In this issue

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This issue has a special section of seven papers with the overall title, “Linking rural livelihood resilience and food security: an international challenge”. It is introduced by Bernard Pelletier and co-authors and is not described further here. The special section is followed by 10 general papers, dealing with a variety of food security topics, and two book reviews.

In the first of the 10 general papers, Sena S de Silva points out that fish account for nearly 30 % of the animal protein intake in developing countries and suggests that food security could be increased by culture based fisheries (CBF). This is a form of extensive aquaculture based on the principle of stock and recapture and is frequently managed communally. In Asia there are nearly 67 million hectares of small water bodies, which are used primarily for irrigational purposes but would be ideal for the development of CBF.

The next two papers are concerned with climate change. Solomon Afsaw and co-authors report that more than 70 % of the arable land in Malawi is allocated to maize production but only 10 % of maize growers are net sellers with up to 60 % being net buyers. The authors modelled Malawian farmers’ decisions on techniques for adaptation to climate change and found that a combination of practices increased yields. These included tree planting, legume intercropping, and soil and water conservation: such techniques were more likely to be adopted if plots were under greater security of tenure.

Stephen Shisanya and Paramu Mafongoya, found that food insecurity, as measured by the Household Food Insecurity Access Scale (HFIAS), was high in the uMzinyathi district of Kwazulu-Natal, South Africa, with 97 % of those assessed

being severely food insecure and the remaining 3 % moderately food insecure. They describe the methods by which smallholder farmers are adapting to climate change, which fall into two categories, crop management practices, such as intercropping and cover cropping, and soil management practices such as minimum tillage and use of organic manure. However, food insecurity was compounded by declines in prices of farm products, increases in costs of farm inputs and anxiety over occurrence of livestock diseases. The authors advise that farmers should be assisted with appropriate inputs such as seeds and fertilizers.

One of the greatest problems facing smallholder farmers in Developing Countries is a safe means of storing their produce. Safe storage would not only enable them to provide more food for their families but also prevent gluts and therefore low prices at harvest times and dearths, sometimes referred to as ‘hunger months’, at other times. Jeremiah Ng’ang’a and co-authors conducted participatory on-farm trials of Purdue Improved Crop Storage (PICSTTM) bags for storage of maize in small-scale farmers’ stores in rural villages of eastern Kenya. PICS are three-layered hermetic bags that form a barrier against the influx of oxygen and the escape of carbon dioxide. The trials were successful in that maize stored in the bags remained essentially free of insect infestation and weight loss caused by insects was below 1 %.

Muzi Na and co-authors assessed the internal validity of the Food Access Survey Tool (FAST), using data from nearly a thousand households that took part in an efficacy trial of biofortified maize in rural Zambia. After excluding the item “frequency of consuming three square meals per day,” the remaining eight items fitted in a primary single statistical dimension and item category severity increased monotonically with increasing severity of food insecurity. They concluded that, in rural Zambia, FAST was an internally valid tool to measure household food insecurity.

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Phosiso Sola and co-authors point out that three quarters of the population in Sub Saharan Africa (SSA) lack access to clean energy sources and relies instead on biomass fuels for cooking and heating. Use of biomass fuels is a leading environmental risk factor for ill health and is responsible for 4.3 million deaths annually. In SSA, the disease burden from household air pollution is exceeded only by malnutrition. However, in a literature survey, the number of peer-reviewed papers was too few to support or refute the hypothesis that lack of access to clean energy sources could affect household food security. The authors suggest that more rigorous studies in this area are required in order to provide evidence for policy action.

Simon C. Kimenju and Matin Qaim discuss how the nutrition transition, which involves a westernization of diets and increased consumption of calorie-dense, processed foods, affects child malnutrition in developing countries. They found, by cross-country regressions, that the nutrition transition reduced child underweight and, contrary to commonly held views, also reduced stunting, but there was no consistent effect on overweight.

Sustainable intensification (SI) has been proposed as a solution to the challenge of feeding a growing global population with a diminishing area of appropriate agricultural land although there is ambivalence towards this view. This has been quantified among members of the UK's public by Andrew Barnes and co-authors. Tellingly, they found that sustainable consumption and greater equity ranked higher than SI – attitudes perhaps of those who have few worries as to where their next meal is coming from.

Dionisio Ortiz-Miranda and co-authors found that the recent economic crisis in Spain has evoked a number of debates on national food and nutrition security but these have been fragmented, with stakeholders selecting only those arguments that suited their own views. One important factor centred on malfunctioning of the food chain, mostly due to unequal

bargaining power, and another was short-termism which ignores long-term threats to the Spanish food system.

In the last paper Piotr Rzymiski and Aleksandra Królczyk describe attitudes in Poland towards genetically modified organisms (GMOs), a subject of on-going scientific, political and social discussions in Member States of the European Union (EU) concerning their use, benefits, risks, safety and limitations. The authors point out that EU societies are often misinformed by contradictory views and sensationalism. Of the just over 1000 Polish citizens surveyed, the greatest scepticism towards GMOs and GM foods was expressed by farmers, medical workers and school teachers while the greatest enthusiasm was shown by students of medical and life sciences, and researchers/academicians. However, most admitted that their knowledge of GMOs was insufficient, expressed a willingness to improve it, and expected school teachers, academicians and researchers to be actively involved in this process. There is, therefore, an urgent need for not only specialists concerned with the provision of safe and nutritious food but also for the general public to become more conversant with what GMOs are and their potential for improving the nutrition and food security of a still increasing world population.

Regarding the first of the two book reviews, Barbara Burlingame found that *A framework for assessing the effects of the food system* to be a useful text for the subject as well as a teaching tool in the areas of food studies, food systems, and sustainable development. Moreover, despite being available as a good quality paperback at 78US\$, it is also freely downloadable as a pdf from the Institute of Medicine's website: <http://iom.nationalacademies.org/Reports/2015/Food-System.aspx>. According to Jonathan Ingram's review of the second book, *Global nutrition report 2015: actions and accountability to advance nutrition & sustainable development*, all stakeholders, not only experts but those who simply want to know more and do not know where the truth lies, will find the report useful.