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Re-emphasizing food as basic medicine of public health to reclaim hunger in health discourse

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ABSTRACT

Food is crucial to ensuring human well being. However, prevalence of widespread hunger and malnutrition in the world, especially in times when mankind has the capability to feed all the people in the world to enable them to have healthy and productive lives, obliges us to reiterate the public health importance of adequate food for ensuring human well-being.

Health is perhaps the best marker of human well-being, and improved health inter-alia is reflected in longevity of human life – put simply, the ability of man to live. Talking of human health, the spectacular technological achievements of modern medical science tend to dwarf every other determinant of health in popular perception. This has tended to undermine the primary importance of food strategies in ensuring human well being. Beginning with McKewon's thesis on the modern rise of population in England and Whales, we rely on other evidence available in literature to establish the primacy of food, over and above medical technologies, in ensuring health and thereby well being of human race.

In order to further highlight the importance of 'hunger' in public debate, the paper examines the shift from 'Hunger' to more scientified terminology of 'Nutrition' as a strategy by the vested interests to invisibalise the larger question of 'Hunger.' Conclusions are accordingly drawn at the end.

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INTRODUCTION

Highlighting the importance of food, Joan Gussow famously remarked – "if there is not enough food, it doesn't matter if there is enough of everything else — including oil and money".[1] Indeed, so much taken for granted is the availability of food in the lives of the 'haves' that they seem to have made peace with the fact that nearly 1.2 billion people i.e. nearly a fifth of humanity suffered from abject poverty at the dawn of the 21st century and around 800 million of these in the developing world suffered from chronic hunger.[2] Around 842 million people i.e. one in eight of the humankind do not get enough food to remain healthy and lead an active life.[3] Even in the richest country on the globe, United States, according to government statistics, one in seven households i.e. 17.5 million households were food insecure in 2012.[4] This gives enough of a reason to refresh and reemphasize the central importance of food in human well-being. 'Human health' is perhaps the best marker of human well-being. To come at a reasoned understanding of the centrality of food to human well-being, we shall explore the relationship between 'human health' and the factors impacting on it.

Talking of the factors impacting on human health, indeed so spectacular have been some of the achievements of the modern medical science that in popular imagination availability and access to modern healthcare and health technologies has come to be considered as a precondition for ensuring the health of the society. It is not our intention here to contest the immense contribution of modern medical technologies in preventing and curing many a disease and thereby reducing human suffering and improving the quality of human life. However, to the extent this popular perception regarding 'modern medicine' tends to distort our understanding of human health and well-being, it mandates a closer scrutiny of things as they are.

In the long history of human health, the advent of modern medicine comes at a much later stage; say with the mid to late 18th century; and the more spectacular period of western medicine can be loosely categorized to have started even later, say with the rise of the germ theory of disease in 1870. An understanding of the factors contributing to human health and the relative role of modern medicine in the same requires an examination of the entire history of human health. This mandates the question - what is the running thread through the history of human health that facilitates study of human health in different phases of human civilization notwithstanding the immense changes through these phases?

It would be prudent to begin with the way WHO (World Health Organization) defines health. WHO states – "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".[5]This definition makes it eminently clear that health is a multi-dimensional and a far more complex phenomenon. Health services, inclusive of the medical technologies, are only a part of the overall conditions that determine human health. The one outcome variable that encapsulates the extent of completeness of physical, mental and social wellbeing of people i.e. their health is the longevity of their lives, which in public health terminology is known as 'life expectancy.'

Sheila Zurbrigg, a health historian, has used this understanding of health in "the most elemental sense of physical survival"[6] as a tool to study the history of health. Taken as such, the history of human health can then be taken as the study of secular trends in human life expectancy.[6]

It is equally true that through much of human history; it is the infectious diseases that have posed a major deterrent to health and longevity of human life. History of human health thus becomes co-terminus with the dynamics of what is called as the "epidemic equation" in epidemiology of disease, which has on one side the human exposure to infectious disease, and on the other side the ability of the human body to resist infectious disease agent.[6]

The question then is - what other factors have helped tilt the epidemiological equation in favor of the human race, thereby enhancing its life expectancy and what is the relative contribution of modern medicine in this?

Thankfully, existence of a rich body of literature on this issue makes answering this question much easier.

Figure 1 below shows the growth of human population through history.

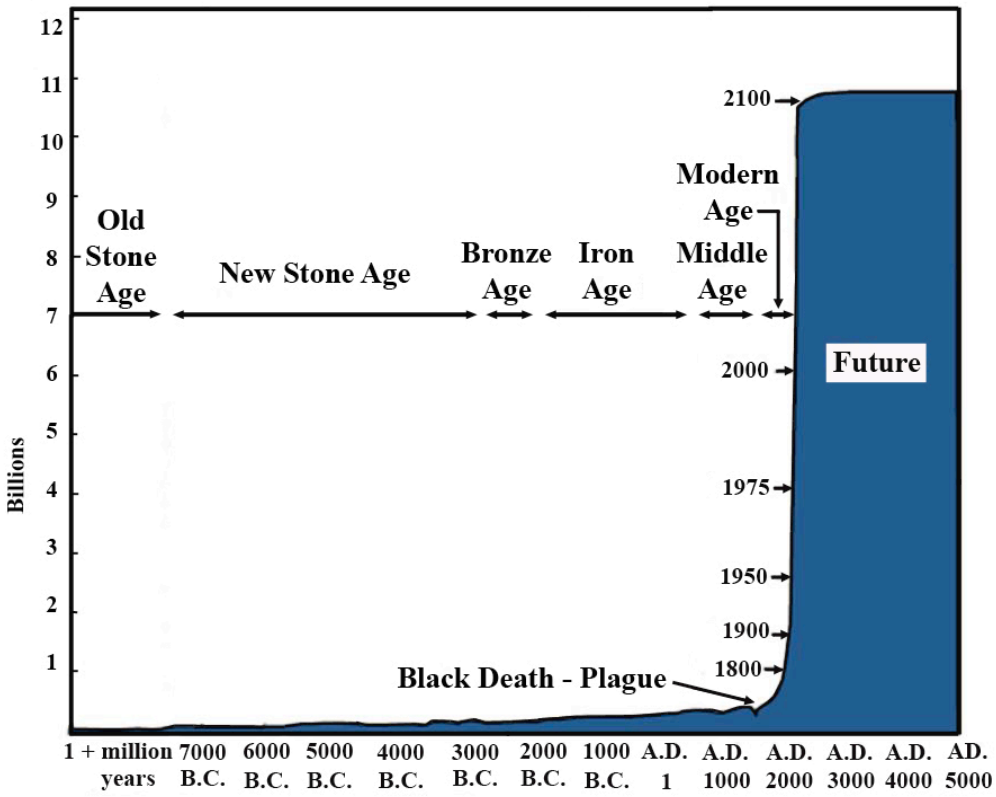

Figure 1: Growth of human population through different phases of human history.

Source: Population Reference Bureau; and United Nations, World Population Projections to 2100 (1998), quoted in 'Falkingham Jane. The World at 7 Billion: Demographic transition, economic development and the demographic dividend, School of Social Sciences, University of Southampton, Undated [7]

More than three fourth of the rise in human population has occurred in less than last two hundred years i.e. after 1800 AD; a period we may refer to as the period of modern rise of human population. This means that for much of the human history the means of subsistence seem to have been grossly inadequate to support a larger human population. Through much of human civilization's history, total human population hovered around not more than a few tens of millions, crossing the 100 million mark somewhere around 1000 BC. In fact through much of human civilization the average life expectancy varied between mere 20 to 25 years.[8] So the question is what spurred the modern rise of human population, or shall we say the rise in human life expectancy, and thereby human well-being?

Thomas McKeown, a British professor of Social medicine and a medical historian had studied the modern rise of population in England and Wales and some other European countries. It can be seen from Figure 2 that the life expectancy in England and Wales rose sharply since the latter half of 19th century.

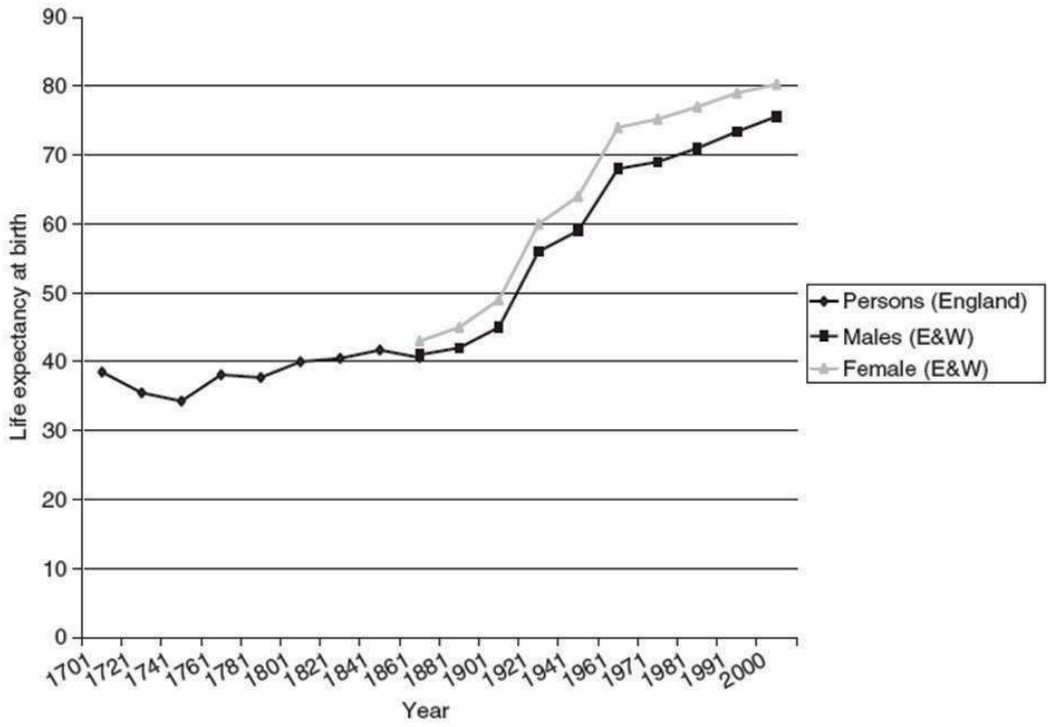

Figure 2: Life Expectancy at Birth in England and Wales, 1701 – 2000.

Source: Emily Grundy, 2005.[9]

McKewon argued that the greatly accelerated rise in the population of these countries observed since the latter half of the 19th century, was the result of a huge decline in mortality due to improved human resistance to infectious diseases consequent to improvements in socio-economic conditions; availability of food in the main, rather than due to interventions of modern medicine.[10] McKeown's formulation later came to be known as the 'McKeown Thesis.'

Mckeown's methodology was simple – he plotted the decline in mortality due to specific infectious diseases, that were major killers at that time, and on the graph of declining mortality, he marked the year when the technological interventions of modern medicine against the particular disease became available for the first time. Figures 3, 4 and 5 show the declining mortality due to respiratory tuberculosis, whooping cough and measles in England and Whales and the specific time when modern medical interventions against these diseases became available. It was observed that the secular trend in the decline of mortality due to the major diseases of the time (tuberculosis, measles, whooping cough, bronchitis and others) occurred much before any of the medical interventions – antibiotics, immunization, vitamin supplements, intravenous rehydration etc., came into existence.

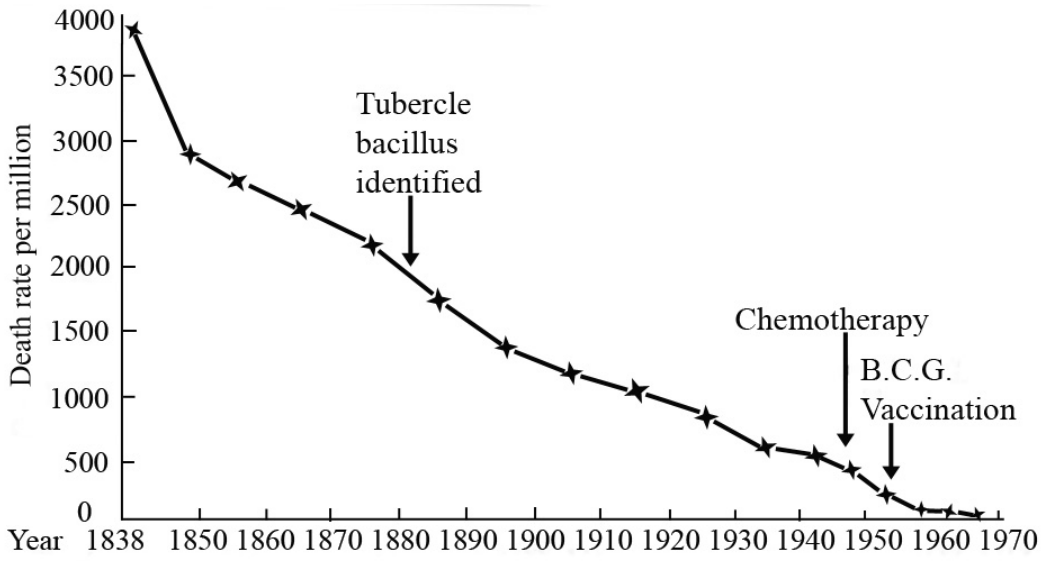

Figure 3: Secular decline in death rates due to respiratory tuberculosis in England and Wales

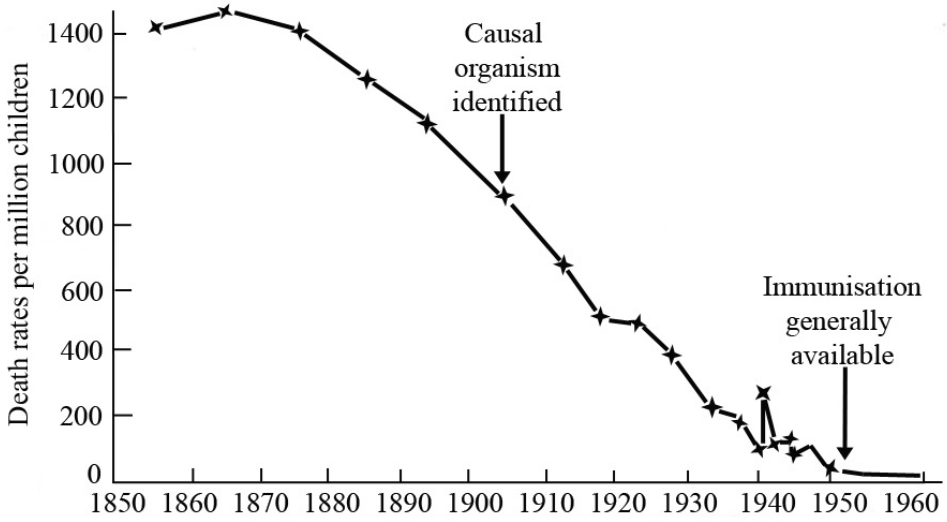

Figure 4: Secular decline in death rates due to whooping cough in England and Wales

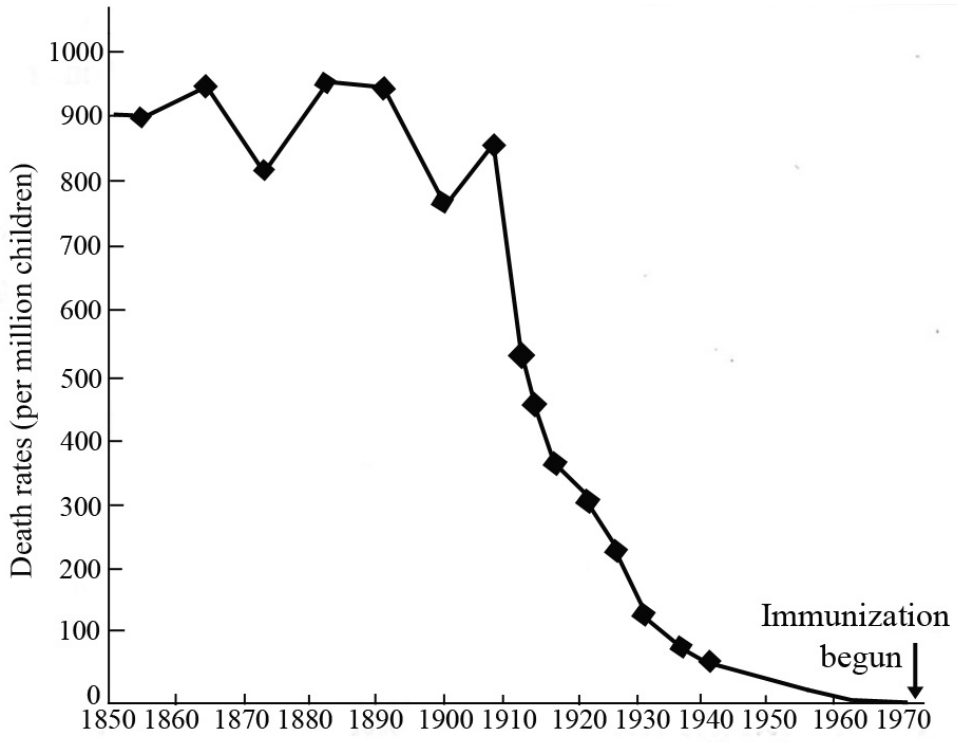

Figure 5: Secular decline in death rates due to measles in England and Wales

Having demonstrated this, McKewon excluded other possible causes of decline in death rates e.g. decline in virulence of pathogenic microorganisms, or increase in specific immunity against these diseases in the population. In light of improving socioeconomic conditions of the time, advancements in agricultural production and thereby availability of food under the impact of enclosure movement and associated technological innovations in agriculture, McKewon concluded that improvements in human resistance to these diseases due to improved nutrition was the major reason for the steady decline in deaths due to them[1].[10] The many public health measures, such as availability of safe drinking water, that had been undertaken in Great Britain since the beginning of Chadwickian sanitary reforms in 1848, had also contributed to the mortality decline due to infectious diseases; however, these measures could account for at best one third to one fourth of decline in deaths[2]. [10]

[1] McKewon however pointed out two notable exceptions to this general conclusion i.e. smallpox and scarlet fever. In case of smallpox, inoculation and later immunization against the disease from the beginning of the 19th century seems to have played an important role, while with respect to scarlet fever decline in the virulence of the bacterium seems to have had a major role in the decline of lethality of the disease. However, even for these two diseases, improved human resistance due to better nutrition remained an important reason.

[2] There have however been several contestations to McKewon's thesis. One of the prominent arguments against McKewon' thesis is that he provided no direct evidence of 'improved nutrition' being the cause of rise in life expectancy at birth and thereby the population, while there is clear evidence of improvements in public health, sanitation and improved housing that positively impacted on population health.[11,12]

Even more challenging was the monumental publication – 'The population history of England, 1541-1871' brought out in 1981 by Wrigley and Schofield, wherein they claimed "an absence of any pattern linking economic conditions and mortality in England"[13] based on a weak statistical relationship between mortality and real wage trends. This conclusion threatened to severely undermine McKewon's hypothesis.

Further credence to McKewon's thesis is lent by evidence that points to better availability of food being a predominant factor in decline of mortality in other countries of the world that underwent similar development trajectory as that of England and Whales. Vallin showed that similar patterns of mortality decline were also observed in virtually all the European countries.[14]

Likewise, in case of U.S., referring to the period between 1900 and 1970, McKinley and McKinley showed that much of the decline in mortality due to infectious diseases had occurred much in advance to the introduction of specific technological interventions of modern medicine. They estimated that no more than 3 percent of the mortality decline in the US in 20th century could be attributed to preventive or curative interventions of modern medicine (McKinley and McKinley, 1977).[15] Subsequent research has provided direct evidence of the overriding importance of food as the most important influence in increasing life expectancy.

In the United States, after an increase in the life expectancy up to 50 to 55 years in the second half of the eighteenth century, it declined to about 45 years during 1830 to 1860. This has been attributed primarily to increased urbanization, immigration and most importantly to considerable rise in income inequality.[16, 17] However, the period beginning from 1870 marks a period of sustained rise in life expectancy in the U.S. along with rising wages and establishment of wider public health measures in urban areas. An important distinction to this made by Higgs who noted that there was a decline in mortality rates even in the rural areas despite the fact that "the 1890 – 1920 public health movement……almost completely bypassed the countryside."[18,19] Additionally, there was a poor correlation between the timing of establishment of public health services and the decline in mortality observed in the late nineteenth century in the major U.S. cities.[18,19]

Studies in the field of historical anthropometry have provided a more direct evidence of the impact of changes in access to food on mortality. Stature, and conversely nutritional stunting, provides a direct measure of access to food, especially chronic under-nourishment. Studies in historical anthropometry have provided secular trends of stature in European and American populations, which have proved important for assessing the role of increased access to food in the decline of mortality. Data shows a secular trend of increasing stature in different countries of Europe[20]and the United States[21] respectively. Statistical analysis has shown that overall, secular rise in statures explains nearly two-thirds of the decline in mortality in Western Europe since late eighteenth century.[22]

These findings are further confirmed by the fact that increase in stature and the declining trend in mortality across the nineteenth century Europe occurred in conditions when in all likelihood people were exposed to much higher levels of infections due to rapid and unplanned development of cities with huge slums with unhygienic conditions and high levels of population mobility during the early years of industrialization.[23,24]The observed increase in statures and declining mortality is indeed remarkable as it occurred in conditions in which we would have expected mortality to soar.

Pointing to a much more deep rooted relationship between food and health outcomes, studies have now established anthropometric indicators (height at given ages, weight at given ages, and weight-for height) as predictors of morbidity and mortality among children below the age of 5 years.[25-29] Other studies showed that height at maturity was a predictor of mortality risk or the risk of developing chronic disease in middle or older age;[30-33]and even BMI has been shown to have well defined predictive properties.[29,31,34-37]

EVIDENCE FROM INDIA

There is evidence from pre-independence India to show the huge impact that state policies affecting food intake can make on the wellbeing of the people.

Work done by Sheila Zurbrigg on epidemic malaria mortality in Punjab between 1868 and 1940 helps strengthen the McKewonite understanding of the relationship between food intake and health in India's context.[38] During the span between 1868 and 1940, it was observed that the most dramatic decline in

epidemic malaria mortality began around 1908. This was statistically shown to have been on account of the decline in intensity of famine and epidemic hunger that accompanied drought and / or floods due to changes in famine relief policy; all other factors related to malaria mortality (epidemiological, entomological, preventive and curative) remaining the same.

A concern for people's health was the least motivation of the British colonizers in introducing these reforms, since they did little to initiate any measures directed at improving the overall preventive or curative facilities; indeed the incidence and prevalence of diseases in general saw little change. Moreover, the per capita food availability in India undoubtedly declined in the colonial era. Irrespective of the compulsions of the British colonial government, these reforms did help in tilting the balance in favor of the people by preventing excess mortality due to starvation in an otherwise distressing situation.

More importantly, this highlights the crucial role of State intervention in the wellbeing of the people. It is most regrettable that the health policy paradigm pursued in the country since independence has pretended ignorance of this crucial relationship between food and disease. None of the disease control programs in the country leverage the role of adequate food intake in control of diseases. Falling back on technological interventions has been the easier way out for the health administrators and the results continue to be less than satisfactory with an exception or two.

By way of an example – while there remains much consternation among health administrators in India to improve coverage of measles vaccination (among other vaccine preventable diseases), there is much wisdom in pondering over the threat that measles is to a well fed child! Even though measles mortality in India has declined, but she still accounts for 47 percent of measles deaths in the world.[39]

HUNGER AND ITS SOCIO-ECONOMIC ROOTS

Ensuring adequate supply of food is said to have been one of the most important reasons why human society came into being in first place.[1,37] In fact as the society grew more complex, there was a greater need for an effective social order to manage more and more complex food systems. It is indeed tragic that at a time when the human race is equipped, as never before, to feed all its members, we seem to be becoming oblivious of this most fundamental role of human society.

Rene Laennec has said – "Do not fear to repeat what has already been said. Men need (the truth) dinned into their ears many times and from all sides".[41] Hence, even if only to reiterate the obvious, there is great merit in demonstrating the socioeconomic roots of the problem of hunger.

Figure 6 clearly shows that hunger is largely concentrated in the global south i.e. primarily in the developing countries of Asia and Africa, and to a lesser extent in Latin America. Hunger is largely concentrated in the developing countries, while the developed countries have largely[3] overcome this. There is a history to this reality. The colonial domination of global south by the global north in the past and the continuing neo-colonial dispensation of global governance where in the developed countries dominate over the developing countries of Asia, Africa and Latin America politically and economically in order to maintain their stranglehold over the resources of these countries is responsible for the picture as seen in figure 6. It need also be highlighted

[3] We say *'largely'* overcome, rather than fully overcome, because inspite of the fact that most of the developed countries have either attained self-sufficiency in food or have enough resources to comfortably provide for the dietary needs of their people, there still remains a sizable section of people in these countries who are food insecure. For example according to the U.S. department of agriculture in 2012 about 14.5 percent of the households in the U.S. were food insecure, of which 5.7 percent were households with very low food security.[43] By race or ethnicity the maximum food insecure households were Black non-Hispanics, Hispanics, White non-Hispanics and others, in that order. [43] This is despite the fact that United States is among the foremost nations to export enough agricultural produce to exert 'Food Power' over many vulnerable nations of the world.[44] These facts go to further reinforce the socioeconomic roots of hunger.

that the ruling classes of many third world countries have been a willing partner in this state of affairs. India is no exception to this either.

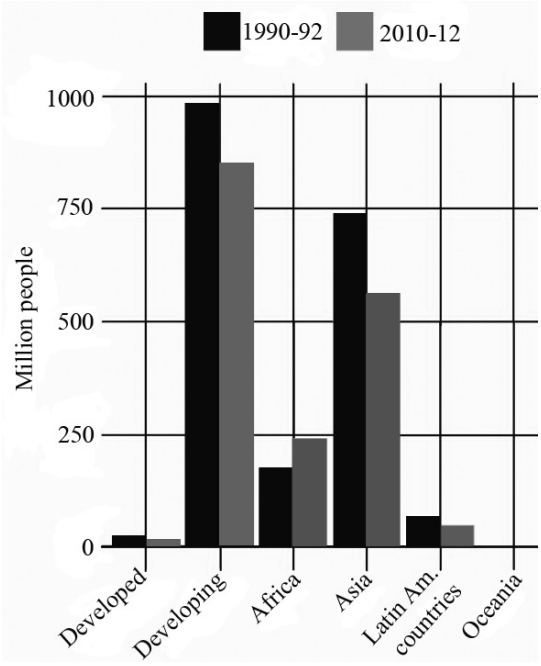

Figure 6: Number of People under-nourished 1990 – 92 ad 2010 – 12

Source: FAO, 2013.[42]

Even though the British, who ruled over India for nearly 200 years, claimed that they had rescued India from timeless hunger, their claims rung hollow in face of the results of an 1878 study that were published in the Journal of the Statistical Society. The study documented that till that time, while there had been as many as 31 famines during the 120 years of colonial rule of the British in India; there were only 17 recorded famines in the previous two millennia of Indian history.[45] Geographer Michael Watts has observed – "Famines are social crisis that represent the failures of particular economic and political system."[46]

The sweeping downhill change that India underwent under colonialism can be gauged by the fact that while in 1750 India produced nearly 25 percent of world's industrial output, by the year 1900 this was reduced to barely 2 percent.[47] What this meant in terms of the wellbeing of the people is demonstrated to an extent by Parthasarthy in his work.[48] As against the popular imagination of an Indian laborer being a semi-starved, loincloth clad wretch, Parthasarthy notes - "Indeed, there is compelling evidence that South Indian laborers had higher earnings than their British counterparts in the 18th century and lived lives of greater financial security."[48] Parthasarthy gives further evidence to suggest that due to better productivity of land in South India the diets consumed by weavers and other artisans were better than those of average Europeans. On account of enjoying superior rights of contract and greater economic power the rates of unemployment among the weavers and artisans were lower as compared to those in Europe. Vis-à-vis English farm laborers, even the outcaste farm laborers in Madras had higher real earnings. By 1900 however, the picture was totally reversed; income of the average British household was about 21 times higher.[48] Such changes could not

have been without adverse consequences to the food security of the people.

Indian smallholder agricultural and industrial producer was forcefully sucked in to commodity production and markets that were controlled from overseas to serve the interests of the colonial powers. Cash crops were enforced on farmers, besides a system of high and fixed rent collected through landlords who doubled as usurers in conditions that led to high indebtedness of the peasantry; and of course there was increasing alienation of the peasantry from land.[49] The terms of global trade were totally loaded against the Indian producers.[50] As a matter of fact, India's Viceroy from 1898-1905, Lord Curzon himself complained in the House of Lords – "tariffs "were decided in London, not in India; in England's interests, not in India's."[51]

What is dismaying however are the policies pursued by the Indian ruling classes since 1947, which have undermined the food security of India's working masses, especially since the beginning of the accelerated phase of the neoliberal economic reforms in 1990. The dichotomy between 'Shining India' and the 'Struggling India' is well known, even then, since the beginning of the economic reforms, the gap between the 'Shining' and the 'Struggling' India has widened ever more.

Among the multifarious impact of this widening gap between the rich and the poor, the most dramatic has been the deepening agrarian crisis in the country which has undermined the food security of Indians as nothing else has. In what has been described as a "A Policy-induced Disaster of Epic Proportions"[52] more than a quarter million of farmers have committed suicide in the country between 1995 and 2011 alone and the numbers continue to increase by the year.[53] The de-facto unanimity of all ruling class parties regarding these economic policies has ensured that despite its magnitude, farmer's suicides have never become an electoral issue in the country. The agrarian crisis is deeply rooted in the socioeconomic policies pursued by India's ruling elite.[54-57]

It needs little imagination to configure its implications for food security and hunger in a country where nearly 70 percent of people live in villages and more than 50 percent of the work force directly depends on agriculture for sustenance. The peasantry, especially the small, marginal and the landless peasants in India are not just the producers of food, but also the largest social and economic group in the population that is the first to go hungry.

However, there are instances to show how the subservience of Indian rulers to the international neoliberal economic order lorded over by the developed countries has compromised food security of India's poor. Though ridden with corruption, the Public Distribution System (PDS) in India has been the cornerstone of food security of the poor in the country. Since the beginning of the neoliberal economic reforms there have been persistent efforts by successive governments to weaken and dismantle PDS under pressure from the World Bank in order to open food grain sector to the market forces.[58] There was a shortage of wheat in India in 2005-07 because the government systematically reduced the food grain buffer stocks by reducing the procurement of food grains from farmers to much below the targeted off-take. The government was under pressure from U.S. to import wheat and as a prelude to same government slowed down the procurement of wheat in 2005-07 by deliberately keeping its minimum support price for the farmers low in order to facilitate the entry of the multinational corporations in food trade.[58] It is noteworthy that in 2006, Cargill India, the Australian Wheat Board, ITC and Adani Export – the latter two being Indian companies with considerable foreign equity, together procured 30 lakh tons of Wheat in India. This stands in sharp contrast to persistently declining government procurement which was 16.8 million tons in 2003-04, 14.8 million tons in 2004-05, 11.1 million tons in 2005-06 and a mere 9.2 million tons in 2006-07.[58] Thus the government deliberately created a situation of food insecurity in the country only to facilitate the entry of agribusiness corporations in food grain trade in the country.

Table 1: Gradation of Health Outcomes Reflecting Hunger/Nutritional Status by Caste and Wealth Index in India

Category	IMR (per 1000 live births	Under 5yrs mortality (per 1000 live births)	Chronic malnutrition (low height for age) in children below 5 yrs (% children below 2 SD)	Anemia in children 6 to 59 months of age (%)	Anemia in 15 to 49 yrs old		BMI less than 18.5 in 15 to 45 yrs old	
					Men (%)	Women (%)	Men (%)	Women (%)
Caste / Tribals[4]								
SC	66.4	88.1	53.9	72.2	58.3	26.6	41.1	39.1
ST	62.1	95.7	53.9	76.8	68.5	39.6	46.6	41.3
OBC	56.6	72.8	48.8	70.3	54.4	22.3	35.7	34.6
Others	48.9	59.2	40.7	63.8	51.3	20.9	29.4	28.9
Wealth index								
Lowest	70.4	100.5	59.9	76.4	64.3	37.9	51.5	48.3
Second	68.5	89.6	54.3	73.6	60.3	30.2	46.3	42.4
Middle	58.3	71.9	48.9	69.3	56.0	24.8	38.3	37.4
Fourth	44.0	51.2	40.8	64.8	52.2	18.8	28.9	29.6
Highest	29.2	33.8	25.3	56.2	46.1	14.2	18.2	19.1

Source: International Institute for Population Sciences (IIPS) and Macro International (2005-06): 'National Family Health Survey (NFHS-3), India', Vol. I. Mumbai. Compiled from tables: 7.2 (p 182), 8.12 (p 208), 10.1 (p 270), 10.12 (p 289), 10.22.1 (p 304), 10.22.2 (p 306), 10.24.1 (p 311), 10.24.2 (p 312). Note: IMR = Infant Mortality Rate, SD = Standard Deviation, BMI = Body Mass Index, SC = Scheduled Castes, ST = Scheduled Tribes, OBC = Other Backward Caste

[4] Caste is an omnipotent and omnipresent social reality in India which is discriminatory in practice due to hierarchical arrangement of castes. Even though caste is characteristic of the Hindu religion, none of the other major religions in the country – Islam, Christianity and Sikhism, which are otherwise ideologically opposed to caste system have escaped the invasion of caste and have been equally prone to the vagaries of the institution of caste. The castes lowermost in social hierarchy and thereby socioeconomic development have been classified as 'scheduled castes' while the intermediate caste categories are known as 'other backward castes.' The category of 'others' includes upper caste groups which are socioeconomically much better off and the uppermost section among these has a pervasive control over the state structure. The indigenous people in India (the scheduled tribes), though not part of the formal caste structure, but are perhaps the most marginalized of the social groups in the country.

Though caste enjoys religious sanction, but the material phenomenon of economic exploitation are at the root of this institution and the religious sanction only seeks to provide sanctity to the underlying economic exploitation. Even though there are numerous constitutional provisions meant for the social and economic uplift of oppressed castes and tribes, but the stranglehold of the upper castes on the state, economic and social apparatus has undermined such provisions and has often led to reactionary movements to demand dissolution of such provisions.

Such macro and micro-economic policies further reinforce inequities and inequalities already prevalent in the society, much to the detriment of the marginalized sections. Table 1 clearly shows the gradients in health outcomes, which can be taken as measures of prevalence of hunger in the society, along caste and economic status, with the most deprived castes and economic categories being the worst off. In view of these facts, it need be emphasized that the fight against hunger is not as much a technical question of production, processing, preservation, transportation and distribution of food, even as these are important aspects; it is a social, structural and a political question in the main. Just how dramatic can be the impact of changed socioeconomic conditions on hunger is clearly evident from figure 7 which shows a huge decline in the chronic and endemic acute hunger in China as reflected in a sharp rise in life expectancy in the country, especially in the immediate aftermath of the revolution in 1949. The redistribution of the productive resources, most importantly – equitable distribution of land among the peasantry and freedom from feudal oppression of the landlords was the most important factor that played a major role in ameliorating hunger in China.

Figure 7: Life Expectancy in China from 1700 – 1990

FROM HUNGER TO NUTRITION; UNRAVELING THE TRANSITION

Moises Behar said:

"If it is accepted that the fundamental role of any society is to ensure the well-being of all its members, including their adequate nutrition, then the presence of malnutrition to any significant extent must be interpreted as a failure of that society. This is really the problem we are facing today: that it is the structure of society itself that limits the capabilities of many of its members to obtain their basic needs, including enough and adequate food, because power and the utilization of resources is concentrated in the hands of a minority." [40]

These words of Behar hit the ruling classes, around the world, where it hurts them the most. Admission of one's failure is difficult in general, but doubly so for the ruling elite who are always anxious to project the

success of the systems they lord over, despite its obvious failures.

However, when wishing away is not the available option, the way out sought by the establishment (scientists, teaching establishment and other professionals included) is to twist the discourse around these obvious failures and to regulate it in a manner that helps in soft pedaling the failures. Making issues highly technical, replacing the commonly understood vocabulary and idioms in which common people can express their suffering and experiences, with esoteric terms and jargon is a time tested method of regulating potentially threatening discourse into safe channels. This cliché, albeit is practiced and perfected in an 'academic', 'logical' and 'scientific' rubric which confounds the subtlety of this change. The discourse on hunger is but another example of this phenomenon.

To understand the transition in question, it would be good to begin by looking at some definitions:

1) Hunger[59]: "A condition, in which people lack the basic food intake to provide them with the energy and nutrients for fully productive lives."
2) Hunger[3]: "Hunger is the body's way of signaling that it is running short of food and needs to eat something." Hunger can lead to malnutrition.
3) Nutrition / Nutritional Status:"Nutrients provided by food combine with other factors, including the health state of the person consuming the food, to produce 'nutritional status.'" Nutritional status can be assessed by measurement of body size or composition, or physiological dysfunction of the body on account of deficiency of one or many nutrients[60]
4) Malnutrition: It is defined as a "state in which the physical function of an individual is impaired to the point where he or she can no longer maintain natural bodily capacities such as growth, pregnancy, lactation, learning abilities, physical work and resisting and recovering from disease."[3]

Without going into complexity of issues related to these definitions, our purpose here is to emphasize that those going without food know what is happening to their bodies and can articulate their plight better in terms of their bodily feeling. The term 'Hunger', by definition, lends itself better for such an expression. 'Hunger' is well understood by the laity and is easily communicable.

Nutrition / malnutrition on other hand are a clinical condition that is a consequence of how well the people are able to eat. It lends itself to clinical assessment and measurement, but the terminology nutritionists deploy is something that the hungry do not have the chance to be familiar with. In as much as the larger policy discourse on 'Hunger' and its impact on people is dominated by the 'Nutrition' terminology, it alienates the sufferers of 'Hunger' from this discourse.

Talking of this change Sheila Zurbrrig writes:

"Hunger, an eminently concrete condition, both acute and chronic, became sidelined by 'nutrition', term which in its general and often poorly defined usage has tended to obscure the two central human predicaments of little or nothing to eat. Without a conceptual vocabulary, hunger became in effect very difficult to talk about, and in the process even more problematic to measure.....The reluctance to address hunger conceptually and analytically stems perhaps from a sense that the term is unscientific, imprecise, worse, emotional. "Nutrition", or "malnutrition" has the cachet of "scientific respectability", Diana Wylie has recently remarked, while "hunger does not."[8]

Human race has come to inhabit the remotest and even the most inhabitable corners of Earth like the Arctic region, remote mountains with little arable land and the scorching deserts. Yet there is no literature to show that all those who inhabited these regions were nutritionally crippled. These people have physiologically adapted their bodies to successfully bear the harsh ecological conditions over generations. All said and done, a good section of these populations at any point in time are free of nutritional disorders so long as they have enough to eat of the food available in their respective environments.[61-63] And if it is true of human

populations living in remote regions, it ought to be even truer of the densely populated and more productive regions. It is the widespread disruption of the ecological context of these populations, more specifically that associated with the exploitative relations of production (these decide who eats enough and who does not), which is at the root of all nutritional disorders.[64] Further, the "Social and economic forces which create such conditions also ensured that such issues are kept out of the body of knowledge of nutrition sciences." The situation was further manipulated by the 'market forces', which were responsible for disruption of ecology of human nutrition in first place, to develop the epistemology of nutrition in a manner that was conducive to increasing the sales of food and drugs industry. [64]
This new epistemology uprooted the problems of nutrition from their ecological moorings (poverty, discrimination, exploitation) and parceled them into atomized entities along with the new age curative agents offered by the industry. This process was furthered by the marriage of science of 'nutrition' with sciences like chemistry, biochemistry, physiology and other medical sciences (as Banerji puts it – "apparently to gain respectability as a science"), resulting in a long list of scientific breakthroughs – various nutritional elements, balanced diets, processes and pathways of digestion and metabolism of nutritional elements and ever new nutritional disorders identified on the basis of the breakdown of these complex pathways due to malfunctioning of molecular components at any of the several steps constituting individual pathways. While one cannot help but marvel these amazing achievements of science; the direction of progress is clear – from the macro to micro; from the society to atomized entities; from the felt experiences of the hungry masses to sanitized environs of the scientist's laboratory.

It need be pondered at this stage – what proportion of malnutrition is due to 'inadequacy of food consumption' and what is the extent of malnutrition attributable to 'molecular' factors; yet the weight of knowledge of human nutrition has moved away from societal factors to the atomized nutritional components. Rather than study human nutrition, or rather the lack of it at the level of the society, the "Biochemical laboratories and animal houses became the major places for study of human nutrition," including some spill over to hospital wards.[64] This phenomenon has been referred to as the 'Scientification of food.' It is surprising then that the 'hungry' have simply slipped away from the memory of nutrition scientists and the larger discourse on hunger?

The context of hunger and malnutrition in the West and in the developing world is entirely different. Yet as in various fields of science, in nutrition science as well the flow of knowledge has been from the developed to the developing world. This is because the development of indigenous science in these countries stagnated during the colonial period which led to a world system wherein the countries of the third world became subservient to and dependent on the developed countries. So while in the developed countries attention shifted to nutritional disorders due to deficiency of individual nutrients or molecular deficiencies at the cellular level, consequent to overcoming of energy deficiency in people's diets; this paradigm came to be adopted as such in the third world countries where the principle nutritional problem continues to be insufficient dietary energy intake due to shortfall in the overall food intake on account of people's poverty – put simply, the problem of hunger.

It has taken a long time to unequivocally establish the dietary energy deficiency as the principle nutritional problem in the third world, and this could be done only by the third world scientists,[65-67] once they broke from the dominant western paradigm of conceptualizing nutritional problems. Even till date attempts are being made to confound poverty induced inadequate dietary energy intake as a voluntary 'diversification of diets' in favor of high value foods by Indian consumers, unmindful of compromise in the dietary energy.[68,69]

These trends are not inadvertent acts of omission or commission, they have an underlying politics and a design that we need to elucidate here. If a person has sufficient food to meet his / her dietary calorie requirement, it would be impossible for him / her not to consume the required amounts of proteins,

vitamins and minerals for normal bodily functions.[64] Banerji writes:

"It can thus be concluded that if people get opportunities to get enough food to satisfy their hunger and meet their calorie needs, the need for intervention from nutritionists will be limited only to a few special conditions. For dealing with the rest of the problems they will have to get involved in social, economic and political issues that come in the way of satiation of hunger and meeting the calorie needs." [64]

However, the problems have not always been viewed with deference to privileging common sense and rationality in finding solutions that are required and are workable. For example it is widely recognized that micronutrient deficiency is invariably associated with poverty, food insecurity and under-nutrition that is so very characteristic of the people who invariably do not have sufficient food to eat.[70-72] It is equally true that seldom does a single nutrient deficiency express itself in isolation from deficiency of other nutrients.[70] The logical approach should then be to try and increase the overall food intake of those suffering from inadequate food intake in order to tackle their multiple nutritional deficiencies (micronutrient, protein and energy deficiencies) all at the same time. This however, would entail engaging with larger societal questions of poverty reduction, unequal and inequitable distribution of resources and mitigating social exclusion based on caste, class and gender. Such solutions do not suit the interests of the ruling elite and the dominant sections of the society who maintain their domination precisely because of the present arraignment of things. The food and drug industry shall be forced to subvert them.

In fact, without leaving things to chance, the subversion begins much earlier. Rather than let the desirable solutions even be considered as an option, the food and drug industry has spawned an entire range of nutritional supplements – essential amino acids, essential fatty acids, vitamins, minerals, a broad spectrum of tonics and baby foods, as the 'new age' solution to the humongous problem of hunger and malnutrition. The dismay at the state of affairs was expressed by three leading scientists in the journal Lancet in the following words;

".....it is clear that we have, all too often, neglected the over-riding issue of inadequate calorie intake and its determinants which continue to take such an enormous toll on vulnerable populations. We know more today about how to address PEM through food security, nutritional care of women and children, and public-health interventions than we did 20 years ago. But the attention of the nutrition community and the resources of donors are more attracted by the glamour of micronutrients, a largely technical and often top-down solution (as close to a quick fix magic bullet as we are likely to get in this field), than by the politically sensitive business of poverty alleviation, people's empowerment, and equity, necessary to ensure that mothers and children have access to health and educational services and adequate food to eat." [73]

Saying this is not to condemn the superb technological achievements of nutritional science. As is acknowledged, these have helped in some dramatic improvements with regard to some of the nutritional problems; however, there remains a strong need to place things in perspective. Micronutrient supplements and the technologies to administer them may help in overcoming the symptoms of the specific nutritional disorders caused by the deficiency of these micronutrients, but they still do not address the primary cause of it in first place i.e. the deficiency of diets. Neither is it that the deficiency of diets is something natural and unavoidable, for we know that those who suffer from this have specific socioeconomic characteristics. We would like to end this section with the following words of Joan Gussow, which make an impassioned plea for looking at food through a macroscope, in a hope that they leave some impression on the readers.

"we have attended to the ever smaller and smaller; breaking down food, food handling, food processing, food functions, into manageable, microscopic pieces; looking at the isolated effects of the isolated behaviors on isolated food substances in isolated biological systems, I believe it is time now for some of us in the field of food and nutrition to take up our macroscopes rather than our microscopes, to begin the task of looking at connections not merely between nutrients and cells; or between food

handling , food textures and food toxins; but of looking at the connections between farmers and producers; between food policies and environmental policies; between toxic wastes and the opportunity to produce safe, affordable food; between tax policies, development policies, and land use policies and our abi.ity to retain farm land; between that cost of energy and the cost of food."[1]

It is only the macroscope that can bring the hungry and their narratives back in the picture.

CONCLUSION

We began our argument by stating the obvious, but somewhat obscured, importance of food for human sustenance. In the figurative sense, opposite of 'food' is 'hunger.' Leveraging the politics of nutrition, we have tried to tease out the reasons and the manner in which the central importance of the question of hunger is sought to be obscured. The continued presence of hunger and under-nutrition to a significant extent in our society is a testament to our failure as a society. This failure is sought to be covered up, to an extent, by deploying sanitized vocabulary of 'nutrition.'

Never has the capacity of human kind to produce food to feed all people on the globe been more than today, yet more than a billion people on earth are compelled to go hungry. India has the largest number of hungry and malnourished people on the globe; the country also has mountains of food grains stored in its warehouses and go-downs, yet this food cannot be distributed to the hungry for one reason or the other, all of which appear to be an attempt at deception in face of the frequent stories of food grain rotting in go-downs or of its export at prices even lower than those meant for the below poverty line people, probably to feed cattle and pigs in the first world. To say the least, this shows utter lack of seriousness on part of the rulers to address the problem of hunger.

It is the poor and the disempowered who suffer most from hunger and malnutrition. It is also well recognized that malnutrition casts its effect over generations through what is known as intergenerational cycle of malnutrition.[74-76] Propagation of malnutrition through generations in the absence of effective remedial measures sets the stage for further propagation of social, economic and political inequities prevalent in the society. As Behar puts it:

"Seen in this light- malnutrition is not only a consequence of gross inequalities in society, but also a mechanism for maintaining them.....The 'ruling classes' have an interest, consciously or unconsciously, in maintaining a system that works so well in their favor, while ignoring the interests and desires of society as a whole."[40]

It is only this kind of mindset which explains the absolute nihilism with which the ruling classes have treated the raging agrarian crisis in the country and the tsunami of peasant suicides. For all those seriously working for the mitigation of the problem of hunger in the country, the message is clear – 'the fight against hunger has to be taken as a part of the overall struggle for democratization and radical transformation of the society.

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