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AFSPAN Work Package 6

Briefs on “Essential aquaculture actions” and “Essential nutrition actions” for dissemination

Deliverable 6.4

Aquaculture for better nutrition and health – the role of nutrition education

Policy brief: findings and recommendations from AFSPAN (Aquaculture for Food Security, Poverty Alleviation and Nutrition) Work Package 6

Background

Fish in human nutrition and health

Fish and other aquatic foods in general hold a potential to contribute to good nutrition and health due to multiple beneficial nutritional qualities such as high protein quality, beneficial fatty acid profiles and bioavailable micronutrients. Consumption of fish and seafood from aquaculture as well as wild sources has many health benefits for all household members, but in the context of alleviating undernutrition the special needs for mother and child in the 1 000 days – from conception to two years of age of the child – is a 'window of opportunity' to break the life-cycle of undernutrition through better diets to mother and child.

Fish is a key to improve dietary quality. It is an excellent source of animal proteins, and depending on species, it is an important source of micronutrients and an essential source to n-3 fatty acids (n-3 PUFA). With the increasing supply of fish from aquaculture worldwide it is important to declare nutritional quality of farmed versus wild fish to secure consumer trust. Also, the risk of accumulated mercury and toxins in wild fish concerns consumers. The balance of benefits and risk from consumption of farmed and wild fish needs to be clearly communicated. Farmed fish can represent an attractive alternative to wild fish, in a view that in farming it is possible to control the diet and food safety of fish.

Nutrition education

Changing nutrition behaviour is a difficult process. In resource poor settings nutrition education may be included in livelihood programs while middleclass populations can be targeted for example through social marketing, public campaigns or feeding programmes, e.g. in schools.

Agriculture - covering broadly primary food production, including aquaculture - is an important development opportunity for reducing malnutrition; however, the exact linkages between food production and the nutritional status for a population are not clearly understood. The concept of *nutrition-sensitive agriculture* is used for programmes with the aim of improving nutrition with food production as the entry point. Production and consumption of nutrient-rich locally available foods is a key in nutrition-sensitive agriculture, combined with nutrition education to improve diets. Aquaculture is recognised as a good approach to increasing availability of animal source foods.

Empowering women, e.g. through education, including nutrition education, can efficiently contribute to improve child nutrition. The '1000 days' window reinforces the need for women to be in control of her health.

Involving women in aquaculture will increase their workload. To avoid negative impact on nutrition, it is important to evaluate and balance the positive impact of improved status and negative impact of higher workload of women. One entrance to time-saving services may be to improve the availability of nutritious processed foods for the child especially during weaning where food preparation can be time consuming. This approach has received increasing attention. For the fish and aquaculture sector, the development of technologies for processing fish based ingredients for nutritious and affordable processed food products can contribute to improving nutrition. At present, all acceptable food aid products for children and products for prevention or treatment of malnutrition includes powders milk.

Recommendations

The direct integration of nutrition education programmes in aquaculture programmes is scarce. Programmes with objective of improving health and nutrition can incorporate components for promotion of specific food productions in households. One programme in Bangladesh incorporated aquaculture for promoting income and better nutrition.

- ✓ ***Recommendation 1*****:** *Nutrition education components are absent or scarcely incorporated into aquaculture programmes. In food insecure settings where fish production has potential to contribute to poverty alleviation as well as to better diets, nutrition education should be considered as a standard component in aquaculture programmes.*

In general documentation of the program impacts on nutrition or nutrition related indicators is lacking. The programmes reviewed for linking aquaculture and nutrition give a picture of activities, but evidence of impact is scarce and limits the learning of best practises.

- ✓ ***Recommendation 2:*** *systematic and well-designed impact evaluation is required to generate better knowledge on how aquaculture itself, or in combination with nutrition education, can reveal the potential for alleviating malnutrition and improving lives, especially in food insecure setting and for children and women in the child bearing age.*
- ✓ *A way forward to fill the knowledge gap is to learn from the evolving concept or nutrition-sensitive agricultural where specific tools and conceptualization is being developed. Aquaculture is a unique production technology which provides a very healthy food and successful interventions that can contribute to increase fish consumption especially in the critical '1 000 days' window holds. Aquaculture holds the potential of making a major contribution to alleviate poor health and nutrition in many populations.*

Public health interventions to promote increased fish consumption ranged from general dietary guidelines of including fish in a healthy diet, to feeding programmes of including fish in free school meals in order to secure good nutritional quality. Also various campaigns and demonstrations were identified in the partner countries, as efforts to promote and stimulate fish consumption.

- ✓ ***Recommendation 3****:* Nutrition education in the form of information dissemination on various levels holds a potential to chance behaviour towards a higher fish consumption, especially in countries with an existing low level and with identified barriers to consume fish.
- ✓ However, access to high quality fish and fish products are often a key constraint which cannot be overcome through information. Exposure to fish, e.g. in school feeding programmes, can contribute to change in attitude and behaviour towards higher fish consumption.
- ✓ Development of locally produced high quality processed fish-based products such as complementary foods ('baby food'), products for pregnant women, products suitable for school feeding etc. could contribute to increase easy access and support a stable high consumption needed for improving nutrition. Processing also contributes to level out seasonality.

Case scenarios for nutrition education

Case 1- Bangladesh: Nutrition and health program linking with aquaculture promotion: SHOUHARDO project.

SHOUHARDO (Strengthening Household Ability to Respond to Development Oppertunities) was implemented by CARE Bangladesh and Government of Bangladesh. The programme reached around 400 000 households in rural Bangladesh in 2004-2010. It is now followed up by SHOUHARDO II.

Nutrition education was embedded with a package of activities targeting Mother and child health and nutrition (MCHN). The project's most direct nutrition intervention was the provision of food rations to children from 6 months to 2 years of age and to pregnant and lactating mothers. Health and nutrition education was provided through mother's group sessions, with topics covering optimal breastfeeding, complementary feeding, care during pregnancy and delivery, and hygiene practices. Additional interventions were targeting other health issues, micronutrient supplementation and immunisation. The specific nutrition education activities were conducted as 'court yard' sessions in the villages, and dis also include e.g. growth monitoring of the children.

Activities implemented related to aquaculture were a component under the package of activities addressing *Poverty and food insecurity alleviation* and included integrated pond fish culture combined with growing vitamin –A rich vegetables and inclusion of the small micronutrient-rich indigenous fish species "mola" (*Amblypharyngodon mola*). Also rice-fish culture and cage systems with improved strain of tilapia were options.

An independent impact assessment concluded that the program overall had a major impact on reducing child chronic undernutrition (stunting) age 6-23 months with a total decrease during the 3.5 years project period of 16 percentage points. Despite the programme was implemented across the 2008 global food price crisis which induced dramatic external factors the impact assessment including 3 500 children could distinguish the positive impact of the multi-sectorial intervention.

Lessons learned

The SHOUHARDO program is a demonstration of a success of a multi-sectorial intervention strategy. The important learning from the SHOUHARDO program is that in a setting where aquaculture is already established as a common practise, such as in Bangladesh, the integration of aquaculture extension and health and nutrition interventions including nutrition education (e.g. good feeding practices for infants and young children) can contribute to improved child nutrition that goes beyond the achievement of the aquaculture program and the nutrition education program, if implemented alone.

SHOUHARDO is the only identified program in the 11 AFSPAN partner countries where these combined and multi-sectorial interventions have been successful implemented and, importantly, been followed up by a scaled up impact assessment on pre-defined indicators.

Case 2 - Chile: Progamme for promoting healthy diet including fish through school feeding – the School Feeding Programme

Programme description

Since Chile has gone through a nutrition transition over the past generation with undernutriton being eliminated and obesity has emerged as a primary problem, the public health efforts to improve nutrition has focus on overnutrition. As an effort to reduce poverty and encourage school attendance a national school feeding programme has been implemented by the government for decades. Following the transition of the nutritional problems towards obesity rather than undernutrition, the School Feeding Programme has been adjusted to also address healthy diets for prevention of obesity related diseases. In 2000 the programme reached 1.2 million children. The logistics is sourced out to private suppliers. Technical standards for the programme control the quality of the services and also define the nutritional criteria. Under this mandate, the school meals are now required to include fish. Depending on age, the school menus should include a weekly serving of 50-70 g fish, depending on age, and on monthly serving of a fish salad. Information about to which extend these menu guidelines are exactly followed by the private suppliers of meals are not available.

The provision of guidelines specified on fish servings is an effort to directly support fish consumption to a broad population group of school children. The fish consumption in Chile is generally low, and the school feeding programme is an entrance to increase consumption for a large proportion of the school children.

The school feeding programme does not include a nutrition education about benefits of fish consumption. The provision of fish as a part of the school meals are to be regarded as a nutritional education activity since the

exposure to eat fish can also promote a preference for fish. Despite that the vast coastal zone in Chile provides access to marine fish, the national average fish and seafood supply is only 37 g/cap/d while animal source food consumption is dominated by meat.

Independent of the school feeding programme, Chile has implemented an information campaign promoting fish consumption for better health including cognitive performance.

Lessons learned

There are no evaluations or impact assessments available for the impact of providing menu plans which include fish in the school meals. The potential impact can be on better school performance from increased intake of long-chained PUFA. Including fish in menus for school meals in Chile serves as scenario case of exposing a generation of children to fish meals through a public school feeding programme. The programme does not distinguish the origination of the fish to aquaculture or fisheries. The fish species included in the menu plan can be both (salmon from aquaculture and e.g. tuna from fisheries). A future scenario of a population impacted by the school feeding experiences and a public campaign promoting fish consumption may stimulate increased awareness of the fish available on the domestic market, also about health related qualities. such as fatty acid composition in farmed salmon or risk of toxins from tuna. Impact assessment of this large national school feeding programme in Chile could provide valuable understanding of impact on attitude to fish, fish consumption and health.

Case 3 - Kenya: 'Eat more fish' campaign - government efforts to increase fish consumption to create market demand for fish and improve nutrition

Rural fish farming in Kenya dates back to 1940s and was popularized in the 1960s by the Government of Kenya through the launch of the "Eat more fish campaign" that helped the spread of fish farming into various parts of the country. The early promotion of fish consumption and fish farming encouraged that some population groups that did not eat fish become accustomed to eating fish. One half of the population either did not eat fish at all or did irregularly. The early surveys on acceptability of fish indicated that lack of familiarity and lack of local availability of fish were the principal reasons for the low consumption, rather than any strong prejudice against fish eating.

The early 'Eat more fish' campaigns may have changed the attitude to fish in some population groups but did not result in a revolutionary change in fish consumption in Kenya. Present government policies continues to address the unrevealed potential for more fish farming which in return could contribute dietary improvement and economic activity. The inter-sectorial Economic Stimulus Programme (ESP) was launched to address food insecurity economy. Among the EPS projects funded by the government is the *Fish Farming Enterprise Productivity Programme* (FFE&PP). To encourage fish farming and cooking and eating fish, the government re-introduced the "Eat More Fish Campaign" which was dubbed "*Kuza, Kula na Kuuza*" campaign - meaning "*Farm, Eat and Sell"* in Kiswahili - throughout the country. The campaign has been rolled out through public meetings are conducted where the communities are taught on fish farming and the health gains of fish. The specific activities under the "Eat More Fish" campaign has been developed and implemented by The State Department of Fisheries. There is no systematic impact evaluation available for the "Eat more Fish" campaign, and no solid conclusions can be drawn if the programme changes knowledge, attitude and behaviour of the consumers.

Lessons learned

The "Eat more Fish" campaign launched as a part of the economical stimuli initiative to enhance fish farming represent an important case of how nutrition education can be integrated into an aquaculture programme on a national level. The impact of the "Eat More Fish" campaign has not been evaluated. The programme is led by The State Department of Fisheries. An inter-sectorial implementation could strengthen potential impact.

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SEVENTH FRAMEWORK PROGRAMME