


The Food System

Volume 5, Number 2, February 2014

Journal of the World Public Health Nutrition Association
Published monthly at www.wphna.org

Ultra-processed products. 2014 Position paper

Product reformulation will not improve public health





Carlos Monteiro, Geoffrey Cannon, Jean-Claude Moubarac
Centre for Epidemiological Studies in Health and Nutrition
School of Public Health, University of São Paulo, Brazil
Emails: carlosam@usp.br; wn.theeditor@gmail.com; jean-claude@usp.br



Manufacturers want to evade regulations and to increase profits by making and selling reformulated 'added value' ultra-processed products with 'low sugar', 'low fat', 'low salt' and other health claims

Summary



Reformulation to reduce fat, salt or sugar or add vitamins and other bioactive compounds enables industry to imply or claim that ultra-processed products are healthy. They are not

This 2014 position paper revises and updates the previous paper, published in *WN* in 2012. It is written from a global point of view. The points we make apply in all countries and settings. They have special force in countries whose diets are still largely food-based, and in middle- and low-income countries, and for vulnerable populations in all countries.

Reformulation of processed food and drink products is a prime nutrition policy priority. It justifies 'public-private partnerships' at which agreements concerning product formulation are made. Reformulation that reduces the amount of fat or sugar or salt, or that increases the amount of dietary fibre or vitamins or minerals or other bioactive compounds, will improve the nutrient profile of processed products. It will result in healthier food supplies and dietary patterns, and help to control and prevent obesity and chronic non-communicable diseases, as specified at the General Assembly of the United Nations.

The paragraph above summarises the consistently stated view of government legislators, UN and other international agency officials, and leaders of influential organisations working in the public interest. It is also agreed and accepted by the leading corporations that manufacture such products, and their representative, associated and supportive organisations. These continue to initiate, fund, resource, and set agenda for 'public-private partnerships' designed to shape international food and nutrition policies. It seems that practically all 'stakeholders' agree that product reformulation will improve public health.

Our position, recently summarised in a *Lancet* commentary, is that this view is wrong. Product reformulation has two main functions. One is as new product development with the bonus of being able to make health claims and sometimes charge premium prices. Two is as a damage limitation exercise, a distraction from the use of law. Statutory measures are the only effective ways to improve industrialised food supplies, to protect traditional food systems, and to create a fair market for consumers, and also the food industry as a whole, which properly defined includes farmers, retailers and caterers, as well as manufacturers.

The general net eventual effect of product reformulation, when this enables manufacturers to imply or claim health benefits, will be and already is, deeper penetration and greater consumption of intrinsically unhealthy ready-to-consume ultra-processed products. Heavily promoted, these displace freshly prepared dishes and meals and eventually are liable to destroy food systems and cultures based on freshly prepared meals. Product reformulation is not part of the public health solution. It already is part of the problem.

Authors' note

Reformulation of food products is a topic that needs to be addressed regularly. This 2014 position paper revises and updates the previous paper, published in *WN* in 2012. Since then the issue of food product reformulation has become more urgent and important. More and more public bodies, including UN agencies and national governments, see reformulation as a powerful way to improve dietary patterns and protect against obesity and related diseases. Consortia of nutritionists are devising systems of nutrient profiling designed to promote reformulation. Action on Sugar, the pressure group launched in the UK in January this year, has as its main goal, reformulation to reduce sugar in ultra-processed products. Also, and we suggest this is significant, manufacturers evidently are more than happy to reformulate their products, when this is technically easy and according to their own rules, and when the reformulated products are labelled with implied or explicit health claims and even with endorsements from apparently independent sources, which add commercial value. This new 2014 position paper takes these and other developments into account.

On behalf of The Food System-NOVA team. (See our acknowledgements, and page 168)

The case for and against



Plenty of fatty or sugary products are already reformulated to contain less or even no fat or sugar, (above) and imply or make health claims. One question is, what are the replacement ingredients?

The case for

There is a case for reformulation. When food products are reformulated with prevention and control of chronic non-communicable diseases in mind, their nutrient profiles of course tend to improve. If many customers buy reformulated products in place of 'standard' or 'classic' un-reformulated products, and if this switch is substantial, and if harmful ingredients are not replaced by other harmful ingredients, and if they make no other change in their diets (note the 'if's), this may be of some benefit at personal and eventually even population level.

Advocates of reformulation have published impressive estimates of reductions in morbidity and mortality that could result from reductions in *trans* fats, saturated fats, sugar or salt, in processed products and thus in food supplies (1,2). There is however no direct evidence that product reformulation alone is effectively reducing the prevalence of any disease. Indirect evidence is used instead. An example is reduction of the volume of salt in the UK food supply that has taken place in recent years, as a

result of a concerted campaign backed by the previous UK government in which reformulation has been one component (3-5). We think the inference of benefit here for cardiovascular disease in the UK, but not for obesity, is reasonable. But whether really substantial changes in product composition or in public health are actually happening, and whether there is any increase in consumption of healthy unprocessed and minimally processed foods, which do not need reformulation, are other matters.

The case against

The case against product reformulation, particularly when used as a main strategy, has recently been summarised in *The Lancet* (6). The case against is more convincing. Reformulation is not of healthy foods. It is of almost always inherently unhealthy products, usually identified in dietary guidelines as products to be consumed only occasionally. They are made merely somewhat less unhealthy by manipulation of their ingredients. Reformulation of the type volunteered by manufacturers, sometimes prompted by government officials, usually results in relatively small or even trivial adjustments in nutrient profiles of products that remain unhealthy (7,8).

Voluntary product reformulation is a distraction from essential public health actions that will certainly have much more significant benefits. As with tobacco and alcohol products, such actions include statutory regulations. These need to include pricing and other statutory measures designed to promote healthy food systems, such as those that give incentives to horticulture, protect food-based dietary patterns, remove price support for unhealthy commodities, tax unhealthy products and restrict their advertising and availability especially to children, and thus act in the public interest and enhance well-being. Such policies, analogous with those that control the use of toys, cars, guns and drugs – and use of tobacco and alcohol – are now being considered by a number of governments and have been enacted by others (9-11).

As things are now, voluntary guidelines on reformulation of inherently unhealthy ultra-processed food products are agreed or confirmed by secluded 'public-private partnerships'. In these the public 'partners' include officials from UN and other international organisations and from national governments, with a notional presence from public interest organisations. Journalists are usually not let into the process. The private 'partners' are predominately marketing and publicity executives of transnational corporations whose sales and profits derive mainly from unhealthy products, together with other executives from their hired, representative, associated, and supportive organisations, with practically no representation from any other industries. Use of the term 'partnerships' implies that the corporations are sharing in responsibility for the public interest, notwithstanding their over-riding duty to maximise their bottom lines, share price, sales volume, and market presence (12).

Reformulation is part of a deal, as a result of which regulatory authorities sanction or tolerate health claims of the types shown in the pictures that introduce this paper.

These enable reformulated products to be advertised as positively healthy foods, more attractive than whole or minimally processed foods, and often sold at increased 'premium' prices which consumers on low incomes cannot afford.

Within the global North, especially in Southern Europe and the Middle East and countries like France and Japan whose food supplies are not yet saturated with ultra-processed products, common sense suggests that the net effect will be overall increased consumption of these products, with their implicit or explicit health claims.

The results are bound to include acceleration of the displacement of traditional and well-established food systems which, when they generate adequate and varied supplies of fresh and minimally processed foods, are the basis of economical, rational, appropriate, and healthy dietary patterns. In the global South, the prospect is disastrous. Penetration of ultra-processed products into low- and middle-income countries in Asia, Latin America, Africa and elsewhere whose dietary patterns are largely food-based, is already at the rate of 'double-digit' (10 per cent or more) annual growth (13). Reformulated with health claims, this penetration will become deeper.

A symptom is snacking. Up to the second half of the last century few adults consumed snacks. Now all over the world snacking is rapidly increasing (14). In the US, Canada, Mexico, Brazil and China, products in snack form already amount to up to a quarter of calories consumed (15). In China, since 2000 snacking has tripled every two years (15). Snack products making health claims are now very big business.

Box 1

The global North and South

This paper uses the terms 'global North' and 'global South' (16). 'Global North' includes high-income countries most of which are in the northern hemisphere, such as the US, Canada, the UK and most European countries, Japan, South Korea and Singapore, and also Australia and New Zealand. 'Global South' includes countries with average lower incomes, most of which are in the southern hemisphere, such as most countries in Asia, Africa and Latin America. The concept of 'North' and 'South' has social and cultural as well as economic connotations. Unlike 'developed' and 'developing' it implies difference rather than superiority and inferiority.

Ideally, new terms should be coined and used. These would distinguish between countries whose food supplies are now more or less saturated with ultra-processed products and whose agriculture is characteristically intensive, such as the US and the UK; and those regions, countries, and areas within countries whose dietary patterns are still to a lesser or greater extent food-based, much of whose food is produced by family and cooperative farmers. This distinction roughly corresponds to global North and South, but there are still a large number of countries in the North where dietary patterns to varying extents still remain food-based, such as Mediterranean countries, the Arab world, and various relatively high-income Asian countries such as Japan and South Korea. There are also big differences within countries, notably between urban and rural populations.

Reformulated products are unhealthy



Centre aisles in supermarkets. Reformulated products remain ultra-processed. Fatty salty snacks like chips (crisps) and sugared soft drinks may be reformulated and marketed as if they are healthy

Much discussion about reformulation seems to assume or imply that manipulation of the ingredients of food products will make them healthy. This is not so. It is ultra-processed products, which are principally formulations of industrial ingredients, that are reformulated (17,18). Ultra-processed products contain little if any whole food. However formulated, they are almost all processed fats or oils, and-or sugars or syrups, and-or starch or starchy material, with other processed ingredients, salt, preservatives, and other including cosmetic additives. (See Box 2).

Box 2

Ultra-processed products

Ultra-processed products are made from processed substances extracted or refined from whole foods, such as oils, hydrogenated oils and fats, sugars, syrups and starches, and sometimes cheap parts, remnants or sprinklings of animal or plant foods, but otherwise with little or no whole foods. Examples include carbonated and other sugary or syrupy drinks; most breakfast cereals; chips (crisps), cookies (biscuits), candy (confectionery), and other fatty, sugary or salty snack products; instant noodles; burgers and other meat products, frozen pizza and pasta dishes, chicken and fish nuggets and sticks. Most are manufactured, advertised and promoted by transnational and other very large corporations, are very durable and palatable, and are ready to consume. This gives them enormous commercial advantages over fresh and perishable whole or minimally processed foods

Ultra-processed products are typically energy-dense with a high glycaemic load; are low in dietary fibre, micronutrients, and phytochemicals; and are high in unhealthy types of dietary fat, in free sugars, or sodium. When consumed occasionally in small amounts and with other healthy sources of calories, ultra-processed products are normally harmless. But intense palatability, achieved by their high content of fat, sugar or salt, together with cosmetic and other additives, omnipresence, and sophisticated and aggressive marketing strategies such as reduced price for super-size servings, all make modest consumption of ultra-processed products unlikely, and displacement of fresh or minimally processed foods very likely. Reformulation does not and cannot change their basic nature.

Adapted from (6). See also (17-21).



Oreos are the all-time biggest selling cookie. They come in many varieties. Classics include the Double Stuf (left). Healthy tastes are accommodated by reformulated lower fat or sugar free versions

Reformulation is just another formulation. When reduction in the amounts of fats, saturated fats, sugars, or salt is made, the products still contain little if any whole food. A 'low fat' product may contain more sugar. A 'no sugar' product may contain more fat. Reformulated products remain fatty, sugary or salty, are still made from cheapened ingredients plus additives, and are still ultra-processed. The same is true when synthetic or other additives, micronutrients or bioactive compounds are added.

Ultra-processed products are not simply another type of processed food product. Processed products like tinned fish or fruit, say, or ham or smoked fish, are recognisable as foods modified by processing. Ultra-processed products may have some food in them but are basically formulations of industrial ingredients. This means that they can be, and are, formulated in any number of ways.

Take the Oreo™ cookie (above). Invented a century ago, over 450 billion Oreos have been eaten. It is the world's biggest-selling cookie, and is now a $1 billion a year seller for Mondelēz (formerly Kraft), the third biggest food product manufacturer in the world, with $US 83.5 billion sales in 2012. Varieties of the original Oreo™ now include the Strawberry Milkshake, the Blueberry Ice Cream, the Banana Split, the Double Delight, the Birthday Cake, and maybe up to 50 others, including the Oreo equivalent of the 'Big Whopper', the Double Stuf (above left). Usually Oreos are about 75 per cent fat and sugar. But they can be reformulated to be reduced fat and also 'sugar free' (see above). Their formulations and ratios of fat and sugar is infinitely manipulable, just like those of countless other ultra-processed products.

Take the 'sugar free' Oreo™. If sugar (in the form of sucrose) comes out of the product, what goes into it instead? Its ingredients in order of amount, are maltitol (a polyol, one type of sugar alcohol, made by hydrogenating maltose), unbleached enriched flour (wheat flour, niacin, reduced iron, thiamine mononitrate, riboflavin, folic acid), canola oil and/or palm oil, polydextrose, cocoa (processed with alkali), cornstarch, glycerine, inulin, emulsifiers (vegetable mono-and diglycerides, soy lecithin), baking soda and-or sodium acid pyrophosphate and-or calcium phosphate), salt, dextrose, natural and artificial flavour, cellulose gum and gel, chocolate, heavy cream, acesulfame potassium and sucralose (sweeteners). In other words, the sugar (sucrose) is replaced with a non-sucrose type of sugar, extra flour, starch, bulkers, oils and gums, and chemical sweeteners. The sugar-free Oreo™ is roughly as energy-dense as the 'classic' cookie, and sells for twice the usual price.

Not a lot changes

Discussion also often seems to assume that reformulations of the types now offered by manufacturers and endorsed by government officials and regulatory agencies, will make some sort of big difference and result in food supplies containing plenty of products that are very different from previous versions. This is also not so.

In a trade journal, Joost Blankestijn explains why (22). He is business development manager of food innovations for the Dutch company TNO (Organisation for Applied Science). Its mission is to convert research findings into profitable business. With 5,000 employees, it is the largest enterprise of its type in Europe. He says: 'Reformulating products is a key trend in the food industry. Manufacturers try to reduce the content of unhealthy ingredients like fat, sugar and salt. Omitting an ingredient is easier said than done. Lowering the salt content may diminish the taste, texture and shelf life. Less *trans* fatty acid in food often increases the content of the almost as unhealthy saturated fat in order to retain the product's properties. Moreover, reformulation generates higher costs for raw materials and processing, costs that manufacturers are trying to keep as low as possible'.

Many products, including lead lines, can be and already have been reformulated. But their basic nature does not change. Voluntary reformulation strategy is also affected by the determination of manufacturers to preserve the ultra-palatability and habit-forming qualities (23,24) provided by sophisticated combinations of additives, fats, sugars, and salt. Most changes made when products are reformulated are small or even trivial, apart from sharp reduction or elimination of *trans*-fats. (But see Box 3).

Box 3

Removal of *trans*-fatty acids

Trans-fatty acids, usually known as *trans*-fats, are generated by the partial hydrogenation process. This has been used for a century by manufacturers and their suppliers to convert liquid oils into solid fats, so as to create stable fatty products with long shelf-lives. By the nature of the process, any product that contains partially hydrogenated oils or fats therefore contains *trans*-fats. These industrially generated artificial substances are now known to be intensely damaging to the cardiovascular system (25-27).

Regulatory authorities and industry have agreed to reduce *trans*-fats in ultra-processed products, and this measure is increasingly in force now. It has no place in any reformulation policy. It is not reformulation. It is removal of a toxic substance, as has in effect been acknowledged by the US Food and Drug Administration in its November 2013 proposal to remove the Generally Regarded as Safe designation from partially hydrogenated oils (28). This will improve the US food supply. What is needed however, is a worldwide statutory measure, not requiring any 'partnership' involving negotiation with manufacturers except on practical matters like timing. This is most crucial to protect inadequately regulated countries. The most rational and effective action will be worldwide prohibition of the partial hydrogenation process in manufacture of all human food and animal feed products.

What 'private sector' means

Now for the industries whose products can be reformulated. We have no criticism of any specific corporation or product. What we say of any can be taken to apply to all. From the health and other points of view, any fatty salty snack, any sugared breakfast cereal, and any sugary or syrupy soft drink, is much the same as any other.

We are not critical of industry as a whole. This would be absurd. Industry always has been and should be a driving force of society and civilisation, and a source of security and well-being. In any case, the food industry as a whole, properly understood, is not just corporate manufacturers. It includes hundreds of millions of farmers, traders and makers throughout the world who generate healthy and delicious food. It also includes producers and manufacturers of fresh and minimally processed food. Nor are we implying that manufacturers want their products to be unhealthy. Of course they do not. But it is the ready-to-consume energy-dense fatty, sugary or salty ultra-processed branded products with long shelf-lives, made mostly from very cheap ingredients and formulated to be intensely palatable, that are the most profitable. To stay in business and to thrive, corporations are bound to protect these products.

'Private sector' means the transnationals

Discussion of food product modification is in (at least) one respect, very odd. In the context of 'public-private partnerships', constant reference is made to 'the private sector'. Out of context the term could include the travel industry, say, or the banking, electronics, travel or furniture industry. It doesn't, of course. In context, common sense would suggest that it includes all sectors of enterprises engaged in some aspects of food systems. But it doesn't. Maybe in theory it does, but in practice producers, distributors, and retailers are excluded, as are caterers (unless McDonald's and Yum! Brands count as caterers).

Representatives of farmers' co-operatives are also excluded. Why? The UN Food and Agriculture Organization states: 'It is estimated that one billion individuals are members of cooperatives, generating more than 100 million jobs around the world. In agriculture, forestry, fishing and livestock, members participate in production, profit-sharing, cost-saving, risk-sharing and income-generating activities' (29). These billion people who produce food are evidently not counted as part of the 'private sector' – or part of the 'public sector' either. They apparently don't count, period.

Or to be more precise, Big Snack

In practice, 'the private sector' engaged with the UN and its agencies, national governments, and selected science and policy experts, to shape world policy on the prevention and control of chronic non-communicable diseases, is just one sector of

the food and drink industries. Often termed Big Food, this sector is more precisely termed Big Snack (14,18). These are the transnational manufacturers of energy-dense fatty sugary or salty ultra-processed products and sugared or sweetened drinks. The biggest of them make several or many $US billions (yes, billions) a year profit from making, marketing and selling their branded ultra-processed products. (See Box 4).

Leading Big Snack corporations have pooled their interests into the International Food and Beverage Alliance, with offices in Washington DC. In its March 2011 *Five Commitments to Action* (30), updated in August 2012, the first commitment of the IFBA is to 'reformulate products and develop new products that support the goals of improving diets' and the fifth is to 'actively support public-private partnerships that support the WHO's Global Strategy'. IFBA members include Nestle, Pepsi-Co, Kraft and Coca-Cola, in 2012 the four biggest food and drink product manufacturers in the world, together with Kellogg's, General Mills, Mars, and Unilever.

Why is Big Snack accepted as the principal 'private partner' in policy-making at the highest level, designed to prevent obesity and related chronic diseases of which their products are a leading cause? In common with other colleagues, we have been asking representatives of the 'public sector' this question in print, meetings and conferences, since the beginning of this century. Here we ask again. We are waiting for an answer.

Box 4

Transnational corporations

'Transnational' means 'reaching beyond or transcending national boundaries'. Transnational corporations, while usually headquartered in one country, have no special loyalty to any country or to anything else other than their own policies, practices and ambitions. Their senior executives typically originate from various countries. They are different in nature from international or multinational corporations, which at least traditionally retain special commitments to their country of origin. The transnational way of doing business is an aspect of economic globalisation and a result of deregulation (31,32).

Transnationals are more powerful than corporations that remain committed to a country of origin. Their annual sales can be equivalent to the annual gross national product of middle-size countries (18,19). They go where the commercial action is, and prefer countries whose governments offer them the most incentives. Governments know that transnationals will make investments and offer employment where they are given most freedom and scope to do their business, which may include the country in which they happen to be headquartered.

The countries in which transnationals are most powerful, include those in which regulation is least effective and whose governments are impoverished or heavily indebted, and thus in need of foreign investment even when this involves selling off public goods such as land, power or water. Transnational business includes predatory competition with and takeovers of national companies. This partly explains the tendency for transnationals to become oligopolies and even monopolistic, and thus not genuinely competitive. The front and trade associations and alliances formed by transnationals (30) to protect their interests by for example resisting statutory regulation, show that they 'run as a pack'.

Developed from (6)

What 'partnership' means

Food and drink product reformulation is one rationale for 'public-private partnerships'. Much of the initiative and material support for these 'partnerships' has come from the transnationals, who seek to set agenda and establish priorities for policy discussions convened by United Nations agencies and national governments.

The effect has been to give the chief executives of transnational food and drink corporations a status on a level with that of the leaders of national governments and UN agencies, and much more freedom of action. This can be seen as part of a general global process whereby the duty and of elected governments to protect public health and public goods, has been ceded to executives of corporations whose responsibility is to their shareholders and to the money markets.

The commercial interests of the transnationals are powerfully served in meetings convened or organised by the World Economic Forum, and in policy initiatives involving the World Bank or the World Trade Organization. The transnational food and drink industries and their representative, associated and supportive organisations (33-35), are efficient and effective, and by definition operate globally. They hire the most imaginative and best resourced public relations agencies with a global reach. They have vast amounts of disposable cash to spend. They have plausibly asserted that their commercial interests need not conflict with those of public health.

Consequently they are seen by the United Nations and its relevant agencies, and by the most powerful national governments, not as part of the public health problem, but as an indispensible part of its solution (36). Their own power and wealth, most of all at a time when the UN and its agencies, and also national governments, are stuck in financial crises, makes them leading 'partners' in 'public-private partnerships'.

Very remarkably, Big Drink, the transnational alcohol industry and its representative organisations, is now also identified as a 'private partner' in high-level UN and national government discussions designed to improve public health and to control consumption, despite alcohol certainly being carcinogenic and addictive (37,38).

Reformulation is where the action is

The transnational food and drink corporations have in effect done a deal in 'partnership' with national governments and their regulatory agencies. This is that in return for voluntary reformulation of their products to their own specification, they may promote them with explicit or implicit health claims. This they may do to the extent of using quasi-medical claims sanctioned or tolerated by government agencies even in well-regulated countries. Such claims may even sometimes be supported by on-pack endorsements from medical and health organisations which charge fees for such 'seals of approval'.



Product reformulation is a type of new product development, with sanction to make health or medical claims, as with 'anti-cholesterol' breakfast cereals and margarines. Sometimes these may go too far

In part all this is a damage limitation exercise designed to neutralise health professional, civil society and other public interest organisations, and to circumvent the duty of governments to regulate harmful commodities. But there is a context. Food manufacturers have been reformulating their products for decades, so as to be able to imply or make health or medical claims. Reformulation is simply one type of new product development, without the risk and expense of launching a new brand. Retooling existing brands as health foods, or even as 'functional' foods that will protect against, prevent and even treat disease, is a bonanza. Breakfast cereals and margarine (above, left and right) are examples. Sometimes, as with the yoghurt above claimed to boost immunity, these go too far and are prohibited by regulators.

Manufacturers love product reformulation. It is a giant leap forward in new product development. 'We are going through a revolution in food' says Thomas Pirko of Bevmark Consulting, the Californian company which 'advises governments, the chief executive officers and chief financial officers of the world's top food and beverage companies', including Coca-Cola and Kraft. 'It's a whole new consciousness – every product has to be adding to your health or preventing you from getting sick' (39).

One example is the US-based General Mills (GM), who with Kellogg's (40) and Nestlé (41) is very big in ready-to-consume breakfast cereals (42). Two-thirds of its products by sales have been reformulated since 2005. These include its 'Big G' breakfast cereal range, Honey Nut Cheerios® (see above, left), Lucky Charms®, Cinnamon Toast Crunch®, and Cheerios®. Mark Belton, GM executive in charge of global strategy, growth and marketing innovation, says: 'Health improvements have increasingly become a primary driver of our innovation, so we are careful to balance strong health benefits and health improvements with great taste' (43).

Like other breakfast cereals, the GM range is 'fortified' with a lot of added minerals and synthetic vitamins. In 2009 GM agreed to reformulate its cereals promoted to children under 12, so as to contain 'single-digit' grams of sugar per serving. This policy is also much the same as that of other breakfast cereal manufacturers. Accordingly in 2012, Cinnamon Toast Crunch®, Cookie Crisp® and Cookie Crisp Sprinkles® were reformulated to contain not 10 but 9 grams per serving. At either level roughly one-third of the weight of the products is added sugar.

Case study 1

Reduced sugar Froot Loops™



Many parents share concerns of health professionals on the amount of sugar in breakfast cereals formulated for children. Here, Zac Hemmerling shows the trouble with Froot Loops™

Froot Loops™ were formulated by Kellogg's in 1963. They feature Toucan Sam™. They are one of the 10 'blockbuster' top sellers (44), most of which are aimed at children. The 'loops', made from extruded flour and sugar plus the ingredients below, come in red, yellow, orange, green, purple, blue, pink and gold colours and in banana, blueberry, lemon, marshmallow, orange and strawberry flavours (these vary in different countries). The colours and flavours are mostly artificial. About 40 per cent of the weight of the standard product is sugar. One ingredients list of a variety promoted as being a good source of dietary fibre (as above) is of 30 items plus unspecified flavours:

Whole grain corn flour, sugar, wheat flour, oat flour, oat fibre, soluble corn fibre, salt (listed as 'sodium chloride'), partially hydrogenated vegetable oil (so the product contains *trans* fats, although the nutrition label lists 0 *trans* fats), coconut oil, soybean oil, cottonseed oil, vitamin C, nicotinamide, F&DC red 40 (a chemical colour), lemon, cherry, raspberry, natural blueberry flavour (the word 'flavour' applies to all names of fruits), lime, natural flavours, F&DC blue 2, turmeric. F&DC yellow 6, zinc oxide, annatto, vitamin B6, vitamin B1, vitamin A, butylated hydoxytoluene (giving the product a shelf-life of a year), folic acid, vitamin D.

The total global breakfast cereals market is currently turning over $US 30 billion a year. Average profit to the manufacturer of breakfast cereals is about 40-50 per cent, not far off the profitability of pharmaceuticals. In the US sales of Froot Loops™ for the year mid 2012-2013 were $US 176,349,800. At an average price of around $US 4.50 a standard package of around 350 grams, that makes something like 40 million boxes each containing 12 30 gram servings, which makes 480 million servings a year in the US – one and a half servings for everybody in the US. Given that of each 100 grams of cereal, 40 grams is sugar, a reduction of 30 per cent would amount to an overall reduction in the US of around 4,000 million grams or 4,000 tonnes a year, just from one brand of cereal in one country. Big numbers. At a wild guess, if Froot Loops™ represents 5 per cent of the sugary breakfast cereal market and if the US currently represents say 20 per cent of the global market, factored up to all breakfast cereals this would amount to a reduction of around 400,000 tonnes a year, or something like 0.25 per cent of the total annual world sugar production of around 160 million tonnes. Very big numbers.

Those who advocate product reformulation for health reasons may not always be aware of the consequences. Froot Loops™ are the case study here, because they do have a 'reduced sugar' variety, and to contents of the product, and the consequences, are known.



For over ten years Froot Loops™ have been marketed in 'reduced sugar' (left) or 'one-third less sugar' (centre, right) versions. So have other sugary breakfast cereals aimed at children

Fruit Loops™ come in many varieties. Since 2003, like other intensely sugared breakfast cereals, a variety has been reformulated to contain less sugar. (See above, left). A 'one third less sugar' version is also in the centre of the supermarket aisle (right). The reduced sugar versions of Froot Loops™ add refined starchy carbohydrates, so the product contains the same amount of calories. Some manufacturers add chemical sweeteners and charge more. The version above makes a series of implied health claims. The 'banners' say 'Excellent source of vitamin C', 'Multi-grain', '11 vitamins and minerals' (which are synthetic), 'Natural fruit flavours' (usually meaning artificial but 'nature-identical'), and 'No artificial sweeteners'. As explained on the Kellogg's website: 'Sugar in cereals — including kids' cereals – contribute less than 5 percent of daily sugar intake. Yet it adds taste, texture and enjoyment to cereal, while encouraging the consumption of fiber, vitamins and minerals' (45).

The reduced sugar varieties were analysed and no benefit was identified.' "You're supposed to think it's healthy," said Marion Nestle, nutrition professor at New York University. "This is about marketing. It is about nothing else. It is not about kids' health." ' (46). The benefit is to the manufacturers. In their first year on the market, sales of reduced sugar sugary breakfast cereals increased by 50 per cent, obviously because parents thought they are healthy, which they are not. Worse, because of the bran and synthetic vitamins and minerals in them, the nutrient profile of Froot Loops™ qualified for a US 'Smart Choices' seal of approval, (see below), devised with industry by a consortium of nutrition academics and the American Society of Nutrition, but later withdrawn after a storm of protest and ridicule (47). Worse yet, if products like this that imply or state health claims, are marketed aggressively in the global South, they will rapidly displace traditional staple healthy breakfast dishes.



In the US, Froot Loops™ were given an industry-funded quasi-official 'Smart Choices' seal of approval, because their nutrient profile 'ticks the boxes'. This 'tick' was later withdrawn

The global North



In the US, products invented or reformulated to contain no sugar are power brands. These include 'designer' waters like 'zero' Vitaminwater™ (left) worldwide and 'zero' cola here in Japan (right)

Interest in processed product reformulation has mostly originated in, or is focused on, the 'mature market economies' in the global North, like the US and the UK. Almost all analysis of product reformulation is of its potential effect on the health of such fully industrialised high-income populations. It overlooks or ignores other contexts. Such analysis seems to assume that what is thought to be beneficial for those populations applies globally and therefore also to the South. It does not.

The circumstances of most countries in the North are very different from those of most regions and countries in the South. Countries with long-standing average high incomes became economically developed long ago. Thus in the US, the UK and Canada, as a result of industrialisation, urbanisation, and displacement of indigenous or rural populations, previously long-established and traditional food systems and culinary and dietary traditions have been pushed into niches or have almost vanished, to be evoked nostalgically at Thanksgiving, Christmas, and other feast-times.

Saturated markets in the North

In such countries, for generations now a high proportion of the food purchased by most people has been in the form of products that are ready-to-consume. The food supplies of 'mature market economies' such as the US, Canada and the UK, may now be practically saturated with these ultra-processed products, with little scope for further increase, at an average national level of around 55-60 per cent of total energy (48,49). In such countries obesity was identified as a public health problem by the 1970s, and rates have accelerated since the 1980s. In the US, population prevalence of obesity is around one-third, and of overweight and obesity combined is about two-thirds (50). In the UK and Canada, prevalence of obesity is one-quarter of the population, and of overweight and obesity combined, just over three-fifths (51,52).

In countries whose dietary patterns are dominated by ultra-processed products, the public health case for the reformulation of food products is apparently strongest.

In the US, sales of sugared soft drinks have gone flat, and sales of alternatives including 'designer water' are increasing (53-55). The change became evident about seven years ago when Coca-Cola chief executive officer Muhtar Kent said: 'When we walk around the US market, it's like we've lost the drive to create impulse, and we want to bring that back'. He added 'In Latin America, Europe, Asia, North Africa, it says everywhere "Ice cold Coke served here". Not in the US' (56). Coca-Cola is a strong supporter of 'public-private partnerships', and of reformulation and new product development. On obesity Muhtar Kent says: 'This is an important complicated societal issue, that we all have to work together to provide a solution. That's why we are working with government, business and civil society to have active lifestyle programs in every country we operate by 2015' (57).

So there is not much fizz left in countries like the US or the UK. But there still is some scope for growth. More sales and profits can come from literal expansion of waistlines, or predatory competition and takeovers, or purchase and exploitation of public goods such as land and water supplies – or products formulated or reformulated so as to enable health claims, bigger sales, and often higher prices.

When markets for ultra-processed products are saturated, such that populations are literally filled up with them, consumers may tend to prefer new products positioned as 'healthy', instead of the 'standard' products. If they can afford such products, and if they do not overall increase their consumption of energy-dense fatty, sugary or salty ultra-processed products, then product reformulation, and also new 'healthy' products, makes good sense for such people in such countries.

So in 'mature market economies' like the US and UK, where most people are overweight or obese and have adequate incomes, product reformulation can have some health benefits. But given health claims some of which suggest quasi-medicinal benefits, common sense suggests that the net result, even in countries whose food supplies are practically saturated, is likely to be an even greater consumption of ultra-processed products, some positioned as enjoyable and even glamorous, others as healthy or even as vital protection against disease, and many with 'premium' prices.

Box 5

Equity

It is least likely that reformulation will benefit people on low incomes in any country. Social, economic and other inequities continue to increase between and also within regions and countries. A substantial minority of communities and people within many high-income countries are impoverished, of which a proportion are destitute and vulnerable to malnutrition and even clinical deficiency. Diets largely made up from ultra-processed products are the worst possible for such people, who also are unlikely to be able to afford reformulated products carrying often spurious health claims, aggressively advertised and frequently sold at 'premium' prices. Targeting of such products at young children whose parents often cannot afford them, is exceptionally abusive.

The global South



Ultra-processed products have deeply penetrated Asia, Africa and Latin America. Here are a 'floating supermarket' from Nestlé in Amazonia (left) and a Pepsi shop hoarding in India (right)

We now turn to the global South. Here is what WHO director-general Margaret Chan has said: 'Today, many of the threats to health that contribute to non-communicable diseases come from corporations that are big, rich and powerful, driven by commercial interests, and far less friendly to health.… Here is a question I would like to ask the food and beverage industries. Does it really serve your interests to produce, market, globally distribute, and aggressively advertise, especially to children, products that damage the health of your customers?' (58).

Booming business in the South

But for transnational corporations, the global South is where the action is (13,14,18, 19). As with the European colonial powers in the 19th century, now that the South is opened up, all the transnationals are determined to get a share of the action. They are bound to do so. Any corporations slow to enter 'emerging market economies' would be taken over by energetic competitors. This is the nature of the business economy.

Coca-Cola is the world's fourth biggest food and drink product transnational, with sales in 2012 of $US 46.5 billion. In June 2012 the corporation invested $US 4 billion in China, and announced investment in India of $US 5 billion by 2020. 'Coke has invested heavily in fast-growing emerging markets such as China and Brazil with $15 billion brands that include Sprite, Minute Maid, Powerade and its namesake cola' (57). Between 2008 and 2011, Coca-Cola profits doubled, from $US 5.8 billion to $US 11.8 billion. Currently sales are rising by an annual 2 per cent in the US, but by contrast, 9 per cent in China, and 20 per cent in India (59). In March 2012 Muhtar Kent opened the biggest bottling plant in China, occupying 170,000 square metres (42 acres), with a capacity for 5 billion 'servings' a year. 'China is a vast growth market for Coca-Cola' he said. The story continued 'China is one of the fastest-growing markets…maintaining double-digit growth in nine of the last 10 years. Consumption of Coca-Cola products in China now represents approximately 8% of the company's global volume' (60).

The biggest food and drink product transnational in the world is Nestlé, with sales of $US 83.5 billion in 2012. In the South, fastest growth is being achieved with its 'popularly positioned products'. These are mostly existing branded products in smaller packages. Globally these are expanding at the rate of 27 per cent a year, with total sales of roughly $US 6 billion (61). Half of these sales were in Asia, Oceania and Africa. Brazil is a big market. A corporate release reported, of a factory in the North-Eastern state of Bahia: 'Nestlé's factory in Feira de Santana produces Maggi instant noodles... The plant brings direct and indirect employment opportunities to an economically deprived region, while increasing local workforce skills... It also helps Nestlé to reach 50 million consumers in this part of the world. Maggi instant noodles are popular in many countries of Latin America, Asia, Oceania and Africa'.

The picture above (left) shows a 'floating supermarket' taking all-Nestlé branded products to impoverished rural communities in Amazonia (18). Its 'popularly positioned products' include bottled water, and packaged soups, dried soup mixes, stock cubes, instant noodles, soy sauce, instant coffee, creamer, instant chocolate drink, Milo *Choco Blazz*® 'cereal pillows' fortified with iron, Koko Krunch® cereal, biscuits, chocolate, confectionery, infant formula, dried milk, and infant follow-on and weaning products (62). Many packaged in sachets, these are cheaper per item than conventional equivalents of the same brands or types of product, but generally more expensive weight for weight.

Box 6

Regulation in the public interest

Wise laws protect the public interest. The use of roads is usually tightly regulated. Traffic signals, vehicle and cycle lanes, road signs, speed limits, driving tests, penalties for reckless or drunk driving, requirement for seatbelts, and subsidies for lead-free petrol, have been welcomed by the public and accepted, often after resistance, by automobile manufacturers. They reduce injury and death of drivers, cyclists and pedestrians, and increase the pleasures and freedoms of travel. They have encouraged manufacturers to be innovative and ingenious and to make safer cars.

All social and economic activity needs rules and regulations. Sport would be chaotic without rules, or with rules that were ignored. But transnational food and drink product corporations have largely evaded regulation. This is probably because their rise coincided as from the 1980s at a time when governments in the US, the UK and then elsewhere had leaders who were ideologues committed to avoidance or abandonment of regulation of industry. In practice much regulation in place before that time has remained in force. But as from the 1980s industry has been enabled to become transnational at phenomenal speed, by being given almost complete commercial freedoms. The theory was that while the race should always be to the strong, all would gain as a result. As we know now, this theory is mistaken.

After the 19th century it became well understood that careful regulation discourages ruthless business, and enables enterprise whose effects are more socially responsible. This is a lesson that still needs to be learned for the 21st century.

Nestlé's 2012 first half-year report stated that in Asia, Oceania and Africa, sales of about $US 9.5 billion were achieved, with growth at an annual rate of 11.6 per cent. 'The Zone continued to post double-digit growth… The main drivers… were brand investment and product innovation, deeper and wider distribution with a multi-tier strategy from popularly positioned products to premiumisation, while investing in capacity and capabilities for future growth…The emerging markets delivered double-digit growth… most notably in Greater China, Africa, and the Middle East… Our new partnerships are enhancing significantly our footprint in China' (62).

Unilever is one of the world's ten biggest transnationals, specialising in high-fat products such as margarine, ice-cream, sauces and pot noodles. In 2013 chief executive Paul Polman said: 'Emerging markets again contributed double-digit growth... an important milestone in our journey to double the size of Unilever from €40 billion to €80 billion' (63).

In the South: exploitation

In China, India and Brazil, and many other countries in the South, long-established and traditional food systems and culinary and dietary traditions have survived. A rapidly increasing proportion of food purchased and consumed is in ultra-processed form, but much or most is still fresh or minimally processed, or else is in the form of processed ingredients with which to make meals. The food supplies of these 'emerging market economies' are a long way from being saturated with ultra-processed products. In Brazil for example, these currently supply around 30 per cent of total dietary energy (49). In such countries obesity was rare half a century ago, but rates have steadily risen. In Brazil, national prevalence of obesity is close to one-seventh (15 per cent) although of overweight and obesity combined the figure is already one-half (64, 65). Rates are increasing by around 1 per cent a year, which projects to the same level as the US and UK in around the year 2025 (65).

Throughout Asia, Africa and Latin America, traditional and long-established food systems, involving cultures in which meals, commensality, and family life are valued and preserved, persist to varying extents. These countries are now the prime targets of transnational corporations. If these industries reformulate and consequently aggressively advertise and promote some of their apparently less unhealthy products as healthy, sometimes even with quasi-medicinal claims, this is certain to accelerate the increase of consumption of ultra-processed products overall.

The Big Food corporations are teaching the world to snack, from birth to death, and to think of cooking as a waste of time and energy. Their main initial competition is from relatively weak national or local companies in the countries they enter, which they often take over. They displace existing food systems that generate meals made with fresh and minimally processed foods and processed culinary ingredients (17, 29, 53), and replace these with relatively expensive branded energy-dense fatty, sugary or salty ultra-processed products.The social, economic and environmental

consequences, as well as impact on health, are devastating. Ultra-processed products undermine healthy eating patterns that are structured and centred on shared meals, and displace them with irregular mindless snacking. They wreck authentic food culture, which is a source of pleasure and social identity. The strategy of the transnationals is eroding and eventually threatens to destroy appropriate, economical and sustainable dietary patterns in most of the world. Given this, rates of obesity, and of diabetes and other chronic non-communicable diseases, are liable to accelerate.

'Neo-liberalism', also known as 'casino capitalism', devised by and for the benefit of the most powerful countries in the global North, is often embraced in the South by government departments of finance, trade and industry, and external affairs. The destructive effects of 'free trade' on health, economies and the environment are as yet not fully discerned. Until then, the economies of lower-income nations will become more fragile, and increasingly dependent on foreign capital and fluctuations of the money and commodity markets, both of which are made more volatile by speculators. The penetration of transnational corporations is already damaging the very social, cultural and other identity of countries in the global South.

From a global perspective, we judge that reformulated products manufactured by huge transnational corporations, especially when aggressively marketed with health claims, will cause increased harm to public health, and to public goods, throughout the world.

Box 7

Lessons of history

The food and drink product transnationals are the modern equivalents of the West and East India companies that flourished in Europe centuries ago, 'opening up' Asia, Africa and Latin America for trade and profit for the companies, their shareholders, and their governments.

The eighteenth century philosopher Adam Smith is seen as the founding father of what, despite continuing proofs of its failure, remains the dominant global economic and political ideology. This gives transnational industry morally and rationally indefensible freedom of commercial action. He is supposed to be the champion of unrestrained commercial activity. This is not true. Here is what he said about concentration of power and its consequences. In his *Inquiry into the Nature and Causes of the Wealth of Nations,* he wrote: 'People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices'.

The next part of this passage, less well-known and not so often quoted, is in effect a comment on 'public-private partnerships'. He says: 'It is impossible indeed to prevent such meetings, by any law which either could be executed, or would be consistent with liberty and justice. But though the law cannot hinder people of the same trade from sometimes assembling together, it ought to do nothing to facilitate such assemblies; much less to render them necessary'. Adam Smith also declared that tobacco, liquor (he specified rum) and sugar are 'fit objects for taxation' (66).

Product reformulation: seven points

Here are seven points which summarise our position on ultra-processed product reformulation and public health. They have been revised since the previous paper published in *WN* in 2012, to take account of events and developments in the last two years, and discussions since then with many colleagues.

1 Reformulated products remain unhealthy

Reformulation is of products that have already been formulated. It does not convert ultra-processed products into fresh or minimally processed foods. Reformulated products still combine fats and oils, sugars, syrups and starches, salt, preservatives, and other including cosmetic additives, with small amounts if any of whole foods. They remain ultra-processed. Modification of their nutrient profile, by reducing sugars or syrups and replacing these with processed oils, starches or artificial sweeteners, or by reducing some salt, or by replacing fats with sugars, or by adding dietary fibre or synthetic micronutrients, makes the products at best only somewhat less unhealthy.

2 Reformulation is a damage limitation exercise

A prime purpose of 'public-private partnerships', as far as the transnational and other giant ultra-processed product manufacturing and associated 'partners' are concerned, is to devise product reformulation strategies under their control that suit their business, and that protect or enhance their profits. A key part of this strategy is to evade effective statutory regulation of industry such as that which makes tobacco and alcohol products less available and affordable. This all suits governments that have abandoned what is a first duty of all governments, to protect public health and public goods. Product reformulation is a damage limitation exercise.

3 It is also exploitative product development

Manufacturers want to reformulate their products, and have always done so. Reformulation with a declared purpose to protect and improve health is a new product development bonanza. It sanctions health claims on product labelling and promotion, accepted or tolerated by regulatory authorities. Such claims state or imply that the reformulated products are healthy. They seem to transform what actually remain unhealthy products into 'functional foods' or 'nutraceuticals' that can prevent or even treat disease. While legal, the claims are often spurious and usually deceptive. They also lead to increased purchases often of 'premium priced' products by incautious, credulous or vulnerable customers, and often by parents anxious to protect the health of their children and thus likely to purchase products they cannot afford. In all these and other ways they increase social and economic inequities.

Case study 2

'Mild' or 'light' cigarettes



Cigarette manufacturers reformulated their products to 'low-tar' varieties, to stop smokers quitting. Big Food transnational manufacturing corporations now use comparable strategies

There is no sensible comparison between tobacco and food as a whole. We need food and should be able to enjoy it and retain good health and well-being. Cigarettes and other tobacco products are also different from ultra-processed food and drink products. Tobacco is toxic and addictive, and rational advice is not to smoke and to avoid exposure to smoke, whereas occasional consumption of ultra-processed products is usually harmless. But there are similarities between the strategies of ultra-processed food product and cigarette reformulation (67), in effect even if not in intention.

Starting in the 1950s, Big Tobacco (the industry leaders) was confronted by strong and then overwhelming evidence of the harm done by smoking, and also by increasingly militant health professional and civil society organisations. In response, corporations began to promote filtered cigarettes, which by the 1960s were the market leaders. They then formulated and heavily promoted 'low tar', 'light' or 'mild' cigarettes. Between 1967 and 2005 the market share of these products rose from 2 to 83.5 per cent. Manufacturers insinuated in advertising and promotion, often using attractive models as shown above, that these reformulated products were harmless. Evidence accepted as final proof that reformulation of cigarettes does not make them less harmful, was published a generation later, in 1991 (68). The strategy of Big Food and Big Snack, to reformulate some of their ultra-processed products, and to claim that the new products are healthy, is a distraction from effective public health measures. It is comparable with the low-tar cigarette strategy.

4 Small if any net benefits in 'developed market economies'

Almost all discussion of reformulation relates to 'mature market economies' such as the US, Canada, the UK and Australia, whose food supplies are already more or less saturated with ultra-processed products. Reformulation may be of some limited benefit in such countries, if it results in lower consumption of fat, saturated fat, added sugars or salt, if these reductions are not accompanied by increases in

other unhealthy items, and if the only change customers make is from 'old' products to the reformulated products. Notice the 'if's'. In other high-income countries whose dietary patterns are still to a large extent food-based, such as the Mediterranean countries, France, Japan and South Korea, reformulated products, most of all when positioned as if healthy, will accelerate displacement of diets based on meals.

5 Menace to 'emerging markets'

Transnational corporations dominate the manufacture and marketing of ultra-processed products in almost all countries. They are already achieving 'double-digit' annual growth in the 'emerging markets' of Asia, Africa, Latin America and elsewhere. This is a catastrophe. These are regions and countries whose dietary patterns are still to a large extent food-based. Transnationals have already reduced fat, sugar or salt content of many products, or added synthetic micronutrients, often making strong health claims, most of all in countries whose regulatory authorities are under-resourced. This will continue to cause an increased rate of displacement of long-established food systems and dietary patterns centred on meals, by ultra-processed food and drink products that remain fatty, sugary or salty. Allowing reformulated products to make health claims will thus cause a steeper increase in overall global rates of overweight, and obesity and related diseases.

6 Evasion of effective action

Reformulation distracts attention from effective actions. This diversion, similar to that used by Big Tobacco, is part of corporate strategy. From the public health point of view, any possible beneficial changes consequent on product reformulation would be very small relative to what is achievable by fiscal and other statutory regulations. These should assure food supplies higher in fresh and minimally processed foods, preserve national agricultural ecosystems and biodiversity, make agriculture a viable social and economic activity, support local food traditions, promote food preparation and cooking starting in schools, and limit availability of ultra-processed products.

7 Rational policies are needed

National governments, UN and other international organisations, and other independent actors, need to develop statutory policies and actions to prevent and control obesity and chronic non-communicable diseases and to promote positive health and well-being. Bodies with the power to legislate need to translate these policies into actions. Transnational and other corporations whose profits depend on the sale of unhealthy products should not be involved in the creation of these policies and programmes. Overall public health strategies should include very substantial investment in healthy food systems and supplies, and put an end to the promotion of any type of ultra-processed products as if they were healthy. Explicit or suggested health claims for reformulated products should be prohibited.

Conclusion

Here are five suppositions. Suppose that most people in most countries were overweight and obese, and that practically all countries were fully industrialised. Suppose that all food manufacturers made radical changes in the formulation of their ultra-processed products, and massive investments in the markets for fresh and minimally processed foods. Suppose that most people in most countries were willing and able to afford new formulations and products. Suppose that all foods and products were clearly and fully labelled, but without health claims. Suppose that all the most powerful institutions, governments and corporations in the world were whole-heartedly committed to the preservation, development and creation of food systems based on fresh and minimally processed foods, with reformulation of processed products just one aspect of such a grand plan. If all this was true, product reformulation would make a real difference. But none of these suppositions is true.

Food and drink product reformulation will not improve public health. It is relatively harmful when, as now, it is used in place of effective strategies involving the rational use of statutory regulations. It is absolutely harmful when advertising and marketing of reformulated branded snack and other 'convenience' products that make or imply health claims, accelerate the erosion and displacement of established appropriate and economical food systems and dietary patterns based on meals.

In the South, and many countries in the North, long-established traditional food systems result in dietary patterns that are culturally appropriate, environmentally sound, economically sensible, climatically rational, able to sustain rural populations, and well understood by settled populations. These are now being undermined and in danger of being wiped out by the incursion of ultra-processed products. This catastrophe can only be made worse by products marketed as if they are healthy.

The obesity pandemic is a symptom of systemic failure. Legislators have abandoned their duty to regulate in the public interest. Unbridled freedoms have been recklessly ceded to corporations whose activities contribute to the linked fuel, finance and food crises. Professional, health, and other civil society leaders, who combined and pressed for rational policies and actions concerning tobacco, have not yet done so in the case of ultra-processed food products. This time must and, we believe, will come.

The right way ahead is clear. All concerned with the preservation and protection of public health, including leaders in government, professional organisations, and social movements, have a clear responsibility and opportunity. First and foremost priority needs now to be given to the protection, promotion and development of healthy food systems and supplies, and to recognition of the unique and irreplaceable value of healthy meals, dishes and foods. As with all significant improvements of public health, these policies and actions will require courage, tenacity, and the use of law.

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Status

Concept: CAM, GC, J-CM. Drafting: CAM, GC. Final editing and text approval: CAM, GC, J-CM. Funding for this position paper: none. Conflicting or competing interests: none declared. Work on *The Food System* and specifically on the significance of food processing, is originated at the Centre for Epidemiological Studies in Health and Nutrition (NUPENS), School of Public Health, University of São Paulo (USP), Brazil. Members of the NUPENS team also include Renata Bertazzi Levy, Rafael Claro, Ana Paula Martins, Maria Laura Louzada, Larissa Baraldi, Daniela Canella, Carla Martins, Thiago Hérick de Sá, Diana Parra.

Readers may make use of this paper if *WN* is cited. Cite as: Monteiro CA, Cannon G, Moubarac J-C. *The Food System*. Ultra-processed products. Product reformulation will not improve public health. [*2014 Position paper*]. *World Nutrition*, February 2014, **5, 2**, 140-168. All *WN* contributions are obtainable at www.wphna.org/worldnutrition/

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THE FOOD SYSTEM

The big issue for nutrition





This position paper continues the series of *The Food System* commentaries, papers and other contributions begun in *World Nutrition* and elsewhere, as referenced above. The overall theme of *The Food System* is the global industrial food system, its significance, and its impact on dietary patterns, health and well-being, food culture, public policies, society, economies, the environment, and the biosphere, in the past, now, and in future. Further papers and other contributions will examine various aspects of the food system as the big issue for nutrition.

Contributions published in *WN* so far have mostly been concerned with food processing, and what happens to food and to us as a result of different types of processing. We have focused on ultra-processed products, as we do here. We identify these as the main dietary cause and explanation of what is now uncontrolled pandemic obesity and related chronic non-communicable diseases.



NOVA

Our thesis derives from NOVA, a wholly new food classification. NOVA distinguishes foods from food products, and also food products from ultra-processed products. It identifies industrial processing as the crucial determinant of food and diet quality, the risk of disease, and prospects of good health and well-being. In NOVA:

Group 1 is of fresh and minimally processed foods.
Group 2 is of processed culinary ingredients.
These are combined and made into meals, as symbolised above by the full cooking pot.
Group 3 is of ready-to-consume products.
Most of these are ultra-processed, as symbolised above by the cheese-bacon-burger.