WN *Feedback*

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WN *The Food System*

Food is a public good

Access January-February Editorial on sustainable development here
Access this issue Editorial here
Access this issue guest editorial by Claudio Schuftan here



Food is now treated as a commodity, and the global industrial food system is now broken. Food should be a public good, with producers supported by government and industry in the public interest. Here co-operative farmers in India share information, supported by local civil society workers

José Luis Vivero Pol writes:

Food is treated as a private good. Current top-level proposals for 'sustainable development' in the foreseeable future assume that the current global industrialised food system that treats food as a commodity is inevitable and beneficial (1). This is all a big mistake, similar to that which assumes that modified transnational business as usual can check climate disruption.

Food must be re-conceived as a public good, or a commons – using the non-economic term that has deep cultural and historical roots – in the transition toward a more sustainable food system that is fair to food producers and consumers. When

treated as a public good, food will be better produced and distributed by governance systems implemented at local level that integrate market rules, public regulations, and collective actions. This change will have enormous ethical, legal, economic, and nutritional implications.

Food is not a commodity

Food is a limited yet renewable resource that comes in both wild and cultivated forms, essential for human existence. Over time, it has evolved from a local resource held in common, into what is now a private, transnationalised commodity. This has involved developments made to fit mechanised processes, and all along this increasingly processed food has become deprived of all its non-economic attributes. Its value is no longer based on the many dimensions that bring security and health, including the fact that food is a:

- Basic human need and should be available to all
- Fundamental human right that should be guaranteed to every citizen
- Pillar of culture for producers and consumers alike
- Natural, renewable resource that can be controlled by humans
- Marketable product subject to fair trade and sustainable production
- Global public good that should be enjoyed by all

Even so, not all is yet lost. The industrial food system has yet to enclose, or to convert into private property, several dimensions of food that are still considered as global commons, including:

- Traditional knowledge of agriculture accumulated over thousands of years
- Modern agricultural knowledge accumulated within national institutions
- Cuisine, recipes, and national and local gastronomy
- Uncultivated edible plants and animals such as wild fish and fruits
- Genetic resources for food and agriculture
- Public health considerations – safety, nutrition and health

The industrial food system is broken

The industrial food system has enclosed food, through the privatisation of seeds and land, legislation, excessive pricing, and patents. The system now feeds a growing share of people living on the planet, controlling all food exports and most agricultural inputs, and has created a market of mass consumption where people become mere consumers.

The system's goal is to exploit under-priced food resources while maximising the profit of food corporations, instead of ensuring food's most important non-economic qualities, such as nutrition. This is a reason why the global food system has failed and is now broken. 'No money, no food' means that hunger still prevails in a world of abundance. The industrial food system is increasingly failing to fulfil its basic goals of producing food in a sustainable manner, feeding people adequately,

and avoiding hunger. The irony is that half of those who grow 70 per cent of the world's food are now vulnerable to hunger. Analyses of the connection between the global food system and hunger rarely question the privatisation of food (3). As a result most people still think that food access is the main problem of global hunger.

But reality proves otherwise. Unregulated markets cannot provide enough food for everyone, even if low-income groups had the means to procure it. An industrial food system that views food as a commodity to be distributed according to market rules will never achieve food security for all (2). Moreover, the commodification of food crowds out non-market values worth caring about (3). These include the conviviality of cooking or eating together, the preservation of food culture and gastronomic tradition which is part of the definition of distinct civilisations, and the traditional moral economy of food production and distribution, materialised in the ancient and now proscribed practices of gleaning and famine thefts. A real solution will require experimentation at all levels, personal, local, national, and international, and diverse approaches to governance, market-led, state-led, and collective action-led.

Food as a public good

A great transition to perceiving food as a public good (or commons) is essential. There will of course be practical consequences. Food will need to be dealt with outside of trade agreements made for pure private goods, and, as a result, a system of governance for the production, distribution, and access to food at a global level needs to be created. This system could well involve binding legal frameworks to fight hunger and guarantee everyone the right to food (4), universal basic food entitlements or food security floors guaranteed by the state, minimum salaries matched to food prices, bans on the financial speculation of food, and limits on alternative uses of food, such as biofuels.

Locally adapted technologies will benefit from crowd-sourcing and creative-commons licensing systems to improve sustainability and fairness of food systems. Millions of innovative people are more likely to find appropriate and resilient solutions than a few thousand scientists in corporate and other laboratories. Patents in the agricultural sector deter full-scale food security innovations. Conversely, freedom to copy promotes creativity and innovation, as with open-source software.

Collective civic actions and alternative food networks will bring about the transition toward sustainable and fair food systems. They involve civic engagement, community, conviviality, and the celebration of local food. Food can be produced, consumed, and distributed by governance schemes such as those proposed by Nobel economics prizewinner Elinor Ostrom (5).

These are collective actions initially implemented at the local level. In these schemes the main goal of partner states (6) is to maximise the well-being of their citizens and to provide a framework enabling people to enjoy their right to food. Political and

financial incentives targeting those civic actions for food are deemed essential during the transition. In them socially-embedded enterprises (co-operatives and social entrepreneurs) prosper under state regulations and incentives.

In different parts of the world, many initiatives already show how such combinations yield good results for food producers, consumers, the environment, and society in general (7). Such initiatives are models to be developed nationally and internationally. Local governments, entrepreneurs, and self-organised communities will develop in co-existence, giving the state a leading role in the transition period to guarantee adequate and nourishing food for all.

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Editor's note. José Luis Vivero Pol will develop the idea of the commons as a pillar of post-capitalism, and how this will reshape food systems, in coming issues of WN



***WN** Sick societies*

Mexico. Deep roots of diabetes

Access July 2014 Big Food Watch on the Mexican Alliance for Healthy Food here
Access December 2014 Big Food Watch on diabesity in Mexico here
Access March 2015 Update on diabetes in Mexico here



Diabetes has rocketed in Mexico, rates of which in Mexico are now among the highest in the world. The roots of this public health emergency go deep. Here activists campaign against sugared soft drinks

Pilar Zazueta writes:

In the March issue, *WN* reported about the current Mexican diabetes crisis. The healthcare and human costs of this epidemic are staggering. As stated, more than 14 percent of the Mexican population over 20 years old suffers from diabetes (1). These figures are even more alarming given how precarious health coverage is in Mexico, and how costly and sometimes inaccessible both private and public insurances are for most people. To try to remedy this situation the Mexican government approved a 10 per cent tax to try to curb the prevalence of diabetes in the country.

The roots of the crisis

The current health crisis is not only due to the North American Free Trade Agreement that opened up Mexico to transnational corporations, as claimed in *WN* (1). It is also because of much longer-term developments of the soft drink industry and changes in food consumption patterns. The tax is certainly a triumph for health advocates, but given the recent history of the Mexican food system, it will probably by itself be inadequate to reduce the noxious effects of current Mexican dietary patterns.

Health authorities have been warning Mexicans about the dangers of unhealthy levels of sugar consumption since at least the 1960s. Salvador Zubirán, founder of the National Institute of Nutrition – which now bears his name – did pioneering studies in low income housing developments in Mexico City, together with Adolfo Chavez. Through these studies carried out half a century ago, he learned that the incidence of type 2 diabetes was rapidly on the rise (2). Industrialisation, changes in family structure and the increasing employment of women outside the home had resulted in drastic changes in dietary patterns, including that families were no longer cooking at home and were buying more processed foods.

Among the most popular ultra-processed products in Mexico are soft drinks. The soft drink industry in Mexico began as long ago as the late nineteenth century. As part of the import substitution industrialisation (ISI) model, first implemented in the 1930s, US based corporations partnered with existing local entrepreneurs to open more bottling plants in the country (3). The soft drink industry in Mexico was one of the sectors in which the rule that limited foreign equity participation in Mexican industries to less than 50% was actually enforced. As the business model of transnational soft drink companies was based on the franchise, none of them complained.

Unsafe water

FEMSA, Latin America's largest Coca-Cola bottler, was a child of ISI. This company was and is one of the most powerful industrial trade groups in Mexico. Since the 1940s, attempts to increase taxes on soft drinks have been resisted by small and medium sized bottlers. For example, President Miguel Alemán (1946-1952) received thousands of telegrams from bottlers, small shopkeepers, and soft drink distributors when he tried to raise taxes on soft drinks. This mobilisation occurred at least five more times during the last century. Soft drink producers portrayed themselves as 'protectors of public health', given that water services in urban and rural Mexico were so deficient (3). Mexico has very low total tax revenues as a proportion of its gross domestic product, so public investment in water services continue to be insufficient even today. It is this history that leads a lot of people to think about soft drinks as 'healthy' water sources.

Also there is symbiosis between sugar producers and bottlers. In the last century and a half, local sugar industries became increasingly dependent on soft drink producers as buyers. As some of Mexico's most radical insurgent groups and unions, including Emiliano Zapata's army in Morelos, rose up and organised in sugar producing areas, the government always paid special attention to that sector. The state invested and subsidised sugar production to stop civil war and maintain peace (4). For this reason also, even after signing the North American Free Trade Agreement, the Mexican sugar industry has received special consideration and protection.

In 2006, while doing fieldwork in Mexico, I met with the members of the cooperative *Refrescos Pascual*. This worker cooperative, very popular in Mexico City, owns and

manages a successful business that manufactures soft drinks and juices. Cooperative members, who have spearheaded campaigns against unethical business practices by Coca-Cola and PepsiCo, were set against any initiative that increased taxes on soft-drinks. Hundreds of small fruit producers around Mexico depend on *Refrescos Pascual*. That year, the cooperative, with fruit producers, marched together to congress and met with members of all three major parties to lobby against the tax reform (5).

A complex crisis

These are the types of challenges that proponents of the soft drink tax have faced. The recently approved taxes on soft drinks and fruit juices with added sugar in Mexico will certainly be a powerful incentive to reduce consumption. A preliminary study by the National Institute of Public Health and the University of North Carolina at Chapel Hill indicates that demand for soft drink has decreased with the tax (6). Nonetheless, soft drink consumption is still too high, and research so far indicates that consumption has been only reduced in urban zones, not in rural ones (7).

Health authorities, public health experts and civil society organisations must find creative ways to succeed. They have to live with the size of the soft drink industry and the fact that successive Mexican governments are corporate-friendly.

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*[Feedback] World Nutrition April 2015, **6,** 4, 311-312*

Infection, nutrition, health. Leonardo Mata
What I found out

Access 1978 The Children of Santa María Cauqué here
Access March 2003 Public Health Nutrition Geoffrey Cannon on Leonardo Mata here
Access January-February 2015 Geoffrey Cannon on Leonardo Mata here
Access March 2015 Idea by Leonardo Mata here



Leonardo Mata is pictured in his 40s (left) and more recently (right). Then (centre) are the cover of his book, and also pictures of more of the children of Santa María Cauqué at the time of his study

Leonardo Mata writes:

Thank you for your kind words about my work in the *January-February WN* and for finding space for my observations in the *March WN.* Here are some additional points about the Santa María Cauqué long-term prospective study of the health and growth of Mayan children, and also of their mothers, carried out from 1962 to 1974. During that period, my late wife Grace and our four children accompanied me.

We included absolutely all the Mayan pregnant mothers during the study period. All their infants and young children were included. We made sure not to interfere with or alter their traditional ways. We respected the natural attitudes and care of pregnant women, the traditional deliveries on the floor of their homes, and the attitudes toward delivering women and initiation of breastfeeding beginning shortly after delivery. There was no maternity service, so mothers and infants stayed at home, and visited a sort of sauna daily for two weeks. The rate of survival of newborns was very high, much the same as in advanced societies.

Health and disease in Costa Rica

When I returned to Costa Rica we found that children´s diet was not so wonderful (from the US point of view), but they were healthy because the environment was clean and there was primary health care. What we had to stop, as I mentioned in the March *WN*, was separation of the babies at birth, which had been occurring for about a decade. I convinced the neonatologist at the main hospital to start rooming-in, to let the mother have the baby in her arms soon after birth with breastfeeding within 40 minutes. After a year, the rest of the hospitals were doing so, except one, and then also that one. I hope someday that this transition is studied.

This work was continued by the Institute for Investigations in Health (INISA) of which I was founder-director. It celebrates its 40th anniversary this year. INISA was in two branches, one to study infections and infectious diseases, the other to study human diet and nutrition. We did well. Early on we identified *Cryptosporidium* as an important cause of diarrhoea in children which previously had not been thought to be important in children. It was described by Ernest Tyzzer of Harvard a century ago, and then in AIDS patients at the beginning of the epidemic. We looked and found that it was common in children. Our papers were among the first.

We were also among the first to identify rotaviruses as important causes of childhood diseases. In 1973 I was already in Costa Rica and discovered rotaviruses in children in the San José district of Puriscal. This prompted me to call José Ramiro Cruz, my young laboratory technician and student at INCAP in Guatemala, to send me the collection of fecal specimens of the children of Santa María Cauqué. I got thousands of specimens and ran hundreds of ELISA tests and electron microcopy examinations, and thus was able to describe rotavirus outbreaks years before they were identified in economically advanced nations.

Learning and influences

I have in many ways been fortunate. I graduated after six years study in microbiology and clinical chemistry, in classes and laboratories from 1 to 5 and sometimes to 7 in the evening, learning mathematics, physics, anatomy, histology, bacteriology, mycology and parasitology, while in the morning I had to work to survive, as a school-teacher one year and then as a technician at the San Juan de Dios Hospital.

There was no medical school in Costa Rica then. To study medicine one had to go to Argentina, México, Spain or the US. I am not a physician. My degrees are in microbiology and clinical chemistry from the University of Costa Rica, with a MSc in hygiene and a DSc in science and public health from the University of Harvard, US. For the Cauqué study I was honoured to have a competent staff of two Guatemalan physicians with interest in children, mothers and infectious diseases, and good nurses, a dietitian, a sanitarian, and other field personnel. They were the very best people I have ever worked with.

I have been much influenced by philosophers and scientists of biology and of human life, some of them also physicians, who I have met and interacted with, such as René Dubos, John Enders, Thomas Weller, Nevin Scrimshaw and John Gordon.

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*Mata L. Infection, nutrition, health. What I found out [Feedback]. World Nutrition April 2015, **6**, 4, 313-314*

WN *Development*

Trade – free for whom?

Access March 2015 George Kent on how to end hunger here



All over the global South and in other impoverished countries people are rising up against 'free trade' agreements that clearly make rich countries and corporations richer, and further impoverish the poor

George Kent writes:

International food trade can contribute to the food security of those who are well off and most likely to be secure, but tends to be against the interests of poor people who are not food producers and small-scale producers not selling into the major markets, who are most likely to be insecure. Thus trade is not a good way to end hunger.

Some people think of the commodity-based industrial global food system as if it were the only one. But for many people there are separate local food systems that have little connection with the global one. Small local farms, often dismissed as 'inefficient', play a crucial role in providing low-cost foods to the local poor. If those small local farms are consolidated, and made more 'efficient', perhaps owned by outsiders, they are likely to ship their products out to people with money, whether in the same country or abroad. The local poor are bypassed.

New large scale-farms are likely to do much more harm to the local environment than the agro-ecology traditionally practiced on small local farms. Food exports from poor countries produce benefits for local people, but the distribution of those benefits is likely to be highly skewed, with much going to outsiders, the local rich, and the government, not to those who work in the fields, or to local non-farmers.

Poor countries see trade agreements as increasing their vulnerability to exploitation by powerful outsiders. They become especially vulnerable when the agreements prohibit making any restrictions on imports. Powerful outsiders can easily displace local producers.

In the case of the North American Free Trade Agreement (NAFTA), for example, it was clear from the outset that small-scale corn producers in Mexico would be hurt as a result of massive imports of subsidised corn from the US into Mexico. The pressure to open up domestic markets to foreign suppliers often means flooding of products from outside. Local food producers cannot compete with the imports, so their incomes plummet, destroying their food security.

In whose interests?

The division between international trade advocates and its critics can be understood in terms of two connected points. 'Markets' are beneficial mainly to the rich and powerful. Strategies of self-sufficiency are beneficial mainly to the poor and weak. This explains why the strongest advocates of 'free trade' are the rich, and the strongest advocates of self-sufficiency are the poor and their friends. Self-sufficiency protects the weak from exploitative relationships with those who are stronger.

Richer countries promote trade in a way that suggests it would be beneficial to all, but it would not be equally beneficial, and it certainly would not favour the poor.

Trade tends to provide its greatest benefits to those who are more powerful. It contributes to the widening of the gap between rich and poor. The 'market' system promotes the flow of food and wealth toward money and power, not toward need. One way to protect the vulnerable would be to ensure that all parties have a clear voice in deciding what would be good for them. If small-scale corn producers in Mexico had a seat at the negotiating table, they might not have been overrun by the North American Free Trade Agreement.

It is possible to add elements to trade agreements to protect the vulnerable. Rather than relying on 'free trade' to improve living conditions for the poor, trade agreements could include measures such as social safety nets that protect and improve their living conditions. Those who think that safety nets for the poor will not be needed should have no hesitation about providing them, as a kind of insurance. Packaging trade proposals together with protective programmes of this kind might increase the likelihood that poor communities would support them.

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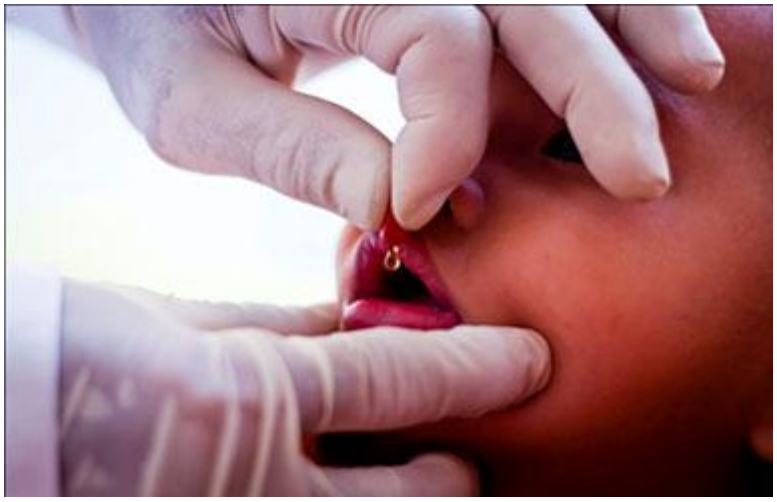
*Kent G. Nutrition and nourishment. Food, health – and care [Feedback]. World Nutrition April 2015, **6**, 4, 315-316*



WN *Hot stuff. Vitamin A*

Let food be our medicine

Access May 2010 Michael Latham The great vitamin A fiasco here
Access June 2010 letters in response to Michael Latham here
Access July 2010 letters in response to Michael Latham here
Access November 2010 letters in response to Michael Latham here
Access October 2010 Keith West, Rolf Klemm, Alfred Sommer on Vitamin A here
Access October 2014 IJE John Mason, Ted Greiner et al on Vitamin A here
Access November 2014 John Mason, Ted Greiner et al on Vitamin A here
Access November 2014 GAVA statement rebutting the IJE paper here
Access December 2014 Update on Vitamin A here
Access December 2014 Feedback on Vitamin A here
Access January-February 2015 Feedback on Vitamin A here
Access this issue Ashok Bhurtyal, Dushala Adhikari on vitamin A in Nepal here



Editor's note

Current dominant practice to prevent vitamin A deficiency is universal supplementation of entire populations of young children in countries identified as being at risk (picture above, from Vietnam). The contrary view is that dominant policy and practice should be food-based In May 2010 *WN* published Michael Latham's 'The great vitamin A fiasco'. This strongly criticises current practice. *WN* then published many letters from scholars, policy-makers, field workers, and others, almost all supporting Michael Latham and contesting universal supplementation as a distraction from rational sustainable food-based policies and actions, and also a commentary from scholars from Johns Hopkins School of Public Health upholding current practice. In November last year *WN* published 'Let food be our medicine' by John Mason and colleagues, following their October paper in the *International Journal of Epidemiology*. This supports the food-based approach. *WN* has then published many more letters in *Feedback*. See above for links. Further letters are below.

Vitamin A
The immunomodulator

Christine Stabell Benn, Peter Aaby and Ane Fisker write:

The debate about high-dose periodic vitamin A supplementation and vitamin A deficiency is two-dimensional. It is based on the idea that vitamin A supplementation works by preventing vitamin A deficiency, and nothing else.

Within this frame, there are two schools of thought. Some, like John Mason and his colleagues, emphasise that the policy of providing supplementation is built on older studies, notice that the recent DEVTA trial of vitamin A supplementation in India found no beneficial effect, and conclude that supplementation may no longer be the best tool for combating deficiency, and that it should be replaced by frequent regular intakes of vitamin A at physiological levels (1,2).

Others, like the Global Alliance for Vitamin A (GAVA), argue that there is still substantial evidence that vitamin A supplementation reduces mortality, that the DEVTA trial was of a poor quality, and that supplementation programmes should be maintained until less than 5 per cent of children have serum retinol <0.70 μmol/l (3).

Vaccination is protective

But vitamin A in high doses is an immunomodulator. This is being overlooked. Apart from combating deficiency, it may also influence the immune system and how this handles other challenges (4,5).This may be very beneficial, but also at times harmful, depending on what else is going on in the immune system. For instance, the original trials of supplementation to older children showed remarkable mortality reductions of around 23 per cent (6). Already at that time it was noted, however, that the effect of supplementation was not associated with the degree of underlying deficiency (6). Thus, supplementation seemed to have other functions than merely prevention of deficiency.

These original trials were carried out before the roll-out of the Expanded Programme on Immunizations. In a reanalysis of one of the trials, from Ghana (7), we showed that the beneficial effect of supplementation was limited to children who had no vaccines. In these children, supplementation was associated with a 36 per cent (12 to 53 per cent) reduction in mortality. In contrast the reduction was only 5 per cent (-26 to 28 per cent) in children who had received vaccines. This was because supplementation was associated with a 160 per cent (41 to 380 per cent) increased mortality in females, who had received some, but not all diphtheria-tetanus-pertussis (DTP) vaccines before entering the trial, and therefore were likely to receive them during follow-up (8). The potential negative interaction between supplementation and DTP vaccines in females has been observed in several other studies (9-13).

Recently we published the first individually randomised placebo-controlled trial of vitamin A supplementation given with vaccines to children above 6 months of age, as

recommended by the World Health Organization. This trial, which does not suffer from the same weaknesses as the DEVTA trial, enrolled more than 7,500 children in urban and rural Guinea-Bissau. Mortality was high, the rate during 6 months of follow-up being 21/1000 person-years-at-risk. There was no overall benefit of supplementation, the mortality reduction being 9 per cent (-41 to 41 per cent), very similar to the result of the DEVTA trial.

Gender differences

However, the effect differed significantly between males, with a 92 per cent (-2 to 275 per cent) *increase* in mortality, and females, with a 55 per cent (13 to 76 per cent) *reduction* in mortality (P = 0.003 for interaction between supplementation and gender)(14). The gender-differential effect was particularly pronounced in females who had already received supplementation previously (14), corroborating findings from other studies (15,16).Vitamin A status was assessed in a subgroup of 1,100 participants; the prevalence of deficiency was above 60 per cent, and did not differ between males and females (17). Hence the lack of overall effect was apparently not due to low prevalence of deficiency, and the gender-differential effect on mortality was not explained by underlying gender-differences in deficiency. Most children received supplementation with measles vaccine, or they received measles vaccine shortly after, and hence the combination of supplementation and measles vaccine may be particularly beneficial for females, but may be harmful for males.

Recent trials of neonatal vitamin A supplementation have also been disappointing in terms of their overall effect (18-20), potentially due to interactions between vaccines and gender. Trials and meta-analyses have mainly focused on follow-up to 6 months of age (18-21). It is therefore noteworthy that all studies that present data by gender up to 12 months of age (13, 18-20, 22, 23) find a negative effect of in the second half of infancy, the combined estimate being a 20 per cent (2 to 42 per cent increased female mortality from 6-12 months of age, significantly different from the effect in males (p=0.009 for same effect in males and females) (data not shown).

Thus all evidence supports that vitamin A supplementation has other effects than merely preventing vitamin A deficiency. The existing data can simply not be explained from the prevention-of-vitamin-A-deficiency perspective. There are more dimensions. The effect of supplementation to older children may be most beneficial in the context of no vaccines, or when measles vaccine is the predominant vaccine, in which case it is most beneficial for females. The effect of neonate supplementation may be negative for females once they start receiving DTP vaccines, but this may be reversed if they subsequently receive supplementation with measles vaccine (14).

Taken together, the net effect of giving vitamin A supplementation is the sum of benefit or harm from first, prevention of deficiency, which is probably always beneficial, and second, immunomodulation, which can be both beneficial and harmful, depending on other factors such as the gender of the child, and which vaccines it receives.

With decreasing prevalence of vitamin A deficiency, the risk of harm after supplementation will inevitably increase. Thus, maintaining supplementation for all children until the prevalence of low serum retinol is <5 per cent, is potentially harmful for some children. With the two recent trials of supplementation to children above 6 months of age showing no beneficial effect (14, 24), we agree with John Mason and his colleagues (1,2) that it is time to reconsider supplementation.

However, we believe there still may be a role for supplementation. Some children may benefit from supplementation due to its immunomodulatory effect, for instance females who receive supplementation with measles vaccine. Hence, we think the time has come to conduct large-scale multi-centre placebo-controlled supplementation trials designed to test the overall effect on mortality of supplementation, as well as the potential interactions with gender and immune-modulating interventions including routine and campaign vaccinations and other micronutrients. These trials should also include a third arm, with provision of low-dose regular vitamin A supplements. Only in this way can we be sure that the children receive the evidence-based interventions they deserve.

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Vitamin A
Discrimination and integration



Example of Vietnamese family agriculture in which cultivation of rice and raising of fish and domestic animals is integrated in a local ecologically sensitive and indefinitely sustainable system

Pattanee Winichagoon and Emorn Udomkesmalee write:

The periodic high dose vitamin A distribution for infants and young children between 6 months and 5 years recommended by the World Health Organization and the UN Children's Fund, together with the International Vitamin A Consultative Group, and put into practice for decades (1) is being questioned, in this journal by Michael Latham (2) and including in this journal by John Mason and colleagues (3-4).

Vitamin A supplementation for all children in the age range above in countries identified as at risk from vitamin A deficiency has been the recommended intervention in low and middle income countries (5). In the last few decades programme carried out all over the world have resulted in a significant improvement of the overall nutritional status, and a marked decline of the severity of nutrient deficiencies including that of vitamin A. Recent report indicate that prevalence of clinical vitamin A deficiency is now of mild public health importance on a global scale (6,7). Evaluation of the extensive vitamin A capsule programme has been limited (3), and a very large trial in India has shown no impact on childhood mortality (8). This is likely to be due to the changing patterns of diseases (measles and diarrhoea), so that vitamin A supplementation no longer reduces mortality. Therefore Michael Latham, and now John Mason and his colleagues, call for a policy shift in global strategy for alleviating vitamin A deficiency, towards food-based approaches (2-4).

We suggest that the public health issue for now and the future is not so much whether or not large scale vitamin A supplementation is effective, as rather, what and how

interventions, perhaps especially those that are food-based, will be implemented sustainably, in countries where vitamin A deficiency remains a public health issue.

The impact of national vitamin A supplementation on serum retinol in areas in the Philippines with highest prevalence of vitamin A deficiency has been shown to last up to four months post-dose. No effect was observed in other areas with subclinical deficiency (9). This may suggest more frequent dosing is needed, but to do so, programme feasibility and coverage would need to considered, especially where health infrastructure is weak or non-existent.

Several food-based interventions, included fortification of staples, cooking oil and sugar with vitamin A have been shown to be effective (10-12), as have biofortified staples, such as sweet potato and maize (13,14). But scaling up such interventions would be a challenge. Dietary diversification by promoting local or indigenous food sourceshas been suggested and tested. But feasibility was shown only on a small scale. The impact on vitamin A status was either not assessed, or the studies only aimed at increasing food security or behavioural changes.

Integrated programmes needed

There is now good information from low and middle-income countries showing that the severity of vitamin A deficiency both in children and women is of only mild or moderate significance(6, 15-18). Also, vitamin A supplementation not recommended for women, especially during pregnancy when night blindness has often been reported (19,20).

Food-based strategies therefore seem more appropriate. New policies that direct resources towards integrated approaches should be encouraged. Vitamin A supplementation may continue to be appropriate in situations of endemic deficiency and high childhood mortality, but food-based programmes should be planned and implemented as well. The challenge is how to make such intervention effective and feasible for scaling up at country level.

The community-based nutrition programmes in Thailand and in Vietnam are examples of an integrated food, health and development interventions implemented on a large scale (21-24).

In Thailand, the community-based nutrition programme focusing on underfive children has been implemented through primary health care. The effective integration with agriculture and other aspects of community development has evolved with strong community mobilisation and participation over time (21). Vitamin A deficiency has been addressed as one of the priority programme goals (22).

In Vietnam, universal vitamin A supplementation for under 5s, together with the gardening-fish culture-animal husbandry local food systems have been implemented

nationwide (23-24). The integration with primary health care, successful mobilisation and community involvement, effective monitoring and supervision network have been a great success of the overall vitamin A programme in Vietnam.

In any complex real life situation it is difficult to isolate the contribution of specific initiatives and interventions.The important lesson to be learned is how to integrate combined interventions into any country's context, situation and resources, including capacity for primary health care and development in general, in a realistic time-frame.

A strategic plan

To move forward, we would like to propose that the following issues be considered by all those concerned with programmes and initiatives to improve and sustain vitamin A status and prevent vitamin A deficiency, and in general to protect the nutritional health and well-being especially of children and women in under-resourced countries and settings.

1 Review. We recommend a policy and programmatic review of when and where vitamin A supplementation is still needed and how best to deliver it, convened by relevant UN agencies. Periodic supplementation for child survival may still be needed in specific contexts and considered to 'do no harm'. Countries look up to United Nations technical agencies including the World Health Organization, the UN Food and Agriculture Organization and the UN Children's Fund for guidance. A systematic critical review conducted by an independent expert committee should be considered. This could be carried out in collaboration with other relevant organisations such as the Micronutrient Forum, and Biomarkers on Nutrition for Development.

2 Discrimination. There is a need for discrimination, to separate vitamin A supplementation as a strategy designed for the survival of children, from broader initiatives, such as combined supplementation, fortification and dietary diversification, designed to improve vitamin A status in a whole population.

3 Biomarkers. The limitation of serum retinol as the biomarker of vitamin A status is well-known and needs review. Currently it is the recommended indicator to determine subclinical vitamin A deficiency of public health significance in population but its validity is questioned. It is essential to understand the complexity of vitamin A biology within different conditions, especially infection environment, the magnitude, scale and severity of undernutrition, and among other micronutrient deficiencies, to be able to select appropriate indicators and to interpret the response of the interventions accordingly.

4 Integration. Programmes to address vitamin A deficiency need to be part of larger nutrition initiative and interventions designed to improve the health especially of mothers and children. The global nutrition policy and reality landscapes have changed, and continue to change, for example now with the call to countries to

focus on the '1,000 days window of opportunity'. Also, the Scaling-Up Nutrition (SUN) initiative has rapidly gained momentum, with opportunity to gain new substantial support for countries to implement proven specific interventions. Also such interventions need to be integrated with broader policies and programmes that impact on nutrition, such as those concerning agriculture, education, water and sanitation, environment, social protection.

The outcome documents of the UN International Conference on Nutrition held last November in Rome advocate better linking of nutrition with food systems as a whole. We agree. It is a high time for integrated food-based strategies to be central in nutrition improvement programmes and in relevant public policies and actions. The call to promote regular intakes of vitamin A from habitual diets is, we propose, part of a strategy sustainably to improve and maintain vitamin A status throughout low and middle income countries and any other settings at risk of deficiency.

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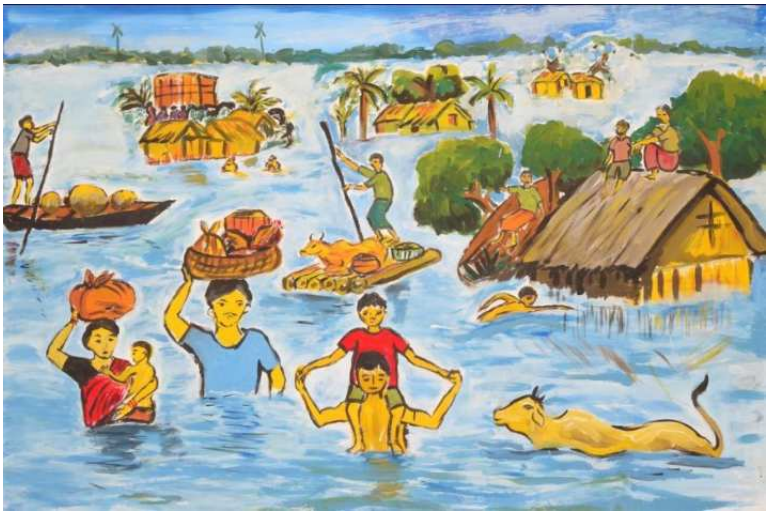
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Vitamin A
The MOON also rises



The impact of climate change on the low-lying farmlands of Bangladesh. To be genuinely sustainable, policies and actions must address fundamental and elemental causes of food and nutrition insecurity

Shamim HayderTalukder writes:

Human development, as in the UN 2000-2015 Millennium Development Goals, is now being defined as sustainable development, as in the UN 2016-2030 Sustainable Development Goals. These take into account social, economic and environmental factors.

The November *WN* commentary on international vitamin A policy by John Mason and his colleagues (1), following their paper in the *International Journal of Epidemiology* (2), did not discuss the sustainability of the vitamin A industry. Like manufacturing cigarettes or building weapons, making food is big business. Between 2003 and 2012 according to the marketing organisation Euromonitor, sales of packaged foods throughout the world nearly doubled (increased by 92 per cent) to $US 2.2 trillion (4). Industry-led nutrition solutions always face dispute, but this never affects their production and sales, and debate may even cause an increase in prices, affecting mainly low-income customers.

The main products being pushed by food manufacturers for use in 'solving' the problems of food insecurity and under-nutrition are imported packaged ready-to-use therapeutic food (RUTF) and ready-to-use supplementary food (RUSF). RUTF is unnecessarily expensive to use for anything else besides treatment of severe acute malnutrition (at $US 70-200 per child cured, about half of which is for the product itself). Therefore so-called 'community-based management of malnutrition' using such products costs several times more than the costs of preventing malnutrition through genuinely community-based approaches. The companies may be able to

sustain their production and profits. But the economics of funding for overpriced interventions using their products certainly is not sustainable.

Realities in Bangladesh

Now for vitamin A supplementation. Debate on the effect of high-dose vitamin A capsules on young child mortality has been going on for a long time (1-3).
All nutrition-specific and sensitive interventions need to adopt sustainable approaches for ensuring good nutrition throughout the life cycle of a human being. In the UNICEF nutrition framework (5) and *The Lancet* series nutrition-sensitive nutrition framework (6), young children's nutritional status is determined by their dietary intake, which is to say, breastfeeding and complementary feeding, supported by mother and child good practice with water, sanitation and hygiene, and other healthful behaviour and habits. Breastfeeding and home based complementary feeding are or should be sustainable interventions. Fortification of rice with appropriate vitamins and minerals may also be a low investment solution to micronutrient deficiency.

But in my country of Bangladesh, where drowning is a major cause of death of children over the age of 2, where a quarter even of children of higher income families are underweight, where more than half of all adolescent females are anemic, and the mean age of marriage for girls is 15, requiring the government to invest in the distribution of vitamin A capsules over the whole of the country is a travesty.

'Magic' can be tragic

Patterns of disease have changed rapidly all over the world. Now, efforts to deal with under-nutrition in many if not most lower-income countries are a context in which over-nutrition is rapidly increasing. Thus in Bangladesh, iodine deficiency has been successfully reduced, while at the same time the rates of hypertension have soared.

Studies of hypertension from the 1970s to the late 1990s in Bangladesh, show that prevalence is increasing significantly in both the urban and the rural population. Three adults out of 10 of the population in Bangladesh are now hypertensive (7). A 2014 study in the Global Burden of Disease series, of overweight and obesity in children and adults from 1980-2013 has found that worldwide prevalence of overweight and obesity increased substantially in children and adolescents in countries of all income levels (8). Obesity and related chronic conditions and diseases now threaten communities, health systems, economies and the structure and integrity of societies throughout the world. This requires a radical rethink of interventions that were first put in place before chronic diseases became international public health crises.

For example, in countries like Bangladesh, the impact of calorie-dense interventions, supplements and diets for children, especially those of low birthweight, in later life, needs urgent examination. 'Magic' solutions for childhood undernutrition prevention

and treatment may have long term tragic consequences. And while giant food and drink corporations are enjoying sustained growth and profits, what is the impact of their activities and their products on human health?

What actually works

So what works? The Scaling Up Nutrition (SUN) initiative states (9)

> Nutrition-sensitive development seeks to promote adequate nutrition as the goal of national development policies in agriculture, food security, social protection, health, and education programs.

The recent paper in *The Lancet* cited above (6) defines nutrition-sensitive interventions as:

> Interventions or programs that address the underlying determinants of fetal and child nutrition and development − food security; adequate caregiving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment − and incorporate specific nutrition goals and actions.

And according to the World Bank (9) the most important enabling factors for the effects of food price rises to feed through into higher incomes for farmers, are for them to produce and sell the 'right' produce.

> Technology becomes more important relative to the household's resource endowment, and the selection of crops to be grown is based principally on their tradeability and the price they are expected to command in local markets. The same technologies that enable export also enable import, and the variety of food sources available to consumers is likely to expand, making possible more complex and higher quality diets. Intensification of staple food production, and opportunities for livestock, fish and fruit and vegetable production, can also generate employment for landless or land-poor individuals.

But what about actual realities in actual countries and communities, identified by professionals who know the environment, guided by the wisdom and knowledge of the people who are most experienced? Our recent experiences in rural areas of Bangladesh, working with the people of local communities, suggest that sources of energy – mainly electricity at a reasonable price – is the number one priority for sustainability of development. Also, without the fundamental fulfillment of women's empowerment and economic independence, adequate nutrition will not be sustainable at household or community level. Additionally, much farmland in Bangladesh is low-lying. The country cannot make tangible lasting achievements without addressing the elemental impact of climate change. Again, the realities we face in my country, and those faced in other countries, are different and often more basic than those of a couple of generations ago. We live in a different world now.

Women's empowerment, access to appropriate technology, secure supplies of energy, and development of relevant physical infrastructure such as roads and bridges, are key nutrition-sensitive initiatives that need to be integrated into all serious policies

and programmes designed to reduce food insecurity, deficiencies, and all sorts of malnutrition. Governments of less-resourced countries, strongly supported by public interest organisations, social movements, and scientists and other experts, need to give top priority to specific nutrition programmes that are cost-effective and environmentally friendly, in this context.

A place in the SUN

Now back to vitamin A policies and programmes (1,2,4). In Bangladesh infant mortality has decreased from 47.8 per 1, 000 live births in 2006 (11) to 33.1 in 2013 (12). Most of that improvement took place in children under 6 months of age, though children get their first vitamin A capsule only at 6 months of age. This also implies an urgent national radical policy rethink guided by independent scientists, led by Bangladeshi officials who are not committed to current policies and programmes.

The UN Scaling Up Nutrition initiative has a part to play in this, as do other UN programmes. SUN states that it is an inclusive and country-led movement. So it should have potential to reduce malnutrition. After all, it has top-level backing, committed political leadership, apparently vibrant civil society support, and partnerships with donors and groups linked with big business such as the Global Alliance for Improved Nutrition;

But realism is again needed. Taking the vitamin A programmes as one important example, the history of nutrition and associated interventions in countries such as my own is not good, and some of these interventions may be or are outdated as we prepare now for 2016-2030. Overall and ongoing governance can be weak. Nutrition programmes may include as partners, people and entities whose business is junk food. Priority is often given to commercial products whose cost is unsustainable and which ignore the impact on chronic diseases and impede sustainable locally grown policies and produce.

To be sustainable, development goals must focus on human development, not just business development, and must consider environmental, social and economic issues. Quantified obesity and chronic disease prevention and reduction goals must be included in the national programmes of low-income countries, along with women's empowerment, education, green energy, and technology transfer.

The MOON also rises

So from Bangladesh, I call for a much needed and timely movement that is beyond the SUN. I call this MOON – the Movement for Open Opportunity for Nutrition (MOON). It will include and recognise nutrition- sensitive interventions, ensure appropriate distribution of resources on the basis of evidence and priority of the local community, seek to make them indisputably sustainable, and give co-equal priority to obesity, hypertension, diabetes and other chronic diseases. It will include initiatives that may be overlooked or neglected by SUN, such as the replacement of

vitamin A supplementation with food-based approaches. It will fight degradation of food supplies with junk and especially sugar-laden products.

All civil society organisations now linked with SUN also need to act for the MOON, which will not revolve round the SUN as a top-down imposed system but revolve independently and effectively around our Earth, maintaining a down-to-top approach. We appreciate SUN for its positive initiatives. These include breastfeeding promotion and involving the public sector in nutrition issues. MOON will recognise the need to overcome industry- led nutrition interventions and to take on the nutrition sensitive works neglected by SUN, given the power and influence of its corporate partners.

Here in Bangladesh, though solutions were introduced by our first prime minister Bangabandhu Sheikh Mujibur Rahman in 1972, and were supposed to have been reinforced in 1997 in our national plan of action for nutrition, effective actions and desirable achievements have often been stalled by environmental disasters and man-made calamities . So let MOON go into orbit!

Thus this is a call to have a MOON for sustainable improvement of global nutrition Let MOON inspire us all towards a world with nutrition equity, not a world of nutrition traders. Let's move with MOON for the global uplifting nutrition and sustainable human development.

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