

**The Assessment of Millennium Development Goal 1 and Suggestion for Solution to
Hunger and Malnutrition through Appropriate Technology of Life science: Food
Microbiology**

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Abstract

The aims of this paper are to analyze the causes of stalled progress on halving worldwide hunger and malnutrition based on the evaluation of the first goal of Millennium Development Goals (Eradication of extreme poverty and hunger) and to suggest an international development cooperation method through food microbiological approach as a solution.

The target goals of MDG 1 are A: Halve, between 1990 and 2015, the proportion of people whose income is less than \$1.25 a day; B: Achieve full and productive employment and decent work for all, including women and young people; C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger. According to MDG Report published in 2013, eradication of extreme poverty has a positive outlook to be achieved gradually; however, eradication of hunger still remains as a serious problem. 870 million people, which equates to one out of 8 people, still do not have access to basic nutritional meals. Furthermore, nutritional imbalance, which calls for invisible hunger holds greater problems: children do not grow and suffer from diverse diseases related to malnutrition.

Chronic nutritional imbalances have two major causes. First is the lack of biodiversity and ingestion of nutrient poor imported processed food as a staple diet. People in developing countries live based solely on one or two staple food, which causes severe nutritional imbalance such as lack of micronutrients and essential amino acids. Second is the problematic food aid system. Severe hunger can be treated through supply of RUTF: Ready

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to use therapeutic food; however, current food aid system without training program increase dependency on food supply and cannot solve chronic malnutrition.

In order to resolve hunger and nutritional imbalance issue in developing countries, sustainable diets are proposed as a solution. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable, nutritionally adequate, safe and healthy. Food microbial technology: fermentation is suggested as practical method to develop sustainable diets. Fermentation, which is a food processing method using beneficial microorganisms increases biodiversity in diet, and produces various micronutrients and strengthens absorption of nutrients by decreasing anti-nutrient factors of raw materials. Furthermore, host beneficial microorganisms, what we refer to as probiotics, contained in fermented food strengthen immunity and can be used as medicine to treat metabolic diseases.

Finally, we suggest international cooperation method, which requires higher regional participation to obtain successful outcomes of MDG 1. Bilaterally, culturally familiar traditional food and modern fermentation technology lead to identification of healthy microorganisms and development of diverse food. UN and other international organizations should act as bridges between countries that need food development, not food rations and donor countries with appropriate technology. Moreover, reproduction of successful models by UN and relevant organizations will further expand these activities.

For the United Nations, which pursues better future of mankind, Post-MDGs should consider not only the ability of developing countries to support themselves independently but also mutual growth of donor and recipient countries, and most importantly, the environment and survival of the earth. International cooperation regarding development of sustainable diets based on fermentation will become a method of international cooperation enabling independent resolution of hunger issue in developing countries.