Post-2015 Agenda and Sustainable Development Goals: Submission from the Fertilizer Industry

Among the main outcomes of the Rio+20 Conference in 2012 was the agreement by United Nations member states to launch a process to develop a set of Sustainable Development Goals (SDGs), which will build upon the Millennium Development Goals (MDGs) and converge with the post-2015 development agenda. Agriculture and food security have been recognized as priority topics in this process. The fertilizer industry wishes to highlight some of its key contributions to both the post-2015 development agenda and the SDGs.

KEY MESSAGES

Food and nutrition security are central to the post-2015 development agenda and to the Sustainable Development Goals

Food and nutrition security should be a stand-alone, bold and prominent goal in the post-2015 development agenda. The target of halving extreme poverty rates in 2015 compared with 1990 levels has been met. However, halving the proportion of people who suffer from hunger will not be achieved. The new Sustainable Development Goal should therefore be to eliminate hunger. Since the 2007/08 food crisis, the international policy agenda has clearly indicated that hunger, malnutrition and food insecurity – in the context of a growing world population and both chronic and sporadic crises – deserve worldwide attention. The global prevalence of hunger and malnutrition remains unacceptably high. Micronutrient malnutrition affects 30% of the world population. Under- and overnutrition are the key challenges to achieving food and nutrition security (obesity rates have doubled over the last 30 years). Much of the food we eat today (and more of the food that will be needed in the future) is and will be produced through the use of mineral fertilizers. The countries with the lowest levels of mineral fertilizer use also have the lowest levels of agricultural productivity and the highest levels of hunger. In addition, enhancing fertilizers with micronutrients is an innovative strategy to help eliminate micronutrient deficiencies around the world, leading to the eradication of malnutrition.

Helping farmers in the developing world to become as productive as those in the developed world

In much of the developing world, yields are far lower than those in the developed world. The reasons for this include lack of access to technology and knowledge, but also dysfunctional input-output markets. Empowering farmers, particularly women farmers, in all regions to produce more with less can raise productivity dramatically.[1]

The fertilizer industry works with farmers' organizations to promote **sustainable intensification** and **achieve last-mile delivery** of inputs, technology and knowledge, making it possible for more crops to be grown on less land. The combination of quality inputs, including fertilizers, and good agricultural practices and can increase yields up to three times. Farmers must have access to these inputs and the knowledge to

[1] "The Female Face of Farming" (Farming First, 2012). http://www.farmingfirst.org/women/

use them appropriately if agricultural productivity, farming profitability, and food and nutrition security are to be enhanced at the same time that agriculture's environmental footprint is reduced. The fertilizer industry promotes the adoption of the nutrient stewardship frameworksthat include the principles of the right use of nutrient source, rate, time and place. Potential environmental impacts can be avoided when farmers use only those nutrients required by the soil and plants. The fertilizer industry also promotes product stewardship initiatives to reduce the environmental footprint of fertilizer production. By acting throughout the supply chain, the industry contributes to the establishment of more stable and equitable food systems.

The fertilizer industry supports the target proposed by the Gates Foundation of doubling of the rate of sustainable productivity growth by 2030.

The fertilizer industry is helping to meet the Zero Hunger Challenge by 2025

Following the Rio+20 conference in June 2012, the Secretary-General of the United Nations launched the Zero Hunger Challenge, which invites all countries to work for a future where every individual has adequate nutrition and where all food systems are resilient. "Eliminating hunger involves investments in agriculture, rural development, decent work, social protection and equality of opportunity", stated Bank Ki-Moon. The fertilizer industry is helping to achieve the five objectives of the Zero Hunger Challenge:

Zero Hunger Challenge				
100% access to adequate food year-round	**Zero stunted children less than two years old**	**Promoting sustainable food systems**	**100% increase in smallholder productivity and income**	**Zero loss or waste of food**
The products supplied by the fertilizer industry help increase food production and provide nutrients essential for human health.	The fertilizer industry contributes to better nutrition for all, improving the nutrient quality of food through micronutrient fertilization. This benefits children under the age of two, as well as women from the beginning of pregnancy.[2]	The fertilizer industry promotes agricultural best practices and nutrient use efficiency. Using extension services, it helps provide products and knowledge to farmers around the world to reduce their environmental impact. Through efficient use of fertilizers and the mitigation of nutrient losses, the carbon footprint of agriculture is reduced and the quality of water, oceans, soil and air is protected.	The fertilizer industry puts the needs of smallholder farmers at the centre of its activities. Through public-private partnerships, and extension and rural advisory services, the industry helps smallholder farmers increase their productivity and incomes.	The fertilizer industry develops products and systems to extend the life cycle of food, particularly through the use of calcium-based and boron-supplemented fertilizers to improve the post-harvest integrity and nutritional quality of most crops.

[2] Fertilizing Crops to Improve Human Health: A Scientific Review, IFA,IPNI, 2012.

BOX: The science of crop nutrition and the less well understood role of micronutrients

Traditionally, fertilizers have been used to maintain or restore soil fertility, increase crop yield and improve crop quality. New research has revealed another key role of fertilizers in providing solutions not only to food security but also to malnutrition and micronutrient deficiencies. Micronutrient fertilization is a solution to eradicate nutritional deficiencies and dramatically impact the health of the local populations, in particular children under the age of five for whom deficiencies experienced in utero and before the age of 5 has long lasting consequences, such as stunting.

Many people think of fertilizer as being nitrogen (N) in particular, as the use of this nutrient has been responsible for the massive increases in agricultural productivity seen since the middle of the last century. Nitrogen will continue to be an important driver of future production increases, but at least 11 other nutrients will require much more attention than in the past (see table).

Primary nutrients	Secondary nutrients	Micronutrients
Nitrogen (N)	Calcium (Ca)	Boron (B)
Phosphorus (P)	Magnesium (Mg)	Cobalt (Co)
Potassium (K)	Sulphur (S)	Copper (Cu)
		Iron (Fe)
		Manganese (Mn)
		Molybdenum (Mo)
		Zinc (Zn)
		Chlorine (Cl)
		Chromium (Cr)
		Nickel (N)
		Silicon (Si)
		Fluorine (F)
		Iodine (I)
		Selenium (S)

While micronutrients are required in much smaller quantities than the primary and secondary nutrients, they are essential to crops and to human health. Maximum crop yields can only be achieved if all the essential nutrients are present in adequate amounts and in the correct balance with each other – this is the science of crop nutrition.
Adding micronutrients to the soil provides a safe and cost-effective way to increase the quality and nutritional value of food at the same time as helping increase yields.

RECOMMENDATIONS FOR THE POST-2015 AGENDA

IFA generally recommends that the post-2015 process carry through the MDG commitment to reduce extreme poverty, while integrating the global post-2015 development agenda. It makes the following recommendations in regard to the Association's principal areas of expertise:

1. Increasing food production and improving diets

Not only is food and nutrition security measurable in terms of hunger. It also has long-term implications for a country's well-being. If children are stunted as a result of poor nutrition during their first 1000 days, challenges with respect to their health and education continue throughout their lifetimes, with implications for future generations. The fertilizer industry contributes to increasing food production worldwide, and to improving diets through micronutrient fertilization. Micronutrient deficiencies are one of the leading causes of death and stunting. Fertilizers can be supplemented with essential micronutrients (selenium, zinc, iodine, boron) to help eradicate deficiencies in people, particularly children, as well as plants and livestock. 450,000 children per year are at risk of dying due to diarrhoea, pneumonia and malaria associated with zinc deficiency. By adding zinc to fertilizer blends, farmers are saving the lives of the world's children.[3]

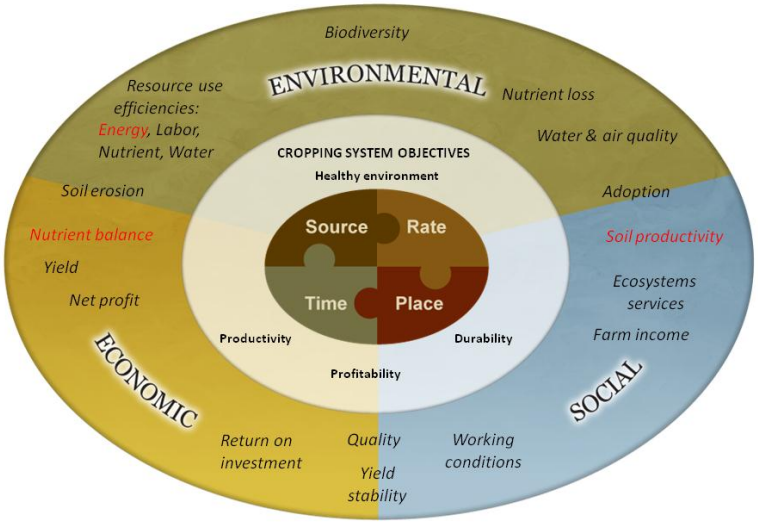
2. Investing in agriculture

Investments in agriculture, particularly agricultural R&D, have been demonstrated to be one of the best strategies for promoting overall poverty alleviation and economic development by increasing agricultural productivity and rural incomes[4][5]. Massive investments in input and output infrastructure (including irrigation, storage facilities, railways and roads, and ports) needs to be made in a concerted manner to serve agricultural and food markets not just on the national level, but also regionally. In response to the food crisis, the fertilizer industry has invested massively in new capacity. It is estimated that, between 2008 and 2016, it will have invested over US$120 billion to meet the world's needs for more nutrients and increased food production.[6]

3. Sustainably increasing food production and building sustainable food systems

Sustainable agriculture is knowledge-based. It requires a holistic view because it is based on a mosaic of solutions to fit the needs of the broad diversity of farming systems worldwide (from livestock to crops; horticulture to agro-forestry; modern to traditional; co-operatives to businesses; smallholdings to large-scale commercial operations). There is no one-size-fits-all solution to achieve the goals of sustainable intensification in a wide range of landscapes and agro-ecological zones. A mosaic of solutions will be required to improve the way farmers operate. However, farmers cannot do without fertilizers because they contribute to biodiversity conservation by increasing yields on existing arable land – thus avoiding encroachment on wild habitats. In addition, nutrients replenish soils, help restore degraded land and maintain soil fertility. Improper use of nutrients, however, can result in losses to the environment with impacts on biodiversity, water and air quality, and climate change. To optimize the positive and minimize the negative impacts of nutrient use, the fertilizer industry has developed various nutrient stewardship frameworks, around the globe, which incorporate the principles of using the right nutrient source, at the right rate, time and place. These science-based systems promote continuous improvement in all three areas of sustainability (social, economic and environmental) by implementing regionally specific best management practices in regard to source(s), rate, time and place. The maintenance of soil fertility is essential for a sustainable food supply and the health of agricultural ecosystems.

[3] The Zinc Saves Kids initiative (www.zincsaveskids.org) and the HarvestZinc Project (www.harvestzinc.org).
[4] ASTI Global Assessment of Agricultural R&D Spending: Developing Countries Accelerate Investment, 2012.
[5] Fan S, IFPRI, 2003.
[6] IFA, 2013.



IPNI. 4R Diagram. 4R Nutrient Stewardship Portal. International Plant Nutrition Institute. June 2009. http://www.ipni.net/4r

4. Focusing on smallholders, women farmers and the most vulnerable

Agricultural programmes are needed that are farmer-centred and knowledge-based, so that the full potential of commercial and smallholder farmers, both men and women, can be harnessed. Farmers need access to land, water, inputs, technology, knowledge and credit, and to functioning markets in order to sell their crops. When they have access to the right productive resources and to markets, they can reap the benefits of significant yield increases. These economic returns will allow them not only to feed their families, but also to obtain healthcare, education and community infrastructure. The fertilizer industry works closely with farmers worldwide, including providing them with knowledge concerning how to best use its products. Nutrient stewardship frameworks encompass all scales of production systems and can be integrated in extension programs. Rural women lag behind urban women and all men in terms of the achievement of the Millennium Development Goals. Rural development and farming represent a key mechanism to address this devastating gap. By increasing women farmers' access to productive resources, particularly fertilizers, food and nutrition security could be increased globally by up to 4 percent per year.[7]

5. Building a conducive business environment, good governance and investment in food systems

Building an enabling policy environment for business activity is necessary to attract investment and maintain long-lasting economic activity. Such an environment includes good governance, well-functioning institutions (notably to protect intellectual property and land rights), and mechanisms to fight corruption and bribery. Building human capital is important in all sectors, but particularly in the agriculture sector, as many countries lack expertise in agronomy, agricultural engineering and agribusiness management. Access to financial services in rural areas and by farmers is essential to increase capital investment. Although the fertilizer industry is global, in some regions there is a lack significant investment in production infrastructure and distribution systems. Governments need to create the right conditions for the private sector to invest in responsible and sustainable projects.

[7] The State of Food and Agriculture 2010-2011 Women in Agriculture – Closing the Gender Gap for Development (FAO, 2011). http://www.fao.org/docrep/013/i2050e/i2050e00.htm

6. Establishing inclusive business models as sustainable business solutions

Inclusive business models, such as country-led business networks (e.g. GrowAfrica), can increase access to goods and services, strengthen the whole value chain, and create new sources of income for low-income communities, particularly smallholders and women farmers. The post-2015 development agenda needs to promote scalable and "transformational" public-private partnerships, together with greater public-private dialogue and co-operation, as a critical enabler. The post-2015 development process should engage the private sector as an equal partner and stakeholder in the agenda for food security and sustainable agriculture and in further partnerships to scale up good practices. Individual fertilizer companies, industry associations and some governments have been taking the lead in promoting such innovative solutions, including public-private partnerships. To stimulate fertilizer market development in underserved countries, one of the best approaches is the creation of a vibrant network of private sector agri-retailers which can disseminate information on good farming practices. The fertilizer industry's immediate priority is to minimize production bottlenecks and overcome logistical problems. This would optimize existing capacity and make the supply of fertilizers as fluid as possible.

"Greater food availability in the low-income, food-deficit nations cannot be achieved with one silver bullet. No doubt, greater availability of fertilizer is critical to any solution. Yet we also need a long-term vision of growth, and integrated investments that incorporates research, human and institutional capacity building, infrastructure, sound policy, markets and governance."

Norman Borlaug (Nobel Peace Prize laureate).

RECOMMENDATIONS FOR SUSTAINABLE DEVELOPMENT GOALS

IFA strongly supports the development of two Sustainable Development Goals focusing on food and nutrition security.

Eradicating hunger and malnutrition by 2025

Why?	"We can end hunger, extreme poverty and the worst impacts of malnutrition and food security within a generation" (Madrid Consultation FAO-WFP, 4 April 2013).
Possible targets	**1-INVESTMENT AND TRADE** • Ensure that investments promote sustainable use of resources through both internal investment policies and public-private collaboration; • Promote diversity in economic opportunity through expanding market access and support to smallholder farmers, particularly women; • Invest in agricultural research and development partnerships to promote innovation and to build local capacity, particularly that of developing country researchers and institutions. **2-INTEGRATION OF FOOD AND NUTRITION SECURITY OBJECTIVES** • Foster nutrition security to tackle malnutrition; • Promote the role of agriculture in delivering nutrition security solutions; • Shift diets and produce healthier food. **3-SUPPORT FOR SMALLHOLDER FARMERS** • Increase access by smallholder farmers, especially women in rural areas, to agricultural credits, training, capacity building, knowledge transfer and innovative practices; • Foster approaches, such as extension programs, to address social issues and promote education and knowledge transfer; • Build resilience to climate change, political and economic shocks (for instance, price volatility, including through trade liberalization, transparent information-sharing, and investment in supply chain infrastructure and storage facilities); • Double the rate of sustainable productivity growth by 2030 (Gates Foundation). **4-REDUCTION OF POST-HARVEST LOSSES AND FOOD WASTE** • Optimize food storage and processing through appropriate technology and knowledge-sharing; • Reduce the amount of edible food waste.
Measuring progress	Draw upon existing commitments and international texts, such as: The 2003 Maputo Declaration on Agriculture and Food Security (including the commitment to the allocation of at least 10 percent of national budgetary resources to agriculture and rural development policy implementation within five years).

	The CAADP (Comprehensive Africa Agricultural Development Program) objective of 6 percent average annual growth in agricultural production by 2015. The G8 L'Aquila commitment to the Global Agriculture and Food Security Program (GAFSP): US$22 billion. Rome principles on aid effectiveness. The five objectives of the Zero Hunger Challenge: • 100% access to adequate food year-round; • Zero stunted children less than two years old; • Promoting sustainable food systems; • 100% increase in smallholder productivity and income; • Zero loss or waste of food. Other indicators include: • Increased global food production; • Improved provision of daily nutritional requirements for all (linkages to maternal and child health); • Changes in incomes, employment and investments in agriculture; • Existence of legislation and policies that support free global, regional and local trade; • Changes in legislation to promote women's rights and access to resources, including credit, land tenure and inputs; • Promoting food safety and reducing food waste through access to better storage, processing and handling practices and technologies.

Adoption of sustainable agricultural practices

Why?	This goal should recognize and support a wide diversity of agricultural systems, farming practices, technologies and farmers, as well as balanced diets. It should also recognize that sustainable agriculture differs by landscapes. Thus, countries and farmers need flexibility and a variety of solutions to undertake continuous improvements in terms of yields and the use of water, soil and energy.
Possible targets	**1-A FOCUS ON SUSTAINABLE INTENSIFICATION** • Promote the adoption of good agricultural practices; Prevent zero net land degradation in wild areas and increase production on existing arable land; • Restore land and soil quality and manage land and soil resources sustainably; Ensure that food production can meet growing demand and that, in line with the vision of the Strategic Plan of the Convention on Biological Diversity, biodiversity is valued, conserved, restored and wisely used and that ecosystem services are maintained; • Reduce biodiversity loss due to agricultural activities.

	2-RESTORING SOILS AND DEGRADED LAND • Restore land and soil quality and manage land and soil resources sustainably. **3-EXPANDING RESOURCE EFFICIENCY TECHNIQUES** • Invest in nutrient use efficiency research; • Promote connections between water, energy and land. **4-REDUCING THE YIELD GAP FOR SMALLHOLDERS** • Invest in extension and knowledge sharing that assists in scaling farmers' adoption of good farming practices, and in planning for resilience to climate change and potential yield losses; • Develop a network of agri-input dealers as farmers' main point of contact for inputs and advice, in order to promote extension services and knowledge transfer; • Governments need to invest in agricultural education programs to train agronomists, extension workers and agro-input dealers.
Measuring progress	The 2006 Abuja Declaration on Fertilizer for the African Green Revolution: • An increase in the level of use of fertilizer from the current average of 8 kg per hectare to an average of at least 50 kg per hectare by 2015. Other indicators include: • Closing the yield gap in food-insecure countries, particularly for smallholder farmers (yield/arable land data); • Access to inputs and improvements in input use efficiency, particularly efficient use of nutrients; • Adoption of farming practices and technologies that promote environmentally sustainable intensification and regeneration, including integrated pest management (IPM), measured in terms of continuous improvements in the use of water, energy, land on farms of all sizes, with reference in particular to nutrient stewardship frameworks; • Changes in land use, including reductions in the rate of deforestation; • Scaling access to public and private extension, knowledge, and climate-smart farming practices and technologies that will enable farmers to be resilient to climate change and related potential yield losses; • Arriving at a zero net rate of land and soil degradation within an internationally agreed timeframe.

The next generation of targets should also consider how to promote integrated solutions across themes, including food, water, energy, landscapes and ecosystems, given their inherent linkages and the need to maximize synergies and minimize unintended impacts.