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Learning From the Past: Framing of Undernutrition in India Since Independence and Its Links to Agriculture

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About LANSAs

Leveraging Agriculture for Nutrition in South Asia (LANSAs) is an international research partnership. LANSAs is finding out how agriculture and agri-food systems can be better designed to advance nutrition. LANSAs is focused on policies, interventions and strategies that can improve the nutritional status of women and children in South Asia. LANSAs is funded by UK aid from the UK government. The views expressed do not necessarily reflect the UK Government's official policies. For more information see www.lansasouthasia.org

Contents

1 Abstract.....	4
2 Introduction.....	4
3 Methodology.....	5
3.1 Framing.....	5
3.2 Frame analysis.....	6
4 Results.....	6
Table 1.....	7
4.1 Nutrition as a public health problem (1947-1965).....	7
4.2 Food shortage frame (1965-1975).....	9
4.3 Undernutrition as multi-dimensional poverty challenge frame (1975-1993).....	10
4.4 Nutrition and food insecurity frame (1997 to present).....	11
5 Conclusions.....	13
6 References.....	15
Table 2.....	18

I Abstract

Understanding policy debates from the past can help to explain and address the challenges of today. Agriculture can play an important role in the reduction of undernutrition in India. However, the nutrition-enhancing potential of agriculture remains underused. In order to understand the roots for the weak links between agriculture and nutrition in contemporary India, this paper follows the evolution of the policy debates on nutrition and agriculture from India's Independence to the present. The frame analysis reveals several substantial shifts in the framing. Undernutrition has been framed as a health issue (1950-'65), a problem of food shortage (1965-'75), a multidimensional poverty challenge (1975-'97) and a nutrition and food security issue (after 1997). The framing of agriculture remained more or less unchanged until the early 2000s, with agriculture being portrayed as a key driver of economic growth and the foundation of food security. During the last 10-15 years the awareness of the potential of agriculture for a balanced, diversified and nutritious diet gradually increased in the policy debates; however, deeply-rooted beliefs and perceptions about agriculture remain and may hinder the development of more nutrition-sensitive agricultural programmes and policies.

2 Introduction

Undernutrition remains one of the most challenging and pressing public health problems in India, despite some decline in the numbers of around 40 per cent of the world's stunted children and nearly 50 per cent of all wasted children in India (Haddad et al. 2015). Poor nutritional status, particularly in early life, can have lifelong consequences for physical and psychological well-being and can also impair long-term employment opportunities (Black et al. 2013). But, it is not only children who are affected by undernutrition: one-third of women and adolescent girls in India are chronically energy-deficient (Meshram et al. 2015). Undernutrition among women and girls is especially dramatic as it is associated with negative maternal health outcomes and low birthweight of the offspring, and thus passes on the burden of undernutrition to the next generation.

One of the potential ways of tackling persistent undernutrition in India is strengthening the role of agriculture (Gillespie et al. 2012). A number of studies have explored the pathways by which agriculture may improve nutrition in India (Gillespie et al. 2012; Welch 2001; Mahendra 2012; Katak and Babu 2002; Haddad 2000; Gillespie and Kadiyala 2012; Bhagowalia et al. 2012). Agriculture can help to improve diets (qualitatively and quantitatively), generate income and employment, empower women and improve female health (Kadiyala et al. 2014). Despite the benefits of a more nutrition-sensitive agriculture, its full potential is still underused in India (Kadiyala et al. 2011). To unleash the benefits of agriculture for nutrition, it is important to gain better insights into the contextual factors that may facilitate or hinder leverage of agriculture for nutrition. Gillespie et al. (2015) stress the importance of understanding the 'enabling environment' of nutrition-sensitive agriculture and emphasise the need to analyse policy processes that underpin links (and disconnects). There are a limited number of recent studies that aim to explore the policy environment for a pro-nutrition agriculture in India (Kadiyala et al. 2011; Gillespie et al. 2015). However, available evidence focuses

only on the current links (or lack of links) between agriculture and nutrition and usually does not explore the historical origin of these links.

To create strong and sustainable agriculture-nutrition links for the future, it is important to start with the past and examine the roots of the current disconnect between nutrition and agriculture in India. We set out to explore the policy processes and frames that underlie the debate on undernutrition and agriculture since India's Independence. This paper presents an analysis of the evolution of the policy framing of undernutrition and an assessment of the links with agriculture of each frame. A historical analysis will provide insights into the prevailing policy environments in the last 60 plus years and whether they enabled or hindered linkages between nutrition and agriculture.

Following Indian Independence, the framing of undernutrition is prone to have changed repeatedly. Old frames are replaced by new frames in response to international debates, alongside changes in the political context and development priorities of the country (e.g. achieving a food-secure India, economic growth). Each of these shifts in framings may have affected the historical alignment between nutrition and agriculture. In order to understand the roots of the challenges and opportunities of using agriculture to address undernutrition in contemporary India, it is imperative to unpack the way in which undernutrition has been framed in the policy debates over the last decades and analyse whether and how agriculture was (or was not) part of these frames.

3 Methodology

3.1 Framing

The concept of framing has become increasingly popular in different disciplines, including public policy analysis (Rein and Schön 1993; Termeer and Werkman 2011), sociology (Goffman 1974) and communication sciences (Entman 1993). Frames provide a particular shape and interpretation scheme for a policy issue (Rein and Schön 1996) and direct understandings, beliefs and public perceptions about the issue (Lakoff 2004). Kwan (2009) describes frames as 'cognitive shortcuts' that just select and present some features of the reality of an issue while omitting others. Depending on the chosen frame, certain elements of an issue become more meaningful, and are promoted and remembered more by the public and political leaders (Van Gorp 2010). Frames usually describe not just 'what needs fixing' but also 'how it might be fixed' (Rein and Schön 1996). This can also include allocation of responsibility and suggestions of appropriate interventions to address the issue at hand (Gamson 1992).

Frames are not stagnant structures but dynamic and change over time depending on political leadership and their priorities (as this paper will show). Changes in framings often happen in response to changes in the wider political and economic context. Shifts may be positive (e.g., if based on careful reflection and analysis of a problem and its context) or negative (e.g., if based on personal preferences, beliefs or leanings only) (Rein and Schön 1996). Shifts in framing can even lead to changes in the entire issue as different frames may stress different aspects, propose different actions and suggest different solutions (ibid.). Framing can also influence which actors / departments or ministries come together to form coalitions on the basis of the definition of a specific issue.

3.2 Frame analysis

To identify the different policy frames on the reduction of undernutrition and to analyse the evolution of these frames across the last six decades, discourse analysis (Wetherell et al. 2001) combined with elements of a critical frame analysis was used (Rein and Schön 1996; Bacchi 2009; Verloo 2005). The frame identification and analysis was guided by three elements as suggested by Snow in 1992 (Snow and Benford 1992): the definition of the problem (diagnosis); the proposed solution to the problem (prognosis) and the call for action (who is responsible for solving the problem). Additionally, details on the link to agriculture were extracted for each frame.

This study is concerned with the identification, review and analysis of national-level framing of undernutrition by the ruling governments since Independence. The central documents for the analysis were the Five Year Plan documents.¹ The Five Year Plans constitute the key instruments for economic and social development planning in India (Byrd 1990). The Five Year Plans are formulated by the Planning Commission based on advice and targets recommended by different sectoral Plan working groups. These groups consist of officials from different concerned ministries, as well as academics and representatives from the private sector. For the analysis, the Plans were supplemented by other key policy documents relevant to nutrition and agriculture, including the National Nutrition Policy (GoI 1993), the National Food Security Act (GoI 2013) and the National Plan of Action on Nutrition (GoI 1995).

A coding scheme was developed based on the three elements for frame analysis described above (diagnosis, prognosis and call for action) and was used to code the relevant sections of the documents.

4 Results

In this section we describe the different frames of undernutrition that emerged from the analysis of the Plan documents and explore linkages to agriculture. Table I presents an overview of the identified frames, the diagnosis of the problem and the link to agriculture (see Appendix A for a more comprehensive presentation of the results, including the prognosis and call for action).

¹ Since 1947 the Planning Commission of the Government of India developed, executed and monitored eleven Five Year Plans to strategically direct the national economic development. Prime Minister Narendra Modi replaced the Planning Commission with a policy think-tank called NITI Aayog that was launched on 1 January 2015.

Table 1 Overview of undernutrition frames identified

Identified Frames	Time	Diagnosis	Link to Agriculture
Undernutrition as a public health problem frame	1950- '65	High prevalence of energy and micronutrient deficiencies	Food-based approach to address undernutrition, to provide energy (via cereals) and vitamins, minerals, protein (via dairy, meat, pulses, vegetables and fruit)
Food shortage frame	1965-'75	Food shortage as the main cause for undernutrition	Increased foodgrain production as the primary solution to undernutrition
Undernutrition as a multidimensional poverty issue frame	1975-'97	Multidimensional causes for undernutrition with poverty as underlying structural cause	Agriculture as driver of economic growth, provider of income and employment Less focus on food supply via agriculture since combating undernutrition became a poverty alleviation goal.
Nutrition and food security frame	1997-present	Nutrition and food insecurity remain challenges at household level despite national food sufficiency	Increased food security via increased foodgrain production Attempts to diversify agriculture production towards horticulture and livestock growth

4.1 Nutrition as a public health problem (1947-1965)

In the first few years following India's independence from British rule, undernutrition was predominantly framed as a public health concern. Inadequate nutrition was described as the 'main cause of the low state of health' of the Indian population and was associated with 'high infantile, maternal and general mortality rates in India' (Plan 1, Ch. 32) (Gol 1951). Diseases caused by micronutrient deficiencies such as beriberi (vitamin B1 deficiency), goitre (iodine deficiency), acute vitamin A deficiency and pellagra (vitamin B3 deficiency) were common among poor population groups (Gopalan 2013). The high prevalence of micronutrient deficiencies was also highlighted by the two committees that were created to apprise the development of the Indian public health system and had released their recommendations around that time: the Bhole Committee that published its report in 1946 (Committee 1946) and the Sokhey Committee that released its report in 1948 (Committee 1948). Acute protein energy malnutrition (known as kwashiorkor) was identified as an additional severe health concern in Plan 2 (Ch. 25) (Gol 1956). The framing of undernutrition as a medical problem that could be treated with vitamins and minerals reflected the thinking about undernutrition in the global research community at this time (Herforth et al. 2014). Nutrition emerged as a science with a focus on discovering new nutrients and the effects of deficiency (Carpenter 2003).

The prevention and treatment of undernutrition (and in particular, so-called 'deficiency diseases') was seen as the responsibility of the public health departments, the health and nutrition workforce and the individual (e.g., through healthy food choices and nutrient- preserving food preparations). Curative and preventive feeding schemes via child and maternal welfare services were suggested as

² The Bhole Committee was set up in 1943 by the colonial government of British India. It was led by Sir Joseph Bhole and had the mandate to inform the public health planning for India. The committee published its recommendation in 1946.

³ The Sokhey Committee was one of the sub-committees of the National Planning Committee (NPC) set up in 1938 by the Indian National Congress. The committee was headed by Col.S.S. Sokhey and focused on public health planning of India. It released its recommendations in 1948.

effective public health measures for nutritionally-vulnerable populations from low income groups. Nutrition education and advice to teach 'correct food habits' (Plan 2, Ch. 25) (Gol 1956) and 'conserving the nutritive elements in food and avoiding wrong uses and wastage' (Plan 3, Ch. 32) (Gol 1961) were promoted to facilitate better individual choices.

The diet surveys from 1935-'48 and 1955-'58 also shed light on the inadequacies in the diets (both in energy and micronutrients) of a majority of the Indian population as they concluded that:

The average diet of an Indian is lopsided primarily because of its extremely high cereal content. The other noticeable feature is that the diet lacks in adequate amounts of protective foods, leading to inadequacy and very often to total lack of proteins of good quality.[...] it may be stated that in about four-fifths of the families surveyed, the intake of protective foods was either nil or below standard (Gol 1956).

Scientifically-based nutrient requirements and recommendations for desirable dietary intakes for Indians were released by the Nutrition Advisory Committee⁴ in 1944 (revised in 1958, 1968, 1978, 1985 and 2000) and aimed to guide citizens' food consumption and dietary choices.

Link to agriculture

While food supplementations (e.g. milk powder⁵, cod liver oil) were considered as options for nutritionally-vulnerable population groups such as young children and pregnant and lactating mothers (Gol 1956; Gol 1961), a food-based approach to address undernutrition was generally favoured (see also Gopalan 2013). 'Protective and body-building foods such as milk, eggs, fish, meat, fruits and green vegetables' were seen as important sources for vitamins, minerals and proteins (Gol 1961) and cereals were described as the source for calories.

Agricultural food supply was insufficient to meet the nutritional requirements of the population of India as pointed out in the first three Five Year Plans. Based on the dietary intake recommendations, agricultural production targets were suggested and a 'marriage between agriculture and health'⁶ was promoted (Aykroyd 1936). An increase in food supply via agricultural intensification (e.g. irrigation systems, better seeds, fertilizer), land reforms and expansion of agricultural land was recommended.

The importance of non-cereal foods for good nutrition was recognised and attempts were made to 'diversify agricultural production and to shift somewhat the emphasis which has been hitherto placed in a dominant degree on the production of cereal crops' (Gol 1956). Nevertheless, agricultural intensification focused predominately on maximising foodgrain production as this was a key element of the social and economic development plan of the new Republic of India.

⁴ The Nutrition Advisory Committee was part of the Indian Research Fund Association (now Indian Council of Medical Research). It was established in 1936.

⁵ Milk powder was in surplus worldwide in the 1950s and its distribution was a popular and cost-effective intervention aimed at reducing undernutrition in children (Levinson and McLachlan 1999).

⁶ The phrase 'marry health and agriculture' was first used by an Australian delegate during the 16th session of the Assembly of the League of Nations in September 1935. It consequently became a popular and often used phrase (Sathyamala 2010)..

The aim was to achieve independence from foodgrain imports and to build up food buffers to protect the population from future famines and droughts. The population of India was still suffering in the aftermath of major droughts and famines, including the most recent and devastating famine of Bengal in 1943 (Schneer 1947). Developing a food-sufficient India was one of the overarching goals at this time and was also specified in Article 47 of the Constitution of India from 1949.⁷ Agricultural diversification and the production of so-called protective foods remained secondary.

4.2 Food shortage frame (1965-1975)

Two successive droughts in the mid-1960s due to failed monsoons (Parthasarathy et al. 1987), coupled with the costs of two wars that India fought, meant that the agricultural targets laid out in the Third Five Year Plan could not be achieved. Food shortage became a major concern for the Indian government as the country became highly dependent on food imports (Nandkumar et al. 2010). The threat of famines that had been dormant since Independence re-emerged and some minor (compared to the devastating famines during the colonial period) famines unfolded (e.g., famine of Bihar in 1966/7) (Klein 1984).

Lack of food was perceived as the main cause for undernutrition of large parts of the population and 'more food [was seen as] the first step towards better nutrition' (Gol 1969). The focus returned to basic staple food (i.e., cereals) and the provision of calories (rather than a balanced diet with 'protective' or 'body-building foods' as called for in the previous decade). Apart from improving food availability (via increased agricultural production), the Fourth Plan proposed food price stabilisation and public food distribution as measures to improve access to food (especially to low income groups).

Apart from the mainstream framing of undernutrition as a problem of food shortage, the treatment and prevention of nutritional deficiencies of vulnerable population groups (e.g., pregnant women, school-aged children) became the goal of newly introduced integrated nutrition programmes in the Fourth Five Year Plan. These special nutrition programmes (SNPs) were the responsibility of a variety of social welfare and health departments (Gol 1969)

Link to agriculture

Nutrition and agriculture were closely aligned in this period and an increase in agricultural production was perceived as 'the base of all effort in nutrition' (Gol 1969). The Green Revolution⁸ (from the late 1960s to '70s) aided this belief by rapidly maximising agricultural productivity via the introduction of high-yielding wheat and rice varieties, chemical fertilizers and irrigation systems (Evenson and Gollin 2003). A rapid and significant boost of the staple crop supply was the overarching priority of India's agriculture and aimed at promoting India's economic development and

⁷ 'The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.' (Constitution of India, 1949)

⁸ Green Revolution was a period of significant improvements in foodgrain production due to the use of agro-technology.

food self-sufficiency as well as tackling undernutrition among large parts of the population. While the agriculture intensification during the Green Revolution helped to support the aim of ‘freedom of hunger’ in India, it did not support a nutritious and balanced diet as no attention was given to the production of nutrient-rich foods such as pulses, fruits and leafy vegetables (Gopalan 2004).

4.3 Undernutrition as multi-dimensional poverty challenge frame (1975-1993)

The impacts of the world food and oil price crises in the 1970s hit India hard and the country once again became dependent on food imports (after a period of near self-sufficiency during the peak of the Green Revolution) (Timmer 2010). Unemployment and poverty levels surged, especially in the rural areas (Srinivasan 2008). In this context, undernutrition was primarily framed as a poverty issue whereby poverty could lead to undernutrition via multiple and often interdependent factors. The understanding of the complexity of undernutrition grew in India as well as internationally (see, for instance, Herforth et al. 2014 for an historical analysis of the evolution of the framing of undernutrition in the international development community). While ‘inadequate intake of food’ (Gol 1980) was still seen as a contributing factor to undernutrition, ‘social, cultural and economic imbalances’ were perceived as equally responsible for persistently high levels of undernutrition among children. In the Fifth, Sixth and Seventh Five Year Plans lists of interlinked underlying factors that were perceived to be responsible for undernutrition were presented. For example, Plan 6 (1980-’85) (Gol 1980) cites ‘lack of employment opportunities, illiteracy, safe drinking water, health facilities and unhealthy environments, [...] inequality of incomes, weak public distribution system, insufficient clothing and housing’ as factors associated with ‘hunger, malnutrition and the associated disorders’ (Gol 1980). Thus, to address undernutrition a multi-sectoral approach with a strong focus on household-level poverty reduction was favoured by the Indian Government. Plan 6 states that:

Intervention programmes will achieve limited results if this problem is addressed only at individuals in the households like children, mothers and the aged. Therefore, the strategy would have to be framed for the alleviation of hunger and malnutrition in all sections of the society through family-centered poverty alleviation measures. (Gol 1980).

Likewise, Plan 7 (1986-’91) states:

Foremost among the elements of the long-term strategy to combat malnutrition and under-nourishment is the expansion of employment opportunities and stabilisation of income, especially among the vulnerable population groups. (Gol 1985)

Economic growth was prescribed as the overarching approach to aid poverty reduction, and thereby reduce undernutrition, as it would create employment and incomes and thus enable access and consumption of better services, living conditions and food. To address poverty and its negative consequences directly, a number of anti-poverty programmes was launched in this period including the National Rural Employment Scheme,⁹ the Integrated Rural Development Programme¹⁰ and the

⁹ National Rural Employment Programme (NREP) was established to provide employment in rural areas, particularly in times of drought and food scarcity. The programme was launched in October 1980.

¹⁰ Integrated Rural Development Programme was launched in 1978 and is a self-employment programme intended to raise the income-generation capacity of target groups among the poor.

Minimum Needs Programme (MNP).¹¹ A multitude of programmes and activities aimed at the different underlying factors of undernutrition was launched by different Ministries and Departments, including Social Services, Education, Food and Agriculture, at national, state and community levels. The launch of the National Nutrition Policy (NNP) (Gol 1993) further facilitated a multi-sectoral approach to undernutrition by identifying key areas for nutrition for the different sectors. The policy was followed by a National Plan of Action on Nutrition in 1995 which outlined a framework for the coordination of the different sectors, central and state governments, civil society and agencies (Gol 1995).

Both NNP and the National Plan of Action promoted strong nutrition – agriculture linkages, for example, via the creation of nutrition working groups in the Ministry of Agriculture and the support of women (the main provider of nutrition to the household) in agricultural activities. While the launch of NNP and the National Plan of Action created a momentum for nutrition and promoted a link between agriculture and nutrition, a follow-up with concrete agri-nutrition programmes and policies and targeted public resource flows failed to appear (Mohmand 2012; Roa 2008)

Link to agriculture

The links between the reduction of undernutrition and agriculture were less pronounced in this period. Agriculture was mainly seen as a driver of economic growth and generator of income and employment in rural areas. Agricultural growth as a means to economic development was once again stressed in the Five Year Plans. Especially in the Fifth Five Year Plan (written in the context of the world food price crises), the focus was strongly on creating an India self-sufficient in foodgrain production.

Agricultural food production was still perceived as important for nutritional well-being; however, it was just one factor among many in the effort to address undernutrition. The focus on food also expanded and comprised not only food availability and supply via agricultural production but also included access to food via equitable food prices and food distribution (see especially Plan 6).

4.4 Nutrition and food insecurity frame (1997 to present)

Starting from the Ninth Five Year Plan, the interest and focus on nutrition came to the forefront of the Indian policy debate. The framing of undernutrition took a two-pronged approach highlighting the role of food insecurity (defined as inadequate availability and/or access to adequate amounts of food) and nutrition insecurity (defined as inadequate availability and/or access to nutrients).

Food insecurity remains an important issue for India until the present. In the early 1990s India achieved self-sufficiency in foodgrains for the first time since Independence and the government tentatively considered developing a wheat-based agricultural export industry (see Ninth Five Year Plan). However, 'even though self-sufficiency in food production has been achieved, the population still lacked access to balanced food.' (Plan 9, Ch.4). Furthermore, inequalities in food distribution

¹¹ Minimum Needs Programme (MNP) was introduced in the first year of the Fifth Five Year Plan to provide certain basic minimum needs and improve the living standards of people. It aims at "social and economic development of the community, particularly the underprivileged and under[r]served population".

were common as stated in Plan 9: 'self-sufficiency in foodgrains [...] does not necessarily imply food and nutrition security for all'. Access to food and 'the creation of a hunger-free India' (Plan 9) was one of the objectives of this period. The 'Right to Food' movement¹² provided additional support and publicity for the issue of food insecurity (Sathyamala 2010). The world food price crises in 2007/8 combined with a reduced wheat harvest due to drought and disease, as also reductions (and temporary ban) of rice exports, highlighted the need to further increase foodgrain production. (Carpenter 2003). Subsequently, the National Food Security Mission was launched in 2007 with the aim to maximise foodgrain production by 20 million tonnes in the coming five years. Apart from improving food supply, more equitable food distribution systems were developed to improve access to food.

In the run-up to the Twelfth Plan, a conclave was organised by the Planning Commission to discuss India's nutritional challenges. Some of the conclusions of this meeting were to improve food security and livelihood supplementation programmes under the [proposed] National Food Security Act. This would promote a wider concept of household food and nutrition security, especially for children and women (Kadiyala et al. 2011). The Food Security Act was launched in 2013 and was a milestone in bringing nutrition to the public focus (van den Bold et al. 2015). However, its definition of food security remains narrow and focuses on 'foodgrains (rice, wheat or coarse cereals or any combination thereof)' (Gol 2013) only.

Nutrition insecurity and its consequences (e.g. micronutrient deficiencies) remained the focus of nutrition-specific interventions delivered at community level as part of existing social development and welfare programmes (via ICDS and NRHM). Scaling up community-based direct nutrition intervention was emphasised in Plans 9, 10, 11 and 12.

Links to agriculture

The link between nutrition and agriculture was via food and the provision of foodgrains to address food insecurity. The contribution of agriculture to a balanced diet and nutrition security emerged tentatively in the Tenth Plan that highlights a shift in consumption patterns:

In recent years, however, it appears that food security in the traditional sense of the term, i.e., calorific requirement, may no longer be such a pressing problem. Although per capita availability of foodgrains has not risen sharply, there appears to have been a distinct shift in the consumption patterns away from foodgrains towards other forms of food [...] The evidence that exists of pervasive undernutrition in our population, particularly among children and women, suggests that the shift in consumption patterns is desirable and needs to be encouraged (Gol 2003).

The National Horticulture Mission (Gol 2014) and the National Rural Livelihood Mission recognise the link between agriculture and nutrition (van den Bold et al. 2015). The Horticultural Mission has

¹² The 'Right to Food' movement is a rights-based civil society movement that filed a petition before the Supreme Court of India in 2001 to ask for the recognition and enforcement of the right to food as stated in Article 25 of the Constitution of India. In 2013, the court case received ultimate recognition with the release of the Food Security Act in India.

the mandate to diversify agricultural production towards horticulture and livestock growth. Alongside this, the National Agriculture Development Programme — Rashtriya Krishi Vikas Yojana (RKVY) — was launched to incentivise the states to develop comprehensive plans for district-level agriculture specific to particular agro-climatic zones and natural resources. These flexible plans also aimed to allow a better integration of livestock, poultry and fish farming with the crop sector (Kadiyala et al. 2011).

The latest report of the Agriculture Ministry (Annual Report 2015) mentions nutrition objectives for the first time, but nutrition remains absent from the result development framework presented in the report.

5 Conclusions

This paper set out to (1) examine the framing of undernutrition in Indian policy debates since Independence and (2) explore the linkages to agriculture in each of the identified frames. The historical frame analysis perceived several substantial shifts in the framing of undernutrition in India since Independence, whereas agriculture was predominately framed as a driver for economic growth and foundation of national food security (although the recognition of the nutrition-enhancing properties of agriculture as well as the diversification of agricultural production has increased slowly in the last decade).

In the first two decades after Independence, undernutrition was framed as a health concern with the prevention and treatment of vitamin deficiency diseases, and later on protein deficiency, being the responsibility of public health systems. Agriculture was perceived as an important element of the solution to the undernutrition problem as it supplied sources for micronutrients and proteins via so-called protective foods. However, while the importance of diverse agricultural products for a nutritious diet was recognised and repeatedly stressed in the initial Five Year Plans, the focus of agricultural production was on maximising foodgrain production as a means to ensure the economic development of the new Republic of India. This focus on foodgrain production has dominated the agricultural sector for 60 years with only slight shifts in the underlying reasoning.

The closest alignment between agriculture and nutrition in India was found between 1965 and 1975 when undernutrition was framed as a problem of food shortage (and here predominantly the lack of calories) and the primary aim of agriculture was to increase food supply via increased cereal production. The focus of agriculture was therefore on producing large quantities of cereals for consumption and not on the variety of foods necessary for a balanced and nutritious diet. While the link between agriculture and nutrition was strong, it was far from a nutrition-sensitive agriculture. Between 1975 and 1997, undernutrition was framed as a poverty issue with multiple and multi-sectoral underlying causes. Links between nutrition and agriculture were less pronounced during this time and agriculture was mainly perceived as the generator of income, employment and economic growth. However, as several studies have documented, that while economic growth often leads to an improvement in a population's nutritional status, the improvement is often far smaller than anticipated (Haddad et al. 2003). Since 1997 the public interest in nutrition has increased and undernutrition has been defined as a food and nutrition security problem. While agriculture is still

seen as the primary provider of food (in terms of calories from foodgrains), the importance of agriculture for a balanced and healthy diet is recognised more and more in policy debates.

Recommendation 1: Promote the primary role of agriculture for the production of nutritious food for a productive and healthy Indian population

While the role of agriculture for a nutritious and balanced diet has been acknowledged since the First Five Year Plan, no concrete action has followed. Agriculture in India mainly focussed on maximisation of foodgrain production to increase food supply, achieve self-sufficiency, promote economic growth and create income and employment. The essential role of agriculture for the production of nutritious food for a healthy and productive Indian population needs to be promoted.

Recommendation 2: Promote agricultural diversification for a varied diet of the Indian population

Agricultural diversification has been at the margins in the Indian policy debates for a long time (although the focus has shifted slightly, especially in the Eleventh Five Year Plan). The persistent emphasis was on the increase of the production of a small number of commercially attractive crops. In the last decade, agricultural production in India has started to diversify and the country is globally the second largest producer of fruit and vegetables and the largest producer of milk (FAOSTAT 2012). Horticulture, livestock and fishery account for about 56 per cent of the total value of agricultural output, whereas cereals account for only about 18 per cent.

Recommendation 3: Raise consumers' awareness of, and create demands for, a varied diet including non-cereal agricultural products

Foodgrains have long been promoted and distributed as the main response to household food insecurity and undernutrition in India (e.g., by the public distribution system). Micronutrient deficiencies were addressed in special programmes and often via the health sector. Awareness of the value of different agricultural products in tackling and preventing micronutrient deficiencies needs to be raised among consumers and demand for non-cereal agricultural products needs to be created.

This paper has identified several frames that have dominated the nutrition policy discourse in India since Independence. The particular tenacity of these frames can be attributed to development priorities and also resistance within structures to think 'out of the box', which in turn indicates deep-rooted biases and assumptions about nutrition. Nutrition has often been marginalised by the vertical sectoral orientation of the Indian government. During the last 10-15 years, the awareness of the potential of agriculture for a balanced, diversified and nutritious diet has gradually increased in the policy debates; however, entrenched beliefs and perceptions about agriculture remain and may hinder the development of more nutrition-sensitive agricultural programmes and policies.

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Table 2: Results from frame analysis of national Five Year Plan documents of India

Frames	Time	Diagnosis	Prognosis/solution	Call for action	Link to agriculture
Undernutrition as a public health problem frame	1950 –'65	Micronutrient deficiency diseases and protein deficiency common among vulnerable population groups	Prevention and treatment of undernutrition via welfare services, nutrition education and advice Scientifically-based nutrient requirements and dietary intake recommendations to guide population's food intake and agriculture production	Public Health Department Nutrition and health workforce Individuals	Food-based approach to address undernutrition, agricultural products to provide energy (via cereals) and vitamins, minerals, protein (via dairy, meat, pulses, vegetables and fruit)
Food shortage frame	1965-'75	Food shortage (mainly due to limited food supply) as the main cause for undernutrition	Increase of food-grain production through agricultural intensification as part of the Green Revolution Nutritionally vulnerable population groups are targeted by Special Nutrition Programmes (SNP)	Ministry of Food and Agriculture Nutrition programmes responsibility of Social Welfare Services, Education and Health Departments of states	Increased foodgrain production (as source of energy) perceived as the primary solution to undernutrition
Undernutrition as a multidimensional poverty issue frame	1975-'97	Multidimensional causes for undernutrition (e.g. poor living conditions, limited access services, food insecurity) with	Promotion of economic growth to address poverty and multiple causes of undernutrition Multitude of programmes and activities to address different	Large number of central and state-level actors and agencies: Department of Food	Agriculture as driver of economic growth, provider of income and employment Less focus on food supply via agriculture

Frames	Time	Diagnosis	Prognosis/solution	Call for action	Link to agriculture
		poverty as underlying structural cause	causes of undernutrition directly Anti-poverty and poverty alleviation programmes for vulnerable population groups Implementation of the National Nutrition Policy (1993) and National Nutrition Action Plan (1995) which outline multi-sectoral coordination and stress direct nutrition interventions	and Public Distribution, Ministry of Food Processing Industries, Ministry of Health and Family Welfare, Ministry of Education, Governments of each State, local communities	Shift from narrow focus on food supply to access to food (via increased food production, equitable food prices, food distribution)
Nutrition and food security frame	1997-present	Nutrition and food insecurity still a challenge at household level, despite national food sufficiency	Nutrition security: focus on scaling up nutrition-specific interventions at community level (e.g. breastfeeding promotion, micronutrient deficiency programmes), since the Eleventh Plan in collaboration with health services Food security: Increase food supply and equitable food distribution National Food Security Act 2013 to ensure food security via subsidised foodgrains	Ministry of Health and Family Welfare (NRHM), Ministry of Women and Child Development (ICDS), Ministry of Consumer Affairs, Food, and Public Distribution, Ministry of Agriculture	Agriculture as driver of economic growth, provider of income and employment Increased food security via increased foodgrain production (launch of the National Food Security Mission in 2007) Since Plan II, increased attempt to diversify agriculture production towards horticulture and livestock growth (launch of the National Horticulture Mission and Rashtriya Krishi Vikas Yojana)