

Title: Towards food policy for the dual burden of malnutrition: An exploratory policy space analysis in India

Abstract

Background: There is global consensus that a strong policy response is essential for addressing the dual burden of malnutrition. However, policy makers in low and middle income countries may perceive a conflict between food supply policies to combat persistent undernutrition, and more recent recommendations for policies addressing rising rates of diet-related noncommunicable diseases (NCDs).

Objective: This paper explores the potential to use *policy space analysis* to identify food supply policy opportunities for addressing both undernutrition and diet-related NCDs, to support improved policy coherence.

Methods: We conducted an exploratory policy space analysis to identify opportunities and constraints for integrated nutrition policy with respect to the food supply in India, where a dual burden of malnutrition has been well documented. We conducted a review of food supply policies, and 27 key informant interviews (16 with stakeholders active in India's national nutrition policy space, and 11 with policy makers and experts in food supply policy).

Results: The analysis suggests several opportunities for an integrated food supply policy agenda, including targeting common foods of concern (such as highly processed foods) and foods that present common benefits (such as fruits and vegetables), and scaling up existing small-scale policy initiatives that support the availability of nutrient-rich foods. Challenges include policy inertia and competing priorities within the economic sector.

Conclusions: This scoping study indicates that the policy space analysis framework used here can help to identify specific, contextually appropriate policy options and strategies for strengthening public health nutrition policy within sectors responsible for food supply policy.

Key words

Dual burden, Nutrition, Undernutrition, Non-communicable disease, Policy, Policy space

Introduction

The global nutritional context presents a paradox of significant persistent undernutrition co-existing with rising rates of diet-related noncommunicable diseases (NCDs) in many low and middle income countries (LMICs), known as the 'dual burden of malnutrition'.^[1-6] Undernutrition burdens are high globally: more than 200 million children under 5 years suffer from undernutrition, and over 2 billion people are at risk of nutritional deficiency.^[7] Child and maternal undernutrition was responsible for 1.4 million deaths and 6.7% of global DALYs in 2010.^[8] At the same time, NCDs now cause 63% of deaths globally, with 80% of these deaths occurring in low- and middle-income countries where a much larger proportion of these deaths are premature.^[9] Macroeconomic simulations indicate that productivity loss due to cardiovascular disease, chronic respiratory disease, cancer, diabetes and mental health could be as much as US\$ 47 trillion over the next two decades, representing 75% of global GDP in 2010.^[10]

While the reasons underlying dietary practices and nutrition status are complex, addressing the availability and affordability of healthy relative to less healthy foods is one important dimension of enabling consumers to improve their diet quality: a critical determinant of both undernutrition and NCDs.^[11-16] Reducing dietary risk factors for NCDs will require increased individual consumption of fruits, vegetables, whole grains and other minimally processed foods, and decreased consumption of foods high in fat, salt and sugar.^[8, 17, 18] This, in turn, requires a steady, sustainable and affordable supply of healthy foods; a stark contrast to the current global food supply, which is delivering cheap, convenient and unhealthy foods more effectively than healthy foods. For example, a recent study

estimated that global fruit and vegetable supply falls 22% short of population needs (not including consumer wastage).[19] This is reflected in stagnant intakes of micronutrient-rich whole grains, fruit and vegetables, and rising intakes of fat, salt, sugar and highly processed foods and beverages.[20-22]

As part of a comprehensive policy response to the global NCD epidemic, the World Health Organization's Global Action Plan for the Prevention and Control of NCDs recommends policy interventions that target the food supply.[9] This includes a wide range of agricultural, fiscal, retail and economic policies that affect production, processing and distribution of food, and that have potential to increase the availability and affordability of healthy, relative to less healthy, foods. However, for policy makers in LMIC, these policies may be seen as contrasting or even conflicting with the historical focus of food supply policies in LMICs on preventing and reducing hunger; a policy focus which continues to prevail due to persistent, high rates of undernutrition.[23, 24] Pursuing policies to improve the food supply for NCD prevention has thus remained a secondary priority in many LMICs.

However, the historical food supply policy focus regarding hunger and undernutrition has in fact mainly been on providing adequate calories rather than nutrition. Headey and colleagues[25] describe this as 'calorie fundamentalism'. This raises concerns that – although calorie consumption is one important input into nutritional outcomes – policy options that support other essential nutritional inputs that contribute to diets rich in diverse micro- and macro-nutrients can be overlooked, resulting in continued high prevalences of stunting and micronutrient deficiencies as well as contributing to overweight and NCDs.[25] Thus, despite an apparent policy conflict, there are likely to be commonalities between the food supply policies required to address undernutrition,[23, 26, 27] and those targeting the prevention of diet-related NCDs.[12, 28] In particular, there are clear synergies with respect to the nutritional *quality* of the food supply, rather than simply *quantity* of calories produced.[4, 29]

While government policy and public investment are only two of many factors influencing the food supply in a market context, governments can play an important leadership role in incentivising the production of nutritious foods.[30] Haddad and colleagues highlight food policies to address availability and affordability of nutritious foods as a critical component of interventions to reduce the dual burden of malnutrition.[16]

This exploratory study aimed to explore the use of *policy space analysis* to identify an integrated food supply policy space for addressing both undernutrition and diet-related NCDs, focussing on India as a case study. India's dual burden of malnutrition (Box 1) has been well documented, at the national, community and household level,[31-36] as has the need for a concerted policy approach to address both undernutrition and diet-related NCDs.[27, 37, 38] A 'policy space' approach has not been applied to this issue previously, and this study was designed to also assess its potential as a helpful lens for identifying specific policy opportunities within the existing policy and political context.

Box 1: The dual burden of malnutrition in India

Rates of underweight and stunting among children in India remain high, at around 40-50%,[39, 40] while the prevalence of childhood and adolescent overweight is rising, with recent estimates of around 20-25% in urban areas.[41, 42] Undernutrition and micronutrient deficiencies also remain a significant problem among women, although the prevalence of overweight and obesity among adults is continuing to rise, particularly among the non-poor.[32, 36, 43, 44] Diet-related NCDs are also a significant concern amongst adults in India. Diabetes prevalence ranges from 3% in rural areas to over 8% in urban areas, with a total of 62.4 million Indians living with diabetes.[45, 46] Economic losses in India due to cardiovascular disease have been estimated at 2.25 trillion US dollars from 2012-2030.[47] This

nutritional situation has developed at the same time as increasing consumption of unhealthy fats, refined cereals and ‘ultra-processed foods’, and low affordability and availability fruit, vegetable and pulse.[35, 48]

Policy space analysis

As described above, public health nutrition presents a challenge to policy makers: it requires addressing the seemingly contradictory problems of under- and ‘over’-nutrition, and also engaging effectively with the various sectors that govern the food supply. This exploratory study aimed to identify opportunities for improving the coherence of food policy with respect to nutrition, and we designed our study to encompass both nutritional considerations and policy maker perspectives.

We conducted an exploratory policy space analysis to identify opportunities and constraints for integrated nutrition policy with respect to the food supply in India, informed by a political economy analysis approach and drawing on a policy space analysis framework that has been used previously in public health policy analysis.[49] Policy space (Box 2) analysis focusses on understanding policy priorities, and identifying opportunities and constraints to strengthening policy agendas.[50] Similarly, political economy analysis encourages engagement with politics, context and practicalities in understanding policy making, drawing on experiences and opinions of policy stakeholders themselves.[51]

Box 2: Policy space

Policy space refers to “the freedom, scope, and mechanisms that governments have to choose, design, and implement public policies to fulfill their aims”.[52] In the context of a multi-sectoral policy issue

such as nutrition, policy space spreads across multiple sectors and multiple actors within sectors, and it is thus essential to consider food and nutrition policy from a political economy perspective.

Methods

This national level exploratory study was conducted in India from October to December 2013. The research was narrowly focussed to enable us to pilot the usefulness of the analytical framework and the potential for integrating food supply policy to address both undernutrition and NCDs; an additional aim of the study is to inform further research in this space. We focussed on food supply policies as a key area influencing food availability and affordability, which are important drivers of consumption. We also focussed on policy making at the national level, as while implementation is important, our primary interest was in understanding issues of agenda setting and decision-making in shaping current (and potential) policy directions. This project was approved by the University of Sydney Human Research Ethics Committee, and under ongoing Institutional Review Board (IRB) research approval held by the International Food Policy Research Institute – New Delhi.

The research was conducted in two steps. First, we sought to identify the potential for using the food supply to address the dual burden of malnutrition in India, and to identify dietary patterns and foods of relevance to both under- and diet-related NCDs. AMT conducted 16 key informant interviews with stakeholders active in India's national nutrition policy space, with varied expertise in undernutrition and NCD prevention. Initial interviewees were identified within key nutrition institutions and alliances at the national level such as the Nutrition Coalition of India, International Food Policy Research Institute-New Delhi, Public Health Foundation of India, Nutrition Foundation of India, and Right to Food Campaign, and

through using a snowball sampling approach (SKa, PM and SKh were included in the interview sample). Interviews were semi-structured, and asked about respondents' opinion on common risks and benefits of dietary patterns and foods to tackle both undernutrition and NCDs.

Second, we collected information on policy space for an integrated food supply approach to nutrition, seeking to identify specific policy opportunities and constraints. This component was focussed solely on the national policy space, as food supply policy making (although not implementation) is highly centralised in India. We first conducted a review of key policy documents in sectors governing the food supply (trade, investment, public distribution, agriculture, food processing and finance), focussing on the commodities identified in phase 1. To identify relevant policies, we searched Government of India websites and Google using key commodity terms together with 'policy' and 'India'.

This phase was augmented by in-depth interviews with policy makers and experts in food supply policy. AMT conducted 11 in-depth interviews with: senior bureaucrats in Food Processing, Planning, Agriculture, and Trade; and non-government experts in food subsidies, investment, agriculture and trade. Interviewees were recruited through formal letters to government agencies with food supply policy responsibilities (Agriculture, Economic Planning, Food Processing, Trade), and subsequently through snowball sampling. Interviews were semi-structured, based on policy space and priority setting frameworks[50, 53] and asked about: relevant policies (to confirm the document review had captured all relevant policies), the impact of current food supply policies on key commodities identified through the phase 1 interviews; factors considered in policy making and framing; and barriers and opportunities regarding an integrated food supply policy approach to nutrition.

Interviews for Phase 1 and Phase 2 lasted for 40-60 minutes and were recorded where permission was granted (23/27 interviews). Written informed consent was obtained from all interviewees. Detailed notes were taken during each interview, which were then written up as detailed summaries immediately afterwards, using the recordings where possible.

We analysed the interview data using a policy space analytical framework (Figure 1). This framework has previously been used for policy space analyses in development[50] and public health[49] research, and highlights the interplay between context, policy characteristics and agenda-setting circumstances in policy change. AMT hand-coded the interview data for themes using this framework, with information triangulated using the documents reviewed. Findings were reviewed by the research team, and the themes identified were refined and clarified. The findings presented below are from both the interview data and policy document review (policy review documents are cited in text where data are derived from these rather than interview).

Figure 1 about here

Results

The main government agencies with responsibility for governing the food supply in India are the Ministry of Agriculture (primary production), Ministry of Commerce and Industry (trade and investment), Ministry of Food and Public Distribution (distribution), and the Ministry of Food Processing Industries (processing), as well as the former Planning Commission (strategic direction and economic policy). In this section we first present a summary of the key commodities relevant to both undernutrition and the prevention of diet-related NCDs in India, based on the phase 1 interviews. We

then present a synthesis of the policy space analysis findings (Table 1), based on both the policy review (see summary list in Table 2) and key informant interviews from phases 1 and 2 of the research.

A food supply to reduce undernutrition and prevent diet-related NCDs

Although undernutrition and diet-related NCDs are often seen as separate problems in India, all interviewees active in India's national nutrition policy space were able to identify an integrated food supply policy space for this dual burden; in particular, a common need for dietary diversity and diet quality. The primary commodities that were identified by almost all interviewees as beneficial for both reducing undernutrition and NCD prevention were fruits, vegetables, pulses and coarse cereals, and a large proportion of respondents also mentioned nuts, milk, eggs, healthy oils and fish. These foods contribute to reduced risk of undernutrition through provision of micronutrients and protein, and also form part of a healthy diet, with many protective against diet-related NCDs.[54] Calorie dense but nutrient poor foods (namely, refined cereals, unhealthy fats, sugar and highly processed snack foods) were identified as presenting common risks; adding little nutritional value to the diet other than calories and being recognised dietary risk factors for NCDs. A related concern was the use of calorie dense, nutrient poor processed foods (such as biscuits) as weaning foods; potentially contributing to both childhood malnutrition and NCD risk in later life. The second phase of the research thus focussed on policies governing the supply of the key commodities (fruits, vegetables, pulses and coarse cereals) and calorie dense but nutrient poor foods.

Policy Space analysis: Context

The context dimension of the policy space analysis considers the environmental context as well as the actors involved (Table 1). Interviewees highlighted the important roles that food supply policies play in economic policy making in India, through contributing to maintaining price stability and keeping inflation

low. These policies also support the agricultural sector, which contributes substantially to GDP (around 18%).^[55] As a result, nutrition was only one – often minor – consideration in food supply policy making. The challenge identified by the focus on economic policy objectives was one of garnering political priority for nutrition in a multisectoral context, which requires coordinated action from several sectors.

Table 1 about here

In line with this, the document review (Table 2) identified some potentially counter-productive policy interventions with respect to the dual burden of malnutrition, which were likely to support improvements in calorie availability and accessibility but make a limited contribution to improved nutrition or even be counter-productive to NCD prevention objectives to reduce intake of processed foods high in fat, salt and sugar. In particular, a growing policy focus on promoting food processing, through direct support for food processing initiatives by the Ministry of Food Processing Industries,^[56] as well as liberalization of Foreign Direct Investment (FDI) in food processing and multi-brand retailing,^[57] occurring with limited consideration,^[58] of nutrition, despite their potential to increase availability and affordability of highly processed foods, snacks and beverages. For example, FDI in the retail sector has been very limited by restrictive policies, and modern supermarket penetration was reported to be only 7% in Delhi in 2010; there is thus significant potential for increase with liberalization of FDI policies regarding multi-brand retailing.^[58] There is also a national agricultural policy focus on increasing production of palm oil,^[59] which has a high saturated fat content.

The policy context was also characterised by technological barriers to increasing production of crops other than staple cereals, and in particular, high nutritional quality foods such as pulses, fruit, vegetables and coarse cereals, which was highlighted by interviewees from the agricultural sector. While these

crops remain competitively productive on marginal land, they have not benefited from the advances in agricultural and supply chain technology that have substantially increased yields from rice and wheat on prime farmland (mainly related to the green revolution). These limited advances in technology – combined with significant public investment in rice and wheat production over other commodities – have contributed to declining availability and affordability of fruits, vegetables and pulses in India.

However, the policy context also appeared to be characterised by goodwill towards improving nutrition among food supply policy makers. The interviewees from the economic sector all acknowledged the importance of nutrition in achieving development goals. This suggested an ongoing opportunity to build on the current momentum to expand support for prevention of diet-related NCDs in addressing the changing nutritional context.

Another opportunity presented by the policy context was a range of positive, although consistently very small scale, policies that support the availability of nutrient-rich foods and could contribute to prevention of both undernutrition and diet-related NCD prevention. Agricultural Missions directed at pulses [59] and horticulture (in particular, fruit and vegetable production) [60], and inclusion of coarse grains and pulses into the public distribution system in some states [61], support domestic availability and affordability healthy, minimally processed commodities. These are relatively small investments, particularly when compared to the massive investments in rice and wheat production, but represent an existing infrastructure supporting nutrient-rich food production and distribution. Similarly, some current trade policies, such as temporary removal of duty on import of pulses [62] and excise tariffs on confectionary [63], contribute to the relative affordability and availability of healthier unprocessed/primary food as compared to less healthy and highly processed foods. These positive initiatives support access to high quality diets and need to be protected.

In addition, Food Processing policies and requirements placed on foreign direct investment in the retail sector both support investment in cold chain infrastructure for fruit and vegetables.[57] While these policy initiatives are currently general (not targeted specifically to fruit and vegetables, but encompassing these commodities), there may be an opportunity to provide specific incentives for development of value chains that support accessibility of fresh fruit and vegetables. There has also been small-scale public support through the Ministry of Food Processing for new initiatives to process and package healthy traditional coarse grains, such as ragi and millet [64], which interviewees identified as a response to growing consumer demand. There may be opportunities to tailor or ear-mark some of this existing funding to enhance and specifically support value chain development for healthier commodities.

Table 2 about here

Policy Space analysis: Agenda setting circumstances

The ‘agenda setting circumstances’ dimension of the policy space analysis framework considers the nature of the problem and advocacy, as well as concerns affecting decision makers (Table 1). In India, the advocacy groups for undernutrition and diet-related NCD prevention were seen as relatively separate. There was a strong perception among food supply policy makers that undernutrition is a critical priority, and that addressing diet-related NCDs would require different and contradictory policies. Many respondents from the economic sector raised concerns that prevention of diet-related NCDs required policies contrary to those needed to reduce undernutrition; for example, that NCD prevention required people to ‘eat less’ whereas reducing undernutrition required individuals to ‘eat more’. In contrast, nutritionists identified the concept of ‘quality’ food – in other words, nutritionally

dense foods, rather than calories – as being a potential basis for an integrated agenda, recognising the important role that dietary quality and nutrient dense foods play in preventing both aspects of malnutrition. For example, fruits and vegetables as beneficial for all forms of malnutrition, in contrast to highly processed foods or refined carbohydrates (energy dense, nutrient poor).

However, interviewees from the nutrition policy sector emphasized that the political context for nutrition in India has been characterised by growing political will for improving nutrition, as evidenced by recent statements by the then-Prime Minister regarding the ‘shame’ of malnutrition [65] and the passing of the new Food Security Act in 2013[61], the integration of nutrition in the election manifesto of the ruling party,[66] and the launch of “nutrition missions” in several large states in India. This changing context has been supported by strong nutrition advocacy, e.g., via the Leadership Agenda of the Coalition for Sustainable Nutrition Security[67] and strengthened demands by rights-based networks for food security. In addition, the ability of diverse stakeholders active in India’s national nutrition policy space to articulate a coherent agenda regarding reducing undernutrition and preventing diet-related NCDs indicated that there may be future opportunities for joint advocacy. However, much of the advocacy and convergence of advocacy and discourse around nutrition in India has been in relation to undernutrition and not to NCDs, the dual burden of malnutrition, or healthy diets more broadly.

Potential opportunities for increasing recognition of the dual burden of malnutrition on the policy agenda might arise from increased availability of economic data on the dual burden of malnutrition. Interviewees identified that data on economic impacts of malnutrition (although currently limited) are likely to be influential for policy makers in the economic sector. Interviewees from both the nutrition and economic sectors also cited a growing awareness (and evidence) that the NCD burden is affecting

not just the wealthy but is apparent across social strata, particularly among those dwelling in urban slums.

Policy Space: Policy characteristics/ incentives

The third dimension of the policy space analysis framework considers policy characteristics and incentives specific to the policy issue (Table 1). Food supply policies in India reflected an historical and successful focus on ensuring affordability and availability of staples. The primary aim of food supply policies continued to be centred around maintaining staple food price stability, mainly through minimum support prices and public distribution for rice and wheat.[61, 68, 69] Sustained investments over the past half-century in the provision of calories, in particular via these two key crops, have resulted in agricultural and food distribution systems that offer limited support for diversity and nutrient-rich agricultural products such as fruit, vegetables, coarse grains, pulses and animal source foods. This policy investment in calories has in some ways been a success, having been accompanied by a shift in undernutrition from mainly acute malnutrition to mainly chronic malnutrition (primarily stunting and micronutrient deficiencies). However, this policy focus contributed to a cheap and readily available supply of refined carbohydrates, and will not address the current dual burden of malnutrition; this trend presents a lose-lose situation in which neither micronutrient deficiencies and NCDs are likely to be tackled. The challenge presented by this focus on calories was one of policy inertia, where entrenched institutional structures, perceptions of the problem, and patterns of policy investment make it difficult to alter the status quo.

Specific constraints identified by interviewees include the fact that there has been long term investment in infrastructure and administration to support the current food supply policies in India. This investment dates from the 1960s and represents a sunk cost, and has thus created a disincentive for structural

policy change that would shift public investment towards foods that would optimise nutritional outcomes. In addition, there has been declining investment in agricultural infrastructure and technology, linked to the technical barriers to agricultural change that were highlighted above. This has had a reinforcing effect through reducing public sector capacity to enhance agricultural production of healthier commodities.

The interviewees also highlighted current incentives for food supply policy changes arising from public debate regarding social welfare and the right to food.[70] There has been growing pressure – and opportunities for policy innovation – aimed at increasing efficiency, transparency and diversity in the public distribution system.[64] There may be opportunities for nutritionists to engage in these debates, highlighting the importance of these policies for nutritional outcomes. There may also be significant potential for innovation arising from this cross sectoral policy debate, which would benefit from explicit recognition of the new nutritional context that India faces. This open discussion of reform may provide an opportunity for increased consideration of nutrition objectives related to the dual burden of malnutrition in food supply policy making.

Conclusions

This exploratory research suggests there are many opportunities for food supply policies in India to address the dual burden of malnutrition. Drawing on policy analysis theory, the policy space analysis framework proved helpful for highlighting a range of structural, political and policy factors that create challenges and opportunities for food policy space to address food supply issues relevant to both undernutrition and the prevention of diet-related NCDs. Key challenges are that the governance of the food supply lies within the economic and agricultural sectors and is thus subject to competing priorities,

and that there can be significant policy ‘inertia’ that supports the status quo, as the result of long term historical policy investment in a more calorie-oriented approach to nutrition. However, opportunities arise from the fact that the dual burden of malnutrition and growing burden of NCDs are now well-established and supported by evidence, that there are common dietary patterns and specific foods that are of concern (or present common benefits) for both forms of malnutrition, and that there is an increasingly strong leadership agenda regarding undernutrition in India. In addition, it may be possible for the scaling up of existing small-scale policy initiatives that support the availability of nutrient-rich foods to be the focus of advocacy for nutrition-sensitive food supply policies.

The research suggests four primary implications for strengthening nutrition policy in India. First, there is a clear opportunity to develop strategies to modify or mitigate the effects of counter-productive policies. Such policies may only require minor modifications to improve their impact on nutrition. For example, integrating nutritional considerations into food processing support. Second, increasing technical and financial support for production of healthier foods (where needed) is an administratively straightforward approach to expanding availability within existing governmental priorities. Using advocacy to highlight existing small scale interventions, or opportunities to tailor current programs to better support nutrition, gives policy makers specific and feasible options for optimising nutrition outcomes. Third, those advocating for improved nutrition need to engage with the concerns and priorities of economic policy makers (as the responsible sector). For example, through presenting clear data on the economic implications of NCDs and the need and potential benefits of acting concurrently to reduce undernutrition and prevent diet-related NCDs. Fourth, the research also highlights the potential for joint advocacy for reducing undernutrition and NCD prevention to garner political attention for the dual burden of malnutrition. Other opportunities for joint approaches may arise from the potential for nutrition advocates to join with related interest groups who are advocating for policy change in relation

to the food supply, such as current policy debates on the public distribution system. This would be effectively supported by an integrated research agenda that brought together experts in food security, undernutrition and NCD prevention, from basic science, epidemiology, economics and food policy perspectives.

Limitations of the research

The findings presented here are from an exploratory study, which has identified the usefulness of policy space analysis in this research area and provided indicative information on the possibility of pursuing an integrated food supply policy approach to nutrition. However, the study is limited by the relatively small number of interviewees, particularly considering the size and complexity of the government and the food supply in India. The study is also limited as a point-in-time analysis of policies in a constantly changing policy space. For example, the current (new) government of India has identified reform of the PDS as a policy priority, and plans to review and restructure the current system to reduce inflation and increase efficacy.[71]

Global implications

This research has two main global implications for nutrition policy and research. First, the method used here enabled in-depth assessment of the political, contextual and policy landscape for nutrition in India, and enabled the identification of specific areas for policy advocacy and action. This scoping study thus indicates that political economy focussed research, and in particular the policy space analysis framework, can help to identify specific, contextually appropriate policy options and strategies to support consideration of the dual burden of malnutrition in economic policy making. This method may be useful for research in other LMICs seeking to identify concrete policy opportunities to improve

nutrition, and to engage effectively with political and policy agendas that are instrumental in shaping the food supply.

Second, the findings suggest that it is very possible to pursue an integrated food supply policy agenda to support a more coherent approach to the dual burden of malnutrition. A key positive outcome of this research is the identification of specific opportunities to strengthen food supply policies in ways that benefit nutrition. These opportunities arise primarily from recognition that increased availability and affordability of nutrient rich foods will contribute to both reduced undernutrition and prevention of diet-related NCDs. Such an integrated approach to food supply policies would support reductions in undernutrition, but also ensure that policies do not inadvertently contribute to diet-related NCDs by delivering a food supply that is calorie rich but nutrient poor.[37] However, strong global economic agendas and a globalised food supply create common challenges for improving the healthfulness of the food supply. Findings from this study that are likely to have global resonance include focussed advocacy regarding economic implications of the dual burden of malnutrition, the potential to build on existing (healthful) food supply initiatives, and opportunities to join with related agendas in the social welfare or environmental arenas.

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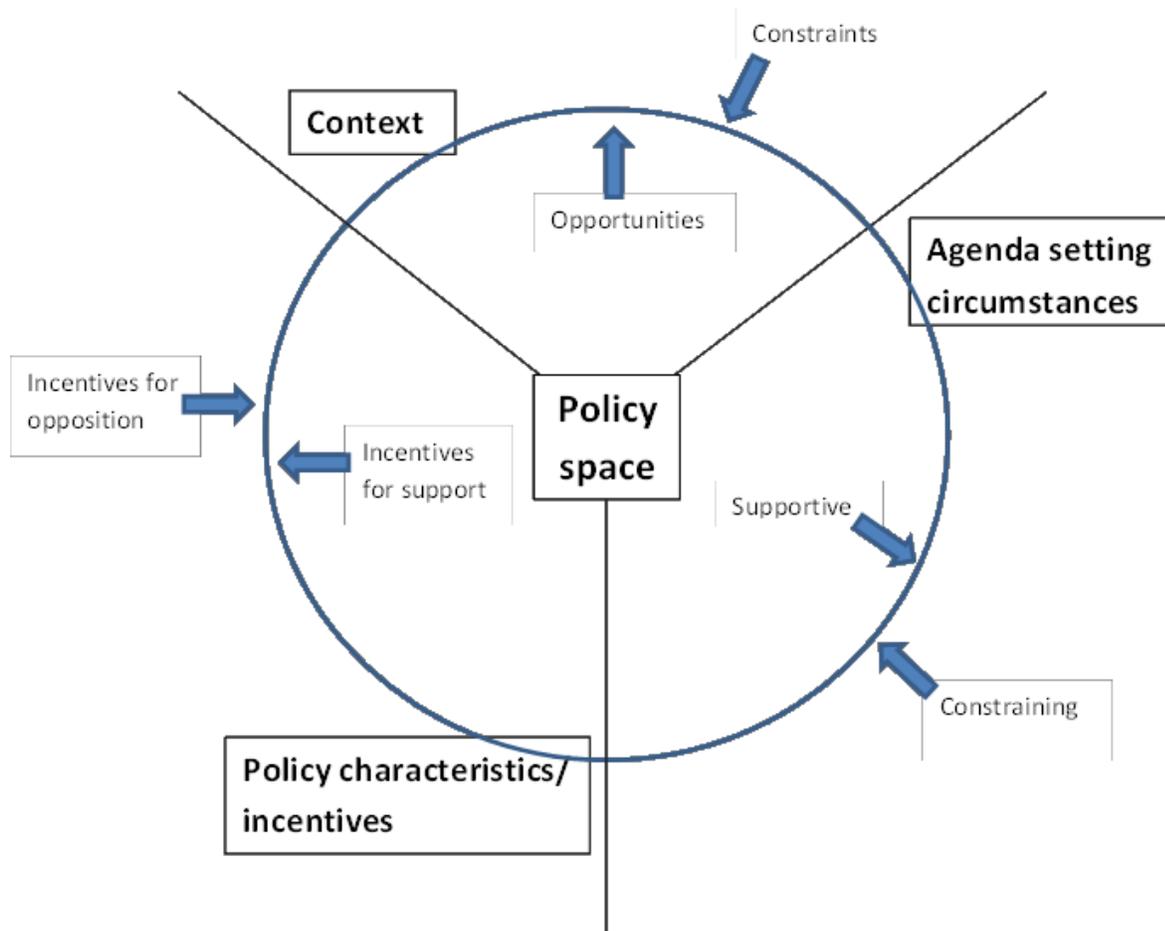


Figure 1: Factors affecting policy space

Source: Adapted from Grindle and Thomas 1991[50]

Table 1: Analysis of policy space for an integrated food supply approach to under and over nutrition in India

Policy space	Constraints/Opposition	Opportunities/Support
<p>Context (actor characteristics; environment)</p>	<ul style="list-style-type: none"> • Multiple goals for food supply policy sectors, economic objectives priority (economic growth [food production and processing as contributors]; attracting investment; economic stability [food price and farmer income affect inflation]) • Technological barriers to pulse/coarse cereal productivity ('no green revolution for pulses') • Existing counter-productive policy initiatives, focused on calories not nutrition (e.g. policies to support food processing) • Food supply policy largely made by economists 	<ul style="list-style-type: none"> • Recent small-scale policy initiatives targeting production and supply of healthy foods (e.g. horticulture) • Relatively healthy traditional foods (fruit/veg, pulses, coarse cereals) are focus of new processing initiatives • Goodwill towards nutrition among food supply/economic policy makers
<p>Agenda setting circumstances (nature of problem/advocacy; decision making concerns)</p>	<ul style="list-style-type: none"> • Nutrition advocacy groups for under- and over-nutrition relatively separate • Over/under nutrition seen as separate problems by many in the economic sector (perceived urban/rural and rich/poor divide; concern that action on NCD prevention will hurt the poor) • Historical focus on undernutrition and not NCD prevention 	<ul style="list-style-type: none"> • Recent political will for addressing undernutrition ('national shame') and food security (2013 Food Security Act) • Data on economic cost of dual burden - meaningful to economic policy makers - increasing (but still limited) • Interviewed nutritionists could identify coherent agenda around food quality for improved nutrition • Increased recognition by decision makers of NCD burden across social strata – evidence emerging for low quality/calorie focused food supply contributing to poor child growth and NCDs
<p>Policy characteristics/ incentives (public and bureaucratic impact and potential conflict; resources and political support for implementation and sustainability)</p>	<ul style="list-style-type: none"> • Long term investment in current system (inertia) (focus on provision of calories; structure of agricultural investment decreases diversity) • Declining public investment in agriculture (poor supply chains, mainly focused on rice and wheat) 	<ul style="list-style-type: none"> • Public debate about effectiveness of current food supply policies and whether they are addressing new context (pressure for change from other interest groups; opportunities for innovation)

Table 2: Overview of key sectors and policy documents affecting the food supply in India, 2013

Sector	Year	Policy document
Commerce (Trade)	2009	India New Foreign Trade Policy 2009 - 2014 (“New Exim Policy”)[72]
	2013	Government of India. Current Harmonized Tariff Schedule for India[62]
	2012-2013	Central Excise Act: Central Excise Tariff[63]
Commerce (Investment)	2013	Consolidated Foreign Direct Investment policy[57]
Finance	2013	2013-2014 Budget[73] (including Macro-economic framework statement and Fiscal policy strategy statement)
	2013	Ministry of Finance Economic survey[74] (including Prices and Monetary Management; International Trade; Agriculture and Food Management)
Agriculture	2013	Agricultural Price Policy: Minimum Support Prices[75]
	2013	Ministry of Agriculture Annual Report (details wide range of missions and schemes)[76]
	2004	Centrally Sponsored Integrated Scheme of Oilseeds, Pulses, Oilpalm and Maize[59]
	2009	Promotion of Cold Storage[77]
	2005	National Horticulture Mission[60]
	2007	National Food Security Mission[73, 76]
	2013	National Livestock Mission[73]
Food Processing	2012	National Mission on Food Processing[64]
	2013	Goals and roles of the Ministry of Food Processing Industries[56]
Food and Public Distribution	2013	National Food Security Act; Targeted Public Distribution System[61]
	2013	Ministry of Food and Public Distribution Annual Report[78]
Planning	2012	Twelfth Five Year Plan (2012–2017)[79]