Coca-Cola & its effects on us & the city

September 2015
❖ Coca-Cola is a hugely profitable global company. Their brand name, one of the most valuable in the world, comes from two ingredients in their original formulation — ‘coca’ from cocaine and ‘cola’ representing caffeine from the kola nut.

❖ In this short paper, we list the ingredients of Coca-Cola products, all of which have adverse effects on consumers’ health and wellbeing, with significant economic and social cost to local communities.

❖ Birmingham City Council entered a controversial contract with Coca-Cola giving the company rights (exclusive rights?) over six years from 2014 to advertise their products in our parks and open spaces in association with healthy physical activities.

❖ It could be considered wise for Birmingham City Council to reconsider their decision to have commercial relationships with Coca-Cola in the light of both the adverse effects their products have on us and on the city and other concerns associated with this specific contract.
Coca-Cola and Birmingham City Council

In 2014, Coca-Cola gave £20M from their $4bn/year marketing budget to three local authorities, Birmingham, Newham and Newcastle to run various activity programmes, called ParkLives over the summer holidays for six years in exchange for the company promoting their products on council property in association with these activities. \(^1\)

In this press release, Coca-Cola quotes effusive support from senior officials from all three local authorities, including Birmingham’s Deputy Leader Councillor Ian Ward.

It’s important that Birmingham City Council, their officers and the public understand the aspects of this contract in relation to the effects of Coca-Cola products on us and the city.

Coca-Cola’s mission and brand

Coca-Cola is one of the largest and most profitable public companies in the world, listed at #93 in the Forbes 2015 List and the second largest beverage manufacturer in the same list. It was listed as one of the top ten food and drinks companies in the world in the 2013 Oxfam Briefing Paper Behind the brands.

The avowed mission of Robert Woodruff, Coca-Cola President from 1923-54 and an influential director until his death in 1985, was to place one of their products ‘Within arm’s reach of desire’ of each person on the planet. \(^2\)

Their brand name, one of the most valuable in the world, comes from two ingredients from their original formulation — coca from cocaine, and ‘cola’ being caffeine from the kola-nut. \(^3\)

Coca-Cola products

In terms of nutritional value, Cola-Cola products have none, other than the calorie content in sugars in some of the products (see table left).

All Coca-Cola ingredients are associated with adverse health conditions and four of them (caffeine, coca-leaf extract, high fructose corn syrup and/or sugar) are psychoactive substances that create physical dependency if not addiction.

The ingredients are: carbonated water, extract of coca leaf (de-cocaine-ised), caffeine, phosphoric acid, caramel colouring (£150d), high-fructose corn syrup and sugar in non-diet versions; diet products have aspartame, acesulfame K or stevia, all artificial sweeteners. There is a de-caffeinated version. \(^4\)

All products are packaged in glass, plastic or cans, thrown away by consumers and either left as litter or collected by municipal authorities.
All Coca-Cola drinks are mostly water by volume, the heaviest as well as the bulkiest part of their products. Coca-Cola licenses other organisations across the world to dilute their formulated syrups, and to package the products.  

In 2012, the global water consumption in Coca-Cola products exceeded that of Sweden, Denmark and Norway combined, enough to meet the annual cooking, cleaning and drinking water needs of over 2 billion people, over a quarter of the world’s population.

It should be remembered that water in many parts of the world is scarce, and/or isn’t potable; indeed the cholera epidemic in 1850s London was caused by water contaminated by human sewage which led to fundamental changes in our water and waste systems. It’s likely even here in the UK there is latent prejudice against drinking tap water even though a year’s now safe supply is only ~£1/person.

All cokes and most Coca-Cola products are carbonated — or ‘fizzy’ to use the British term.

Despite fluoridisation of Birmingham’s water supplies, there has been a recent and dramatic increase in children’s tooth erosion. As well as sugar, fizzy water causes dental decay and contributes to other health problems too.

There is a long association between Coca-Cola and the production of cocaine. The company stopped putting cocaine into their products some hundred years ago; it now contains ‘extract’ from the coca-leaf, referred to inside the company as ‘Merchandise #5’ and listed on their product labels as ‘vegetable extract’.

Coca-Cola dominates the licensed (i.e. legitimate) purchase of the raw coca-leaf, and might even be the sole licensed global buyer outside the Andes. The US Food & Drug Administration has only issued one licence to import the raw coca-leaf into the US, and that is to the Stepan Chemical Company who process the coca-leaf for Coca-Cola.

The by-product of the ‘de-cocainisation’ of the raw leaf is, of course, cocaine.

In 1985 the company, seeking to dissociate itself from cocaine, launched ‘New Coke’ which didn’t contain any cocaine derivatives. It was a sales disaster despite huge marketing roll-out, and the company swiftly returned to the coca-laced formulation, then advertised as Coca-Cola Classic.

Caffeine is the world’s most widely consumed psychoactive drug. It is legal and unregulated in most parts of the world, including the UK. It creates physical dependency.

The supply of caffeine from the West African kola nut is in short supply. Nearly all of the caffeine in Coca-Cola products now is processed from waste tea leaves and coffee beans, as well as other chemical processing.

Phosphoric acid (E388) is added to Coca-Cola to give a tangy, tart taste counteracting the cloying sweetness of sugars or artificial sweeteners. It also has mild anti-microbial properties. There is some evidence that its consumption, more than two colas per day, can cause kidney disease.

It is a by-product of several industrial processes, including the production of detergents.
High fructose corn syrup (HFCS) & sugar

A standard 330ml can of coke contains no nutrients other than 139kcal-worth of calories; a McDonalds ‘standard’ coke, however, is 950ml and contains 400kcal, a fifth of our daily energy requirement. 15

There isn’t any high fructose corn syrup (HFCS) in UK Coca-Cola. This looks likely to change in the next couple of years. The EU’s current HFCS output quota is 700,000 tonnes, a quota being lifted in September 2017 when all production quotas will be removed. 16 As the HFCS price is much more stable than cane or beet sugar, partly owing to US government subsidies for corn production, its use in soft drinks is likely to increase after the lifting of production quotas in two years’ time.

The dietary impact of sugar and HFCS is now a matter of concern at a global level, as indicated by this recently published paper by the Global Burden of Diseases Nutrition and Chronic Disease Expert Group. There is some evidence that the calories from high fructose corn syrup, itself much sweeter than sugar from beet or cane, is more likely to result in obesity than the consumption of sucrose because we metabolise it differently. 17

Sugar consumption is inevitably of increasing concern to medics and cardiovascular clinicians here in the UK. This concern resulted in the Government and the Food Standards Agency in 2008 asking the Scientific Advisory Committee on Nutrition to clarify the relationship between carbohydrates and health. On 17th July 2015, they published their findings.

Public Health England immediately followed their recommendations with these headlines about sugars:

1. Adults and children should get no more than 5%, down from the previous 10% of their energy intake from ‘free’ sugars — this is equivalent to 5-7 teaspoons of sugar.
2. Sugar-sweetened beverages should be drunk as infrequently as possible by both adults and children.

Another way of looking at PHE recommendations is this: The guideline daily amounts (GDA) or ‘reference intake’ for calories is 2000kcal. As 100g of sugar provides ~400kcal of energy and the recommended intake from sugars is 5%, then we shouldn’t consume more than 25g of free sugars per day providing us with 100kcal of energy.

A single small can of Coca-Cola provides 139kcal, 7% of our daily energy requirement, and all from sugar. 18

There is also some indication that sugar consumption is addictive. Without doubt it creates physical dependancy; i.e. the more you consume, the more you crave it, a familiar sensation to us all. 19

Artificial sweeteners: Aspartame, acesulfame K and steviol glycosides (stevia)

Aspartate, acesulfame K and steviol glycosides are widely-used artificial sweeteners. There is evidence that consumption of artificial sweeteners is associated with more weight gain than even consumption of free sugars. There are various scientific hypotheses about why. 20

Concerns regarding their carcinogenic effects have been raised, too, though the regulatory bodies in the US and Europe, and the NHS discredit. 21

Sulfite ammonia caramel (E150d) is a widely used safe food colourant at certain levels, which are not always kept to by Coca-Cola. 22

Glass, plastic or cans

Coca-Cola sells more than four billion drinks in Great Britain every year. The glass, plastic and cans of these 4bn products are collected before being recycled or put in landfill by local authorities. Pro rata, Birmingham City Council is responsible for the collection and disposal of 58.2M empty Coca-Cola bottles, plastic containers and cans, and associated costs.
Birmingham City Council and Coca-Cola

All UK Coca-Cola bottling plants and distribution centres are owned by Coca-Cola Enterprises UK, which has its HQ in Uxbridge. None of their plants or distribution centres is in Birmingham.

Hence, unlike any relationship the City Council may have with Mondelez, there are no conflicts of interest between the City Council and Coca-Cola regarding employment.

Coca-Cola’s marketing in Birmingham, including the ParkLives programme is part of its global marketing strategy, worth $4bn in 2014.

Coca-Cola’s sponsorship of the the 2012 London Olympics set a precedent. This ParkLives programme, too, has been endorsed by a “sports scientist” Professor Greg Whyte who apparently chairs their ‘Evaluation Committee’ and from Seb Coe as “the Prime Minister’s Olympic and Paralympic Legacy Ambassador”.

These deals come from Coca-Cola’s marketing budget and are part of a company strategy to deflect attention away from the unhealthy ingredients in their products by concentrating on weight control issues being a matter of physical exercise, not one of diet.

Last year they gave $1.5M to set up a “Global Energy Balance Network” registered at their Atlanta HQ to promulgate this message, and pay various academics to give credence to its work.

Since 2008, they have also given some $4M to two of founding academic members of the organisation, a physical education graduate Steven Blair now at the University of South Carolina and Gregory Hand, another PE graduate now Professor of Epidemiology at the University of West Virginia.

New York Times journalist Anahad O’Connor quotes the much respected Professor Marion Nestle: The Global Energy Balance Network is nothing but a front for Coca-Cola. Coca-Cola’s agenda here is very clear: get these researchers to confuse the science and deflect attention from dietary intake.

With Coca-Cola ParkLives, Coca-Cola GB is effectively buying advertising space from the City Council so that its brand and its messages on our city parks complements its advertising not only elsewhere in the city, but globally too.

It should be noted that Birmingham City Council has other commercial contracts with Coca-Cola where they are the buyer of vending machine supplies.

Birmingham, along with Newham and Nottingham were the first councils to accept Coca-Cola ParkLives money. They have been joined by three other cities since — Glasgow, Manchester and Newcastle. As with the company’s sponsorship of the 2012 London Olympics, acceptance of the monies means normalising the message Coca-Cola want to send out — that their edible products are associated with healthy life-styles.

Yet this is evidently not the case. Indeed, consuming Coca-Cola products is unhealthy, a situation exacerbated by their psychoactive ingredients.

Coca-Cola ParkLives is a marketing exercise to Birmingham citizens. As their logo is used across 74 of our parks and presumably more in the next four years, this begs the following questions of the City Council:

➡ What professional advice did the City Council take regarding advertising rates? And specifically, what advice was given concerning the parity or otherwise of the rates between the three local authorities?
➡ Did the City Council take the Birmingham Health and Wellbeing Strategy into account when taking the decision to enter this contract?
➡ If so, what was the response of the Health and Wellbeing Board, including the Director of Public Health? If not, why not?

Coca-Cola products pose a threat to the health and wellbeing of Birmingham citizens. Therefore:

➡ Are Birmingham City Council’s statutory duties under the Health and Social Care Act of 2012 to improve the health of its residents in conflict with them using their parks (and associated publicity) to advertise products that have such a detrimental impact on the health of their citizens?
➡ And if so, what are the implications for Glasgow, Manchester, Newham, Newcastle and Nottingham Councils?
➡ If so, too, do these statutory duties extend to other Birmingham City Council properties used as advertising or selling space for such products?
Coca-Cola of course aren’t the only company manufacturing high calorie foodstuffs with little or zero nutritional value. This company and the many other global corporations that do carry great influence on political leaders and, as worryingly, also on some allegedly independent academic research.

Matters are muddied still further by the charitable donations by these companies, of particular concern when their ‘philanthropy’ is conditional on their brand and logo being used in association with healthy eating and healthy lifestyles.

A rule-of-thumb check for decision makers: Although most food stuffs are VAT zero-rated, some are not. Those that aren’t include beverages (so include Coca-Cola), confectionery, savoury snack products and ice-cream.

In the interests of Birmingham citizens, the reputation of the city and for avoidance of any potential legal or other challenges it would be advisable for Birmingham City Council to reconsider existing and avoid future commercial relationships with food and drinks companies whose products carry standard rate VAT.

End notes

1 Our understanding is (a) the decision to enter this contract with Coca-Cola was taken at Cabinet level, (b) the project is being managed by Birmingham City Council Wellbeing Service and (c) that this £20M has been divvied up equally between the three councils (although Newham population is only ~308K and Newcastle’s 280K). If this is correct, then Birmingham is receiving £1.1M/year for six years, although our search to date of City Council committee minutes hasn’t revealed any reference to it at all.

2 If you hit the FT paywall with this link, google ‘FT+coca+cola +review+book’ for a fascinating (and brief!) review of two books, one by Bartow Elmore Citizen Coke: The Making of Coca-cola Capitalism, the other Design to grow: How Coca-Cola learned to combine scale and agility (and how you can too) by David Butler & Linda Tischler.

3 The 2013 Bloomberg list of the Top 100 Global Brands had Coca-Cola slip from the top spot to #3 behind Apple and Google.

4 As Elmore recounts, Coca-Cola has faced — and usually faced down — multiple law suits about their ingredients, both regard to consumer health and their use of the word ‘natural’ especially about the caffeine in their products.

5 Water is both bulky and heavy to transport. Coca-Cola therefore exports their formulations to bottling and canning plants across the world for dilution. Water supplies in arid countries are inevitably a business concern for Coca-Cola; they actively seek exclusive rights to water supplies in such areas.

6 See endnote #1 (pp316-317) in Bartow Elmore’s Citizen Coke.

7 It’s likely that Coca-Cola’s marketing is in part successful as it plays on fear of contaminated water, still prevalent in many parts of the world and within our folk memory.

8 See the advice of the British Dental Health Association. The journalist Angela Epstein writes on this matter from time to time; e.g. this recent article by her in the Daily Mail give a lay account of some of the research. s.a. this Birmingham Mail article in July 2014.

9 The Stepan Chemical Company, formerly the Maywood Chemical Works, who process the raw cocoa-leaf for Coca-Cola, refer to it as ‘speciality chemicals’. It then sells the cocaine on to Mallinckrodt Inc who process it at their Dublin plant for pharmaceutical use.

10 This may be a matter of taste, literally so. And/or does it beg the question as to whether the extract from the coca leaf, i.e. Merchandise #5 contains properties that create physical dependency?

11 There’s a somewhat fine but important distinction between addiction and physical dependency, as explained by the US-based National Institute on Drug Abuse here. In summary, addiction results in compulsive drug use despite harmful consequences, whereas with physical dependency the body adapts to the drug requiring more of it to achieve a certain effect (tolerance) and eliciting drug-specific physical or mental symptoms if drug use is abruptly ceased (withdrawal). Physical dependence in and of itself doesn’t constitute addiction, but often accompanies it.

This explains why most of us do not offer tea or coffee to children, recognising that they are ‘adult’ drinks. Yet many adults, including parents give Coca-Cola and other caffeine-laced food products such as chocolate in quantity to their children, perhaps because they do not understand the reasons for the social taboo on tea and coffee for kids; i.e. they contain a drug with known psychoactive properties.
See also this wikipedia entry about caffeine, also these two papers: Health effects of energy drinks on children, adolescents and young adults by by Seifert et al (2011) and Nawrot et al (2003) Effects of caffeine on human health.

12 Ironically Coca-Cola has financially benefitted greatly from the growing market for decaffeinated products, including their own. Caffeine is a cheap by-product of the chemical process of decaffeinating tea leaves and coffee beans.


14 As I learned in the 1980s when I worked for the Birmingham company Albright & Wilson who produced washing powders. Phosphoric acid was a by-product sold on to Coca-Cola and other drinks companies.

15 See this presentation made by Linda Hindle at the Birmingham Sustainability Forum when she was the city's Consultant Dietician. Now with Public Health England, she is on our Panel of Experts.

16 See EU HFCS production to increase threefold when sugar quotas end in 2017 in Food News. This kind of business action is in conflict with the growing number of restrictions Governments are attempting to impose on producers of high-sugar products; see, for example, the US Food and Drug Administration’s recent proposal on sugar labelling here, and an account of the industry fight-back in Fortune magazine here.

17 It’s been known for some time that the fructose in HFCS per calorie has a bigger impact on weight gain than the same calorific quantity of sugar. It’s likely this is because we metabolise it differently — it isn’t digested in the gut, but goes straight to the liver (‘complete hepatic extraction of fructose’ is the phrase often used); see for example Mayes (1993), Tappy et al (2013) or this account of experiments in labs at Princeton University in 2010.

18 It is quite a challenge to keep to the 5% limit even without consuming sugary drinks, as this 2014 Guardian article by a mother seeking to cut back on her own and her family’s sugar consumption: Life without sugar: One family’s 30-day challenge.

19 See this New York Times article: Sugar season it's everywhere. And addictive by cardiovascular research scientist James Dinicolantonio & family physician and public health researcher Sean Lucan.

20 See, for example: Yang (2010) Gaining weight by 'going diet'? Artificial sweeteners and the neurobiology of sugar cravings and this Nature paper Artificial sweeteners induce glucose intolerance by altering the gut microbiota by Suez et al (2014). For a layperson’s digest of some of this research, see this blogpost Could artificial sweeteners raise your blood sugar? from WebMD.