wbcsd

case study

BASF: Fighting malnutrition with fortified staple foods

Summary

BASF is the world's leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. BASF combines economic success, social responsibility and environmental protection. Through science and innovation it enables customers in almost all industries to meet the current and future needs of society. Products and system solutions contribute to conserving resources, ensuring healthy food and nutrition and helping to improve the quality of life. BASF has summed up this contribution in its corporate purpose: BASF creates chemistry for a sustainable future.

Social responsibility is a core element of the company's strategy. Within BASF's Nutrition & Health division, the improvement of the nutrition, health and wellbeing of consumers all over the world is a main goal. BASF is driven by a desire to make real, sustainable improvements to people's lives. Micronutrient fortification is one of the best investments in human development.

As one of the largest producers of micronutrients, such as Vitamin A, BASF is contributing to the fight against micronutrient deficiency. Two billion people in developing and transitioning countries suffer from a lack of micronutrients such as vitamins and minerals in their diet. Among the consequences of such micronutrient deficiency are night blindness, higher infant, child and maternal mortality as well as a weakened immune system.

In 2008, BASF initiated the Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO) in collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). The development partnership was set up with the aim of securing sufficient vitamin A intake to at least 100 million people in developing and emerging countries. As of early 2012, SAFO was operational in Bolivia, Indonesia, and Tanzania.

SAFO has already achieved its goal: More than 150 million people with malnutrition now have access to vitamin A-fortified cooking oil. The success of the initiative is based on its systemic approach, working with all stakeholders at country level to create the political, technical, commercial and public health framework conditions for food fortification.

This WBCSD case study examines the initiative's approach and achievements. It includes the example of Tanzania to show how SAFO is implemented at the country level.

Context: Food fortification as an effective approach to fight "hidden hunger"

Micronutrient deficiency, also called "hidden hunger", causes serious health and economic challenges in more than 70 countries, particularly in transitional and developing countries.[1] Vitamin A deficiency (VAD) affects about 40 percent of the world's population and causes irreversible blindness, a weakened immune system, higher susceptibility to infections such as measles, diarrhea and mental and physical weakness.[2] Many people suffering from VAD are not aware of their malnutrition until first signs of the mentioned diseases occur.

Children and women are particularly affected: for women, VAD may increase the chances of maternal mortality.[3] According to the World Health Organization (WHO), an estimated 250 to 500 million children under the age of five suffer from acute VAD.[4] They have a 25% higher risk of death from childhood diseases such as malaria, diarrhea and measles.[5] Annually, an estimated 350,000 children suffering from VAD go blind, while 670,000 die from the condition.[6] Furthermore, hidden hunger limits children's growth, and it consequently restricts the development of vital organs. Thus, children are often not able to attend school which perpetuates the vicious cycle of poverty. With more balanced nutrition, children grow according to the age and are more resistant to infectious diseases Thereby sufficient vitamin A intake contributes to give children the chance to be educated and live healthy, productive lives.

Hidden hunger also reduces a country's economic performance. Through decreased productivity, increased treatment costs and mortality rates, micronutrient deficiency accounts for a preventable loss of up to 2.5 percent of the world's gross domestic product.[7]

The human body does not produce vitamin A on its own. The vitamin can only enter the body through food intake. In high-risk regions, foods rich in vitamin A such as high-fat fish, meat, dairy and vegetables are largely unaffordable in particular for most people with low income. Instead, these people rely on affordable staple foods such as corn, rice, flour and oil, which do not contain sufficient micronutrients. Africa and South-East Asian countries are particularly affected by wide-spread micronutrient deficiency.[8]

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[1] Gradl, Christina (2012). "Building a Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO)." Cambridge, MA: The CSR Initiative at the Harvard Kennedy School.
[2] Lorch, Antje (2005): Vitamin A deficiency: diverse causes, diverse solutions. Report prepared for Greenpeace International, January 2005.
[3] Gradl, Christina (2012). "Building a Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO)." Cambridge, MA: The CSR Initiative at the Harvard Kennedy School.
[4] Allen, Lindsay, de Benoist, Bruno, Dary Omar and Hurrell Richard (Editors) (2006): Guidelines on food fortification with micronutrients. World Health Organization and Food and Agricultural Organization of the United Nations.
[5] UNICEF website – Link: http://www.UNICEF.org/esaro/5440_Horn_of_Africa_vaccination_campaigns.html; accessed: July 2012
[6] Helen Keller International – Link: http://www.hki.org/preventing-blindness/vitamin-a-supplementation/; accessed: July 2012
[7] develoPPP.de website – Link: www.developpp.de; accessed: July 2012.
[8] UNICEF (2007): Vitamin A Supplementation: A decade of progress. The United Nations Children's Fund. Accessed: July 2012

Fortification of staple foods can have a significant positive effect on people's health at a minimal cost per person. In the process of fortification, essential micronutrients are added to staple foods. Since vitamin A can be absorbed by the body only in combination with fat, cooking oil is typically used for fortification.[9]

Figure 1 below provides an overview of the direct impacts of food fortification with micronutrients, such as vitamin A, in terms of child and maternal health as well as its indirect impacts on public health and economic activity.

Figure 1: Benefits of food fortification, including Vitamin A fortification

Children

- Helps to reduce infant and child mortality
- Fewer severe childhood diseases and deaths from measles and diarrhea
- Improved growth and development
- Improved learning ability

Pregnant women

- Helps to reduce maternal mortality
- Improved resistance to infections (e.g. malaria)

Public health

- Lower costs for health care
- Fewer hospital admissions
- Improved wellbeing of children, families, and communities

Economic benefits

- Improved work productivity
- Higher gross domestic product
- Less poverty

Source: BASF, GIZ, BMZ (2008): The Strategic Alliance for the Fortification of Oil and Other Staple Foods. SAFO Flyer.

[9] Krlev, Gorgi (2010): Pro-Poor Business Models for Base-of-the-Pyramid Markets. PowerPoint presentation. BASF Micronutrient Initiatives.

Micronutrient interventions are extremely cost-effective and were repeatedly ranked as one of the best investments into human development by 30 renowned economists as part of the Copenhagen Consensus.[10] Because food fortification programs utilize staple foods, they are market-based, and do not require permanent funding nor a change in dietary habits.

Partnership for Vitamin A fortification

BASF employed more than 113,000 employees as of the end of the year 2012. The company is recognized as leader in sustainable development an builds its long-term economic success on the integration of ecological and social issues into business processes.[11] Food fortification is a flagship social responsibility initiative of BASF. Its aim is to address a humanitarian challenge in an economically sustainable way. Through its product solutions, technical assistance, scientific expertise and through its partnerships with development organizations, public institutions and academia, BASF is engaged in programs in over 40 developing countries to help alleviate micronutrient malnutrition. These programs help local producers, the public sector and civil society to reduce vitamin and mineral deficiencies of people at risk.[12]

GIZ is a federal enterprise supporting the German Government in achieving its objectives in the field of international cooperation for sustainable development. It currently operates in more than 130 countries worldwide with more than 17,000 staff members.[13] GIZ is one of the agencies responsible for implementing the development cooperation program develoPPP.de, which enables companies to join forces with German development cooperation in project-based alliances. For its part, the BMZ contributes up to 49% of the project funding. To be eligible, projects must have high relevance for development, be sustainable, and cannot distort competition. Public and private contributions must complement each other, and benefits must justify the cost.[14]

In February 2008, under the developpp.de framework, BASF forged a partnership with GIZ to create the Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO) with a geographic focus on Africa, Asia and Latin America. SAFO builds on the partners' complementary capabilities. BASF works with staple food producers to bring out the multiple benefits of fortification for local companies. It also provides technical support and advice on equipment and processes. GIZ contributes its long-standing expertise in complex multi-stakeholder dialogues and well-established networks with relevant political actors, civil organizations and international agencies in the target countries.

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[10] Copenhagen Consensus 2012 – Link: www.copenhagenconsensus.com/Projects/CC12/Outcome.aspx; accessed July 2012.
[11] BASF: CSR at BASF. Corporate Social Responsibility Platform. accessed: July 2012.
[12] SAFO (BASF/GIZ) Flyer May 2012.

[13] GIZ website – Link: http://www.giz.de/en/aboutgiz/profile.html; accessed: July 2012.
[14] develoPPP.de website – Link: www.developpp.de; accessed: July 2012.

The systemic challenges of food fortification efforts

SAFO faces a range of challenges with regard to its food fortification efforts:

- **Resistance from producers** of staple foods invest into vitamin A fortificants;
- **Lack of technical knowledge** among cooking oil producers regarding the implementation of food fortification;
- **Lack of consumer awareness** around vitamin A deficiency and the importance of micronutrients**;**
- **Lack of standards, regulations and quality control** to make fortification obligatory – also for imports - and define and monitor the proper micronutrient levels in fortified foods;
- **Lack of a common agenda among stakeholders**, who lack the coordination platforms and incentives to collectively shape an enabling environment for food fortification programs.

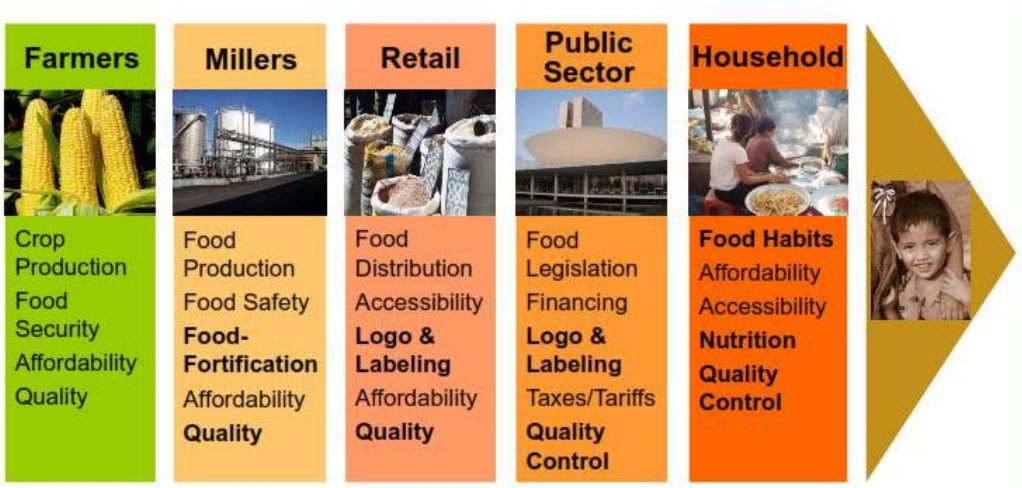
Unless these challenges are transformed into opportunities, producers will continue to lack incentives to fortify staple foods for the benefit of lower-income consumers, and will only do so in upmarket segments where educated consumers value healthier products. In order to address these barriers, the involvement of an entire ecosystem of stakeholders from both public and private sector is needed.

SAFO's approach to develop markets for fortified food

SAFO takes a systemic approach to develop markets for fortified food. Even though fortified food has significant health benefits, those most affected by malnutrition are often hardest to reach. People are typically not aware of being malnourished, are not informed about the benefits of fortified foods, and are unable or unwilling to pay the premium price of branded fortified products. Additionally, unbranded foods are hardly fortified without proper quality assessment. Therefore, the aim of SAFO is to support the development of an enabling regulatory market environment for staple foods. In this way, all consumers in a country can be reached whereas the product price increases minimally: about 0.1% for vitamin A fortified oil, which means on average US$ 0,001 per bottle.

In order to create the conditions for food fortification, GIZ and BASF take a strategic multi-stakeholder approach. All involved partners, such as farmers, millers, retailers, the public sector and households have specific roles to achieve and implement obligatory fortification (see Figure 2 below). SAFO supports existing National Food Fortification Associations (NFFA's) in advancing and accelerating the process towards fortification. In addition, it complements existing capabilities of players and fills critical gaps as identified in the dialogue process. One key principle of SAFO is that ownership for these processes needs to be at the local level. The initiative is clearly designed as a limited time and resource intervention, with BASF and GIZ as two of the many contributors.

Figure 2: Relevant stakeholders for food fortification and their roles



Source: Gruber, E & Blüthner, A (2010): SAFO Strategic Alliance for the Fortification of Oils and other Staple Foods. Presentation at the GIZ Fachtagung Königstein.

At the heart of the SAFO approach are multi-stakeholder dialogues – e.g. in the form of workshops - with participants from the public sector, private sector, inter-governmental organizations and agencies, and non-governmental organizations. During these workshops, all participants, including BASF and GIZ, identify their strengths.

Activities can be clustered into four main areas of work:

- **Advocacy:** Helps to address the challenges of food producers towards food fortification by disseminating information and forging alliances. It also informs consumer groups on the consequences of micronutrient deficiencies. On a public level, policy dialogue with the government helps to drive the establishment and implementation of conducive regulatory environments;
- **Technical support:** Improves producers' capacities to fortify staple foods and informs policy actors. Producers receive technical support for production as well as for quality assurance.
- **Standards and labeling**: SAFO collaborates with national institutions to develop evidence-based standards based on malnutrition data and labeling schemes for fortified foods. Labeling increases awareness for the added micronutrients among consumers while standards help to create a level-playing field among producers, including importers;
- **Law and compliance**: In order to ensure coherent reach into low-price food markets, food fortification requires a gradual development towards effectively monitored obligatory fortification. In order to assess compliance with standards, SAFO supports then private and public sector in the implementation of quality assurance systems and tools, such as mobile and cost-effective laboratory equipment.

The initiative's financial volume encompasses € 2.8 million, of which 54% are funded by BASF. Further partners, such as BioAnalyt, a German SME that invented a mobile test kit to quantitatively determine micronutrients levels at low costs. As of early 2009, SAFO is operational in various countries in Africa, Asia and South America. The countries for the implementation of SAFO were chosen based on the following selection criteria:

- High prevalence of malnutrition, especially vitamin A deficiency;
- Existing local GIZ structures;
- Present momentum among local stakeholders for food fortification;
- Existence of a significant domestic edible oil production sector, including large companies.[15]

SAFO's work in Tanzania

Tanzania was chosen as the pilot location for SAFO since it met all selection criteria:[16] 24% of children under 5 years of age suffer from micronutrient deficiency.[17] GIZ has an office with a large public health program in the country. A National Food Fortification Alliance was already in place. Finally, only two large producers divided up the biggest part of the national market for edible oil

SAFO started in Tanzania in late 2008. It was rolled out in three phases:

- **Phase 1: Stakeholder analysis** – Stakeholder mappings helped project coordinators to design the multi-stakeholder workshop and determine participants and their agendas.
- **Phase 2: Workshops** – Participants attended workshops which concluded in concrete action plans involving all participants, including GIZ and BASF.
- **Phase 3: Implementation** – During the final implementation phase, GIZ and BASF delivered their agreed upon contributions. BASF was responsible for training producers and inspectors, for supplying inspectors and small producers with mobile test kits in order to monitor the vitamin A level in cooking oil. GIZ developed and sponsored the logo development process.[18]

Through the workshops, SAFO was successful in reviving the dormant process towards food fortification and supported the existing NFFAs. Resources and technical support also come from the World Bank, which entered the picture in early 2009, and GAIN, the Global Alliance for Improved Nutrition. In addition, Helen Keller International contributes significant technical support complementing DFID and GAIN financial investments.

Standards for the fortification of oil with vitamin A were in place by the end of 2010. In September 2011, the country instituted a mandatory regulation for the fortification of cooking oil with vitamin A. It is expected that 30 million people will benefit from the fortified cooking oil. The resulting health benefits will also create economic value: It is estimated that micronutrient deficiency costs Tanzania more than US$ 518 million annually, or about 2.65% of the country's gross domestic product.[19] Well implemented food-fortification programs can save a lion's share of these costs attributed to malnutrition.

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[15] Ibid.
[16] The information on SAFO's activities in Tanzania are based on: Gradl, Christina (2012): Building a Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO). Cambridge, MA: The CSR Initiative at the Harvard Kennedy School.
[17] Verster, Anna et al. (2010): Action Plan For the Provision of Vitamins and Minerals to the Tanzanian Population through the Enrichment of Staple Foods. World Bank.
[18] Gradl, Christina (2012): Building a Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO). Cambridge, MA: The CSR Initiative at the Harvard Kennedy School.
[19] Verster, Anna et al. (2010): Action Plan For the Provision of Vitamins and Minerals to the Tanzanian Population through the Enrichment of Staple Foods.

Results

The impact of SAFO was evaluated by an external GIZ evaluation team.

The goal of SAFO was to reach 100 million people with fortified edible oil in target countries by the end of 2012. In May 2012, SAFO announced that it had already surpassed the threshold of 100 million, reaching more than 150 million people.[20] With a budget of only €2.8 million, the initiative has proven that it positively impacts the health and well-being of people at a large scale in different countries.

SAFO has contributed to a sustainable commitment for improved nutrition and food-fortification among local staple food producers and key stakeholders in 5 countries with high micronutrient deficiency prevalence. For example, multiple actors, including Ministries of Health and food producers signed a 'Memorandum of Understanding' with the objective of supporting and fostering food fortification in each of the countries.

By supporting the conduction of impact studies which provide recent data on vitamin A and other micronutrient deficiency levels, SAFO has helped to effectively monitor the fortification process and to train local laboratory staff. Exact data also provides the basis for effective and safe fortification levels. Additionally, working with multiple stakeholders has helped to set local industry standards, resulting in mandatory fortification, including labeling of the fortified food. Effective monitoring, such as on-site quality control and compliance checks are guaranteed through the use of SAFO-supplied mobile test kits.

SAFO has helped local producers to obtain and to develop the technology and capacity needed for fortification of staple foods. As of the end of 2009, at least 30 local producers had received this support. Private partners, especially BASF, provided technology and training to build expertise. Trial production has successfully yielded micronutrient fortified edible oils, sugar, and flour. Furthermore, business plans built for target groups at the base of the economic pyramid have been developed for and agreed on by individual producers.

BASF benefits from SAFO in a number of ways. BASF is recognized as the most cost-effective producers of the product, and few competitors meet the quality requirements typically set out by national food and drug authorities. The initiative is already financially self-sustainable. Second, the company has received a lot of positive corporate social responsibility recognition, including from media, NGOs, public authorities and its own employees, strengthening its sustainability profile and relationships with key stakeholders. Finally, BASF could gain additional experience in working in partnership with not-for-profit organizations towards low-income consumer groups, thereby contributing to an entirely new corporate capacity and mindset.

GIZ has successfully supported standardization processes in order to mainstream food fortification and render it sustainable. GIZ also supported four research studies in order to enable local food fortification networks to steer sustainable and evidence-based programs. Finally, SAFO has helped food and drug authorities and oil mills to establish

[20] BASF (2012): SAFO has reached more than 140 million people with fortified staple foods. BASF Press Release on May 10th, 2012.

M&E systems, and promoted cost-effective mobile testing devices for determining vitamin A levels in the field (and not just in sophisticated laboratories).

Looking ahead

The first phase of SAFO was concluded successfully by the end of 2012. BASF maintains its commitment to combat malnutrition. In January 2013, at the occasion of Bill Gates visit to Berlin, SAFO and other nutrition projects received funding from German Government and the Gates Foundation to scale up nutrition.[21] The case of SAFO shows that successful systemic partnership approaches with measurable impact are well received and worth to be scaled. May SAFO inspire other responsible actors from diverse sectors to venture into similar initiatives geared toward positive change at scale.

More information

- Explore the BASF Food Fortification Information Platform at http://www.food-fortification.com/Home.aspx, including several movies at the right hand bar
- Creating Chemistry, Issue two (published October 5, 2012), Page 29 – 35, Article about Food Fortification at BASF , at http://digital-reader.eu/index.php?t=Viewer&id=j%2B2x1HnCqmCV9QWm%2FdELbjkBxKUXL1%2FP%2BU%2BDangLnYc%3D&lang=en

Bibliography

- Allen, Lindsay, de Benoist, Bruno, Dary Omar and Hurrell Richard (Editors) (2006): Guidelines on food fortification with micronutrients. World Health Organization and Food and Agricultural Organization of the United Nations. Accessed on July 9, 2012 http://www.who.int/nutrition/publications/guide_food_fortification_micronutrients.pdf
- BASF (2012): SAFO has reached more than 140 million people with fortified staple foods. BASF Press Release on May 10, 2012.
- BASF Food fortification website – Link: www.food-fortification.com; accessed: July 2012.
- BASF, GIZ, BMZ (2008): The Strategic Alliance for the Fortification of Oil and Other Staple Foods. SAFO Flyer.
- BASF: CSR at BASF. Corporate Social Responsibility Platform. accessed: July 2012.

[21] www.bmz.de/de/presse/aktuelleMeldungen/2013/januar/20130129_pm_12_hunger/index.html

- Copenhagen Consensus 2012 – Link: www.copenhagenconsensus.com/Projects/CC12/Outcome.aspx; accessed July 2012.
- develoPPP.de website – Link: www.developpp.de; accessed: July 2012.
- GIZ/DeveloPPP (2011): Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO)
- Gradl, Christina (2012). “Building a Strategic Alliance for the Fortification of Oil and Other Staple Foods (SAFO).” Cambridge, MA: The CSR Initiative at the Harvard Kennedy School.
- GIZ website – Link: http://www.giz.de/en/aboutgiz/profile.html; accessed: July 2012.
- Gruber, Evi & Dr. Blüthner, Andreas (2010): SAFO Strategic Alliance for the Fortification of Oils and other Staple Foods. Presentation at the GTZ Fachtagung Königstein.
- Hellen Keller International – Link: http://www.hki.org/preventing-blindness/vitamin-a-supplementation/; accessed: July 2012.
- Krlev, Gorgi (2010): Pro-Poor Business Models for Base-of-the-Pyramid Markets. PowerPoint presentation. BASF Micronutrient Initiatives.
- Lorch, Antje (2005): Vitamin A deficiency: diverse causes, diverse solutions. Report prepared for Greenpeace International, January 2005.
- Unicef website – Link: http://www.unicef.org/esaro/5440_Horn_of_Africa_vaccination_campaigns.html; accessed: July 2012.
- UNICEF (2007): Vitamin A Supplementation: A decade of progress. The United Nations Children’s Fund. Accessed: July 2012.
- Verster, Anna et al. (2010): Action Plan For the Provision of Vitamins and Minerals to the Tanzanian Population through the Enrichment of Staple Foods. World Bank.