GROWING FOOD for nine billion
“... IMENSE EFFORT WILL HAVE TO GO INTO NEW, BETTER AND MORE INTENSIVE WAY OF PRODUCING OUR FOOD.”
FOOD PRODUCTION WILL HAVE TO INCREASE BY 70 PERCENT TO FEED A POPULATION OF NINE BILLION PEOPLE BY 2050. THAT MEANS A STAGGERING ADDITIONAL ONE BILLION TONNES OF CEREALS AND 200 MILLION TONNES OF MEAT WILL NEED TO BE PRODUCED ANNUALLY BY 2050. IN ORDER TO INTENSIFY PRODUCTION BY THAT MUCH ON OUR FINITE EARTH, IMMENSE EFFORT WILL HAVE TO GO INTO NEW, BETTER AND MORE INTENSIVE WAYS OF PRODUCING OUR FOOD. WE WILL HAVE TO REFLECT ON THE WISE WAY FORWARD AND SUPPORT WHAT NEEDS TO BE DONE.

The trends in food production are in fact worrisome. For example, globally the rate of growth in yields of the major cereal crops has been declining steadily. The rate of growth in global cereal yields dropped from 3.2 percent per year in 1960 to 1.5 percent in 2000. The challenge is to reverse this decline which, if it continues, means that food needs will not be met.

Let’s start with a basic indicator that shows scientifically what it is possible to grow on any given piece of land – the yield gap. This refers to the difference or gap between the crop yield that can be harvested at a local experimental station using the best inputs and techniques, and the yield that is actually attained on nearby farms by farmers labouring in whatever circumstances they find themselves. The gap is typically wide, especially in developing countries, because of different problems afflicting farmers. They often do not have sufficient economic incentives to adopt yield enhancing seeds or cropping techniques. They lack access to information, extension services and technical skills. Poor infrastructure, weak institutions and unfavourable farm policies can also create huge obstacles to the adoption of improved technologies at farm-level.

INTENSIVE FARMING IS AN EXPENSIVE BUSINESS – and getting more expensive. For example, natural resources are getting scarcer, and prices of non-renewable resources like fossil fuels and fertilizers containing nitrogen and phosphorus are expected to increase over the coming decades. Farmers will have to economize while still maximizing their crop yields just to stay in business, let alone feed nine billion people.
“Smallholder farmers ... are the majority of the world's undernourished. We will not increase food production sustainably without them.”
ONE WAY TO ECONOMIZE IS CONSERVATION AGRICULTURE, in which minimal ploughing is undertaken and straw or other organic matter is placed on top of the soil to retain moisture, thus reducing the need for irrigation. Conservation agriculture reduces water needs of crops by 30 percent, reduces impact of higher temperatures, lowers energy needs in agriculture by 70 percent, and even helps sequester about 200 kg of carbon per hectare per year. Thus, it helps crops adapt to climate change and contributes to climate change mitigation. Conservation agriculture is currently practised on about 10 percent of global crop land, mainly in Latin America.

Integrated pest management combines pest resistant varieties, biological pest control, cultural practices and judicious use of pesticides to increase production, lower cost and reduce water and soil contamination. Some farmers spray regularly whether the crop is under threat from pests or not. Adjusting the use of pesticides to actual needs is good for the environment and human health, and also saves the farmer money.

The benefits of irrigation are immense. Experts estimate that in developing countries, irrigated agriculture, with about 20 percent of all arable land, accounts for 47 percent of all crop production and almost 60 percent of cereal production. Feeding nine billion people requires the expansion of irrigated areas as well as the wider use of management practices that will improve the efficiency of water use, for example, water “harvesting” techniques and conservation of soil moisture.

PLANT BREEDING TECHNIQUES, and particularly modern biotechnology, have aroused public debates in the last decade. Yet technically speaking, relevant modern biotechnology has the potential to speed up the development of improved crops, which may increase yields, improve crop and food quality, and/or decrease crop losses.

In low-income countries, agricultural research and development, or R&D for short, continues to be the most productive investment in support of the agricultural sector, followed by investments in education, infrastructure, and input credits. Investments in R&D have very high rates of return and long-term benefits.

The increases in global crop yields achieved between 1965 and 2000 were almost 50 percent due to better crop management practices and 50 percent due to improved plant genetics. Conservation and sustainable use of plant genetic resources through plant breeding can help develop varieties that are better in yield and quality and are more efficient in using nutrients and water, more tolerant to pests and to other stresses such as drought and heat.

This may all seem straightforward, if daunting. Not so.
“AN ECOSYSTEM APPROACH TO AGRICULTURE ... WILL SAVE POOR FARMERS MONEY ON EXPENSIVE AGRICULTURAL INPUTS, MONEY THEY CAN REINVEST IN THEIR FARMS AND THEIR FAMILIES’ FOOD, HEALTH AND EDUCATION.”
THERE ARE DANGERS AT EVERY TURN! Previous attempts at managed intensification of agriculture, such as the green revolution of the 1960s and 1970s, while more than doubling food production without much expansion of agricultural land, paid a price. In some cases it is now recognised that the spectacular food crop yield increase achieved – through greater use of fertilisers, high yielding varieties, and pesticides – was made at the expense of the environment or in ways that were otherwise unsustainable.

In principle, sustainable agriculture is about using the right kind of policies, the right kind of technologies, and the right kind of approach to complement what nature does. Examples of the contribution of nature include the action of soil-borne organisms to allow plants to access key nutrients, healthy soil structure that promotes water retention and the recharge of groundwater resources, pollination services, natural predation of pests and so on. Put another way, sustainable agriculture is about the judicious use of relatively safer external inputs at the right time in the growing cycle and in the right amount. An approach based on such principles can be described as an “ecosystem approach” to crop production intensification.

It should also be recalled that smallholder farmers and their families represent some 2.5 billion people, more than one-third of the global population. Among them are the majority of the world’s undernourished. We will not increase food production sustainably without them. And in fact, they have everything to gain by adopting an ecosystem approach to agriculture: it will save them money on expensive agricultural inputs, money they can reinvest in their farms and their families’ food, health and education.

Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. We can’t say that too often. People can grow the food themselves, or earn money and buy their food. In rural areas where agriculture is the main economic activity, intensified crop production, the focus of this essay, would obviously mean more jobs and therefore lower levels of hunger.

Unfortunately, even in countries with booming farm sectors, there is rural hunger: many of the landless, labourers, orphans, widows, the elderly and the poorest of the poor don’t get enough to eat. Even in rural families with regular incomes, ignorance about good nutrition may result in malnourished children. Therefore, access to food for the most needy must be assured with well-targeted social safety net programmes such as school feeding, employment guarantee schemes, cash transfers and pensions.

Since the problem of how to produce enough food for nine billion people sustainably is not going to go away, I encourage everyone to reflect on the issues outlined above. Thank you.

Jacques Diouf
Director-General
Food and Agriculture Organization of the United Nations
"IN HAITI, FAO AND THE MINISTRY OF AGRICULTURE ARE SUPPORTING THE MULTIPLICATION AND DISTRIBUTION OF QUALITY SEED VARIETIES."
SUPPORTING COUNTRIES before, during and after emergencies

EACH YEAR MILLIONS OF PEOPLE ARE AFFECTED BY NATURAL DISASTERS, CONFLICT, ECONOMIC SHOCKS AND BY TRANSBOUNDARY PLANT AND ANIMAL DISEASES. FAO SUPPORTS COUNTRIES AND PARTNERS TO PREPARE FOR AND RESPOND TO FOOD AND AGRICULTURE THREATS AND EMERGENCIES. AS OF MAY 2010, FAO WAS CARRYING OUT EMERGENCY AND REHABILITATION ACTIVITIES AROUND THE WORLD WITH A BUDGET OF AROUND US$1.1 BILLION.

NATURAL DISASTERS are on the rise with more devastating effects, and one of the worst in recent years was the 7.0 magnitude earthquake that hit Haiti on 12 January 2010. FAO responded immediately by distributing agricultural inputs in time for spring planting to increase local food production. It continues to help families through a variety of interventions, for example, rural job creation schemes, urban agriculture and seed multiplication. The Organization also worked with the Government to prepare a six-year investment plan for the recovery and development of the agricultural sector. As lead agency for humanitarian agriculture, FAO coordinates close to 90 non-governmental organizations in the country, and established a task force with the World Food Programme (WFP) and the International Fund for Agricultural Development (IFAD) to provide support to the Government in planning and implementing its food security strategy.

In order to make communities stronger before a disaster occurs, make them better able to cope when one happens and to help them recover afterwards, FAO is incorporating disaster risk management strategies into its emergency work. In Haiti, FAO and the Ministry of Agriculture are supporting the multiplication and distribution of quality seed varieties. It is also promoting climate-resilient good agriculture practices such as contour farming, grass barriers and hedgerow techniques for soil conservation and to prevent landslides and erosion. It is establishing farmer field schools and integrating climate change and risk reduction techniques into agricultural policies, programmes and institutions.
Supporting countries before, during and after emergencies

IN THE SAHEL, a lack of rain over the last year has dried out livestock pastures and caused a decline in food production, particularly in Niger and Chad. FAO is working in the region to supply feed for livestock and seeds for the June 2010 planting season and to provide longer term support to farmers organizations as well as local seed production.

An important part of FAO’s work in conflict and post-conflict situations is support for setting up or rebuilding civil society and government institutions. In southern Sudan, FAO is helping to strengthen the new Government’s agriculture and food security institutions. In Iraq, FAO’s emergency and rehabilitation programme has moved on to training programmes designed to strengthen agricultural institutions, and to helping develop agriculture related legislation.

FAO INTERVENTIONS in agriculture are increasingly diversified and aimed at reducing food aid. In Zimbabwe, as part of a large-scale humanitarian intervention, FAO has helped improve crop production through conservation agriculture, protect livestock with vaccinations, rebuild herds through artificial insemination, and improved family nutrition by distributing seeds for home gardens. As a result of a massive seed and input distribution programme to support the main planting season led by FAO and the Government with the support of a large number of civil society organizations, WFP has been able to scale down significantly its food aid programme in the country.

An increasing number of outbreaks of transboundary animal diseases, plant pests and food safety emergencies are a threat to the human food chain. FAO established the Food Chain Crisis Management Framework, which incorporates all available expertise within FAO to assist countries with prevention, early warning and response to food chain crises. In Indonesia, for example, the US$45 million FAO Emergency Centre for Transboundary Animal Diseases’ Avian Influenza Programme helps the Government to implement a host of avian influenza prevention, surveillance, response, control, research and communication activities nationwide. FAO works with the Government and stakeholders to reduce risk from production through to the consumer.
PARTNERSHIPS ARE KEY TO RESPOND better and faster to the needs of beneficiaries. In 2009, the European Union and FAO joined forces to fight growing hunger in the world and addressing the global soaring food price crisis by boosting agricultural production. The European Union Food Facility (EUFF) has allocated more than €228 million to FAO for work in 28 countries in Africa, Asia, and Latin America severely affected by rising food costs and the global economic downturn. The programmes focus on quick but lasting results and target the transition period from emergency aid to longer-term development, often in partnership with WFP. The main goal is to increase food production by 30 percent and reduce food deficits by at least two to three months for more than 100 000 households by providing seeds and technologies. In Afghanistan, EUFF funding has supported and strengthened private seed enterprises to increase the production and use of certified seed for wheat and other major food crops. In the Democratic Republic of the Congo, the focus is on improving access to food security information, strengthening national technical expertise in producing, storing, processing and marketing agricultural products, and improving the rural roads network to help farmers bring their goods to markets.

FAO’S WORK to help farmers, fishers, foresters, herders and their families to recover from crises is funded exclusively from voluntary contributions, and requires sustained support to help partner’s efforts to protect and restore agriculture based livelihoods in emergencies.

For more information see www.fao.org/emergencies
CODEX ALIMENTARIUS COMMISSION
ADOPTS NEW FOOD SAFETY MEASURES

During its 32nd session in Rome, the Codex Alimentarius Commission adopted 30 new international standards, codes of practice and guidelines that will improve food safety worldwide. Representatives of 125 countries participated in the meetings and approved, among other things, measures concerning the human carcinogen acrylamide produced in fried, roasted and baked carbohydrate-rich foods, guidance for coffee producing countries concerning the fungal toxin Ochratoxin A, criteria for salmonella and other bacteria in powdered formula for babies over six months, listeria in ready-to-eat foods and polycyclic aromatic hydrocarbons produced while smoking and drying foods.

JULY 2009
FAO DIRECTOR-GENERAL PRAISES US$20 BILLION G8 FOOD SECURITY INITIATIVE

The G8 meeting held in L'Aquila, Italy produced a US$20 billion Food Security Initiative, which FAO Director-General Jacques Diouf praised as an encouraging policy shift that will help the poor and the hungry to produce their own food. G8 member countries intend the US$20 billion to be spent over three years on sustainable agricultural development. In his address to the G8, Dr. Diouf expressed his faith in their intention to follow through on the initiative for ethical and economic reasons, and to ensure peace and security in the world.

/JULY 2009

FAO BROKERS FIRST GLOBAL TREATY ON PORT STATE MEASURES

FAO brokered talks with 91 countries that resulted in the first ever global treaty on port state measures to combat illegal fishing. The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing aims to close fishing ports to vessels involved in illegal fishing. This action should discourage fishers from engaging in these activities, which damage the productivity of fisheries and create problems for those who depend on fisheries for their livelihood. The agreement provides for assistance and support to developing countries to implement the agreement.

/SEPTEMBER 2009

NEW FAO AMBASSADORS INCLUDE CARDIN AND LEWIS

FAO appointed five new extraordinary and goodwill ambassadors to help promote FAO's vision of a world without hunger. First Lady of the Dominican Republic Margarita Cedeño de Fernández, French fashion designer Pierre Cardin, American athlete Carl Lewis, Indonesian singer and songwriter Anggun and Colombian singer and songwriter Fanny Lu were appointed. FAO's many extraordinary and goodwill ambassadors use their fame to raise awareness of the plight of the world’s more than one billion hungry and encourage their fans and associates to make donations in support of community food projects.

/SEPTEMBER 2009

FAO SUPPORTS FORESTRY’S ROLE IN COMBATING CLIMATE CHANGE

The World Forestry Congress met in Buenos Aires, Argentina under the auspices of FAO, with more than 7 000 participants from 160 countries gathered to discuss climate change, sustainable development, bioenergy and other forest-related topics. FAO with other partners launched a global forest monitoring system based on satellite imagery to help assess current and past rates of deforestation and afforestation. By making ready-to-use data available to developing countries, the system will help them to reduce their carbon emissions from deforestation and forest degradation and to improve conservation efforts, livelihoods and food security.

/OCTOBER 2009
HIGH-LEVEL EXPERT FORUM DISCUSSES HOW TO FEED THE WORLD IN 2050
The world’s population is projected to increase by another 2.3 billion reaching 9.1 billion people by 2050. FAO believes that the world can feed itself by then, but there are significant challenges ahead both in food production and access including dealing with the impact of climate change and bioenergy. In anticipation of the World Summit on Food Security, FAO organized a forum which brought together more than 300 leading experts from academia, nongovernmental and private sector institutions to discuss how to feed the world in 2050. Panellists discussed issues such as food demand, availability of natural resources such as land and water, raising crop yields, investment needs and eliminating poverty.
/OCTOBER 2009

NUMBER OF HUNGRY PEOPLE OVER 1 BILLION: HUNGER REPORT
The number of undernourished people in the world has increased to 1.02 billion. FAO’s annual hunger report The State of Food Insecurity, produced in 2009 with WFP, notes that the food and global economic crises have caused a sharp increase in the number of hungry people and is affecting the poorest people in developing countries. Calling the rise intolerable, Director-General Jacques Diouf urged world leaders to demonstrate the strong political will that is necessary to eradicate hunger.
/OCTOBER 2009

COMMITTEE ON WORLD FOOD SECURITY REFORMS TO ADDRESS GROWING HUNGER
FAO’s Committee on World Food Security has been reformed at a time of worsening world hunger. The reform should make the Committee the world’s primary, inclusive, international arena of discussion, coordination and policy convergence aimed at eliminating hunger and ensuring food security. The newly reformed Committee includes member countries of FAO and of the UN but also UN agencies such as IFAD, WFP and the UN Secretary-General’s High-Level Task Force on the Global Food Security Crisis, the Bretton Woods Institutions, the World Bank and the International Monetary Fund, regional development banks and the World Trade Organization, as well as international agricultural research institutions. The Committee not only includes civil society, NGOs and other organizations working in the area of food security and nutrition, but also relevant representatives of people affected by food insecurity. It will be open to the private sector and philanthropic foundations. The Committee will now receive scientific and technical advice from a high-level panel of experts on food security and nutrition so as to make informed and objective decisions.
/OCTOBER 2009
WORLD FOOD DAY FOCUSES ON FOOD SECURITY DURING CRISIS

Sixty-four years after FAO was founded, World Food Day events in Rome focused on achieving food security in times of crisis. In his annual World Food Day address, FAO’s Director-General Jacques Diouf urged world leaders to work together to eliminate hunger and to recognize the need for greater investment in agriculture. He pointed out that the amount of US$44 billion needed to support agricultural development is small compared to the US$365 billion spent on agriculture in 2007 alone in rich countries, and is paltry compared to the US$1 340 billion spent each year on armaments, or the trillions of dollars used to support the financial sector. Pope Benedict XVI in a message to the World Food Day celebrations said that the drama of hunger can only be overcome by eliminating the structural causes that give rise to it and promoting the agricultural development of the poorer countries.

/OCTOBER 2009

FAO DIRECTOR-GENERAL GOES ON HUNGER STRIKE IN SOLIDARITY WITH THE WORLD’S HUNGRY PEOPLE

On the evening before the World Summit on Food Security, FAO Director-General Jacques Diouf urged people around the world to go on hunger strike to show their support for the one billion chronically hungry people in the world. He also joined the 24-hour strike, as did UN Secretary General Ban Ki Moon and the mayor of Rome. Dr Diouf hoped this gesture would raise awareness and put pressure on those who can change the situation. During that period he worked in the lobby of FAO headquarters where he also slept overnight on a makeshift mattress of foam blocks wearing a woollen cap and an overcoat over his pyjamas to stay warm in the unheated building.

/NOVEMBER 2009

WORLD SUMMIT ON FOOD SECURITY HELD IN ROME AIMS TO ERADICATE HUNGER

FAO held a World Summit on Food Security in an attempt to encourage strong political will and investment and to inspire the world to increase national and international efforts to end hunger. Sixty heads of state and 191 Ministers attended representing 182 countries and the European Community. While the resulting declaration did not include specific targets for increased investment or specific deadlines, it did produce important commitments to aid in the effort to eradicate hunger. The summit also recognized the urgent threat of climate change on food security and agreed that proactive efforts must be made to mitigate its effects, with particular attention to small agricultural producers and vulnerable populations.

/NOVEMBER 2009
PROGRAMME OF WORK AND BUDGET APPROVED
The Conference of FAO's 192 member countries approved a new results-based programme of work. It agreed to increase FAO's regular budget, funded by assessed contributions, by 7.6 percent to US$1.005 billion, incorporating the Immediate Plan of Action for FAO renewal. The programme of work also plans the use of a record US$1.2 billion in estimated voluntary contributions. /NOVEMBER 2009

NEW MULTI-DONOR CLIMATE CHANGE MITIGATION PROGRAMME
FAO announced a new climate change mitigation programme during the UN Climate Change Conference in Copenhagen that promotes sustainable, low-emission agriculture in developing countries over the next five years. It will be funded by numerous donors, the first of which is Finland with a contribution of US$60 million. Currently, agriculture is responsible for around 14 percent of greenhouse gas emissions, but it could reduce its own harmful emissions and reduce greenhouse gasses generally by removing CO2 from the atmosphere and sequestering it in soils and plants. The programme intends to make use of existing practices known to reduce emissions that also have the positive effect of reducing hunger and poverty. It will create a much needed global database of current and projected greenhouse gas emissions by agricultural commodity, country and region. /DECEMBER 2009

FOREST ASSESSMENT MOST COMPREHENSIVE EVER
FAO published its new Global Forest Resources Assessment in 2010, its most comprehensive forest review to date, covering 233 countries and areas. Among key findings, the assessment found that world deforestation, mainly the conversion of tropical forests to agricultural land, has decreased over the past ten years but continues at an alarmingly high rate in many countries. Globally, around 13 million hectares of forests were converted to other uses or lost through natural causes each year between 2000 and 2010 as compared to around 16 million hectares per year during the 1990s. /MARCH 2010
THE 1BILLIONHUNGRY PROJECT GOES GLOBAL

As part of the effort to raise awareness and mobilize the necessary political will to eradicate hunger, FAO launched a major communication campaign and online petition at www.1billionhungry.org. The petition was originally publicized at the World Summit on Food Security in November 2009. The 1billionhungry project uses strong images to illustrate hunger at its worst. A yellow whistle works as an icon encouraging people to blow the whistle against hunger. The online petition, which was to be presented to the United Nations, calls upon governments to make the elimination of hunger their top priority. FAO hopes the petition will spread through social media sites such as Facebook, Twitter and YouTube.

/MAY 2010

FAO REFORM FORGING AHEAD

A comprehensive programme of organizational reform and culture change began in 2008. Headquarters restructuring and delegation of decision making has created a flatter more responsive structure and reduced costs. Modernizing and streamlining of administrative and operational processes are under way. Improved internal teamwork and closer external partnerships coupled with upgrading of IT infrastructure and greater autonomy of FAO’s decentralized offices allows the Organization to respond quickly where needs are greatest. As FAO is primarily a knowledge based organization, investing in human resources is a top priority. Capacity building including a leadership programme, employee rotation and a new junior professional programme has been established. Individual performance management, an ethics officer and an independent office of evaluation are designed to improve performance through learning and strengthened oversight.

/2009-2010
MEMBERS
An intergovernmental organization, FAO has 192 member countries plus one member organization, the European Community.

GOVERNANCE
Every two years, representatives of all members meet at the FAO Conference to review work carried out and to approve a new budget. The Conference elects a smaller group of 49 member countries, known as the Council, to serve three-year rotating terms to govern the Organization’s activities. The Conference also elects a Director-General to a six-year term. The current Director-General, Dr Jacques Diouf, of Senegal, began his third term in January 2006.

DEPARTMENTS
FAO is composed of seven departments: Agriculture and Consumer Protection; Economic and Social Development; Fisheries and Aquaculture; Forestry; Corporate Services, Human Resources and Finance; Natural Resources Management and Environment; and Technical Cooperation.

OFFICES
Besides its headquarters in Rome, FAO is present in over 130 countries. The decentralized network includes five regional offices, 11 subregional offices, two multidisciplinary teams, 74 fully fledged country offices (excluding those hosted in regional and subregional offices), eight offices with technical officers/FAO Representatives, and 36 countries covered through multiple accreditation. In addition, the Organization maintains five liaison offices and four information offices in developed countries.

STAFF
As of 1 May 2010, FAO employed 1,736 professional staff (including national professional officers) and 1,905 support staff. Figures only refer to staff holding fixed term and continuing appointments. Approximately two thirds are based at headquarters in Rome, while the remainder work in offices worldwide.

FIELD PROGRAMME
In 2009, FAO-assisted projects used US$647.1 million from donor agencies and governments for agricultural and rural development projects and emergencies. Some 82.1 per cent of Field Programme finances were taken from national trust funds. During the same year, FAO itself contributed 9.2 per cent (or US$66.4 million), provided by the Regular Programme budget through its Technical Cooperation Programme and its national and regional programmes for food security.

FUNDING AND EXPENDITURE
FAO’s overall programme of work is funded by assessed and voluntary contributions. The assessed contributions are member countries’ contributions, set at the biennial FAO Conference. The FAO regular budget for the 2010-2011 biennium is US$1.005 billion. The voluntary contributions provided by members and other partners support technical and emergency (including rehabilitation) assistance to governments, as well as direct support to FAO’s core work. The voluntary contributions are expected to reach approximately US$1.2 billion in 2010-11.

This overall budget covers core technical work, cooperation and partnerships, leading to Food and Agriculture Outcomes; Core Functions; the Country Office Network; and, Capital, Security and Administrative expenditure.
1,000,000,000
Peoples
live in chronic hunger and

I'M MAD AS HELL.

www.1billionhungry.org

SIGN THE PETITION TO END HUNGER