solve this problem. Food security must be a moral, social, and economic imperative as well as a human right.

Africa is the only continent where food production has declined in the past decades. The continent's food insecurity has been caused by low soil fertility and soil degradation. Also, much of Africa's resources are spent on food importation.

To solve the soil fertility problem we must improve

Food security must be a moral, social, and economic imperative as well as a human right.

soil management and increase fertilizer use. As the Summit Chair and United Nations Secretary General Kofi Annan said, Africa needs its own Green Revolution, following the examples of Latin America and Asia, which witnessed great increases in food production and reduced hunger.

Therefore, it is important to increase agricultural productivity in Africa by utilizing agricultural inputs, especially fertilizers. Average fertilizer use in Africa is much lower than in Asia. African agriculture, which is mainly subsistence, is harmed by poor revenues and low access to credit.

This crisis in the fertilizer sector has often been recognized by African leaders. In the Summit of the Organization of African Unity (OAU) in 1980, leaders decided to establish a center for fertilizer research and soil management in Africa. OAU's Council of Ministers approved the establishment of the African Center for

Fertilizer Development (ACFD), but member countries did not ratify it. Nevertheless, this center is the only African institution that is mandated to promote the development of the fertilizer sector. The center works to improve agricultural productivity through the balanced and effective use of mineral fertilizers, research on soil fertility management, and promotion of fertilizer production. The center was implemented in collaboration with regional economic organizations, private organizations, and other partners, who should be thanked for their contributions.

Today, member countries must seize the opportunity to ratify the establishment of the ACFD, demonstrating that this Summit is action-oriented. To achieve this goal, public-private partnerships must be established to manage the center and strengthen its capacity to assist member countries in fertilizer

All African governments—especially the Republic of Nigeria—should be congratulated for initiating fertilizer production, which will reduce Africa's dependency on others. This fertilizer production must meet the needs of African farmers and agriculture.

strategy and policy development.

All African governments—especially the Republic of Nigeria—should be congratulated for initiating fertilizer production, which will reduce Africa's dependency on others. This fertilizer production must meet the needs of African farmers and agriculture. The New Partnership for Africa's Development (NEPAD) and other African institutions will surely support this.

Finally and most importantly Africa needs peace, stability, and good governance, as well as the free movement of persons, goods, and services. Democracy ensures liberty and full participation of *all* people.

Goodwill Message

Honorable Jeanne Dambendzet, Minister of Agriculture, representing His Excellency General Denis Sassou-Nguessou, President, Republic of Congo and Chairman, the African Union



This Summit is held as Africa and the world are striving to fulfill the first Millennium Development Goal: to reduce the number of people suffering from hunger by half by 2015. Of the world's 2.5 billion malnourished people, 900 million live south of the Sahara. This is why decision-makers have gathered at this Summit—to increase fertilizer use to raise the production and productivity of African agriculture.

Many African countries face the problem of

Thus, African countries should look to themselves for inspiration and examples in bringing reform through appropriate agricultural policies.

inadequate food security, but at the same time there have been promising improvements in food security. Thus, African countries should look to themselves for inspiration and examples in bringing reform through appropriate agricultural policies. Africa is rich in land and water resources and should not be lagging in food production.

Numerous areas should be addressed to increase agricultural productivity in Africa, including water management, building of farmers' capacities, marketing of produce, land management, and development of road infrastructure. Fertilizer use must also be integrated into farming systems. Increased agricultural production is imperative for the achievement of food security and poverty reduction. Thus, it is the responsibility of African leaders to ensure adoption of measures to develop agriculture. This corresponds with the calls by NEPAD.

The Republic of the Congo has potassium, phosphates, and natural gas. The country is emphasizing the importance of

agricultural development, and concurs with other African countries' commitment to agriculture, including the 10% allocation of the national budget for agriculture. The Summit will also contribute to an increase in rural employment, and thus will encourage populations to stay in rural areas.

Fertilizer use should be prudent, however, to foster environmental protection, good management of natural resources, and maintenance of biodiversity. Thus, we need a code of conduct to guarantee appropriate use of fertilizers.



Small input dealers in Africa need access to capacity building and credit to improve their businesses.



The Heads of State Session.

Goodwill Message

Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa



Thank you for contributing to the development of Africa and its food security and for making Africa proud. As you know, NEPAD is a program of the African Union, developed by African leaders and based on partnership among African countries to promote sustainable development. NEPAD promotes good governance and rule of law, investment in our people, and pursuit of policies that accelerate economic growth and human development.

The NEPAD Secretariat works collaboratively and extensively with the African Union Commission, Regional Economic Communities, and member countries to determine priorities, mobilize resources, and coordinate program implementation. Progress has been made in

moving NEPAD from a concept to policy development and implementation, particularly for the agricultural sector, in most African countries.

In 2002 the African Ministers of Agriculture endorsed the Comprehensive Africa Agriculture Development Program, or CAADP. In 2003, African Heads of State and governments adopted CAADP as the framework to promote food security and foster sustainable agricultural development. Our leaders also pledged to allocate 10% of national budgets to the agricultural sector. Since then, widespread stakeholder consultations were instrumental in reaching the targets of regional and national agricultural programs.

CAADP has set a target of 6% yearly growth for the agricultural sector. To achieve this growth rate at the national level, there is a need to raise yields by increasing farmers' use of fertilizer and other modern technologies. It is CAADP that brings us here today. The Africa Fertilizer Summit was convened within this framework.

Like the spirit and principles of NEPAD, the Summit has two guiding principles:

- This is an action-oriented initiative to make fertilizer available and economically accessible to farmers.
- This initiative is African led. Civil society organizations, the private sector, and key stakeholders have made several recommendations to announce development of the fertilizer sector.

Civil society organizations, the African private sector, and other key stakeholders call for greater involvement, including of farmers' organizations, in fertilizer programs. Priorities identified for action include capacity building, policy formulation, and monitoring and evaluation. The stakeholders call for institutionalization of the tri-sector model, which includes the public and private sectors and civil societies, in pro-poor partnerships. They call for the support and coordination of key stakeholders to work with govern-

ments to implement Summit recommendations.

The gender, parliamentary affairs, and civil society unit in the NEPAD Secretariat should be replicated in every country and at all levels of government. African governments should ensure that special policies and programs are implemented to effectively address the needs of women, youth, and the poor in terms of agricultural inputs, subsidies, extension services, land, and credit. Stakeholders have also recommended that the government and private sector put mechanisms in place to foster and secure markets.

It is not our intention to come to Abuja to brainstorm. As you know, NEPAD and its implementing partners have worked since January with Regional Economic Communities and countries to identify concrete and practical options to accelerate accessibility, affordability,

From the outset, it was our intention to discuss solutions, not to rehash known problems.

With your continued leadership and support, however, Africa will successfully break the cycle of food insecurity and hunger.

and incentives for millions of African farmers to increase fertilizer use. From the outset, it was our intention to discuss solutions, not to rehash known problems. I am happy to report that a number of practical, concrete, and implementable actions have been identified that will ensure rapid expansion of fertilizer use in Africa over the next 5 years.

The Summit will outline in detail the recommendations identified in addressing Africa's fertilizer crisis and in achieving CAADP's 6% growth target. Reversing the alarming trends will take time. With your continued leadership and support, however, Africa will successfully break the cycle of food insecurity and hunger.

Goodwill Message

Dr. Judith Rodin, President, The Rockefeller Foundation, U.S.A.



We at the Rockefeller Foundation see the tremendous potential for an African Green Revolution. It will be a hard battle, with many hurdles—but *it can be won*.

The Rockefeller Foundation has made critical investments to help achieve this goal, through initiatives to improve Africa's soils, and to expand the varieties of crops available to farmers that can enhance nutrition and resist pests, diseases, and drought.

We have recently focused on ways to build and strengthen rural markets, training stockists called "agro-dealers" who can supply farmers with the fertilizers, seeds, and other inputs they need.

But we all know that fostering such a vibrant rural marketplace requires more. It needs:

- New forms of *credit guarantees*, to provide farmers with modest but essential capital for purchasing fertilizer and

other agricultural supplies.

- *Smart subsidies* for the poorest farmers who have little means to afford these inputs.
- *Incentives* to catalyze local manufacturing and distribution facilities that will lower the costs of seeds and fertilizers.
- And finally, it needs a significant *financing mechanism* to support the overall agricultural sector.

As with any system, every element is crucial here.

Let me briefly describe some fascinating results from work along just one element of this continuum. We have developed a pilot program that creates a commercial market for fertilizers, seeds, and other farming products in Malawi, Kenya and Uganda by supporting strong organizations such as AT-Uganda, the Agricultural Market Development Trust in Kenya, and the Citizens Network for Foreign Affairs. It builds what some have called "the missing middle." It is the local private shop owner:

- Someone who has gained the knowledge and management skills to run a profitable retail business.
- Someone who can be offered credit and access

to capital to buy supplies in bulk and keep the necessary inventory on hand.

- Someone who is trained about fertilizer and seeds to help local farmers understand what to buy and how to use it.

And, this is crucial:

- Someone whose shop is in or near the village—so that the farmers don't have to travel for miles to get there and can easily transport the seeds and fertilizer back to their fields.

A network of these retail entrepreneurs, spread across rural Africa, would fill the gap and create a vibrant marketplace. Let me tell you about one of them.

In 2002, Janet Matemba was a wife, a mother, and the owner of a small grocery shop in the village of Lumbadzi in rural Malawi. She sold supplies like sodas, soap, biscuits, and cooking oil to farmers in the village.

Janet hesitated when a representative of our partner, the Rural Market Development Trust, approached her about selling agricultural products. It would mean extending herself financially, learning new skills,

and stepping into unfamiliar territory.

Janet Matemba eventually decided to take the training course and become a certified agro-dealer. She studied business management and learned about accounting, inventory, and customer service. With the help of a guaranteed credit facility, she bought fertilizer and seeds from the wholesale suppliers in 50-kilogram bags.

Janet broke those bags down into smaller, more manageable packages of 10, 5, 2, and even 1 kilogram—small enough for a farmer to carry on a bicycle, or on foot. She began selling the packages to the local farmers, and her business took off.

Ms. Matemba expanded her shop—it's now the size of a warehouse. Last September, at the end of the growing season, Janet Matemba calculated that her sales for the year were \$200,000, much of which she has reinvested into her growing business. This is a remarkable achievement in a country with an annual per capita income of less than \$600.

The Minister of Malawi told us yesterday that they are having a bumper harvest, and I'm sure that agro-dealers like Janet played a big role in providing the inputs to enable farmers to achieve

this success. We hope that the Malawi Government will support policies that keep the agro-dealers thriving.

Janet Matemba is one of many examples of the potential of small retail entrepreneurs to take part in transforming the African landscape—working hand-in-hand with farmers to replenish depleted soils, create a viable agricultural marketplace, and enhance Africa's ability to feed and nourish its people.

The next step is bringing all the Janet Matembas together to pool their resources so they can benefit from economies of scale and the power of collaboration. To a degree, this is already happening.

Agro-dealers have begun to form purchasing associations that can offer group collateral to the fertilizer companies, buy supplies at lower prices, and also bargain for better credit financing arrangements. The challenge is to continue building the "missing middle."

Janet and others like her take big risks, and their efforts need to be supported by national governments, banks, and the private sector for this important experiment to succeed.

She and thousands of others across Africa are willing and able partners in

Africa's future. But to be effective agro-dealers, they need supportive and consistent government policies, and an effective supply chain that includes an enlightened private sector and credit facilities that ensure predictable access and reasonable cost.

As our friend, Norman Borlaug, has said so wisely, they need "political will and the correct economic policies."

This Summit provides that opportunity—the moment to act is *now*, to invest in agriculture as the engine of economic growth in Africa.

The technical expertise shared at this meeting demonstrates powerfully the remarkable gains in production by investing in the health of the soil.

Building agricultural input and output markets that serve small-scale farmers, including those in remote, rural areas, will be key to assuring that this economic development benefits the vast majority of Africa's people.

We have heard new ideas here about how to create accessibility, affordability, and appropriate incentives to encourage greater use of fertilizer. But to make these ideas a reality, this Summit *must* result in concrete measures. It is an ambitious goal. And we know that it is achievable.

But it can only be accomplished through collaboration and integration between each sector represented at the Summit and among African countries across the continent.

National governments will need to take the lead and commit significant resources and promote policies that support the entrepreneurial talent, the drive, and the energy of people like Janet Matemba—and the farmers she serves.

Achieving this goal will also need involvement of the private sector, particularly the fertilizer industry. And it will need support from the donor community. The Rockefeller Foundation is delighted to play a key role here.

Achieving Summit goals will not only feed the hungry people of Africa, but in the process, it will establish the African people in their rightful place in a new economic equation. By investing in them—their entrepreneurial spirit, their dedication and work ethic, and their seemingly endless reserves of optimism—we *can* usher in a new era: an African Green Revolution.

The need is great, the cause is urgent, and *the time is right*. We stand ready to offer our best help.

Script of Address by PRESIDENT JIMMY CARTER FOR THE AFRICA FERTILIZER SUMMIT

Jimmy Carter, 39th President of the United States of America and Founder, The Carter Center, U.S.A.



This is the transcript of the video address made by H.E. President Jimmy Carter during the Heads of State session:

“I regret that I am unable to join you in Abuja at the Africa Fertilizer Summit. As one of the founders of the Sasakawa-Global 2000, I have a deep interest in increasing farm production in Africa.

“In his 1970 Nobel Peace Prize lecture, Dr. Norman Borlaug said the “Green Revolution” bought mankind only 30 years—that unless population growth were slowed we would again face a food crisis.

“It is now more than 30 years later, and while population growth has slowed, it will grow by 50 percent to 9 billion people by 2050.

“Although Africa has some of the highest fertility rates in the world, per capita food production has dropped.

“We need to do more.

“While African nations work to slow population growth, the agricultural sector must increase its productivity quickly, with an emphasis on biotechnology and soil fertility.

“Poor soil fertility must be overcome.

“We know that nutrient-depleted soils are the greatest limitation to African agriculture. But efforts to improve soil health have been hampered by insufficient local capacity to produce fertilizer and the resources to import it.

“We now have the improved seeds to catalyze an African Green Revolution. But those seeds must have nutrients to produce the grain that Africa so desperately needs.

“More than 80 percent of Africa’s farmland is severely depleted of vital plant nutrients.

“Africa imports about 19 million tons of cereal grains per year, at a cost of \$3.5 billion. If soil erosion and nutrient loss continue at the current rate, crop yields in Africa will decline by as much as 30 percent by 2020. This will lower total cereal, root and tuber, and legume production by about 26 million tons yearly. Meanwhile, Africa’s population will increase from today’s 750 million to 1.1 billion people.

“Without progress in increasing soil fertility, hunger will be a constant companion of Africa and a potential cause of conflict.

“Sasakawa-Global 2000 and other agricultural organizations have developed innovative ways to restore soil fertility, such as conservation tillage and green manures.

“Those of you gathered for the Africa Fertilizer Summit face a tremendous challenge to develop a strategy for rapidly providing both mineral and organic fertilizers to restore the nutrient-depleted soils of Africa. The African Union showed vision in initiating the Summit, and in having it chaired by Olusegun Obasanjo, who is not only

President of Nigeria, but also my friend and a fellow farmer. I’m pleased that the International Fertilizer Development Center, which I helped establish, is implementing this historic Summit.

“Some worry about environmental consequences of fertilizer use in Africa. But with sound management practices, the hungry soils of Africa will make almost all nutrients available to crops. In fact, the alarming mining of soil nutrients in Africa makes the use of mineral fertilizer environmentally friendly. The nutrients will add organic matter to the soil, increase vegetative cover, and reduce soil erosion.

“The goals of Sasakawa-Global 2000 are compatible with those of the Summit: to reduce poverty, improve food security, and protect the natural resource base in sub-Saharan Africa.

“You at the Africa Fertilizer Summit have a historic opportunity and an awesome responsibility: to leave healthier soil for our children and grandchildren, and more important, *hope* for the future.”

Presidential Address

His Excellency Olusegun Obasanjo, President, Federal Republic of Nigeria



The most important goals in our national development—the urgent need for Africa to double its fertilizer use, improve agricultural productivity, and raise rural incomes in the face of a rapidly growing population and worsening poverty—cannot be overemphasized. The simple but brilliant approach on how to improve crop yields and produce high-yielding varieties that respond appropriately to the use of fertilizer is known the world over. However, it has yet to become the common practice in our vast continent.

This first-ever Africa Fertilizer Summit represents a major attempt to synthesize the disparate fertilizer policies of our various countries into a programmable coherent whole. This Summit will hopefully result in concrete actions to improve the

fertility of Africa's soil through a more efficient use of organic and inorganic fertilizers. We have a common goal, which is to build consensus around issues that constrain fertilizer use in Africa and to agree on strategies that will advance agricultural production. We all agree that increasing the health of our mined soils with both organic and mineral fertilizers is a key component to achieving Africa's Green Revolution.

This gathering, therefore, is a crucial milestone in our quest to rapidly reverse our low agricultural productivity and accelerate food security for our needy population.

We will also address the challenges facing Africa today in the fertilizer sub-sector. These include conflicting and contradictory national policies, lack of market access, utilizing a commodity of scale, infrastructure, and financing.

We anticipate that the outcome of this Summit will allow Africa to take bold steps toward achieving agricultural growth and productivity, food security, improved nutrition, and higher incomes for our hard-working, but poorly rewarded, farmers.

To move forward in a sustainable manner, we, as Africans, must put our house in order. It is heartwarming to know that we are already doing this by drawing on bitter lessons from the past. We must reaffirm our commitment to giving agriculture the priority of place and resources in our planning and development process. We must be consistent and predictable. We must also exploit our areas of comparative advantage and develop products that will help our populations achieve their highest productive potentials and improve their living conditions. We must produce what we consume and also produce for export. To achieve this, we must integrate and exchange ideas, experiences, information, and best practices for sustained success. This is what the new African spirit is all about.

We all know that farmers in sub-Saharan Africa have traditionally employed shifting cultivation by allowing depleted soils to rest and regain fertility. Today, however, population pressure compels us to grow crop after crop, thereby mining the soil of nutrients. Although more than 70% of Africa's active population is directly engaged in farming,

farmers do not have enough to show for their toil.

Farmers will eagerly use fertilizer if they can find access to it, at the price they can afford, and profit from it. They understand that fertilizers will increase their yields and that this will invariably improve their incomes. African leaders recognize that with access, affordability, and incentives, farmers will use fertilizers and improved seeds, making agriculture the engine for proper growth as it has been in Asia and other regions.

Africa's low fertilizer use is also environmentally unsustainable. Not only does it lead to depleted soils, but it also contributes to deforestation with poor productivity from existing farmlands. Now, our forests do not provide enough wood to use for cooking or to keep the growing population warm. Therefore, we should be equally mindful of the need to use fertilizers in a judicious and environmentally safe manner. We must also pay attention to water issues, especially water harvesting and irrigation. We all know that adequate fertilizer usage and water management go hand in hand.

The sustainable and efficient use of fertilizers

should be treated as an integrated strategy. The only viable alternative for us to achieve the Millennium Development Goals is to increase agricultural productivity and adopt and adapt new ideas, new technologies, and new practices. Our farmers are not empowered to these new things. They need empowerment.

In Nigeria, agricultural development is taking off. In the last year we achieved over 8% growth in agricultural production. This has expanded agricultural exports on items such as cassava, reduced food imports, improved cultivatable arable land, fostered private sector participation, promoted eco-friendly farm practices, and protected prime agricultural lands for sustained agricultural production.

Our national strategy paper highlights Nigeria's strategy in developing the fertilizer sector to meet the rate of growth in fertilizer supply and use in a way that is commensurate with the required rates of agricultural growth to achieve food security. This paper will be available to you. We have also tried to estimate projections on major crop areas, crop yield, and fertilizer use, which formed the basis for articulating our national fertilizer strategy.

Nigeria's agricultural and food self-sufficiency strategy includes the

“Presidential Initiative on Agricultural Commodities.” This presidential initiative is set for increased production, processing, marketing, and export of major crops. Under my chairmanship, all concerned stakeholders, public and private, are to gather in a participatory and parliamentary-like atmosphere to discuss opportunities and constraints of production and self-sufficiency on a particular commodity or food item. These initiatives are followed by periodic progress reports and assessments on each commodity program. This approach has brought about broad-based citizen participation on issues critical to their daily lives, thus making them part of the policy process and sensitizing them to the importance of their roles as citizens in the nation's development process.

The promotion of women farmers for agricultural development is a deliberate policy of the Nigerian government. Our vision for the fertilizer sector is to provide good quality fertilizers at the right time to the farmers in the most cost-effective manner. Our mission is to ensure that Nigerian farmers have easy farm-gate access to affordable high-quality fertilizers to increase agricultural production and improve their quality of life. Apart from inputs for agriculture, we have three commodity companies that want to ensure profitable

prices for the farmer throughout the year.

The National Council on Agriculture, our highest policy-making body in the agricultural sector, has initiated the policy framework for the establishment of ready and available market outlets for farm produce that will ensure high profitability and agribusiness. We are not resting on our laurels. We continue to intensify measures and address existing adverse conditions. We are making gains in the availability of quality foods on a sustainable basis through building physical, social, and economic infrastructure in rural areas. We are improving market infrastructure and access to markets for agricultural products. There is coordination and collaboration among various stakeholders in the downstream agricultural sector to close the gaps between food production and nutrition issues. We should produce locally to satisfy our needs.

Nigeria has an abundance of natural gas for fertilizer production. Natural gas can be used in the production of ammonia and urea, materials that presently have a strong world market and, if produced, could bring added value to Nigeria's resource endowment, particularly in the production of nitrogenous fertilizers. Rock phosphate, a significant source of phosphorus fertilizer, is also available in commer-

cial quantities at several locations. This is similar to limestone deposits, which are spread across the country and can be used as fillers in blended fertilizers. Sulfur, a secondary nutrient, derived from petroleum exploration in our Niger Delta region, is also available in abundance. We have privatized a major fertilizer company and we are coming out with a competitive gas policy.

It is now my pleasure to contribute a sum of \$10 million as a means of making the Africa Fertilizer Facility a reality.

Now let me once again thank and commend the Rockefeller Foundation and its President, Judith Rodin, for the vanguard role they played in planning, preparing for, and supporting this Summit here today and for hosting the Eminent Persons Group meeting in New York. Let me also thank President Chissano, Dr. Borlaug, AfDB's President, the World Bank, NEPAD, IFAD, IFDC, and, of course, the chairperson of the AU Commission, President Konaré, and his team in Addis Ababa, for their support of this Summit. It is now my pleasure and privilege not only to happily welcome you but also to formally declare this Summit open and wish you all a very successful stay and deliberation here. May God continue to bless Africa.

Report on the Conclusions and Recommendations of the Ministerial Session

Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria



Africa needs a five-point action plan:

1. Develop agro-dealers (rural stockists) across rural Africa.

In an African village, you can find Coca-Cola, Pepsi-Cola, or Fanta, but you cannot find seed or fertilizer. Therefore, there is a need to develop agro-dealers across the continent. Nigeria has experienced success in this regard through the Developing Agri-Input Markets in Nigeria (DAIMINA) project that developed 4,000 dealers with the support of the United States Agency for International Development and the federal government. Agro-dealer development has also been successful elsewhere in Africa, e.g., Malawi.

2. Establish national agricultural input credit guarantee facilities.

To link agro-dealers with input supply companies, these facilities would guarantee credit to input dealers from commercial banks and micro-credit institutions. In Malawi, this yielded very high (16:1) capital leverage ratios. Therefore, such credit guarantee facilities are an important area of action resulting from this Summit.

3. Develop “smart” subsidies for the poor and vulnerable.

In general, fertilizer availability should be increased. However, smart subsidies that directly target the very poor should also be developed. The subsidies would not displace the

In an African village, you can find Coca-Cola, Pepsi-Cola, or Fanta, but you cannot find seed or fertilizer.

private fertilizer markets. Instead, subsidies would make inputs accessible and affordable to the poor, raising their demand for fertilizer.

4. Run regional fertilizer procurement and distribution centers; remove trade barriers; promote local fertilizer manufacturing.

Located strategically in each region, these centers would be run as private-public partnerships. Removing trade barriers and promoting local fertilizer manufacturing will make fertilizer more available and less expensive throughout Africa.

5. Establish the Africa Fertilizer Development Financing Mechanism.

While the finances for the facility have not been decided, President Obasanjo has suggested possibly locating the facility within the African Development Bank. The functions of the facility would be to:

- Support the establishment of regional fertilizer procurement and distribution facilities.

- Provide credit guarantees for fertilizer importers and distributors.
- Develop the African fertilizer manufacturing capacity.

President Obasanjo has graciously granted US \$10 million for the start-up of this facility.

(Honorable Bello then presented the draft resolution for the Heads of State.)

In general, fertilizer availability should be increased.

Remarks

Dr. Donald Kaberuka, President, African Development Bank (AfDB), Tunisia



Over the last 5 years, the continent of Africa, despite the many challenges it faces, both internal and external, has nonetheless registered a record real economic performance of 5.5%—running, for the fifth year, ahead of population increase. It is true that this is to some extent driven by a buoyant international economy and good commodity prices, but it is also a result of cumulative reform efforts and a growing confidence in Africa.

We are, of course, aware that this rate of growth is still below the Millennium Development Goal target of 7% needed on a sustained basis; it is also not, from a geographical viewpoint, evenly distributed across Africa. Above all, we see that the growth is not creating concomitant increases in employment and poverty reduction. The

reason is because agriculture has been contracting or not growing as fast as can be expected, given its importance and potential. In a number of cases, signs of the so-called “Dutch Disease” have begun to emerge.

Agriculture continues to be the backbone of many African economies. Clearly, any broad-based growth strategy aimed at significantly reducing poverty must focus on increasing productivity in agriculture.

Today, in spite of decades of reforms:

- Cereal production stagnates at 1 ton per ha.
- Africa is spending \$3.5 billion on food imports.
- Overall growth in agriculture (in value terms) is barely keeping in tandem with the population increase.

I see a number of factors that will be critical for us to reverse this unacceptable situation:

- Our ability to learn from past policy errors vis-à-vis our support to agriculture.
- A successful strategy of intensification and production focused on fertilizer and other input use.
- Our capacity to manage water, infrastructure, and the environment.

- Our ability to retain an increasing value on the commodity chain.
- A successful conclusion to the Doha Round.

While African agriculture has been severely affected by external factors, such as volatility in international markets, droughts, or floods, we must also admit serious man-made errors, which compounded the challenges. During the 1980s and early 1990s, our pursuit of the necessary adjustment policies may have lacked a sequenced approach. We may have addressed issues of state failure without addressing those of market failure. While the overall objectives were and remain right, the liberalization of markets, sudden withdrawal of the government’s role in aspects of input and output marketing, and the removal of subsidies to all inputs created gaps in support to agriculture. The public sector, which was also undergoing reforms, was not able to fill the gaps. We may have opened up space but without the necessary incentives to develop the markets to deliver inputs and extension services in general. The policy thrust may have been right but the sequencing probably less so.

It is now evident that a much more robust public/private sector interaction is needed to ensure that Africa can improve its productivity and take advantage of openings in the international markets. The reforms must include diversification, deepening of the private sector, greater public support, removal of obstacles to cross-border trade and investment, harmonizing policies to promote regional integration, and growth in agricultural markets.

Over the years, the African Development Bank has provided \$10 billion worth of support to the agricultural sector, about 18% of the Bank’s portfolio. This share has increased in the last few years to about 23%, as a result of our increased backing of NEPAD’s multinational agricultural projects. These projects have benefited to the tune of about US \$160 million since 2002. Additional projects under NEPAD are currently at different stages of preparation. In this broad support to agriculture, provision of inputs such as fertilizer has accounted for 10% to 15% of project costs—in projects like the Ethiopia National Fertilizer Project and the multina-

tional New Rice for Africa Dissemination Project. These projects involve seven countries in the Economic Community of West African States (ECOWAS) region—Benin, Nigeria, Ghana, Guinea, Mali, Gambia, and Sierra Leone. In such projects, we have attempted to ensure that fertilizer is made available and sustainably distributed. We have been careful to pay due attention to soil fertility management and proper environmental conservation practices.

Many of the projects we have funded have included improvement of rural infrastructure such as feeder roads, storage facilities, rural water supply, and electrification. We have supported, in the form of grants, African Agricultural Research Institutions.

Throughout the years of our agricultural interventions, we have continued to draw lessons, including the importance of an enabling policy and institutional environment and the need for attention to the microeconomic issues. Let me share with you our experience in providing agricultural credits. In the past, lines of credit to agricultural development banks or similar organizations were an important channel for supporting rural access to finance. Over the years, in many countries, such institutions failed and

were closed. We shifted to providing the same support via private commercial banks. This has not been particularly successful; reasons range from the high risk averseness of the banks to the high transaction costs of handling numerous small farmers, etc. Efforts are now underway to identify the most optimal way to provide sustainable access to finance while building linkages to the formal banking sector.

We have also observed the importance of credit subsidies, provided they are *targeted, limited, and time-bound*. Equally, we have observed that fertilizers, when available, have been unaffordable and not packaged to suit small farmers. In any case, in the absence of water, infrastructure, weak or no security of tenure to land—particularly for women— incentives to boost productivity are limited. We are drawing upon all these lessons to ensure our interventions are limited to domains where we have, or can develop, comparative advantage.

At this Summit the focus is on use of fertilizer on the continent. Constraints have been well analyzed and solutions proposed. We have followed with interest the proposals to develop local fertilizer manufacturing capacity to take advantage of the continent's abundant raw material, the

provision of financial support to bulk procurement, distribution centers, credit guarantee facilities, and the use of smart, targeted subsidies.

We agree that government has, in the short term, an important role to play, to be the engine that drives the intensification process, including upgrading the needed rural infrastructure. I applaud the ongoing efforts by regional organizations to promote the interaction that expands the markets for both inputs and outputs.

The Summit has made proposals on actions to address the key structural and financing constraints that limit access to and use of fertilizers in Africa.

In order for us to avoid mistakes of the past, it is important that we take a longer term perspective in identifying lasting solutions to both *state and market failures*, which have limited fertilizer use.

The Bank will continue to work with African governments, the private sector, and the donor community to promote mechanisms and institutions that support lasting agricultural development. The Bank has been asked to host the financing facility, which may be supported via a multi-donor trust fund. We are pleased by this vote of confidence in the Bank. We also take

note of the leadership role that Nigeria has shown through the initial pledge of US \$10 million, announced by President Obasanjo. We shall work expeditiously with other agencies, which have also been requested to support this effort, to work out details of the financing mechanism for consideration by relevant banks.

In conclusion, let me point out that, while our attention at this Summit has been on fertilizer use, we must maintain our focus on the overall issues of the potential of science and technology and African agriculture. We must continue the fight in the context of the Doha Round to ensure market access for our agriculture. We must work for the success of the "Aid for Trade" agenda to boost our trading capacities, and we should definitely scale up our efforts on regional integration and Africa's internal market. Winning the war against hunger in Africa is a challenge for humanity, it requires sound policies, peace, stability, good governance, strong institutions, and careful planning. Today the world has enough resources and technological know-how to ensure that no human goes hungry in this 21st century of unprecedented prosperity.

Remarks

Mr. Lennart Båge, President, International Fund for Agricultural Development (IFAD), Italy



An African Green Revolution is clearly needed. We know it cannot just be a blueprint of the Asian one; we have very specific, complex, uniquely African features that need to be the starting point.

First we should recognize that sometimes there is gloominess about the lack of achievement. I think it is important that we recognize that when we move forward, when we act, we act on some measures of success. We have seen (after the structural adjustment) how agro-dealers are starting to provide farmers with inputs, traders are buying the produce, and agro-processors and exporters are contracting small farmers to produce crops for them. There is progress although too little of it. We need to upscale it. We need to make a more rapid difference in the lives of millions of farmers. In

Nigeria, the so-called “cassava revolution” has transformed this country into the largest cassava-producing nation in the world. In parts of Kenya, we are seeing specialized small-scale dairy farmers producing for sale in the market. Above all, we are seeing enormous changes in policy and institutions. Your governments represented here today are absolutely serious about rural poverty reduction. We see it manifested not only in this Summit, but in the governments, in the African Union, in the Poverty Reduction Strategy Papers (PRSPs), and in the 2003 Maputo Declaration. All these events and processes are testimony to a new or reinforced realization that without agricultural production, without enhancing agricultural productivity as President Carter referred to, we will not have the African Green Revolution and we will not be able to eradicate poverty.

But we should not become complacent. Huge amounts of work continue and it must be done urgently, but we can build on some achievements and on some tested theories when we go forward. Let me say this: IFAD pledges our full

support to the conclusions and the recommendations of the Summit. Today we are one of the principal external financiers of agricultural development in Africa. Over the first decade of this new millennium, we will have doubled our funding for Africa. Across the region, we are working to assist governments and national partners to develop and implement their policies and programs for reducing rural poverty.

But this is *your* Green Revolution. We are a partner and we are strongly behind it, but it is your Revolution. The events of the past 4 days have truly shown how much will and how much ability there is in

Africa to solve the continent’s problems and solve them now. The proposal for solving Africa’s fertilizer crisis represents an important part of achieving the African

There is progress although too little of it. We need to upscale it. We need to make a more rapid difference in the lives of millions of farmers.

Green Revolution. Let me end by stating that we are very much looking forward to working with your governments, with civil society, with the private sector, and with growing emphasis on vital farmer organizations to achieve the vision that this Summit represents.



Agri-Inputs are needed to increase agricultural productivity in Africa.

Remarks

Mr. Patrick Fleuret, Mission Director, United States Agency for International Development (USAID), Nigeria



The Summit has named fertilizer as a strategic intervention to reduce hunger and poverty and has produced excellent recommendations to achieve this goal. The United States Government is aware of the daunting challenges in improving food security and reducing poverty in Africa. We support your vision—the vision of Africa’s leaders—to achieve a robust and aggressive 6% agricultural growth rate per year.

The United States Government is supporting this vision through the Comprehensive Africa Agriculture Development Program (CAADP) of the African Union (AU) and the New Partnership for Africa’s Development (NEPAD). We believe this is a strong, integrated framework to

facilitate agricultural investment and donor coordination.

We must focus on the private sector and the power of open markets in order to sustain increases in the use of modern agricultural inputs. Incentives and policies that allow the private sector to unlock the power of the Green Revolution are the only viable long-term solutions. Consistency in policy initiatives encourages private sector investment, particularly in the capital-intensive fertilizer markets. In recent years, USAID—through its partnership with IFDC—has supported many programs for fertilizer development in Africa. Activities are now underway in Mozambique, Mali, Cameroon, Madagascar, Angola, Malawi, Ghana, Uganda, Zambia, Tanzania, and Kenya.

We will consider the recommendations concerning targeted subsidies to improve the poorest farmers’ access to fertilizer. Several key points include:

- Targeting smart subsidies to the poorest farmers, perhaps by using vouchers to access fertilizer.

- Building capacity to manage and monitor the programs.
- Involving the private sector and farmer organizations in the programs’ design and management.

We also endorse the recommendations that discuss other aspects of agricultural development. This includes related infrastructure, such as rural roads, small-scale water development, technology development, and capacity building of farmer organizations. These investments and others make fertilizer use possible.

We also agree that more fertilizer should be produced within Africa. These opportunities must be explored and developed where possible and economically viable.

In conclusion, to continue supporting agriculture and development in Africa, USAID will follow the recommendations from this Summit. First, we will focus on countries that are using policy and investment

programs to stimulate that 6% agricultural growth rate, a very important AU-NEPAD objective. Second, our support for fertilizer will be through AU-NEPAD’s Comprehensive Africa Agriculture Development Program. Third, we will work with governments

Incentives and policies that allow the private sector to unlock the power of the Green Revolution are the only viable long-term solutions.

and other partners to promote private sector input distribution, including fertilizer. Last, we will use our substantial food-aid resources combined with development assistance to reach the chronically food-insecure. In conjunction with governments, we will do what we can to link them to agricultural growth.

Remarks

Dr. Hafez Ghanem, Country Director, The World Bank, Nigeria, representing Mr. Paul Wolfowitz, President, The World Bank, U.S.A.



It is a great honor for me to represent the World Bank at this Summit and to be allowed to make a few remarks about the important subject of fertilizer use in Africa.

There is an urgent need to raise agricultural productivity in Africa to stimulate faster economic growth, improve food security,

Fertilizer, when introduced as part of a broader development strategy, can make a vital contribution to increased agricultural productivity in Africa.

reduce poverty, and achieve the Millennium Development Goals. As an institution whose mission is to fight poverty, the World

Bank is committed to supporting Africa's agriculture, and to help enhance productivity through increased and more efficient use of fertilizers.

Fertilizer, when introduced as part of a broader development strategy, can make a vital contribution to increased agricultural productivity in Africa. The discussions that have taken place during the past few days as part of this Summit clearly indicate that fresh approaches are needed for promoting fertilizer use in Africa. Many fertilizer promotion schemes that have been implemented in Africa in the past have had only temporary success. The benefits often could not be sustained, because

the schemes imposed very heavy fiscal and administrative burdens on government.

Drawing lessons from experience, the strategies coming out of this Summit must be based upon a strong partnership between government, the private sector, farmer associations, and civil society organizations.

Our work in Nigeria today provides an example of the kind of support the World Bank can provide to African agriculture. Currently, we are financing a project sponsored by the Nigerian government called Fadama. The Fadama project works with local community associations, including farmer organizations, to provide resources and help introduce new agricultural production technologies. Through the project, these groups can obtain matching grants to fund up to 70% of the value of investments made in productive assets. The investments help them to access farming inputs, including improved seed and fertilizer, develop and manage small-scale irrigation systems, and become involved in post-harvest value adding activities. The matching grants program being implemented here in Nigeria through the Fadama project provides a good example of a "market smart" subsidy, because it allows support to be channeled to poor farmers who lack

the resources needed to purchase fertilizer and other improved inputs, while at the same time building the effective demand needed to stimulate the emergence of a private sector-led inputs distribution system. It also shows what can be achieved through a successful partnership involving government, the private sector, farmer associations, and civil society.

We at the World Bank are delighted to be here and look forward to a continued and strengthened partnership with African governments, development partners, the private sector, and civil society organizations to ensure the success of the "African Green Revolution."

Drawing lessons from experience, the strategies coming out of this Summit must be based upon a strong partnership between government, the private sector, farmer associations, and civil society organizations.

Remarks

Mr. Jan Vlaar, DGIS, representing the Minister for Development Cooperation, The Netherlands



I had the opportunity to participate in all 5 days of the conference, and it was a pleasure to work with you. Exchanges of views were rich, frank, and open among the many specialists from both the public and private sectors, including many representatives from farmer and producer organizations. The Netherlands' contribution to the Summit consisted of indirect support through producer organizations and through IFDC. These contributions have borne fruit. In the meantime, despite the preparation of this Summit, the important work in the field continued normally through IFDC's Marketing Inputs Regionally (MIR) and Strategic Alliance for Agricultural Development in Africa (SAADA) programs.

This Summit is an important step in a continuous process. The Summit

Resolutions will be a reference point and milestone, for the African Union (AU)/New Partnership for Africa's Development (NEPAD), for individual countries, and for donors. It must help the ultimate beneficiaries, but also trigger collaboration among states and facilitate donor alignment.

As for our "alignment," we do fund programs for agricultural development in Africa, but not so many. However, we do believe that in Africa, agriculture is a key sector for fostering pro-poor economic development. Therefore, we very much adhere to the Summit's outcome and will contribute to it wherever it fits into ongoing programs and efforts in our partner countries. Some of these countries obtain general budget support. We believe very much in the importance of sound national plans for economic development and poverty reduction. A good Poverty Reduction Strategy Paper (PRSP) will inevitably contain agricultural development, with locally adapted priorities and actions that will be more detailed than the points mentioned, particularly in

the Summit Resolution. Such plans should be worked out at the national level, but also at decentralized levels, such as districts and rural communities, where it is possible to include all relevant stakeholders. Such plans will then include things that have been discussed during the conference, including some that did not make it into the Resolution. The speaker for the Rockefeller Foundation mentioned elements they support. I would like to mention some

...agriculture is a key sector for fostering pro-poor economic development.

that I did not hear: investments in soil and water conservation technologies and weather insurance to diminish risks for farmers who invest in rainfed agriculture. Insurance can be an alternative for irrigation with respect to the risk element. Detailed plans will have to be worked out associating all stakeholders, including farmers' organizations and the organized private sector. Possibilities should be identified for public-private partnerships, to

eliminate bottlenecks and to identify strategic public investment and support. This should trigger economic development and make markets work for the poor.

The Netherlands can support such plans by scaling up existing programs in African partner countries, supporting improvements in the business environment in these countries, and providing general budget support. The Netherlands will also continue to support your efforts to reach the targets of the World Trade Organization (WTO) Doha Round. More specifically, we are working with you on cotton. Also on the issue of international trade, we support your efforts to diminish the negative effects of food aid. Food aid should be strictly limited to cases where it is really needed, and it must be organized so that it does not spoil the market or discourage local production.

Subsidies for fertilizers must be organized in a smart way, which means using existing market channels and partnering with the private sector, instead of replacing private agro-input dealer networks.

We must be careful and creative. It is possible to prevent mistakes from the past.

We must be careful and creative. It is possible to prevent mistakes from the past.

The idea and importance of an Africa Fertilizer Development Financing Mechanism, such as proposed in the Resolution, is not yet clear to us. Some measures, such as the proposed regulation reform and elimination of taxes, must be dealt with at a regional scale. But the most important step must be to take other measures into account in developing comprehensive national development plans and national budgets. Funding arrangements in support of them will then be worked out in the most appropriate way. We are looking forward to your propositions.

Remarks

Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico



I need not be as gloomy today as I have been in the past when talking about food issues in different parts of the world. Why not? During the last 3 days, I have heard the interest expressed here in the Summit to attack this problem.

Based on experience with the Green Revolution in other countries, we know two of the three most important ingredients in improving the world food situation. One ingredient is the seeds of improved high-yielding, disease-resistant varieties. But, they have the potential to change world food production only if they are provided with the right nutrients—fertilizers. And that is the main thrust of this important symposium.

It is the third ingredient that we have not mentioned much, and yet it was crucial in some of the most critical

changes in the world food production over the last 3 decades. Permit me to turn back the clock to the 1960s and to the problems of food and hunger—and yes, starvation—in Pakistan and India. Who made the changes? The leaders! The leaders made the science and technology useful. There is no point in developing research methods in science and technology if they are not applied to improve food production and standards of living.

Who are these leaders? In Pakistan, it was Minister of Agriculture Malik Khuda Bakhsh Bucha, with the full support of President Ayub Khan. In India, it was Shri C. Subramaniam, Minister of Food and Agriculture, with the full support of Prime Minister Indira Gandhi. A decade later, China's Chou En-Lai made the most courageous decision in fertilizer investments when the first embargoes by the petroleum exporting countries caused the petroleum prices to increase and his supply of urea nitrogen from Japan was cut off. In 3 weeks, he made a commitment to establish ten 1,000 tons per day anhydrous ammonia plants and urea converters—the biggest fertilizer investment in the history of

the world. But, who put that into operation? Other political leaders. Deng Xiaoping changed the economic policy implemented by Minister of Agriculture He Kang.

These people made decisions that utilized technology developed in the case of wheat in Mexico by the cooperative Mexican government and the Rockefeller Foundation program, and in the Philippines by the collaboration of the Philippine government and the Rockefeller and Ford Foundations. They produced the seeds, but the agronomic technology was produced by many people, and the training programs were conducted by several international organizations.

The people who tested the varieties established the credibility of the total package of practices. I had the pleasure of training thousands of people who worked together across 15 countries in North Africa, the Near East, and the Middle East during that period. The data collected from them about the varieties' adaptation and resistance to disease made it possible, under the starvation conditions in India, for us to import 18,000 tons of seed of the

high-yielding disease-resistant varieties from Mexico. A year later, Pakistan imported 42,000 tons, and Turkey imported 23,000 tons. China imported 10,000 tons from Pakistan.

These were courageous decisions. At the time when this took place, gloom and doom were everywhere in the world. Many top academicians told the world to forget about India—there is no hope. China was probably worse, but we in the western world and in Africa knew very little about the conditions in China at that time. It was not until

1974 that I found the same situation there. But, I also found that the Mexican wheat technology had been transferred there from Pakistan. Both India and Pakistan became self-sufficient in wheat production and shortly thereafter in rice production: in 1968 in Pakistan; in 1972 in India; and in 1980 in China.

This was a result of those two basic ingredients—

But, the third ingredient, leadership, was the all-important one... Are there two or three, hopefully many more, who have the courage to take the fertilizer use recommendations forward?

high-yielding, disease-resistant varieties and the fertilizer that permitted them to reach their yield potential. Many other important ingredients went into it, but these were the two basic ones. But, the third ingredient, leadership, was the all-important one. Now, my challenge to you, Heads of State and Ministers of Agriculture, is this: Are there two or three,

hopefully many more, who have the courage to take the fertilizer use recommendations forward?

I want to say here once and for all that I have always recommended using all the organic fertilizer that is available, but I get

sick and tired of listening to people say, “We can do it with organic fertilizer.” This is plain nonsense. We have spent 20 years in sub-Saharan Africa talking about this. Let us get busy with mineral fertilizer, with the recommendations that have been made, and put the pieces together.

I hope there are several Heads of State and Ministers of Agriculture who will get this African Green Revolution on the road now. Now! Because I’m 92 years old, and I do not know how many hours, days, weeks, months or maybe years I will be here. And I want to see that African Green Revolution on the way to changing food production!

Background Papers: An Overview

Fifteen background papers on topics relevant to the Summit themes were given to the Summit participants. Most were prepared for the Summit, but other relevant papers, which had originally been prepared in another context, were utilized. The background papers reviewed and analyzed a broad range of topics relevant to the Summit themes. The papers were written by policy experts, soil scientists, and economists, many with world-wide recognition in their fields. The purpose was to give an in-depth assessment of a particular issue affecting the fertilizer sector in Africa.

Summaries of all background papers are given in the Appendix. In the following, some of the main conclusions of each paper are highlighted, often with visual aids. The papers are presented in three groupings: Understanding Africa's Fertilizer Sector; Linkages of Africa's Fertilizer Sector to Soil, Environment, and Water Resources; and Diverse Approaches for Promoting Fertilizer Use on the Continent.

Understanding Africa's Fertilizer Sector

Achieving an African Green Revolution: A Vision for Sustainable Agricultural Growth in Africa *by Marjatta Eilittä*

The paper presents the current situation of low agricultural productivity and limited use of fertilizer in Africa and argues that achievement of increased agricultural productivity is essential to building stability and prosperity on the continent. The low agricultural productivity on the continent is in stark contrast to Asia, where large increases in productivity resulted from the Green Revolution in the 1960s. The paper makes the case that now is the time to follow the call of the former Secretary General of the United Nations, Kofi Annan, to initiate an African Green Revolution. It describes the actors, history, objectives, and format of the Africa Fertilizer Summit as well as its important role in trying to achieve the goals of the Comprehensive Africa Agriculture Development Program (CAADP).

The paper ends with a call to Summit participants to channel their efforts toward the achievement of the Summit's objectives and the formulation of effective strategies and actions that will improve agricultural production in Africa through increased use of fertilizer: "It is only when the positive impact of these programs can be felt by the continent's farmers—whether a maize farmer in southern Benin reaping a half ton of maize from his degraded soils or a Ugandan farmer struggling to keep up his yield of banana—that we have started to achieve our goals. Until then, we need to keep working and remind ourselves that achieving 'a prosperous and peaceful Africa' is not only in all of our interests, but it is also our responsibility."

Overview of the Fertilizer Situation in Africa *by Oumou Camara and Ed Heinemann*

Against the backdrop of the current attention to create an enabling environment for broad-based economic growth and poverty reduction in Africa, Camara and Heinemann describe the direct link between the yield gains caused by fertilizer use and the Millennium Development Goals (Figure 1). The continent's fertilizer sector is complex, both continentally and within each country, but in general the demand for fertilizer is weak. The authors point out that although fertilizer consumption has recently increased, the relatively high increase rates (e.g., 1970-2002, 3% across the continent) does not represent large increases in absolute quantities, and in fact, during this period 12 countries had negative growth rates (Figure 2). In 33 African countries in 2002, fertilizer use averaged less than 10 kg ha⁻¹.

Camara and Heinemann review the weak production capacity on the continent as well as the development of policy environment in the past decades. This includes from the heavy government intervention in the post-independence period, to fertilizer price controls and subsidies in the mid-1970s, to the structural adjustment and liberalization starting in the 1980s. The latter, the authors conclude, "resulted in an institutional vacuum in support of agriculture" because "in only a few countries was there a private sector ready to establish fertilizer supply chains into rural areas, and many farmers found themselves worse off in terms of fertilizer availability, variety, and, above all, prices." Current policies are

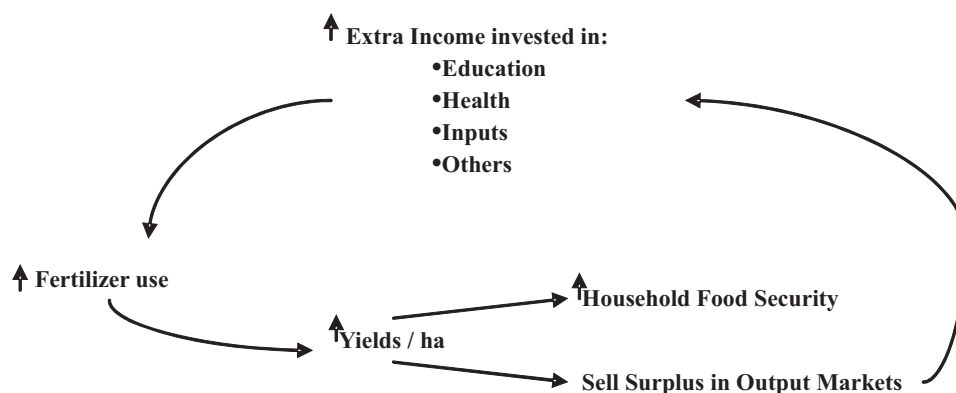


Figure 1. Linkages Between Fertilizer Use and the Millennium Development Goals

Negative	Between 0 and 5	More than 5
Congo, Rep -11.16	Mauritius 0.40	Burundi 5.01
Sierra Leone -7.03	South Africa 1.17	Benin 5.26
Somalia -5.34	Gambia 1.27	Mauritania 5.48
Central African Rep -4.27	Sudan 1.30	Chad 6.52
Tanzania -4.18	Cameroon 1.40	Malawi 7.56
Madagascar -2.46	Zambia 1.65	Niger 9.27
Réunion -1.49	Burkina Faso 1.68	Nigeria 10.36
Algeria -1.03	Congo, Dem R 2.42	Togo 10.98
Zimbabwe -0.89	Kenya 2.93	Lesotho 11.67
Guinea -0.62	Mozambique 3.16	Rwanda 12.58
Swaziland -0.09	Botswana 3.41	
Uganda -0.02	Mali 3.31	
	Côte d'Ivoire 3.57	
	Egypt 3.78	
	Tunisia 3.78	
	Morocco 4.14	
	Ghana 4.72	
	Senegal 4.59	
	Libya 4.97	

Figure 2. Compound Annual Growth Rates in Fertilizer Consumption by Country (%), 1970-2002

fostering fertilizer access by smallholders, but the authors conclude: “Yet enormous numbers of farmers—particularly those in more remote areas or in areas of low population densities and agricultural potential—are poorly served by the new private sector markets. Accessibility remains weak, choice is limited, and prices are extremely high. There is still much to be done to make these markets work in a manner that is efficient, competitive, and transparent.”

The authors outline five elements to “break the high-price and low-demand cycle” on the continent:

1. Designing and strengthening policies for an environment in which smallholders can intensify their production systems.
2. Defining fertilizer’s role in national development strategies.
3. Strengthening human capital in research, extension, and among dealers and farmers.
4. Reducing fertilizer cost in ways that foster private sector development.
5. Improving the profitability of fertilizer use.

Fertilizer Raw Material Resources of Africa by Steven J. Van Kauwenbergh

This Summit background paper is the first work published that covers all fertilizer raw material resources in Africa—nitrogen, phosphate, and sulfur. This book is meant as a resource that will help stimulate the growth of Africa’s fertilizer industry. Over 400 pages, the book is based on the author’s research during his 22-year IFDC career. Africa has extensive resources of these three raw materials (Figures 3 and 4). Nevertheless, although six African countries control 42% of the world’s currently exploitable phosphate rock reserves and 50% of the total global phosphate rock reserve base, there is very little development of indigenous fertilizer raw material resources through local or regional production, making most of Africa rely on expensive imported fertilizer. The first four chapters of the book are background: introduction to fertilizers and fertilizer industry, overview of fertilizer production alternatives, fertilizer raw material characteristics and production, and assessment of fertilizer projects. The second half of the book consists of descriptions of all countries that possess significant nitrogen, phosphate or sulfur resources. Each country description consists of general country information, fertilizer resources, historical and current state of development of resources, and chemical and other analyses of specific materials.

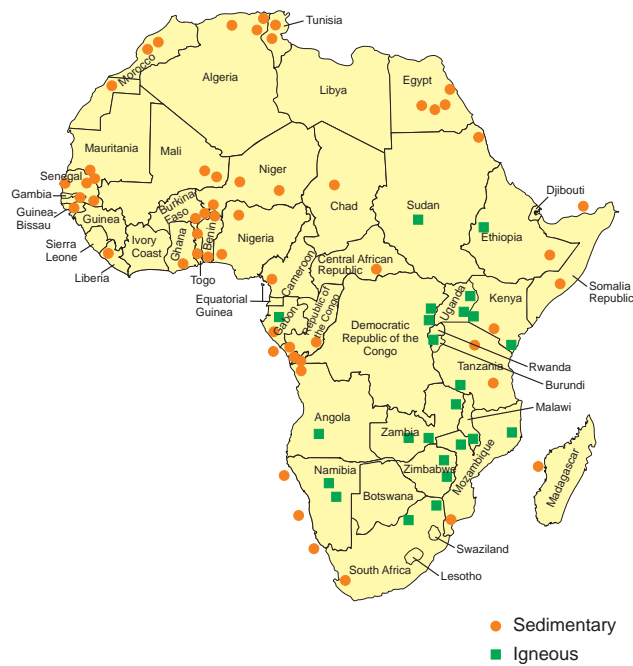


Figure 3. Significant Phosphate Rock Deposits of Africa



Figure 4. Significant Potential Nitrogen and Potash Resources of Africa

Factors Affecting Supply of Fertilizer in Sub-Saharan Africa

by *D. Ian Gregory and Balu L. Bumb*

In this background paper, which also has been published as The World Bank Agriculture and Rural Development Discussion Paper 24, Gregory and Bumb review fertilizer use, raw materials, production, and fertilizer trade in Africa. Three factors constraining fertilizer supply on the continent are given: market development factors, technical factors, and infrastructural factors.

Since fertilizer is readily available on the international market, the authors argue that “the problem of supply is essentially one of efficiency in procurement, distribution, and marketing.” What is needed now is for African countries and donors to invest resources in building the capacity of the private sector and supporting infrastructure, and thereby reducing fertilizer price by shifting the supply curve to the right (Figure 5). This will require actions centered on the five pillars of market development:

- Creating a conducive and stable policy environment.
- Human capital development of the emerging private sector.
- Improving access to business finance.
- Increasing availability of market information.
- Establishing regulatory frameworks and ensuring their enforcement regarding quality, quantity, nutrient contents, and truth-in-labeling.

These actions, the authors argue, need to be planned and implemented in a holistic way because fragmented efforts will not create the synergy needed for better supply systems and reduced transaction costs (Figure 6).

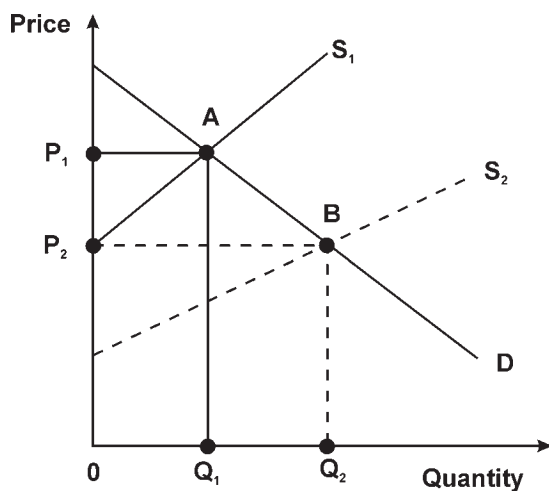


Figure 5. Reducing Fertilizer Price by Shifting the Supply Curve to the Right (SSCR)

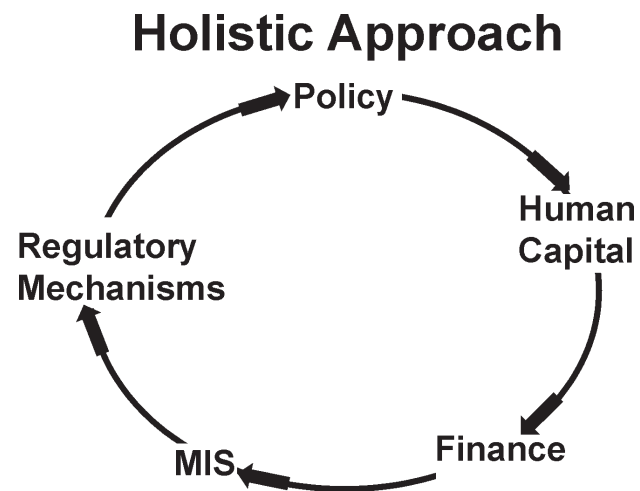


Figure 6. Holistic Approach

Factors Affecting Demand for Fertilizer in Sub-Saharan Africa

by *Valerie A. Kelly*

In this background paper, which has also been published as World Bank Agriculture and Rural Development Discussion Paper 23, Kelly proposes that, instead of making profit-maximizing fertilizer decisions, most African farmers consider two issues before they purchase fertilizer. The first is an assessment of the profitability of fertilizer use, both absolutely and relative to alternative expenditures; this issue concerns incentives to fertilizer use. The second is an assessment of the ability to acquire the desired amount of fertilizer and use it efficiently; this issue is related to issues of capacity.

Kelly then reviews incentives for fertilizer use in sub-Saharan Africa, including fertilizer response, input-output price relationships, and net returns and finds variable combinations of incentives for the various common crops in the continent (e.g., strongest for maize and irrigated rice; in export crops, good for tea; Table 1). For most crops, an important way to

improve profitability in sub-Saharan Africa would be to reduce the very unfavorable input/output ratios. In general, incentives could be improved by implementing programs that improve agronomic response, protect farmers against low and volatile output prices, and reduce fertilizer cost. Numerous ways are being tried to improve farmer capacity to purchase fertilizer, the second issue that farmers consider. The author argues that improving farmer capacity to use fertilizer will have to involve not only informing farmers about available technologies but also increasing their capacity to evaluate, adopt, and adapt the most appropriate technologies for their situation from a pool of available ones. The latter option is in stark contrast to the traditional “one size fits all” approach to fertilizer recommendations.

Finally, the author argues for a more nuanced approach to how fertilizer policy fits into a country’s overall development strategy and goals. Different types of crops require different approaches to extension on technical farming skills, development of input acquisition, and output marketing skills. Promotion of fertilizer use for different crops may also have different effects, from environmental to poverty alleviation to economic growth.

Table 1. Fertilizer Incentives: Summary of Key Indicators by Crop and Region

Crop	Region	Yield Response (O/N Ratio)			Price Incentives (I/O Price Ratio)			Profit Incentives (V/C Ratio)		Observations on Patterns and Incentives
		Typical	Min	Max	Typical	Min	Max	Min	Max	
Maize	E/S Af.	17	2	52	5-7	3.9	13.9	1	15	Maize consumes about 25% of fertilizer used in SSA but a high percent of maize production receives no fertilizer at all.
	W. Af. L.A.	15 10	0 5	54 18	2-4 1-3	1.9 .01	5.1 7.1	.69 1.2	26 5.3	
Cotton	E/S Af.	5.8	0	7	1.8	.07	4.6	.00	3.1	Accounts for about 17% of SSA fertilizer use; a very large percent of cultivated cotton area is fertilized.
	W. Af.	5	2	12	1.9	.09	3.7	.61	3.7	
Rice (irr.)	W. Af.	12	7	16	2	.2	4.5	1.6	3.97	Accounts for only 4% of SSA fertilizer consumption. Total SSA area in rice is small % of total cultivated area.
	Asia	11	7.7	33.6	2.5	1.4	5	1.5	3.1	
Sorghum	E/S Af.	10	4	21	6	3.2	9.3	1.5	2.6	Accounts for 8% of fertilizer used in SSA; very small portion of total sorghum area is fertilized.
	W. Af. Asia	7 7	3 2.8	14 21	2-4 2	1.4 1.7	4.9 2.6	1	18	
Millet	W. Af.	7	2.8	21				.5	39	Accounts for 3% of fertilizer used in SSA; very small portion of total millet area is fertilized.
	Asia	20	3	27				<1		
Ground-nuts	W. Af.	9	4	21	3	.3	4.2	1.5	5.8	Accounts for 1% of fertilizer used in SSA although a major cash crop in many countries.
	Asia	6.5	6	17	1	.7	1.2			
Coffee	E. Af.	8.5	5	10						Accounts for <1% of fertilizer used.
W. Af.	4	2	6							
Tea	E. Af.	14	8	35						Accounts for <1% of fertilizer used.

Source: Yanggen et al., 1998.

Notes: Information on VCRs was sparse, and costs that were used in calculating ratios were poorly documented, hence no attempt was made to generalize about “typical” VCRs. Information about shares of fertilizer consumption is drawn from Gerner and Harris (1993). Three crops that use a large share of SSA fertilizer (wheat 14%; sugarcane 11%; and tobacco 5%) are not covered because they are important crops in only a few countries and very little information about “incentives” for these crops was found. The shares reported by Gerner and Harris (1993) differ from those reported in Table 1, section 1.C. of this report because of differences in time periods and countries covered.

Linkages of Africa's Fertilizer Sector to Soil, Environment, and Water Resources

African Soils: Their Productivity and Profitability of Fertilizer Use

by Andre Bationo, Alfred Hartemink, Obed Lungu, Mustapha Naimi, Peter Okoth, Eric Smaling, and Lamourdia Thiombiano

Bationo et al. emphasize Africa's challenging biophysical environment and its implications for the development of a fertilizer sector. Examples include:

- Large areas with significant soil constraints.
- Widespread soil degradation, caused by the low inherent fertility, climate, and human processes.
- Extensive and increasing areas affected by moisture stress; only about 14% of Africa is relatively free of moisture stress.

As a consequence, by far the largest land category on the continent is that of unsustainable land (55%), which is fragile, easily degraded, and not productive. Medium and low-potential soils occupy 28.3% of Africa's soils, leaving only 16.3% to prime and high potential lands (Figure 7).

Due to the numerous constraints in the fertilizer sector, emphasis in recent decades has shifted to combinations of organic and inorganic methods to improve crop productivity on the continent. Fertilizer response by crops in different parts of the continent has generally been high, although variability in soil fertility and fertilizer recovery within an area and on the same farm is widespread. The impact of poor soil fertility on agricultural productivity is great. Even in the dry areas of the Sahel, several scientists have reported that with rainfall exceeding 300 mm, nutrients, not water, is the factor most limiting crop production (Table 2). The authors conclude: "Many development projects have invested billions of dollars in soil and water conservation. For the most part, these did not include soil fertility improvement and the water harvested in this manner is not reaching its full potential for productivity improvement."

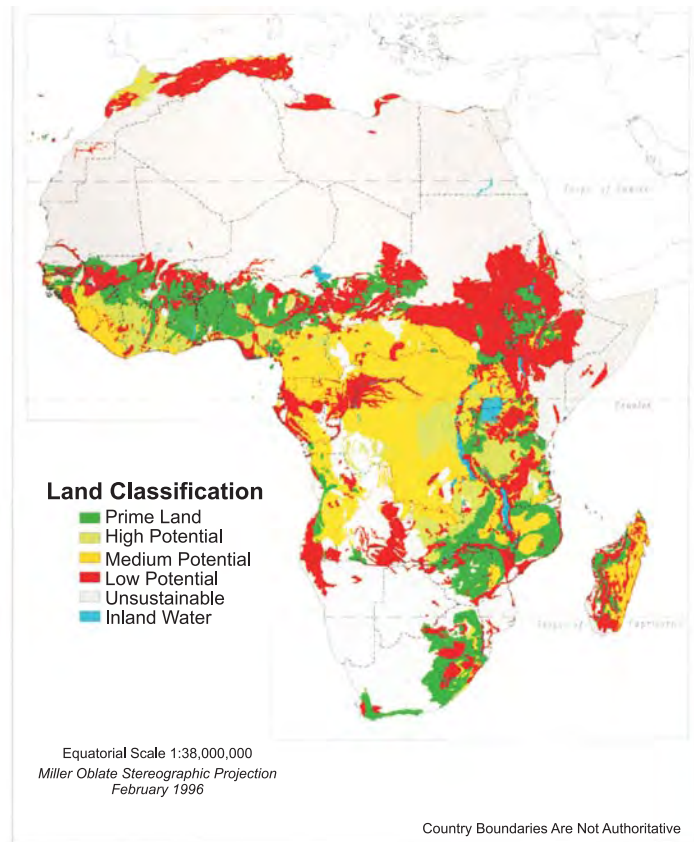


Figure 7. Land Classification of African Soils

Table 2. Water Use, Grain Yield, and Water Use Efficiency (WUE) for Millet at Sadore and Dosso (Niger)

Treatment	Sadore			Dosso		
	Water Use (mm)	Yield (kg/ha)	WUE	Water Use (mm)	Yield (kg/ha)	WUE
Fertilizer	382	1,570	4.14	400	1,700	4.25
Without fertilizer	373	460	1.24	381	780	20.4

Source: ICRISAT (1985).

**Agricultural Production and Soil Nutrient Mining in Africa:
Implications for Resource Conservation and Policy Development**
by Julio Henao and Carlos Baanante

The authors examine nutrient depletion rates from African farmland during the 2002-2004 cropping seasons by estimating soil nutrient balances, i.e., nutrient inputs and nutrient losses. They found that 85% of African farmland, or 185 million ha in total, had nutrient mining rates of more than 30 kg/ha of NPK yearly, and 40% (95 million ha) had rates greater than 60 kg/ha yearly. These rates vary by agroecological zone and by country, with rates being moderate (30-40 kg/ha) in the humid forest and wetlands of southern Central Africa and the Sudan, and over 60 kg/ha in the sub-humid savannahs of West Africa and the highlands and sub-humid areas of East Africa. The highest nutrient mining rates, over 60 kg/ha annually, are found in the agricultural lands of Guinea, Congo, Angola, Rwanda, Burundi, and Uganda. The average rates had greatly increased since the last assessment of 1995-97 (Figure 8).

The main factors responsible for the high nutrient depletion rates are soil erosion by wind and water (N and P) and leaching (N and K). Erosion alone causes nutrient losses of 10-45 kg/ha annually, and if not controlled, can lead to yield reductions of 17%-30% by 2020.

The authors conclude by outlining policies that are needed to reverse soil nutrient mining:

“Proper understanding of the nature and causes of soil nutrient mining is crucial to designing policies and investment strategies to efficiently reverse soil nutrient mining, restore soil fertility, and increase land productivity and food production. Such policies and investment strategies must be viewed as key contributors to the joint goals of increased agricultural production, food security, economic development, land conservation, and environmental protection.”

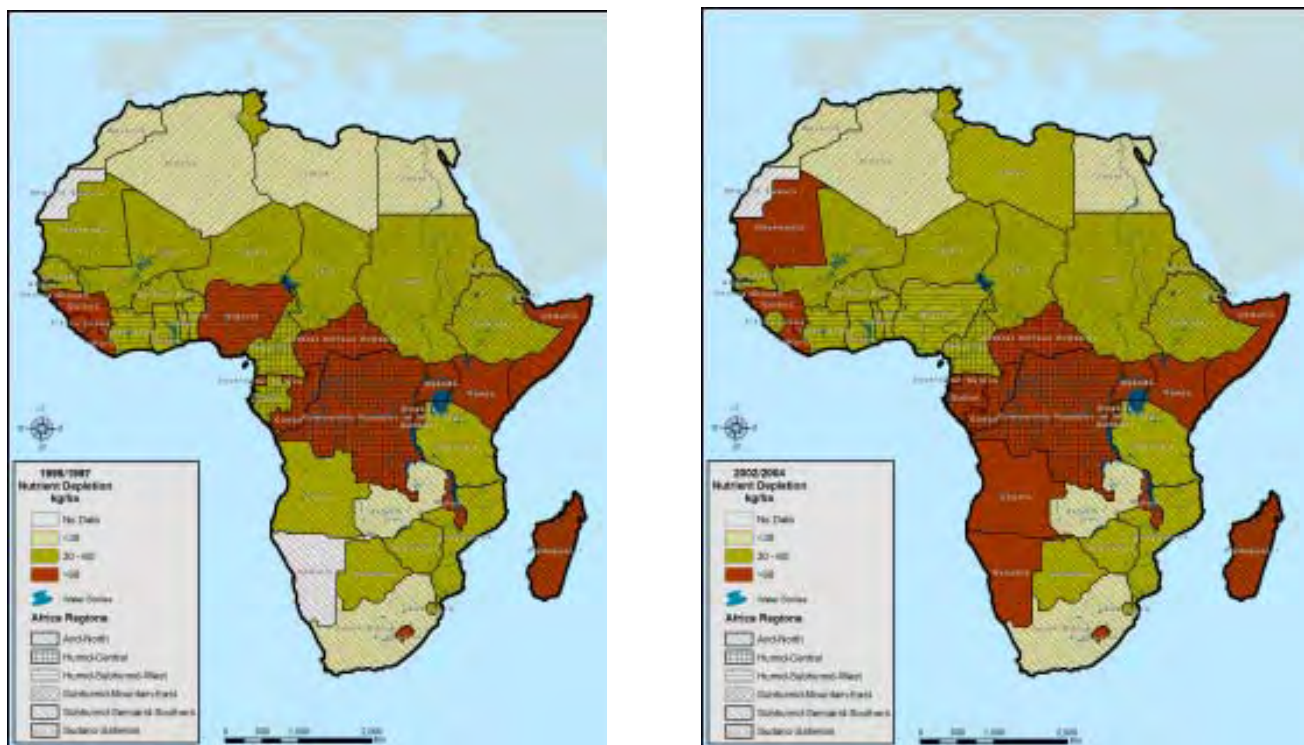


Figure 8. Nutrient Mining in Agricultural Lands of Africa (1995-97 and 2002-04)

Fertilizer Use and the Environment in Africa: Friends or Foes?

by Eric Smaling, Moctar Toure, Nico de Ridder, Nteranya Sanginga, and Henk Breman

Smaling et al. consider fertilizer use in the context of achieving two goals: halving by 2015 the proportion of people suffering from hunger (MDG 1) and integrating the principles of sustainable development into country policies and programs and reversing the loss of environmental resources (MDG 7).

Although many avenues exist for achieving MDG 1, such as food aid and bringing people to food, i.e., migration; by far the most desirable option is assisting people to produce sufficient food and income. Two factors in particular are causing Africa to lag behind other regions in the achievement of MDG 1: low and declining soil fertility and low fertilizer use. The authors argue: “Fertilizer can play a major role in the realization of MDG 1” and “targeting application to soil conditions and plant needs will lead to substantial yield increases at high fertilizer use efficiency or recovery rates.”

On the other hand, the authors argue, fertilizers also have an important role in achieving environmental sustainability. They help achieve the “provisioning ecosystem services,” such as production of food, fodder, and raw materials. In that context, loss of nutrients from agricultural ecosystems can be high and cause environmental problems. On the other hand, fertilizer use can help increase productivity, which relieves pressure from the natural lands, saving lands for the provision of other ecosystem services.

The authors identify two types of scenarios for the fertilizer-environment interface: “too much” and “too little.” The first involves nutrient overloading caused by high fertilizer rates and low fertilizer use efficiency. This can result in nutrient loading in river systems, greenhouse gases, and acidification. On the other hand, the second scenario—the one that is common in Africa—involves nutrient outputs that are higher than nutrient inputs (Table 3). This causes nutrient depletion and eventually low yields (Figure 9).

The authors state that “the myth that fertilizers are always bad for the environment is hard to eradicate in some circles” and outline avenues to an environmentally benign, increased use of fertilizers in Africa through changes in international policies, national policies and institutions, and in the technical sphere. The authors conclude that “fertilizers have been, still are, and will be indispensable in the future to feed the world population.”

Table 3. District-Level Nutrient Balances (kg/ha per year), Singling Out Cash Crops (FAO, 2004)

Study Area and Crop	N	P	K
Ghana, Nkawie District	-18	-2	-20
Cocoa	-3	0	-9
Ghana, Wassa Amenfi District	-4	-1	-11
Cocoa	-2	0	-9
Kenya, Embu District	-96	-15	-33
Coffee	-39	-8	-7
Tea	-16	-1	-2
Mali, Koutiala Region	-12	1	-7
Cotton	-14	12	17

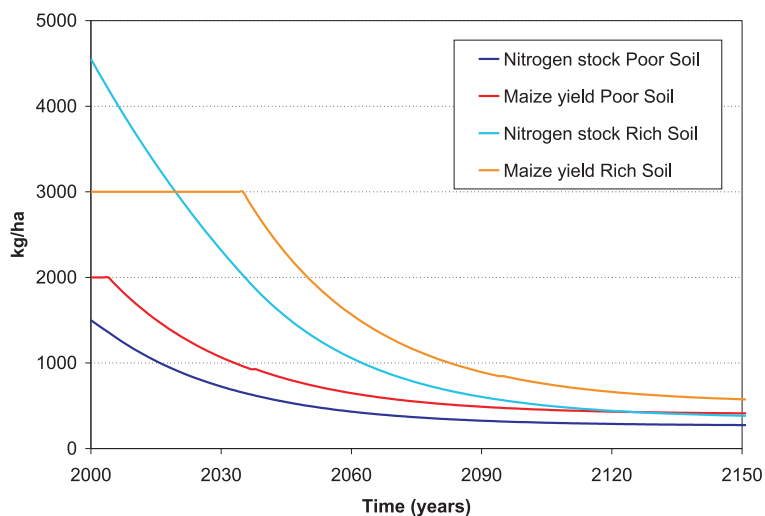


Figure 9. Model of Soil N and Crop Yield Dynamics in No-Input System (FAO, 2004)

Improving Water and Fertilizer Use in Africa: Challenges, Opportunities, and Policy Recommendations

by *Dennis Wichelns*

Wichelns sees soil moisture and nutrients as complementary inputs: “the incremental productivity of soil moisture is a function of the amount of nutrients available, just as the incremental productivity of nutrients is a function of soil moisture.” High fertilizer cost and unreliable rainfall in sub-Saharan Africa create a conundrum where farmers cannot afford inputs needed for high yields. Current use of fertilizer and water in the continent is inefficient, each partly explaining the other. Use of irrigation in many parts of Africa is minimal (Table 4).

Wichelns argues that in future efforts to improve soil moisture on the continent, water harvesting will be more important than irrigation. Rainfall in much of the continent is unreliable; global climate change will further increase this uncertainty. There are also already numerous agricultural practices available, such as organic matter addition, erosion prevention, and bunds, tied ridges, and terraces, which can enhance interactions between soil moisture and nutrients.

Wichelns identifies essential elements for effective policies that would improve the productivity of land and water in Africa: need for region-specific programs that acknowledge the heterogeneity of production conditions; leadership by public officials, technical specialists, and farmer representatives; and recognition of the differences between Asia and Africa. Closing the yield gap alone holds significant promise in Africa. As appropriate near-term policies, the author recommends input subsidies”to get agriculture moving,” implementation of fair produce prices, and investments in education, research, and training. Africa’s heterogeneity precludes specific policy recommendations to improve soil moisture for the whole continent and in some places, investments in irrigation may be sensible, whereas in others, investments should be made in research, education, and training to improve production in rainfed areas.

Table 4. Estimated Areas Under Water Management in Seven Regions of Africa

Region	Area Under Water Management		Category of Water Management		
			Irrigated	Wetlands and Valleys	Flood Recession
	(hectares)	(%)	(%)	(%)	(%)
Northern	6,339,756	41.2	100	0	0
Sudano-Sahelian	2,945,290	19.1	89	2	9
Gulf of Guinea	1,443,777	9.4	39	14	47
Central	455,939	3.0	29	71	0
Eastern	849,338	5.5	73	27	0
Southern	2,253,837	14.6	91	8	1
Indian Ocean Islands	1,117,653	7.3	99	0	1
Africa	15,405,590	100.0	87	7	6

Source: Frenken, Karen (Ed.), 2005. Irrigation in Africa in Figures: AQUASTAT Survey, 2005. FAO Water Reports 29. Food and Agriculture Organization of the United Nations, Rome.

Diverse Approaches to Promoting Fertilizer Use on the Continent

Alternative Approaches for Promoting Fertilizer Use in Africa

by *Eric W. Crawford, T. S. Jayne, and Valerie A. Kelly.*

The authors differentiate between six types of fertilizer promotion programs, each with their own strengths and shortcomings, which have been popular in sub-Saharan Africa:

- Controlled state input distribution programs: Short run success in broadly raising food production, but difficult to sustain due to budgetary costs and input sales to other markets.
- Targeted government input distribution programs in an open market: More financially sustainable than the former, but typically unable to channel subsidies to the low-income farmers and with little positive impact on food production.
- Sasakawa-Global 2000 programs: These demonstration plots with supplied inputs increase yields but sustained adoption and spread to less favored areas have been hard to achieve.
- Outgrower or cooperative programs with interlinked input–credit–output market transactions: Can be more sustainable than the government model above, but performance has been variable, with poor performance linked to poor representation of farmer interest by the firm and government extracting rents from firm.
- Public sector facilitation of private sector fertilizer supply: This has had variable results, with poor results linked with inadequate public investments to support private sector or subsidized fertilizer competing against private companies.
- Starter pack programs in Malawi: A free pack of fertilizer and improved maize and legume seed has reached poor farmers through existing trader networks, but for some, is an expensive approach that does not meet safety net or long-term development objectives.

The authors do an extensive review of the financial, economic, and non-economic arguments for and against fertilizer subsidies and compare subsidies to alternative interventions, such as food aid, output price support, credit subsidies, and input delivery programs. The authors remind that fertilizer use per se should not be considered a goal in isolation, instead “the broader goal is to ensure adequate soil fertility in order to support increased agricultural productivity, food security, and incomes. Inorganic fertilizer is one of many inputs needed to accomplish these broader goals, hence the systematic evaluation of private and social costs ... must also include analyses of technologies and practices that complement and/or substitute for inorganic fertilizers.”

Increasing Fertilizer Use in Africa: What Have We Learned?

by *Colin Poulton, Jonathan Kydd, and Andrew Dorward*

This background paper, also published as World Bank Agriculture and Rural Development Discussion Paper 25, summarizes the proceedings of an e-forum organized by Imperial College London and NR International on behalf of the World Bank and DFID in February–March, 2005. Although the e-forum was meant to elicit lessons learned regarding the enabling environment and specific interventions for fertilizer sector development, the debate was more focused on general lessons learned from efforts to promote fertilizer use in Africa.

The paper reviews contributions to the e-forum regarding (1) supply–side constraints, (2) demand–side constraints, (3) soil health and organic matter, (4) efforts to kick start markets, and (5) diverse interventions discussed.

Some key points raised by the e-forum participants include:

- Importance of seeing increased fertilizer use in its broader context.
- Emergence of a viable commercial industry takes time, and until then, there is a need for the public sector to create enabling conditions.
- The role of stockists is important, but they should not be considered as primary “drivers” of increased fertilizer use but as important partners.
- Enhancing affordability of fertilizer for cash-constrained households may be important even when fertilizer use is profitable.
- Fertilizer subsidies are not a recommended policy option; instead, fertilizer vouchers should be used for food insecure households.
- Blanket fertilizer recommendations are not useful; instead, recommendations should be tailored to locations and farmers should be taught principles of soil fertility management.

Input Subsidies and Agricultural Development: Issues and Options for Developing and Transitional Economies

by Balu L. Bumb, S. Kofi Debrah, and Luc Maene

The authors review the history of agricultural subsidies, as well as arguments for and against subsidies, concluding that arguments in favor of them are no longer as strong as those against them. They then recount four IFDC experiences on fertilizer subsidies—from Bangladesh, Albania, Afghanistan, and actions plans in different African countries—that were geared toward building private sector-based competitive fertilizer markets. The authors argue that there are other ways to achieve the objectives of fertilizer subsidy, i.e., minimize the risk and increase the profitability of input use by reducing input cost. On the supply side, the supply curve can be shifted to the right through a conducive policy environment, human capital development, improved access to finance and market information, and better regulatory framework. Governments can also invest in public goods, such as better roads, ports, and financial infrastructure, to reduce fertilizer cost. Finally, investments in soil fertility restoration and improvement can minimize risk and increase profitability of fertilizer use to the farmer.

The authors argue that in specific circumstances, direct subsidies could be used, provided that precautions are taken to prevent negative impact on the private sector input market. They include: transition from emergency relief to development; encouraging the use of modern inputs in the early stage of agricultural development; using subsidies to create positive externalities, such as saving forests due to agricultural intensification; and poverty alleviation through vouchers. Landlocked food-deficit countries likely require subsidies on transportation costs of fertilizer. Finally, the authors list necessary safeguards for a successful administration of subsidies, including clear political decisions and commitment that ensure good understanding by all parties and clear rules of operation; institutional capacity to deliver the program; appropriate logistical arrangements; and a registry of beneficiaries. As a final ingredient, the authors argue that “a clear exit strategy should be designed and disseminated so that all stakeholders are aware of the transient nature of subsidy and are prepared to cope with the situation developing after the removal of subsidy.”

Promoting Increased Fertilizer Use in Africa: Lessons Learned and Good Practice Guidelines

Africa Region, World Bank

This paper, prepared by a team from the Africa Region of the World Bank, reviews low fertilizer use and the problem of soil fertility in Africa, as well as past programs and approaches to increasing fertilizer use on the continent. Both demand- and supply-side factors constrain fertilizer use on the continent. In considering future programs, the authors call for clearer thinking about how fertilizer policy fits into a country’s overall development strategy. They argue for the need to adopt a long-term perspective that can help not only farmers, but also all key actors on the supply side and to implement policies that affect market prices, costs incurred, or benefits received by consumers or producers of fertilizer over the medium to long run.

The authors identify numerous ways to strengthen demand for and supply of fertilizer through public interventions, but warn that none is likely to be effective if implemented in isolation. Instead, combinations of the measures are needed to ensure a parallel growth of supply and demand, a prerequisite for the emergence of a viable private sector-led fertilizer market.

A sustainable growth in fertilizer use in Africa is unlikely to happen, the authors argue, unless public resources are used to address many of the structural problems affecting incentives to supply and use fertilizer, through policy and institutional reforms, investment in infrastructure, strengthening of agricultural research and extension, capacity building of farmers and commercial actors, and improvements in agricultural soil and water resources.

Finally, the authors identify ten guiding principles for the design and implementation of market-smart subsidies as:

- Promote fertilizer as part of a wider strategy.
- Favor market-based solutions.
- Promote competition.
- Pay attention to demand.
- Insist on economic efficiency.
- Empower farmers.
- Devise an exit strategy.
- Pursue regional integration.
- Ensure sustainability.
- Promote pro-poor growth.

The Role of Input Vouchers in Pro-Poor Growth

by Ian Gregory

The author first briefly reviews supply- and demand-side constraints limiting greater fertilizer use in Africa, and then defines attributes of pro-poor growth, which would create opportunities for the poor to increase productivity and diversity of cropping and fully participate in markets.

Input vouchers can be a flexible development tool, the author argues, for jump-starting participation of the poor in agricultural development. IFDC's experiences with input vouchers in three countries for the attainment of different objectives—Malawi (food security), Afghanistan (post-emergency crop credit provision), and Nigeria (implementation of direct subsidies)—have demonstrated this. Implementation costs of these projects were relatively low, and the author estimates that if implemented at large scale, implementation costs could be as low as \$3–\$4/farmer. An effective exit strategy would consist of sustainable increases in farm productivity and rural incomes, including improvements in output marketing and a gradual reduction of voucher value to zero or transposing it to crop production credit or revolving funds. Gregory concludes:

“Early indications are that vouchers provide pro-poor flexible interventions that reduce risk in developing markets for the most food-insecure and small nascent input dealers. Sustainable development can be achieved only when vouchers are used in conjunction with other necessary market development initiatives and the impacts are monitored.”

Appendix I

Program

Program

Africa Fertilizer Summit

Technical Session: High-Level Dialogue

June 9-10, 2006

Friday, June 9

0800 Registration

Venue: INTERNATIONAL CONFERENCE CENTER

0845 Prelude: An African Green Revolution (Video)

Venue: AFRICA HALL

Session 1: Opening Session

Venue: AFRICA HALL

Co-Chairpersons

Dr. Ahmadu Babagana, Director of Rural Economy and Agriculture, African Union Commission, Ethiopia
Chief (Mrs.) Chinyere Asika, Head, New Partnership for Africa's Development (NEPAD)/Nigeria

Rapporteurs

Dr. Mohamed El-Fouly, Professor, National Research Centre, Egypt
Dr. Monica Ifeyinwa, University Lecturer, University of Nigeria-Nsukka, Nigeria

Opening Address

Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

0900 Welcome Remarks

Ms. Ama Pepple, Permanent Secretary of Agriculture and Rural Development, Federal Republic of Nigeria

0905 Goodwill Message

Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia

0910 Goodwill Message

Dr. Gary H. Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.

0930 The New Partnership for Africa's Development (NEPAD) and the Africa Fertilizer Summit

Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa

0945 Africa Fertilizer Crisis: Summit Background and Process

Dr. Amit Roy, President and Chief Executive Officer, International Fertilizer Development Center (IFDC), U.S.A.

0955 Keynote Address "Achieving an African Green Revolution"

Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico

Session 1: Opening Session (Continued)

- 1020 Vote of Thanks**
Mr. Sule Bello, Director, Fertilizer Department, Ministry of Agriculture and Rural Development, Federal Republic of Nigeria
- 1025 Coffee Break**
Venue: THE GALLERY
- 1045 Remarks on the African Green Revolution: Panel of Eminent Scientists**
Dr. Pedro Sanchez, Director of Tropical Agriculture and Millennium Villages Project, The Earth Institute at Columbia University, New York; World Food Prize Laureate
- 1055 Remarks on the African Green Revolution: Panel of Eminent Scientists**
Dr. Gary H. Toenniessen, Director, Food Security, The Rockefeller Foundation, U.S.A.
- 1105 Remarks on the African Green Revolution: Panel of Eminent Scientists**
Dr. Florence Wambugu, Chief Executive Officer, A Harvest Biotechnology Foundation, Kenya
- 1115 It Is Farmers That Will Nourish the Soils**
Mr. Ndiogou Fall, Chairman, The West African Network of Farmers and Producers Organizations (ROPPA), Senegal

Session 2: Perspectives on Fertilizer Sector Development Venue: AFRICA HALL

Co-Chairpersons

- Dr. Gary Toenniessen, Director of Food Security, The Rockefeller Foundation, U.S.A.
Dr. Mpoko Bokanga, Executive Director, Africa Agricultural Technology Foundation, Kenya

Rapporteurs

- Dr. Nteranye Sanginga, Director, Tropical Soil Biology and Fertility Institute (TSBF) of the International Center for Tropical Agriculture (CIAT), Kenya
Dr. M. M. Jibrin, Associate Professor, Ado Bayero University, Nigeria

- 1130 Policies for Stimulating Rapid Growth in Fertilizer Use in Africa**
Dr. Karen Brooks, Sector Manager, The World Bank, U.S.A.
- 1145 Fertilizers and the Environment: Friends or Foes?**
Dr. Eric Smaling, Professor of Sustainable Agriculture, International Institute of Geo-Information Science and Earth-Observation, The Netherlands
- 1200 Successful Interventions for Fertilizer Sector Development**
Building Input Supply Systems to Improve Access for Farmers
Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya
- 1220 Successful Interventions for Fertilizer Sector Development**
Developing Fertilizer Interventions for Semi-Arid Areas
Dr. William D. Dar, Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India

Session 2: Perspectives on Fertilizer Sector Development (Continued)

- 1235 Successful Interventions for Fertilizer Sector Development**
Integrated Soil Fertility Management/Competitive Agricultural Systems and Enterprises
Dr. Victor Clottey, Agricultural Intensification in Sub-Saharan Africa (AISSA), Ghana
- 1250 Successful Interventions for Fertilizer Sector Development**
Building Africa's Institutional Capacity for Fertilizer Sector Development
Dr. Samuel C. Muchena, Managing Director, African Center for Fertilizer Development (ACFD), Zimbabwe

Session 3: Parallel Dialogue Sessions "Solutions to Africa's Fertilizer Crisis" Venue: AFRICA HALL

Co-Chairpersons

Dr. Moise Mensah, Former Minister of Finance, Benin

Mr. Baba Dioum, General Coordinator, Conference of West and Central African Ministers of Agriculture (CMA/WCA), Senegal

Rapporteurs

Dr. Andre Bationo, Soil Scientist, Tropical Soil Biology and Fertility Institute (TSBF) of CIAT (International Center for Tropical Agriculture)

Dr. M. M. Jibrin, Associate Professor, Ado Bayero University, Nigeria

- 1305 Session Organization and Instructions**
Dr. Maria Wanzala, Africa Fertilizer Summit Adviser, New Partnership for Africa's Development (NEPAD), South Africa
- 1310 Lunch**
Venue: BANQUET HALL
- 1500 Parallel Sessions**

Parallel Session 1: Reducing Fertilizer Procurement Cost at the National and Regional Levels

Venue: PRESIDENTIAL HALL

Co-Chairpersons

Dr. Uzo Mokwunye, Consultant and Past Chair, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Board of Trustees, Ghana

Mr. Jan Poulisse, Senior Economist, Land and Water Development Division, Food and Agriculture Organization of the United Nations (FAO), Italy

Rapporteurs

Dr. Cris Muyunda, Senior Agricultural Adviser, Common Market for Eastern and Southern Africa (COMESA), Zambia

Professor Enwerem Dike, Professor of Economics, Nnamdi Azikiwe University, Nigeria

***Parallel Session 2: Improving Access to Finance for
Fertilizer Market Development***

Venue: BENUE HALL

Co-Chairpersons

Dr. William Kalema, Chairman, Uganda Investment Authority, Uganda

Mr. Lance Crist, Division Manager, Oil, Gas, Mining and Chemicals Department, International Finance Corporation (IFC), U.S.A.

Rapporteurs

Dr. Simeon Ehui, Lead Economist, The World Bank, Nigeria

Professor A. O. Ogungbile, Professor of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Nigeria

***Parallel Session 3: Improving Access Via
Development of Input Dealer Networks***

Venue: EXECUTIVE HALL

Co-Chairpersons

Mr. Eben Makonese, Chief Executive Officer, Chemplex Corporation Ltd., Zimbabwe

Dr. Rita Laker-Ojok, Executive Director, AT-Uganda, Uganda

Rapporteurs

Dr. Roy Steiner, Senior Program Officer, Bill and Melinda Gates Foundation, U.S.A.

Mr. Augustine Nnameka, Former Commercial Manager, Federal Superphosphate Company, Nigeria

***Parallel Session 4: Developing Regional Financing
Mechanism for Fertilizer Sector Development***

Venue: NIGER HALL

Co-Chairpersons

Dr. Josue Dione, Director of Sustainable Development Division, United Nations Economic Commission for Africa (ECA), Ethiopia

Dr. (Mrs.) Ngozi Okonyo-Iweala, Minister of Finance, Federal Republic of Nigeria

Rapporteurs

Dr. Michael Morris, Senior Economist, The World Bank, U.S.A.

Professor M. T. Adetunji, Professor of Soil Science, University of Agriculture, Abeokuta, Nigeria

***Parallel Session 5: Improving Access for Poor
Farmers by Smart Public Policies***

Venue: AFRICA HALL

Co-Chairpersons

Dr. Karen Brooks, Sector Manager, The World Bank, U.S.A.

Professor Francis Idachaba, Vice Chancellor, Kogi State University, Nigeria

Rapporteurs

Mr. Edward Heinemann, Regional Economist, International Fund for Agricultural Development (IFAD), Italy

Professor E. C. Nwagbo, Professor of Agricultural Economics and Rural Sociology, University of Nigeria, Nigeria

Session 3: Parallel Dialogue Sessions (Continued) **“Solutions to Africa’s Fertilizer Crisis”**

Parallel Session 5: Improving Access for Poor Farmers by Smart Public Policies (Continued)

1645 Coffee Break

1700 Parallel Sessions (continued)

1930 Close of Parallel Sessions

2000 Welcome Reception: COCKTAIL NIGHT
Venue: CONGRESS HALL, TRANSCORP HOTEL

Saturday June 10

Plenary

Venue: AFRICA HALL

Co-Chairpersons

Dr. Moise Mensah, Former Minister of Finance, Benin

Mr. Baba Dioum, General Coordinator, Conference of West and Central African Ministers of Agriculture (CMA/WCA), Senegal

Rapporteurs

Dr. Andre Bationo, Soil Scientist, Tropical Soil Biology and Fertility Institute (TSBF) of CIAT (International Center for Tropical Agriculture)

Professor A. Agbede, Dean, Faculty of Agriculture, Nasarawa State University, Nigeria

0830 Wrap-Up of Parallel Discussion Sessions

Speakers

Presentations by Rapporteurs of each Parallel Session (10 minutes) followed by Discussions (5 minutes)

0945 Africa’s Green Revolution and the Millenium Development Goals: The Importance of the Fertilizer Summit

Dr. Jeffrey Sachs, Director of the Earth Institute, Columbia University, U.S.A.

1000 Sustainable Land Management and Fertilizers: Responding to Challenges of Sustainable Land Management—the TerrAfrica Initiative

Professor Richard Mkandawire, Agricultural Adviser

Dr. Remi Cole, Lead Specialist on Sustainable Land Management (SLM), The New Partnership for Africa’s Development (NEPAD)

Session 4: Country Strategies
Venue: AFRICA HALL

Co-Chairpersons

Dr. Cris Muyunda, Senior Agricultural Adviser, Common Market for Eastern and Southern Africa (COMESA), Zambia

Dr. N. P. Sicilima, Director, Department of Crop Development, Ministry of Agriculture, Tanzania

Rapporteur

Professor A. Agbede, Dean, Faculty of Agriculture, Nasarawa State University, Nigeria

1020 Session Organization and Instructions

Professor Victor Chude, Annex Leader, Soil Fertility Initiative, National Special Program for Food Security, Nigeria

1030 Coffee Break

Venue: THE GALLERY

1100 Parallel Sessions (Grouping of Countries by Regional Economic Community)

***Parallel Session 1: Economic Community of
West African States Country Members***

Venue: EXECUTIVE HALL

Co-Chairpersons

Dr. Timothy Williams, Adviser and Head, Special Advisory Services Division, Enterprise and Agriculture Section, Commonwealth Secretariat, United Kingdom

Dr. Daniel Eklu, Director, Economic Community of West African States (ECOWAS), Nigeria

Rapporteurs

Dr. Saidou Koala, Director for West and Central Africa, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Niger

Dr. I. Y. Amapu, Associate Professor, Ahmadu Bello University, Nigeria

***Parallel Session 2: Economic Community of
Central African States Country Members***

Venue: BENUE HALL

Co-Chairpersons

Mr. Mohamed Beavogui, Director, West and Central Africa Division, Program Management Department, International Fund for Agricultural Development (IFAD), Italy

Dr. Haile Gabriel Abeba, Director for the African Union Specialized Technical Office on Semi Arid Agriculture Research and Development, Burkina Faso

Rapporteurs

Mr. Joel Beassem, Secretariat, Economic Community of Central African States (ECCAS), Gabon

Professor P. D. Ngoddy, Professor of Food Science and Technology, University of Nigeria, Nsukka, Nigeria

Session 4: Country Strategies (Continued)

Parallel Session 3: Union of Arab Maghreb Country Members

Venue: PRESIDENTIAL HALL

Co-Chairpersons

Mr. Abdelmajid Slama, Former Director, Near East, North Africa and Europe Division, International Fund for Agricultural Development (IFAD), Tunisia; IFDC Board of Directors

Mr. Mohamed Fathi El-Sayed, Assistant Secretary General, Arab Fertilizer Association, Egypt

Rapporteurs

Dr. Mohamed El-Fouly, Professor, National Research Center, Egypt

Professor G. B. Ayoola, Policy Analyst, IFDC (MIR) Project, Nigeria

Parallel Session 4: Southern African Development Community Country Members and Common Market for Eastern and Southern Africa Country Members

Venue: NIGER HALL

Co-Chairpersons

Dr. Wilberforce Kisamba-Mugerwa, Director of International Service for National Agricultural Research of the International Food Policy Research Institute (ISNAR/IFPRI), Ethiopia

Dr. Harris Mule, Chancellor, Kenyatta University, Kenya

Rapporteurs

Dr. James Nyoro, Executive Director, Tegemeo Institute, Egerton University, Kenya

Professor E. A. Aduayi, Dean, Faculty of Agriculture, Bowen University, Nigeria

1430 Lunch

Venue: BANQUET HALL

Session 5: Regional Strategies

Venue: AFRICA HALL

Co-Chairpersons

Dr. Richard Mkandawire, Agriculture Adviser, New Partnership for Africa's Development (NEPAD), South Africa

Dr. Hafez Ghanem, Country Director, The World Bank, Nigeria

Rapporteurs

Dr. Lawrence Chidi Anukam, New Partnership for Africa's Development (NEPAD), Nigeria

Dr. Tijani Onot, Head of Farm Mechanization, Federal College of Soil Research Technology, Nigeria

1530 Plenary Panel with Regional Economic Communities

1615 Coffee Break

Venue: THE GALLERY

1630 Plenary Panel with Private Sector Participants

Venue: AFRICA HALL

Session 5: Regional Strategies (Continued)

Discussion Leader

Mr. Luc Maene, Director General, International Fertilizer Industry Association (IFA), France

Panelists

Mr. Arne Cartridge, Senior Vice President, Yara International, Norway

Mr. Onajite Okolodo, Director, Notore, Nigeria

Mr. Saidre G.B. Zakari, National Sales Manager, Golden Fertilizer Company, Nigeria

Mr. Tony Elumelu, Managing Director, United Bank of Africa

Session 6: The Way Forward

Venue: AFRICA HALL

Chairperson

Dr. Cyril Enweze, Vice President, International Fund for Agricultural Development (IFAD), Italy

Rapporteurs

Dr. Marjatta Eilittä, Senior Soil Fertility Specialist, International Fertilizer Development Center (IFDC), U.S.A.

Professor M. T. Adetunji, Professor of Soil Science, University of Agriculture, Abeokuta, Nigeria

1745 Address

His Excellency Joaquim Chissano, Former President of Mozambique

1755 Address

Mr. Peter McPherson, Co-Chair, Partnership to Cut Hunger and Poverty in Africa, U.S.A.

1805 Address

Dr. Rudy Rabbinge, Dean, Graduate Schools, Wageningen University, The Netherlands

1815 Synthesis

Dr. Cyril Enweze, Vice President, International Fund for Agricultural Development (IFAD)

1915 Closure of High-Level Dialogue Session

2000 Dinner: Gala Night

Venue: CONGRESS HALL, TRANSCORP HOTEL

Ministerial Session
Monday, June 12, 2006
Venue: AFRICA HALL

Session 1: Opening Session

Co-Chairpersons

Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia

Rapporteur

Dr. Maria Wanzala, Africa Fertilizer Summit Adviser, New Partnership for Africa's Development (NEPAD), South Africa

0900 Welcome

Honorable Mallam Nasir El-Rufai, Minister of the Federal Capital Territory (FCT), Federal Republic of Nigeria

0910 Goodwill Message

Honorable Rosebud Kurwijila, Commissioner for Rural Economy and Agriculture, African Union Commission, Ethiopia

0920 Goodwill Message

Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa

0930 Ministerial Address

Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria

0945 Vote of Thanks

Honorable Bamidele Dada, Minister of State for Agriculture and Rural Development, Federal Republic of Nigeria

Session 2: Solutions to Africa's Fertilizer Crisis

Chairperson

Honorable Joseph Mungai, Minister of Agriculture, Food and Cooperative, United Republic of Tanzania

Rapporteur

Mr. Mohamed Beavogui, Director, West and Central Africa Division, Program Management Department, International Fund for Agricultural Development (IFAD), Italy

1000 Africa Fertilizer Crisis: Summit Background and Process

Dr. Amit Roy, President and Chief Executive Officer, International Fertilizer Development Center (IFDC), U.S.A.

1015 Framing of the Summit Outcomes

Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya

Session 2: Solutions to Africa’s Fertilizer Crisis (Continued)

- 1030 Coffee Break**
Venue: THE GALLERY
- 1045 Keynote Address “Achieving an African Green Revolution”**
Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico
- 1100 Report from Technical Session: High-Level Dialogue**
Dr. Josue Dione, Director of Sustainable Development Division, United Nations Economic Commission for Africa (ECA), Ethiopia
- 1200 Discussions of Report From Technical Session: High-Level Dialogue**
- 1400 Lunch**
Venue: BANQUET HALL

Session 3: Implementing the Priority Actions for Solving Africa’s Fertilizer Crisis

Chairperson

Honorable Adamu Bello, Minister of Agriculture and Rural Development, The Federal Republic of Nigeria

Rapporteurs

Dr. Moise Mensah, Former Minister of Finance, Benin

Dr. Akin Adesina, Associate Director, Food Security, The Rockefeller Foundation, Kenya

- 1530 Moving to Actions: Ministerial Remarks**
- 1700 Adoption of Report to the Heads of State**
- 1900 Closure of Session**

Heads of State Session

June 13, 2006

Venue: EXECUTIVE ROOM

Chairperson

His Excellency Olusegun Obasanjo, President, Federal Republic of Nigeria

Session 1: Opening Remarks and Addresses

- 1100 Welcome Remarks**
Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria
- 1110 Goodwill Message**
His Excellency Alpha Oumar Konaré, Chairman, the African Union Commission, Ethiopia
- 1115 Goodwill Message**
Honorable Jeanne Dambendzet, Minister of Agriculture, representing His Excellency General Denis Sassou-Nguessou, President, Republic of Congo and Chairman, the African Union
- 1125 Goodwill Message**
Professor Firmino Mucavele, Chief Executive, New Partnership for Africa's Development (NEPAD) Secretariat, South Africa
- 1135 Goodwill Message**
Dr. Judith Rodin, President, The Rockefeller Foundation, U.S.A.
- 1145 An African Green Revolution (Video) then Video Address by President Jimmy Carter, 39th President of the United States and Founder, The Carter Center, U.S.A.**
- 1200 Presidential Address**
His Excellency Olusegun Obasanjo, President, Federal Republic of Nigeria
- 1215 Report on the Conclusions and Recommendations of the Ministerial Session**
Honorable Adamu Bello, Minister of Agriculture and Rural Development, Federal Republic of Nigeria
- 1230 Remarks**
Dr. Donald Kaberuka, President, African Development Bank (AfDB), Tunisia
Mr. Lennart Båge, President, International Fund for Agricultural Development (IFAD), Italy
Mr. Pat Fleuret, Mission Director, United States Agency for International Development (USAID), Nigeria
Dr. Hafez Ghanem, Country Director, The World Bank, Nigeria representing Mr. Paul Wolfowitz, President, The World Bank, U.S.A.
Mr. Jan Vlaar, DGIS, representing the Minister for Development Cooperation, The Netherlands
Dr. Norman Borlaug, Nobel Peace Prize Laureate and President, Sasakawa Africa Association, Mexico
- 1400 Summit Resolution**
- 1430 Closure of Session**
- 1500 Luncheon**
Venue: PRESIDENTIAL VILLA

Appendix II

Summit Background Papers

Achieving an African Green Revolution: A Vision for Sustainable Agricultural Growth in Africa

by
Marjatta Eilittä¹

Fertilizer will have to be a crucial component of any strategy to improve agricultural productivity in Africa. No country in modern history has made great strides in agricultural production without first increasing the use of fertilizer. At 20 kg NPK (nitrogen, phosphorus, potassium) per hectare and only 8 kg NPK per hectare in sub-Saharan Africa, fertilizer use rates in Africa are the lowest in the world. As a consequence, crop yields have stagnated in the past 45 years, causing food insecurity and, with increased area in cultivation, deforestation. Due to the increased population, farmers have had to abandon fallows, which has led to a crisis of soil nutrient depletion in the continent. With 65% of the labor force in agriculture, the widespread impacts of Africa's low agricultural productivity include continued poverty, reliance on food imports, low levels of investment, and, finally, political instability.

The Africa Fertilizer Summit is part of an effort to initiate a “uniquely African Green Revolution” called for by the United Nations Secretary General Kofi Annan. It emerges from the new dynamism in the continent, with stronger homegrown organizations, renewed emphasis placed on agriculture, new policies fostering the private sector, and greater interest in utilizing the continent's fertilizer resources. It will strongly contribute to the goals of the Comprehensive Africa Agriculture Development Program (CAADP) of the African Union's New Partnership for Africa's Development (NEPAD), which has established a goal of increasing agricultural production by 6% annually as a necessary step toward achieving the first Millennium Development Goal of halving poverty by 2015.

This is an African-led initiative with leadership by the African Union and its NEPAD program, and enjoys the strong collaboration of the Summit chair, H.E. President Olusegun Obasanjo, and of the Federal Government of Nigeria, the Summit host. IFDC (an International Center for Soil Fertility and Agricultural Development) is implementing the Summit while numerous donors, notably the Rockefeller Foundation, have provided support for this initiative.

This initiative has five main components:

- Mobilizing African governments, organizations, and civil society and raising awareness worldwide of the potential of fertilizer in improving the conditions of African smallholder farmers.
- Development of Country and Regional Fertilizer Strategies.
- Development of Africa Fertilizer Action Plan.
- Securing human and financial resources to implement the Action Plan.
- Implementation of the Action Plan and Strategies.

As an important step in this initiative, the Africa Fertilizer Summit will bring together African heads of state and ministers, leaders of international donor organizations, private-sector firms, farmers' organizations and senior policymakers to improve access of millions of poor African farmers to fertilizer and other complementary inputs, in order to help them raise their farm production and achieve food security. The Summit will consist of Technical, Ministerial, and Heads of State sessions. The Technical Session, to be held June 9-10, will emphasize breakout and panel sessions focusing on generating detailed actions needed. The Ministerial Session, to be held June 12, will discuss these actions and will submit its conclusion for the deliberation of the Heads of State on June 13.

The Africa Fertilizer Summit will be about action, not about talk. The horrendous human toll of underdevelopment in Africa is a constant reminder to ensure that the Africa Fertilizer Summit will not be another “talk shop.” Instead, its initiators, organizers, and implementers are determined to ensure that it will result in bold actionable programs that will make fertilizer available to millions of farmers in a timely manner and at an affordable price. Achieving this and the “prosperous and peaceful Africa” as a result is not only in all of our interests, but it is also our responsibility.

¹IFDC—An International Center for Soil Fertility and Agricultural Development.

Fertilizer Raw Materials Resources of Africa

by
Steven J. Van Kauwenbergh¹

Africa is endowed with many natural resources. Among these resources are deposits of phosphate rock, accumulations of hydrocarbons, and deposits of coal, which can be used to produce nitrogen, and potash deposits. Data from the United States Geological Survey (USGS) indicates six countries in Africa control approximately 41.5% of the world's currently producible phosphate rock reserves and approximately 50.2% of the total global phosphate rock reserve base, which may be producible in the future.

In order to promote rational, logical, economically and environmentally responsible growth in the fertilizer sector in Africa, the development of a resource and reference document, "Fertilizer Raw Material Resources of Africa," was commissioned for the Africa Fertilizer Summit. IFDC geologists and engineers have conducted numerous characterization studies of phosphate rock samples; evaluations of deposits, mines, and mining; and fertilizer production plant feasibility studies in Africa. This volume attempts to synthesize this information with other currently available data and provide a resource document on the subject of fertilizer raw material resources and development of fertilizer production for all of Africa. As such, it offers no continent-wide, regional, or country-specific solutions to particular fertilizer development issues.

The document attempts to provide (1) a useful overview of fertilizer products, raw materials, and project development, and (2) information on resource availability and a historical and current overview of fertilizer raw material and fertilizer project development within specific countries of Africa. The site-specific data and examples contained within this document should prove useful in analyzing similar projects in other countries.

The volume is arranged in two sections. Section I includes chapters on: Introduction to Fertilizers and the Fertilizer Industry; Overview of Fertilizer Production Alternatives and the Fertilizer Industry; Fertilizer Raw Material Characteristics and Production; and Assessment of Fertilizer Projects. Section II contains Country Descriptions arranged in alphabetical order.

¹IFDC—An International Center for Soil Fertility and Agricultural Development.

Agricultural Production and Soil Nutrient Mining in Africa: Implications for Resource Conservation and Policy Development

by
Julio Henao and Carlos Baanante¹

In this paper, we assess the status of food production associated with land degradation and estimate indicators of soil nutrient mining by country and region. We examine factors and circumstances that affect nutrient mining by predominant crop production systems in key agro-ecological zones and regions, and we review policy measures and investment strategies that can reverse current trends in nutrient mining and increase land productivity in a sustainable way. We also evaluate evolving trends in crop productivity in different regions, and in land degradation caused by nutrient mining.

Estimates by country show that nutrient mining is highest (more than 60 kg NPK/ha yearly) in agricultural lands of Guinea, Congo, Angola, Rwanda, Burundi, and Uganda. Nutrient mining across Africa ranges from 9 kg NPK/ha per year in Egypt to 88 kg in Somalia in East Africa. Nitrogen losses range from 4.1 kg/ha yearly in South Africa to 52.3 kg in Somalia in the Sudano-Sahelian of East Africa. Losses of phosphorus range from none or minor losses in the Mediterranean and arid North Africa to 9.2 kg/ha per year in Burundi and Somalia in East Africa. Potassium losses range from 6.5 kg/ha per year in Algeria to 30.4 kg in Equatorial Guinea and Gabon in humid Central Africa.

During the 2002–2004 cropping season, about 85% of African farmland (185 million ha) had nutrient mining rates of more than 30 kg/ha of nutrients yearly, and 40% (95 million ha) had rates greater than 60 kg/ha yearly. These 95 million hectares are reaching such a state of degradation that to make them productive again would frequently require investments so large that it will not be economically feasible to implement.

The main factors contributing to nutrient depletion are loss of nitrogen and phosphorus through soil erosion by wind and water, and leaching of nitrogen and potassium. Nutrient losses due only to erosion in African soils range from 10 to 45 kg of NPK/ha per year. If erosion continues unabated, yield reductions by 2020 could be from 17% to 30%, with an expected decrease of about 10 million t of cereals, 15 million t of roots and tubers, and 1 million t of pulses.

The evidence leaves no doubt that the very resources on which African farmers and their families depend for welfare and survival are being undermined by soil degradation caused by nutrient mining and associated factors such as deforestation, use of marginal lands, and poor agricultural practices. Land is being degraded, and soil fertility is declining to levels unsuitable to sustain economic production. The influence of nutrient mining on the land's capacity to sustain population and production has long-term impacts besides loss of soil productivity and the consequent exodus of farmers.

The information, methodologies, databases, and procedures described in this report should be viewed as components of an evolving process of continuous improvement and refinement.

¹IFDC—An International Center for Soil Fertility and Agricultural Development.

Overview of the Fertilizer Situation in Africa

by

Oumou Camara¹ and Ed Heinemann²

With more than 70% of African people living in rural areas and 75% of them living on less than a \$1 per day, it is clear that sustainable increases in agricultural productivity and rural incomes are the basis for broad-based economic growth. That is why a call for action has been sent by Kofi Annan, Secretary General of the United Nations—the time has come for a uniquely African Green Revolution. The central challenge remains how best to create conditions under which farmers can intensify their production systems and increasingly link them to markets.

Governments, donor agencies, and NGOs have tried many different strategies, including direct subsidies on fertilizer prices, distribution of vouchers that can be redeemed for fertilizer, distribution of starter packs for farmers to experiment with fertilizer, fertilizer-for-work programs, etc. While many of these approaches have achieved some short-term successes, many often collapsed once external funding ended, making them unsustainable over the longer term. The failures of many past interventions to have long-lasting effects on the fertilizer sector can be explained by the many constraints that affect fertilizer supply and use in both commercial and food crop sectors.

To help understand the fertilizer situation in Africa, this paper (1) describes trends in fertilizer demand and supply, focusing on cross-country differences in fertilizer intensity use and supply levels; (2) examines the evolution of past policies and interventions, their impacts on the fertilizer sector and the constraints affecting fertilizer demand and supply in Africa; and (3) discusses future needs and the implications for policy.

¹IFDC—An International Center for Soil Fertility and Agricultural Development.

²International Fund for Agricultural Development (IFAD).

African Soils: Their Productivity and Profitability of Fertilizer Use

by

Andre Bationo,¹ Alfred Hartemink,² Obed Lungu,³ Mustapha Naimi,⁴ Peter Okoth,¹
Eric Smaling⁵ and Lamourdia Thiombiano⁶

Africa covers an area of about $3,010 \times 10^6$ hectares (ha), of which about 230×10^6 ha is water. The continent has a wide range of soils and climatic conditions. Soils range from stony and shallow with poor life-sustaining capabilities to deeply weathered soils that recycle and support large amounts of biomass. African soils have an inherently poor fertility because they are very old and lack volcanic rejuvenation. Inappropriate land use, poor management and lack of inputs have led to a decline in productivity, soil erosion, salinization, and loss of vegetation. More than half of all African people are affected by land degradation, making it one of the continent's urgent development issues with significant costs—Africa is burdened with a US \$9.3 billion annual cost of desertification. An estimated US \$42 billion in income and 6 million ha of productive land are lost every year due to land degradation and declining agricultural productivity. Globally, Africa suffered a net loss of forests exceeding 4 million ha/year between 2000 and 2005. This was mainly due to conversion of forest lands to agriculture. Forest cover declined from 656 million ha to 635 million ha between 2000 and 2005.

About 16% of Africa's land is considered high quality, 13% as medium quality, 16% of low potential, whereas 55% of the land is unsuitable for cultivated agriculture but supports nomadic grazing. About 900 million ha of high and medium quality soils support 400 million people or about 45% of the African population; about 30% of the population (or about 250 million) are living or are dependent on the low potential land resources. Numerous studies have shown that soil nutrient balances of most African soils are negative indicating that farmers continue to mine the soil.

Large yield increases can be obtained when inorganic fertilizers are used as demonstrated in many field experiments. Maize yield increase due to NPK fertilizer application can be as high as 150%, but when the soil is amended with lime and manure, yield responses of 184% are obtained. Higher yield improvements have been observed in east and southern African countries. Despite the documented response to fertilizer application, there are great on-farm soil fertility gradients and variations can be large.

Despite the costs of inorganic fertilizers, there is ample evidence that the use of fertilizers can be highly profitable. Whereas in the developed world, excess applications of fertilizer and manure have damaged the environment, the low use of inorganic fertilizer is one of the main causes for environmental degradation in Africa. In addition to increased productivity, increased inorganic fertilizer use benefits the environment by reducing the pressure to convert forests and other fragile lands to agricultural uses and, by increasing biomass production, helps increase soil organic carbon content.

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Fertilizer Use and the Environment in Africa: Friends or Foes?

by

Eric Smaling,^{1,2} Moctar Toure,³ Nico de Ridder,² Nteranya Sanginga,⁴ Henk Breman⁵

This background paper for the Africa Fertilizer Summit addresses the interface between fertilizer use and the environment. The context is set by confronting Millennium Development Goals (MDGs) 1 and 7, with targets of halving hunger as well as increasing environmental sustainability by 2015. Future projections by the Food and Agriculture Organization of the United Nations (FAO) and the recently completed Millennium Ecosystem Assessment (MEA) show that neither target is likely to be met in Africa. The different “ecosystem services” as depicted by MEA are useful with regard to fertilizers and the environment. “Provisioning” services are used in agriculture for private gains and are supplemented by fertilizers; “regulating” and “supporting” services are used for public, or global environmental benefits.

It is now well known that agricultural activities affect and are affected by the quality of the environment. Stigmatized because of overutilization in intensive agricultural systems elsewhere in the world, fertilizer use in Africa is extremely low, particularly south of the Sahara. The paper argues that in Africa, the non-use of fertilizer has a greater negative effect on the environment than does its use. Soils are poor due to old age, and are further stripped of vegetation and native soil fertility as area expansion rather than intensification continues to be the main mechanism to increase production in rural areas.

Non-use of fertilizers in Africa adds to different forms of land degradation (removal of natural vegetation, soil physical degradation, soil fertility depletion, wind, and water erosion), but it also negatively affects biodiversity and actual and potential carbon sequestration. Also, in old African soils, fertility is almost tantamount to its organic matter content. Hence, fertilizer use is linked to at least three focal areas of the Global Environmental Facility (GEF): climate change, biodiversity, and land degradation. As such, it may help in realizing synergies between the post-Rio conventions addressed by GEF and its focal area programs.

Avenues towards increased, environmentally benign use of fertilizers are advocated at the international level, in a series of national policy and institutional improvements, and in technological and people-centered innovations, making better use of and sharing scientific and indigenous knowledge. Particularly relevant are the raising of international awareness concerning Africa’s poor soils and, therefore, the unlevel playing field when it comes to international trade and strategy building at the level of the African Union (AU) and New Partnership for Africa’s Development (NEPAD) on future food needs given the impact of urbanization and ongoing area expansion for cultivation. Room for improvement lies in the understanding and valuation of trade offs between economic and ecological goals; in quantifying and realizing synergies at the country, landscape, and village scales; and in rewarding land users for maintaining non-market ecosystem services. Efficiency gains in fertilizer use, i.e., by using them on the best soils and with the best management, may render them far more profitable. Fertilizer use in Africa has to be *increased significantly*, preferably in a context of integrated nutrient management aimed at interlinkages between crops and livestock, between cash and food crops, and between landscape plots and time (residual effects of fertilizers and manure).

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Improving Water and Fertilizer Use in Africa: Challenges, Opportunities, and Policy Recommendations

by
Dennis Wichelns¹

The increases in agricultural productivity that are needed to enhance rural incomes and achieve household food security throughout Africa will require substantial improvements in water and fertilizer use in both rainfed and irrigated areas. We also need to expand the use of irrigation by smallholders and develop small- and medium-scale irrigation schemes in locations where incremental benefits exceed incremental costs. The potential gains in agricultural production and farm incomes are substantial in areas where both water management and soil fertility can be improved. Complementary inputs including high-quality seeds, pesticides, energy, technical knowledge, farm implements, and financial credit must also be made available at affordable prices, and farmers must have access to reliable marketing opportunities.

The initial conditions for improving agricultural production in Africa are substantially different than those that existed in Asia at the time of the Green Revolution. Agroecological conditions are more challenging in Africa, the rural population is more disperse, and there are fewer opportunities for developing large-scale irrigation schemes. Greater effort will be required to disseminate new production technologies and ensure that all farmers have access to fertilizer and complementary inputs. The extensive poverty in rural areas and the risk aversion that comes with low incomes will limit farm-level expenditures on yield-improving inputs.

Appropriate near-term policies include subsidies on agricultural inputs and fair prices for agricultural products, to stimulate increases in agricultural production. Over time, direct subsidies might be replaced or complemented by crop loss insurance programs that provide downside risk protection. Public investments in education, research, and training will have greater long-term impact on agricultural production and rural livelihoods than input subsidies, but subsidies might be needed in many areas to “get agriculture moving” in a positive direction soon. Subsidies can be combined with agricultural training and extension programs to increase the likelihood that inputs will be used correctly and that measures of water and nutrient efficiencies will be optimized.

Public officials should assess the current state of agricultural production and marketing in their countries, with the goal of identifying primary constraints, risks, and opportunities. The analysis should be conducted from both public and private perspectives, because public officials often have different views of constraints and risks than small-scale farmers who make decisions regarding inputs and outputs. Engaging farmers and representatives of farmer organizations in the evaluation process will enhance the value of the exercise. Donor agencies and international research centers can assist public officials by supporting studies that enhance understanding of farm-level production and marketing constraints, while also supporting policies and subsidies that reduce farm-level risks of applying fertilizer and investing in improvements in water management.

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The Role of Input Vouchers in Pro-Poor Growth

by
Ian Gregory¹

Approximately three-quarters of the 230 million hectares of farmed land in sub-Saharan Africa is degraded and about 70 million smallholder farm families are caught in a poverty trap of declining agricultural productivity, degrading soils, food insecurity, limited market participation, and off-farm employment opportunities. An estimated 80% of these smallholder families struggle to survive below the poverty line on less than a dollar a day. A major cause is low farm productivity. Soil nutrient depletion is a significant factor in low agricultural productivity. As a result, grain yield in Africa has stagnated at 1 ton per hectare for two decades and grain imports will need to be over 60 million tons per annum by 2010. Soil nutrient depletion has reached more than 60 kg/ha in 21 countries and between 30 and 60 kg/ha in another 22 countries in SSA. The declining fertility of African soils because of nutrient mining is one of the main causes of stagnating crop yields and declining per capita food production. In the longer term it is a key source of land degradation and environmental damage.

This paper briefly reviews some of the supply- and demand-side constraints to increased fertilizer use and defines attributes of pro-poor growth. This is defined as growth that benefits the poor. Current agricultural development programs based on identified markets for value chain development benefit the smallholder participants through new technology adoption and access to remunerative markets. The paucity of evidence that these programs create a trickle-down effect to the millions of non-participatory smallholder families demands a fresh examination of how rural development can be implemented that will create opportunities for these millions to increase productivity, diversify cropping, and fully participate in markets.

Holistic development programs are required that are pro-poor. The use of input vouchers is presented as a flexible development tool for jump starting this participation for the poor. IFDC's experience with input vouchers in Malawi, Afghanistan, and Nigeria (each program with different objectives) illustrates how both smallholder farmers and small input dealers can benefit. Vouchers, however, are only "smart subsidies" and must be matched by holistic development assistance for the targeted poor. The cost and medium- to long-term horizons to reach sustainability are substantial and require that considerable analysis, objective setting, and implementation planning be performed prior to embracing this useful policy tool.

¹IFDC—An International Center for Soil Fertility and Agricultural Development.

World Bank Papers

Concerned by the low use of fertilizer in Sub-Saharan Africa compared to other developing regions, in 2004 the World Bank and the United Kingdom Department for International Development (DFID) jointly undertook an Africa Fertilizer Strategy Assessment, the objectives of which included:

- Identifying factors that have undermined demand for fertilizer in sub-Saharan Africa.
- Identifying factors that have restricted the supply of fertilizer in sub-Saharan Africa.
- Assessing lessons learned from past attempts to promote increased use of fertilizer in sub-Saharan Africa.
- Identifying entry points for supporting successful uptake of fertilizer by African farmers, particularly smallholders.

The assessment generated a number of outputs. In addition to the “Africa Fertilizer Policy Toolkit,” a CD-based resource designed for use by policymakers and development agency staff, these included four ARD Discussion Papers—three that address specific fertilizer-related themes and one that summarizes the contributions made by participants in an e-forum about increasing fertilizer use in Africa that was conducted as part of the Assessment. The four ARD Discussion Papers include:

1. ***Alternative Approaches for Promoting Fertilizer Use in Africa***

Eric W. Crawford, T. S. Jayne, and Valerie A. Kelly

This paper examines a number of financial, economic, social, and political arguments that have been made in favor of promoting increased fertilizer use in Africa. The cases for and against fertilizer subsidies are discussed in some detail.

2. ***Factors Affecting Demand for Fertilizer in Sub-Saharan Africa***

Valerie A. Kelly

This paper provides a comprehensive overview of the current state of knowledge about the factors affecting farm-level demand for fertilizer in sub-Saharan Africa. Technical, economic, and policy options for strengthening demand are reviewed.

3. ***Factors Affecting Supply of Fertilizer in Sub-Saharan Africa***

D. I. Gregory and B. L. Bumb

This paper evaluates different strategies to make significant improvements in fertilizer supply to smallholder farmers in sub-Saharan Africa. Use of supply chain analysis is advocated as a means of identifying entry points where targeted interventions can shift the fertilizer supply curve to the right.

4. ***Increasing Fertilizer Use in Africa: What Have We Learned?***

Colin Poulton, Jonathan Kydd, and Andrew Dorward

Promoting Increased Fertilizer Use in Africa: Lessons Learned and Good Practice Guidelines

by
World Bank

This report summarizes lessons learned from past efforts to promote fertilizer in Africa, provides an overview of the current state of knowledge concerning technical aspects of fertilizer use in Africa, and presents good practice guidelines for promoting sustainable increases in fertilizer use.

Fertilizer is not a panacea for all of the many problems that afflict African agriculture, and promoting fertilizer in isolation from other needed actions will have little lasting impact. At the same time, it is clear that fertilizer use in Africa must increase if the region is to meet its agricultural growth targets and poverty reduction goals. Policies and programs therefore are needed to encourage fertilizer use in ways that are technically efficient, economically rational, and market friendly.

In considering possible entry points for public interventions to increase fertilizer use, it is important to adopt a long-term perspective. Efforts to promote fertilizer in Africa have all too often focused narrowly on stimulating immediate increases in fertilizer use with the help of budgetary payments made by governments or development partners to reduce the cost of fertilizer at the farm level. This approach is very limited. Policymakers and development partners must work to identify and implement interventions aimed at addressing the underlying structural problems that undermine incentives for farmers to use fertilizer and for firms to supply fertilizer. Appropriate combinations of these interventions must be selected to ensure that demand and supply can grow in parallel, paving the way for the emergence of private sector-led commercial fertilizer markets.

While the long-term policy objective should be to support the emergence of viable private sector-led fertilizer markets, use of subsidies may be justifiable on a temporary basis to stimulate increased fertilizer use in the short run. If fertilizer subsidies are to be used, however, they should be designed and implemented in ways that encourage the efficient uptake of fertilizer as part of an integrated package of improved crop production technologies, and they should not distort the relative price of fertilizer so as to encourage economically inefficient use. This report describes a number of “market-smart subsidies”—measures that have been used with varying degrees of success in Africa to promote increased use of fertilizer along with complementary inputs in ways that stimulate input market development without crowding out private investment. Examples include demonstration packs, vouchers, matching grants, and loan guarantees.

Market-smart subsidies can be useful in the short-run to address some of the problems that contribute to low fertilizer use, but unless public resources (including donor assistance) are available to support indefinitely the high fiscal and administrative costs associated with fertilizer subsidies, they do not represent a long-term solution to the problem of missing fertilizer markets. Sustainable growth in fertilizer use in Africa is unlikely to happen unless public resources can be shifted to support measures that address the many underlying structural problems affecting incentives to supply and to use fertilizer. These measures may include policy and institutional reforms, as well as public investment in infrastructure, knowledge generation and dissemination, capacity building, and improving the resource base on which African agriculture depends.

Alternative Approaches for Promoting Fertilizer Use in Africa, With Emphasis on the Role of Subsidies

by

Eric W. Crawford,¹ T. S. Jayne,² and Valerie A. Kelly²

Promoting sustainable development in sub-Saharan Africa (SSA) will require massive increases in the amounts of fertilizers used in agriculture. Beyond Africa, history has shown that increases in fertilizer adoption are the starting blocks to long-term structural transformation and growth of the economy, and there is a widely held view that farmers' failure to intensify agricultural production in a manner that maintains soil productivity is a key feature of SSA's land degradation problems. This commissioned paper reviews the substantial body of fertilizer literature and attempts to provide a balanced view to the policy options available regarding fertilizer subsidies for smallholder agriculture in SSA.

Although there are some differences, the paper reports that most of the literature agrees that enabling conditions for rapid fertilizer adoption include:

- Increased investment in transportation and marketing.
- Better extension services and extension messages.
- Cost-effective means to reduce the risks of using fertilizer and producing for the market.
- Facilitation of rural financial markets for the financing of fertilizer purchases.

Researchers and practitioners increasingly appreciate that complementary interventions must accompany fertilizer promotion programs, and that these must explicitly regard improvements in land husbandry practices, the type of fertilizer recommended, and methods of application. SSA boasts an extremely wide variety of specific circumstances, and the paper emphasizes disaggregated research, extension, and market development, and takes into consideration issues of institutional capacity, agro-ecology, and population densities. General lessons for better program design should only be drawn where the scale of the synthesis and generalization is at the national level or below.

Fertilizer subsidies remain an attractive option; they are politically appealing and seem easy to implement, despite past negative externalities. The current debate on subsidies focuses on ways to improve targeting, and that fertilizer promotion programs are considered explicitly in relation to a range of alternative investments and policy tools. Soil fertility decline can only be combated with increased donor resources, which will lead to local benefits as well as supra-national benefits, such as increased carbon sequestration.

Despite the substantial literature available, significant gaps remain in our knowledge of soil fertility, fertilizer response and profitability, and social costs and benefits, among others. This appears partly attributable to a lack of consensus due to the variety of studies undertaken in different location-specific contexts, so the authors recommend more adaptive research to test the relevance of initial findings under a variety of circumstances.

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²World Bank.

Input Subsidies and Agricultural Development: Issues and Options for Developing and Transitional Economies

by

B. L. Bumb,¹ S. K. Debrah,¹ and L. Maene²

World population is projected to reach over 8 billion in 2025 and over 9 billion in 2050. Over 90% of the projected increase will occur in the developing and transitional economies where food insecurity and environmental degradation are serious challenges. In confronting these challenges, the use of mineral fertilizer and associated inputs will continue to play a critical role, as it has done in the past.

Environmentally sound use of modern inputs depends on technology, agronomy, and policy-related factors. Once the agronomic practices are known and suitably engineered products are available in the market, it is the policy-related factors that carry the burden of moving the cart forward. Through a conducive and stable policy environment, many countries, especially in Asia, have recorded high growth in fertilizer use and other inputs, and input subsidies played a central role in such policy environments. Nevertheless, driven by policy and market reforms, many countries have phased out input subsidies during the 1990s.

In the context of market reforms and the Uruguay Round Agreement on Agriculture (URAA), this paper provides an assessment of arguments for and against input subsidies, especially fertilizer subsidies, and discusses various alternatives to subsidies and IFDC experiences in dealing with fertilizer subsidies. The assessment of various arguments and experiences indicates that arguments in favor of fertilizer subsidy are no longer as strong as those that are against it; and the sustainable alternatives to subsidy are even stronger, given the universal moves toward market-based developments. The alternatives include efforts to reduce the cost of fertilizers through a number of strategies that will shift the supply curve to the right and promote public investment in marketing infrastructures, improve profitability of fertilizer use through investment in soil fertility restoration, and provide support under the Green Box measures of the URAA. Situations are also identified in which direct subsidies could be considered, but even in those cases, accompanying measures should be taken to avoid misuse of resources and the distortionary impact on the market. However, national governments should continue to take the lead in investing in public goods through public-private partnerships, in internalizing the externality (leading to market failure), and in providing necessary support for soil fertility and natural resource management in a market-friendly way. Where the concern is poverty alleviation, a voucher system of support is preferred because it addresses the twin objectives of poverty alleviation and market development.

¹IFDC—An International Center for Soil Fertility and Agricultural Development.

²Director General, International Fertilizer Industry Association (IFA) and Member, IFDC Board of Directors.

Appendix III

Summit Committees

Summit Committees

National Steering Committee

1. Honorable Minister of Agriculture, Chairman
2. Honorable Minister of Industry
3. Honorable Minister of Foreign Affairs
4. Honorable Minister of Commerce
5. Honorable Minister of Solid Minerals
6. Honorable Minister of Finance
7. Special Adviser to President of Economic Matters
8. Honorable Minister of State, Federal Ministry of Agriculture & Rural Development (FMA&RD)
9. Rockefeller Foundation
10. Senior Special Assistant (SSA) (NEPAD) – Nigeria
11. NEPAD Continental
12. SSA (Food – Security)
13. IFDC – Nigeria
14. Chairman, Senate Committee of Agriculture
15. Chairman, House Committee of Agriculture
16. Executive Secretary – National Investment Promotion Council (NIPC)
17. Economic Community of West African States (ECOWAS) – Director, Agriculture Sector
18. Food and Agriculture Organization (FAO) – Nigeria
19. Permanent Secretary, FMA&RD
20. Director, Legal Department FMA&RD
21. Director, Federal Fertilizer Department, Secretary
17. Representative, Federal Ministry of Internal Affairs
18. Representative, Federal Ministry of Environment
19. Representative, National Planning Commission
20. Representative, Federal Ministry of Water Resource
21. Representative, Federal Ministry of Foreign Affairs
22. Representative, Federal Ministry of Internal Affairs
23. Representative, Police Assistant Inspector-General (AIG) – Abuja Zone
24. Representative, State House/Protocol
25. Representative, Nigerian National Petroleum Corporation (NNPC)
26. Cooperative Federation of Nigeria
27. Representative, NEPAD – Nigeria
28. Representative, Director of State Security Service (SSS)
29. Fertilizer Producers and Suppliers Association of Nigeria (FEPSAN) to be represented by three members (Golden Fertilizer, Fertilizer and Chemical, and Agro Nutrients and Chemicals Company Ltd. [ANCC])
30. Apex Farmers Association of Nigeria (AFN)
31. NEPAD Business Group
32. Cooperative Federation of Nigeria
33. IFDC – Nigeria
34. Deputy Director, Federal Fertilizer Department, Secretary

Local Organizing Committee

1. Permanent Secretary, FMA&RD, Chairman
2. Director, Federal Fertilizer Department (Chairman, Technical Subcommittee)
3. Director, Federal Department of Agriculture
4. Director, Project Coordinator Unit/Special Program on Food Security (SPFS)
5. Director, Fisheries
6. Director, Planning, Research and Statistics Department (PRSD) (Chairman, Accommodation and Logistics Subcommittee)
7. Director, Finance and Accounts
8. Director, Agricultural Land Resources
9. Director, Nigerian Institute for Oil Palm Research (NIFOR) (Chairman, National Fertilizer Technical Committee (NFTC))
10. Director, Agricultural Sciences
11. Director, Administration and Supplies
12. Representative, Federal Ministry of Industry
13. Representative, Federal Ministry of Commerce
14. Representative, Federal Ministry of Solid Minerals
15. Representative, Federal Ministry of Finance
16. Representative, Federal Ministry of Information

Composition of Subcommittees

(a) *Technical/Professional Subcommittee*

1. Director, Federal Fertilizer Department, Chairman
2. Dr. U. Alkaleri, IFDC – Nigeria
3. Prof. V. O. Chude, Special Program on Food Security/Soil Fertility Initiative (SPFS/SFI)
4. Prof. G. O. Ayoola, IFDC/Marketing Inputs Regionally (MIR) Project
5. Deputy Director, Federal Fertilizer Department
6. Representative, Federal Department of Agriculture
7. Representative, Department of Agricultural Land Resources
8. Representative, Planning Research and Statistics Department
9. Director, Project Coordination Unit
10. Representative, Federal Ministry of Solid Minerals
11. Representative, Federal Ministry of Industries
12. Representative, Federal Ministry of Commerce
13. Representative, Federal Ministry of Environment
14. Representative, Raw Material Research and Development Council
15. Representative, National Fertilizer Technical Com

16. Representative, FEPSAN, (Golden, Fertilizer and Chemical, and ANCC)
17. NEPAD – Nigeria
18. All Farmers Association of Nigeria (ALFAN)
19. Federal Fertilizer Department, Secretary

(b) Accommodation/Venue and Logistics Subcommittee

1. Director, PRSD, Chairman
2. Representative, Federal Ministry of Works
3. Representative, Federal Ministry of Foreign Affairs
4. Representative, Federal Capital Development Authority (FCDA)
5. Deputy Director, Fisheries Department
6. Representative, Protocol/State House
7. Representative, Project Coordination Unit
8. Representative, NEPAD – Nigeria
9. Representative, Federal Fertilizer Department
10. Assistant Director, MTB, FMA&RD

(c) Publicity Subcommittee

1. Director, Federal Ministry of Information
2. Representative, Nigerian Television Authority
3. Representative, Federal Radio Corporation of Nigeria (FRCN)
4. Representative, Federal Fertilizer Department
5. Representative, PRSD
6. Representative, Finance and Account
7. Representative, Federal Ministry of Industries
8. Representative, Nigerian Union of Journalists
9. Voice of Nigeria
10. News Agency of Nigeria
11. Chief Press Secretary, FMA&RD

(d) Security and Protocol Subcommittee

1. Director, Administration and Suppliers (FMA&RD)
2. Representative, Federal Ministry of Foreign Affairs
3. Representative, Presidency (Protocol)
4. Representative, SSS
5. Representative, National Intelligence Agency (NIA)
6. Assistant Inspector-General (AIG) – Abuja Zone
7. Director, PRSD
8. National Planning Commission
9. NEPAD – Nigeria
10. Federal Fertilizer Department
11. Assistant Director, PRSD
12. Representative, Federal Road Safety Committee
13. Head of Protocol, FMA&RD












(e) Finance Subcommittee

1. Permanent Secretary, FMA&RD
2. Director, Finance and Accounts
3. Director, Federal Fertilizer Department
4. DG (Budget) Office
5. Director, Administration and Supplies, FMA&RD
6. Director, Legal, FMA&RD
7. IFDC – Nigeria
8. NEPAD – Nigeria
9. Deputy Director, Federal Fertilizer Department, Secretary

The Africa Fertilizer Summit

The purpose of the Africa Fertilizer Summit, held 9–13 June 2006, in Abuja, Nigeria, was to develop a strategy to make vital plant nutrients available to African farmers. Delegates built consensus around key issues concerning fertilizer use in Africa, and agreed on bold actions to facilitate the access of millions of poor farmers to mineral fertilizers and complementary inputs.

Documents on this CD are:

- | | |
|--|---|
|  Marjatta Eilittä | <i>Achieving an African Green Revolution: A Vision for Sustainable Agricultural Growth in Africa</i> |
|  Steven J. Van Kauwenbergh | <i>Fertilizer Raw Material Resources of Africa</i> |
|  Julio Henao and Carlos Baanante | <i>Agricultural Production and Soil Nutrient Mining in Africa: Implications for Resource Conservation and Policy Development</i> |
|  Oumou Camara and Ed Heinemann | <i>Overview of the Fertilizer Situation in Africa</i> |
|  Andre Bationo, Alfred Hartemink, Obed Lungu, Mustapha Naimi, Peter Okoth, Eric Smaling, and Lamourdia Thiombiano | <i>African Soils: Their Productivity and Profitability of Fertilizer Use</i> |
|  Eric Smaling, Moctar Toure, Nico de Ridder, Nteranya Sanginga, and Henk Breman | <i>Fertilizer Use and the Environment in Africa: Friends or Foes?</i> |
|  Dennis Wichelns | <i>Improving Water and Fertilizer Use in Africa: Challenges, Opportunities, and Policy Recommendations</i> |
|  Ian Gregory | <i>The Role of Input Vouchers in Pro-Poor Growth</i> |
|  World Bank Papers:
Eric W. Crawford, T. S. Jayne, and Valerie A. Kelly | <i>Alternative Approaches for Promoting Fertilizer Use in Africa</i> |
| Valerie A. Kelly | <i>Factors Affecting Demand for Fertilizer in Sub-Saharan Africa</i> |
| D. Ian Gregory and Balu L. Bumb | <i>Factors Affecting Supply of Fertilizer in Sub-Saharan Africa</i> |
| Colin Poulton, Jonathan Kydd, and Andrew Dorward | <i>Increasing Fertilizer Use in Africa: What Have We Learned?</i> |
| World Bank | <i>Promoting Increased Fertilizer Use in Africa: Lessons Learned and Good Practice Guidelines</i> |
|  Eric W. Crawford, T. S. Jayne, and Valerie A. Kelly | <i>Alternative Approaches for Promoting Fertilizer Use in Africa, With Particular Reference to the Role of Fertilizer Subsidies</i> |
|  Balu L. Bumb, S. Kofi Debrah, and Luc Maene | <i>Input Subsidies and Agricultural Development: Issues and Options for Developing and Transitional Economies</i> |

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