Responses: WN May commentary

The great vitamin A fiasco

In May we published Professor Michael Latham's commentary ‘The great vitamin A fiasco’. Last month, in June, we published a series of responses, in the form of short communications and letters, from India, Indonesia, the USA, Australia, and the Pacific region. This month we publish more letters, from current and previous UN executives and staff, and elsewhere. Next month we will be publishing a response to Dr Latham’s commentary from Professor Keith West and Professor Alfred Sommer of the Bloomberg School of Public Health at Johns Hopkins University.
Sir: We write as follow-up to the commentary by Professor Michael Latham (WN May 2010, 1,1: 12-45). Dr Latham highlights the need to give greater attention to and support for affordable and appropriate food-based strategies for overcoming deficiencies of vitamin A and other micronutrients. He argues that food-based strategies ‘are sustainable, enhance well-being, and have social, cultural, economic and environmental benefits’. We support this opinion; while we recognise that in certain circumstances, the distribution of micronutrient supplements to targeted population groups, particularly children, can save many lives.

The Food and Agriculture Organization (FAO), a specialised agency of the United Nations, has as its mandate the raising of levels of nutrition, and ensuring humanity's freedom from hunger, by promoting sustainable agricultural and rural development. Focusing on the relationship between agriculture, food and nutrition, FAO works actively to protect, promote and improve established food systems as the sustainable solution to ensure food and nutrition security, and by doing so, to achieve the nutrition-related Millennium Development Goals (MDGs).

**Limitations of supplementation**

Progress in promoting and implementing food-based strategies to achieve sustainable improvements in micronutrient status has been slow. Much of the effort to control the three major deficiencies of greatest public health concern, of vitamin A, iron and iodine, have focused on supplementation. Supplementation is necessary for groups at high risk and as a short-term emergency measure, but it fails to recognise the root causes of micronutrient malnutrition, and does not assist communities and households to feed and nourish themselves adequately. Supplementation cannot provide the overall long-term benefits that food-based approaches can deliver.

Food-based approaches promote the consumption of foods that are naturally good sources of or rich in micronutrients, or that are enriched through fortification. Food-based strategies have been overlooked in recent decades as governments, researchers, the donor community and health-oriented international agencies have sought approaches for overcoming micronutrient malnutrition that have rapid start-up times and produce quick measurable results.

Although many lives have been saved and much suffering has been avoided as a result of these efforts, many lower-income countries, international agencies, non-governmental organisations and donors are now realising that food-based strategies that promote the diversity of food systems and supplies and thus of diets, are a
viable, cost-effective and sustainable solution for controlling and preventing micronutrient malnutrition.

**FAO’s commitment**

FAO is committed to supporting food-based approaches for eliminating undernutrition and micronutrient deficiencies, and views food-based approaches as crucial for improving the micronutrient status of vulnerable populations and thereby for preventing and controlling micronutrient deficiencies, and also for achieving sustainable improvements in levels of nutrition in general.

Food-based approaches focus on food – whether natural foods, or processed foods including those that are fortified – for improving the quality of diets and for overcoming and preventing malnutrition and nutritional deficiencies. This approach recognises the essential role food has for good nutrition as well as the importance of the food and agriculture sectors for supporting rural livelihoods. It also supports the right-to-food approach in preventing hunger and ensuring health and well-being.

Food-based approaches require a sound scientific basis. They need to be built on practical experiences in nutrition; agricultural sciences, including horticulture, agronomy, animal science and food marketing; information, education and communication; food technology related to preservation, processing and fortification; and skills in problem assessment, programme management, and monitoring and evaluation.

FAO has a wealth of experience in all these disciplines and practices, and is a champion of sustainable food-based approaches, including food production, processing, preservation and fortification, for promoting and improving dietary diversification, and for improving nutrition for all. Increasing availability, access and consumption of a variety of micronutrient-rich foods has a positive effect on micronutrient status, improves nutrition in general, and protects against disease.

Varied food systems, supplies and diets are crucial in resolving micronutrient deficiency problems. The sustained elimination of such deficiencies is possible only when the food systems and supplies and thus the diets of vulnerable populations provide all the required nutrients. Experiences from several countries show that comprehensive, well-designed food-based programmes can improve the diets of vulnerable populations in a relatively short period of time, and that these improvements can be sustained.

Further, problems of micronutrient deficiencies can be resolved when government policies and programmes are directed to the goal of increasing production and access to vitamin- and mineral-rich foods, in combination with marketing and education activities that promote the consumption of such foods.
FAO support for food-based approaches extends to fortification, which is seen as part of an overall strategy for a ‘total diet’ approach. Fortification of certain staple foods can provide micronutrients to large numbers of people in ways that are fully integrated with prevailing food production, processing and distribution patterns and regional and local food traditions and habits.

Food also has social and economic significance which, for many people, especially those living in lower-income countries, is commonly mediated through agriculture and agriculture-related activities that sustain rural livelihoods. The multiple social, economic and health benefits associated with successful food-based approaches that lead to year-round availability, access and consumption of nutritionally adequate foods in terms of quantity, quality and variety are clear. The nutritional well-being and health of individuals is promoted, incomes and livelihoods supported, and community and national wealth created and protected.

**The scale of undernutrition**

The combined effects of prolonged underinvestment in nutrition, food and agriculture, the recent food price crisis, and the economic downturn, have caused increased hunger and poverty, jeopardising the progress achieved so far in meeting the Millennium Development Goals. According to FAO, the number of undernourished people in the world now stands at 1.02 billion. T

Although the major malnutrition problems are found in less-resourced countries, people within fully industrialised countries also suffer from various forms of micronutrient malnutrition. It is estimated that approximately two billion people, about a third of the world's population, are today deficient in one or more micronutrients. Micronutrient malnutrition has long-ranging effects on health, learning ability and productivity, leading to high social and public costs, reduced work capacity in populations, and high rates of illness and disability. This all amounts to an appalling loss of human potential, and contributes to the vicious cycle of malnutrition, underdevelopment and poverty.

**Repeated pledges**

Overcoming micronutrient deficiencies is a precondition for ensuring rapid and appropriate development. Measures to prevent and control micronutrient deficiencies, as part of an overall framework to improve nutritional well-being, were identified and adopted at the International Conference on Nutrition (ICN), jointly convened by FAO and WHO in Rome, in December 1992. These consistently emphasise food-based policies. In the World Declaration on Nutrition, unanimously adopted, countries pledged ‘to make all efforts to eliminate before the end of this
decade iodine and vitamin A deficiencies…and) to reduce substantially…other important micronutrient deficiencies, including iron’ (1). The ICN Plan of Action for Nutrition (2) includes strategies specifically to address the prevention and control of micronutrient deficiencies and gives high priority to food-based approaches.

The Plan of Action of the 1996 World Food Summit re-affirmed the ICN goals: ‘Governments, in partnership with all actors of civil society… will implement the goals of preventing and controlling specific micronutrient deficiencies as agreed at the ICN’ (3). Furthermore, the Declaration of the 2002 World Food Summit: five years later recognised ‘the importance of interventions to tackle micronutrient deficiencies which are cost-effective and locally acceptable’ (4).

New commitment

To further encourage and promote attention, importance and investment in food-based approaches, we in the Nutrition and Consumer Protection Division of FAO have prepared the book *Combating Micronutrient Deficiencies: Food-based Approaches*, which will be published in November this year. This brings together available knowledge and case studies on country level activities and lessons learned to document the benefits of food-based approaches, particularly of dietary improvement and diversification interventions. It provides information that policymakers and others need in order better to understand, promote, support and implement food-based strategies to combat micronutrient deficiencies at country level.

What is needed now is further dialogue and discussion. But what’s also needed is support for a renewed international movement committed to the implementation of effective, long-term food-based solutions to undernutrition and for combating micronutrient deficiencies.

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References

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Sir: Congratulations on publishing these highly provocative and timely commentaries and exchanges of views (‘The great vitamin A fiasco’, WN May 2010, 1, 1: 12-45; Responses, WN June 2010; 1, 2: 78-113; ‘Here is the good news’, WN June 2010, 1, 2: 60-77).

These important discussions on international food and nutrition policy and practice are timely, not least because the Food and Agriculture Organization of the United Nations (FAO) and Bioversity International with contributions from others, have just concluded a technical workshop on Biodiversity in Sustainable Diets at FAO Headquarters, Rome. (‘Diets’ here includes food systems and supplies).

Among the outcomes is a request for a Code of Conduct for Sustainable Diets, which addresses the use of supplements, fortificants, and ready to use therapeutic foods (RUTF).

The proposed code has been modelled on the Code of Conduct for the Marketing of Breast Milk Substitutes, and thus draws a clear, albeit dramatic, parallel between these issues. The full text of a draft preamble to this Code will be included in the report of the workshop, soon to be published on the FAO website. This may give a good idea of the conclusions of the workshop.

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• Recognising that the health of humans cannot be isolated from the health of ecosystems;
• Conscious that food is an unequalled way of providing ideal nutrition for all ages and life stages;
• Considering that when ecosystems are not able to support sustainable diets, there is a legitimate use of supplements, RUTF, and fortificants; that all these products should accordingly be made accessible to those who need them through commercial or non-commercial distribution systems; and that they should not be marketed or distributed in ways that may interfere with sustainable diets;
• Recognising further that when ecosystems are able to support sustainable diets, nutrition programmes, policies and interventions supporting the use of supplements, RUTF, fortificants, and infant formulas are inappropriate and can lead to malnutrition, and that the marketing of thses food substitutes and related products can contribute to public health problems;
• Believing that, in the light of the foregoing considerations, and in view of the vulnerability of ecosystems, and the human health risks involved in inappropriate feeding practices, including the unnecessary and improper use of food substitutes, the marketing of substitutes requires special treatment, which makes usual marketing practices unsuitable for these products…

On 3-5 November 2010, FAO will host a scientific symposium on Biodiversity and Sustainable Diets, where this Code of Conduct will be elaborated. The debates and discussions in World Nutrition will provide an invaluable background.

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Time to return again to holistic policies

Sir: Dr Michael Latham’s commentary ‘The great vitamin A fiasco’ (WN May 2010, 1,1: 12-45), is correct, important and timely. The ‘coterie’ of scientists and policy-
makers dominating research, policies and programmes in the field of vitamin A deficiency, resulting in continued mass distribution of massive-dose vitamin A capsules, need to be recognised as such, and their dominance ended.

The title of Michael Latham’s commentary rightly reminds us of ‘The great protein fiasco’, so-called by Donald McLaren in the *Lancet* in 1974 (1), which marked the end of the ‘protein paradigm’ and the wrong notion that protein deficiency had become pandemic.

Soon after the World Summit for Children in 1990 Jim Grant, then executive director of UNICEF, initiated the ‘Ending Hidden Hunger’ Conference in Montreal, Canada. At this time I was UNICEF head of nutrition, based in New York, and so I know what went on. This conference started an explosive interest in controlling micronutrient deficiencies, including vitamin A deficiency. Within a relatively short period of time, bilateral and multilateral organisations, NGOs and the private sector mobilised significant support to programmes aiming at reducing micronutrient deficiencies in less resourced countries. It was never the intention at that time that massive-dose supplementation should become dominant. That happened later.

*Paradigms in public health nutrition*

To understand what happened, it is necessary to know how general ideas about science and policy are created and sustained. Such ideas are called ‘paradigms’. The philosopher of science Thomas Kuhn defines a paradigm as a set of practises that define a scientific discipline during a particular period of time (2). Paradigms can be seen as ‘master narratives’. They determine

- What is to be observed and scrutinized
- The kinds of question to be asked
- How these questions are to be structured
- How the results of scientific investigations should be interpreted.

Paradigms have a natural history – they rise and fall. During the period of the dominance of any particular paradigm there are often one or several competing parallel paradigms, any of which may become dominant in time. The dominant paradigm is also called the ‘mainstream paradigm’, while the parallel competing ones are called ‘counterpoint paradigms’.

In the context of public health nutrition, and as Michael Latham indicates, there are similarities between the protein deficiency paradigm, dominant between the 1950s and early 1970s, and the micronutrient malnutrition paradigm, which became dominant as from the mid 1990s. The similarities include the reasons for their rise to

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becoming mainstream, and the way they operated during the period of dominance, as well as the reasons for their decline and fall, which in the case of the micronutrient malnutrition paradigm now seems likely.

**Two successive dominant paradigms**

Both the protein deficiency paradigm, and the micronutrient deficiency paradigm, became mainstream as a result of new scientific discoveries. The discovery of the critical role of essential amino acids, with the erroneous conclusion that lack of protein (preferably animal protein) was the cause of pandemic disease, triggered the focus on protein. The discovery of the apparent role of vitamin A in reducing child mortality triggered the focus on vitamin A supplementation.

Both these processes assume mono-causality. In both cases they resulted in simple, cost-effective and easy-to-understand intervention programmes. They fit well with the notion that ‘they’ (children in impoverished countries) lack something that ‘we’ (the richer countries) have, and that we can give them in a simple package.

In both cases the dominant experts of the day over-estimated the minimum requirements of protein and of vitamin A, and downgraded the suitability or availability of protein and of vitamin A from plant foods, which at a stroke immediately dramatically increased the apparent problem in the ‘developing world’. In both cases powerful slogans, ‘the global protein crisis’ and ‘hidden hunger’, were coined and used to mobilise governments, and aid and development organisations inside and outside government. Donors were offered an apparently science-based opportunity to ‘save the world’s children’. In Jim Grant’s own word, to eliminate hidden hunger is ‘do-able’ – meaning, it should be done and it can be done.

Both mono-causal paradigms led to mono-focality, with its result of ‘top-down’ approaches. As Michael Latham points out, anybody with this mind-set does not feel any need to try to understand the more basic or structural causes of the problem, and even less to do something about them. The mono-causal and mono-focal policy is politically attractive to the governments of rich countries because it takes the ‘politics’ out of aid and development. Instead it supplies a technical ‘fix’ that does nothing to address social, economic, environmental – and political – issues Any charitable approach of itself also does not address issues of justice and human rights. Indeed, charity can and often does perpetuate and deepen dependency.

Perhaps the most disturbing similarity between the two paradigms, also pointed out by Michael Latham in the case of vitamin A, is that during the ‘mainstream’ period a relatively small group of institutions and scholars almost totally dominated the research and also the interpretation of the research. The same people also influenced...
the arrangements of key meetings and conferences, who should be invited, who could present papers, and so on.

During the period of a dominant paradigm, ‘normal science’ characterises what the majority of researchers do. ‘Normal science’ is defined by Thomas Kuhn (2) as: ‘Research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for further practice’. ‘Normal science’ is ‘thinking inside the box’. Research during the period of dominance of both the protein and the vitamin A paradigms, was characterised by ‘normal science’. Those who thought ‘outside the box’ were excluded from the established club.

Finally, in both cases industry got deeply involved, in producing protein-rich foods as from the 1950s, and in selling vitamin A supplements as from the 1990s.

The decline and fall of paradigms

The protein deficiency paradigm, and the micronutrient malnutrition paradigm, became mainstream as a result of misunderstanding of scientific discoveries. New and renewed perceptions, together with evidence of their inefficacy, caused the fall of the protein paradigm, and surely will cause the decline and fall of the vitamin A paradigm.

In the case of the protein deficiency paradigm, it was gradually realised that it is the quality of the whole food systems and supplies and thus diets that matters, not the protein content of specific ingredients of diets, that the presence of infectious diseases clouded the issue, and that the daily requirement of ‘high quality’ protein had been seriously misunderstood and overestimated. Similarly, as stated by Michael Latham, with vitamin A, it is whole diets that count, together with the determinants of the nature and quality of food systems and supplies. Also, the presence or absence of diseases such as measles must be taken into consideration, and the requirement for vitamin A has been overestimated.

A final important similarity is the parallel work within a ‘counterpoint’ paradigm. In both cases there was and now is a strong demand for a more holistic, multi-causal understanding of the problem of malnutrition in society. This includes the need to address not just immediate causes, but the key political, economic and cultural causes of malnutrition, with a focus on community level mobilisation and action.

In both cases courageous people have played crucial roles in the necessary paradigm shifts: leaders like Philip Payne, John Waterlow and D. S. McLaren in the criticism of the great protein fiasco in the early 1970s, and now leaders like Michael Latham and Ted Greiner in the case of the correctly named great vitamin A fiasco in 2010.
Sir: While reading Dr. Latham’s insightful commentary (WN May 2010, 1,1: 12-45), I could not help but reflect on our own vitamin A fiasco here in the Philippines.

We, too, have very influential ‘experts’. They waved the Vitamin A supplementation ‘flag’ because it was waved elsewhere by the ‘international community’ and then brought to our shores. Our own ‘experts’ will most likely not signal a retreat until the international community takes the first step. This is truly sad and unfortunate, considering the stark facts coming from our own national nutrition surveys that argue, reasonably and well, for a return to food-based programmes (1-3).

A solution without a problem?

An important question is: ‘Who and what defines needs?’ Was the national vitamin A deficiency prevention and control programme launched by the national government, which focused on the provision of vitamin A capsules, backed up by indisputable evidence?

The Philippines formulated its Directional Plan for Vitamin A Deficiency Prevention and Control Programme in light of the claim that vitamin A deficiency is a problem of public health significance in the country. Yet at the time the plan was formulated,
results of the national nutrition survey showed, on the basis of both biochemical and clinical findings, that vitamin A deficiency in children below 6 years of age was not a problem of public health significance except in one region. Furthermore, the Plan’s objective of reducing the prevalence of Bitot’s spots from 1.4 per cent to 0.6 per cent in 1993 ignored the fact that as early as 1987 the national prevalence of this eye sign of deficiency was 0.2%!

Establishing the public health significance of vitamin A deficiency in the country was not a clear-cut application of established trigger levels for public health action. The ‘value judgement’ of nutrition experts and authorities became the basis for a declaration that a problem existed and that large-scale intervention of a particular kind was warranted.

**Who calls the shots?**

There is no doubt that those chosen to prepare ‘truth-declaring documents’ in nutrition have gravitas. Nonetheless, their pronouncement should be examined in terms of what is and what is not asked, who has inputs, whose perspectives dominate, how many truly deliberate, who pays, who writes the answers, and if anyone bothers to check the answers.

It would be naïve to expect that decision-making pertaining to public health nutrition is a simple step-by-step procedure. At times, action is fast-tracked because there is a ready apparent solution, an organisational mandate, and/or overriding implicit agenda. The perceptions, interest, and power of key personages and institutions influence which conditions are to be considered problematic, how problems should be defined, which causes should be given attention (or ignored), and why certain actions take priority over others. Food and nutrition are not immune to politics and competition for dominance and control by both public and private sectors at local, national, and international levels. This makes a study and exposure of new and different angles to issues and initiatives, very crucial.

**Neglect of food-based programmes**

The government’s Directional Plan, in principle, is a multi-pronged strategy. It includes vitamin A supplementation, food fortification, nutrition education, food production, and public health services. But, early on, there was a clear bias for the first two interventions, as evidenced in the way they were designed, budgeted, implemented, and advocated. For example, more than 80 per cent of the total cost of the Plan was allotted to supplementation, while less than 10 per cent went to food and nutrition education.
Compared to a pharmaceutical approach, a dietary-based approach to prevention of micronutrient deficiency received tepid support. The tokenism is evident in many ways. Seeds and seedlings were distributed during national micronutrient days as a ‘reminder’ of a food-based approach to prevent micronutrient deficiencies in the long term. A recommendation that in addressing the country’s vitamin A deficiency problem, the government should direct its attention not only to reducing the problem but also to enhancing local capabilities to deal with it, using approaches that would boost the production and consumption of foods rich in vitamin A and its precursors was not given sufficient support. Nor was a recommendation for as much research on local food sources of vitamin A as food fortification and micronutrient supplementation.

The unbridled food fortification campaign has led to undesirable consequences, such as fortification of food items that are but ‘empty calories’ to give them an aura of being nutritious. One example is the fortification of carbonated soft drinks with vitamins A, B3, B6, B12, C and E, and iron, zinc, and iodine, by a government research institute. According to the researchers, ‘carbonated beverages are the favourite drink of children and adults, rich and poor alike, and the consumption of fortified carbonated beverages can accelerate elimination of micronutrient deficiencies as well as improve the health of the general population’. How tantalising the idea of a ‘superfood’ for all, with fortified fizzy soft drinks as the great social equaliser!

**Time for a change**

Why does the national government of the Philippines persist in universal vitamin A capsule supplementation of young children, despite the high prevalence of both acute and chronic undernutrition, daily diets that do not satisfy nutritional requirements, widespread parasitism, and a high risk of infection?

Why retain this intervention which has failed to live up to expectations after decades of implementation and boastful claims of its having the so-called elements for success: political will, advocacy and social mobilisation, financial backup, wide use of mass media, a whole array of supporters including international developmental and donor agencies and private industries, full use of the nationwide health service delivery network, and involvement of local government units?

Internationally set goals and targets have their uses. They raise awareness and call attention to heretofore unappreciated nutrition problems. But it would be naïve to think that international initiatives do not have the potential of serving as disincentives to a thorough study of one’s own situation and careful crafting of culturally-sensitive solutions, dislocating or even distorting priorities, and leading to programmes that rely mostly on technical fixes and short-term approaches. That the
countries themselves make a commitment to adopt the recommended international goals, targets, and programmes, at times with little due diligence, is a different, but equally interesting, subject.

The country’s five-year experience in vitamin A deficiency prevention and management provides disturbing insights into problem definition and programme conceptualisation; knowledge generation and use for policy purposes; public-private sector tie-ups dynamics of relationship between national and international nutrition authorities; rationalities in investment of public resources in nutrition; and public accountability. It certainly is a case worthy of further serious study and more open public discussion.

The government has failed to meet almost all of the objectives it has set for itself; in fact, instead of reducing undernutrition and deficiencies in iron and vitamin A in various age groups and sectors of the population, there has been an exacerbation of the problem during the last two decades. But the dismal picture was still not a sufficient reason for the government to turn its full attention to nutrition. Nor did it even merit a media exposé, a brigade of text messages, or a call for a summit meeting, however pretentious these activities may be.

The real nature of malnutrition

What explains the apathy of the public? The nonchalance of political leaders? The effrontery of government authorities to draw up another national nutrition plan no different from the previous one? It is crucial that multiple perspectives are brought out in the open and debated at a high level, considering the scientific nature of nutrition, the necessity of culture and technology coupling in designing and implementing nutrition programmes, and the socio-economic and political context of food and nutrition.

Some say the Philippines faces a ‘double burden’ of undernutrition and micronutrient deficiencies on the one hand, and overnutrition and chronic diseases associated with it, on the other. Others use the term ‘nutrition transition’. A ‘layered’ malnutrition problem is a more appropriate description for the country’s present nutritional situation. The layers are of different thickness and onset, but are related to each other. At the base is a thick crust of undernutrition, characterised by underweight and stunting in infants, young children, and schoolchildren, and chronic energy deficiency in adults. Laid over it is another thick crust of several kinds of nutrient-deficiency disorders in many population groups, both young and old. Starting to form at the top is a layer of overweight and obesity in some sectors of the population. There has been more of a superimposition than a transition in nutritional problems in the country.
It is not uncommon to find a combination of manifestations of malnutrition in the same household or community at one time or another. After all, different forms of malnutrition often share a common breeding ground of inequities and inadequacies in food, health, and care.

The entry of the for-profit sector should push the government to play an even greater (not lesser) role as the central steering force that will focus on respecting local people’s initiatives and meeting the needs of the disadvantaged population groups – the most vulnerable to poor health and malnutrition and the least able to realise their human right to adequate food and nutrition.

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References
