Report On The International Conference
Food And Health In Cross-Cultural Perspectives: Policies And Practices

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FOREWORD

The aim of the conference has been to encourage reflections on food, physical and mental health and the interrelationship between them. These subjects were mainly addressed with reference to low income populations in India. The presence of some participants from Morocco, Niger and France enabled to enrich debates, notably on particular aspects such as history of food security or cultural dimensions of food and health. Obviously, such a conference cannot solve the immense issues of access to food and health which the world has to face, but by the variety of topics, it has aimed to improve the understanding of the problems and to encourage more coordinated responses.

The conference has been possible thanks to the joint efforts of the BALM (The Banyan Academy of Leadership in Mental Health), the research and training centre of the NGO The Banyan, Chennai, involved in the mental health care of homeless women, and of the FIP (French Institute of Pondicherry), a research institution under the aegis of the French Ministry of Foreign Affairs, which carries out research in Indology, Social Sciences and Ecology, and the financial support of Navajbai Ratan Tata Trust, the French Institute of Pondicherry, the Agence Universitaire de la Francophonie (AUF) and the Centre National de la Recherche Scientifique (CNRS). The conference has also welcomed two participants from Niger and Morocco who are involved with the FIP in the UNESCO Chair entitled 'The safeguarding and enhancement of food culture and heritage' brought and managed by the University François Rabelais, Tours.

CONTENT

INTRODUCTION

How to enhance the health of populations when the world is facing so many rapid changes which impact on the availability of and access to resources for all? Drastic increase of population, development of urbanization associated with migration, agricultural land decline and deforestation, industrial and agricultural pollution, unequal economic development, all these factors tend to weaken the resources, among them the vital ones, food and water.

Food is essential for the sustenance of the body and its adequate quantity and its nutritional quality are fundamental to furnish efforts and to maintain heath. The impact of food on health is quite often tackled in studies from the point of view either of malnutrition and diseases caused by nutritional deficiencies, or of metabolic disorders (obesity, type2 diabetes, dyslipidemia, hyper tension, cardio-vascular disorders). But, food and nutrition deficiencies impact on mental balance, and conversely, mental health impacts on general health. To quote Dr Roy Abraham Kallivayalil, the new national president of Indian Psychiatric Society, "*There is no health without mental health. Mental health is essential for maintenance of the overall health and well being of individuals and the society at large. It affects the individual's ability to function, to be productive, to establish and maintain positive relationships and to experience a state of well being*"[1]. So, the perspective of the conference was to exchange knowledge on the relationship between food and health, physical and mental. These three topics structure the report in three chapters: 1-food and nutrition security; 2-food and physical health; and 3-food and mental health (illness and mental balance).

1- FOOD SECURITY

Recent economic crisis has provoked high volatility of food prices, and to assure food for all has become a major issue in the world, notably in the vulnerable developing countries. Not only do people have the right to access food daily, but food must be nutritious in order to assure them a decent life, free of diseases and disabilities caused by nutritionally imbalanced food or by scarcity.

This chapter includes some presentations of the conference in which food security is at the heart of the analysis, either by focusing on policy or by

[1] Kuttoor Radhakrishnan (2012). Call to include Psychiatry a separate subject in MBBS curriculum, *The Hindu*, 2 May.

proposing some means (economic, agricultural, ideological, cultural) to improve food and nutrition security.

Before one goes through these presentations, it seems relevant to us that we focus on the situation of food security in India because the country is now on the way to passing a bill for regulating it, called the National Food Security Bill 2011 (NFSB 2011). The length of time for the development of the bill, which has generated numerous debates and controversies due to its failure to fit to the definition of the 'Right to food', highlights the sensibility of the subject[2].

Reformulated in the draft of the NFSB 2011 from the definition of Right to food presented in the report of United Nations (Ziegler 2008)[3], Right to food is defined as: "*Every person shall have the right of access to, at all times, either directly or by means of financial purchases, to quantitatively and qualitatively adequate, sufficient and safe food, corresponding to his or her cultural traditions and which ensures a physical and mental, individual or collective fulfilling and dignified life free of fear of hunger or malnutrition.*"

1-1 The Birth Of The National Food Security Bill in India: An Act Under Controversies

A first draft on the National Food Security Bill (NFSB) was announced by Mr Pranab Mukherjee, Finance minister during the presentation of the Union budget and detailed by Mrs Pratibha Patil, President of India, on June 4, 2009.

The initiative for the bill stemmed from the People's Union for Civil Liberties (PUCL, Rajasthan) which filed a writ petition in the Supreme Court in April 2001 against the Food Corporation of India, the Government of India, and six Indian States. It sought legal enforcement of the right to food, a fundamental right under 1- 'the right to life' provided by Article 21[4] of the Constitution of

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[2] Regarding the sensibility of the food security in India, one can consult the article of Sunil S. Amrith (2008) Food and Welfare in India c.1900-1950. *Comparative Studies in Society and History*, 50(4): 1010-1035. The author relates this sensibility to the long history of starvation, hunger and famines in which the question of food security was used since the late colonial period to legitimate power in India, and to the "new ideas of social solidarity that underpinned the efflorescence of voluntary activity in the early twentieth century" (p.1014), exemplified by "Gandhi's mode of responding to starvation" or by regional poets using "hunger and starvation as metaphors both for the condition of India, and for the imagination of new regional, national, and even international collectivities"(ibid.).

[3] Jean Ziegler (2008). *Promotion and protection of all human rights, civil, political, economic, social, and cultural rights, included the right to development*. Human Rights Council, Seven sessions, United Nations.

[4] Article 21: "No person shall be deprived of his life or personal liberty except according to procedure established by law."

India, 2- the right to adequate means of livelihood (Article 39a[5]) and 3- the right to adequate level of nutrition and public health (Article 47[6]). The petition was filed at a time when the country's food stocks reached unprecedented level, while hunger in drought-affected areas intensified. It requested the Supreme Court to issue orders directing the government: (a) to provide immediate open-ended employment in drought-affected villages; (b) to provide 'gratuitous relief' to persons unable to work; (c) to raise food entitlements under the PDS; and (d) to provide subsidized food grain to all families and supply free food grain to the existing interventional social schemes: Public Distribution System (PDS); Antyodaya Anna Yojana (AAY); National Programme of Nutritional Support to Primary Education (Mid-Day Meals scheme MDM – 2001 cooked meal in replacement of dry food); Integrated Child Development Services (ICDS); Annapurna; National Old Age Pension Scheme (NOAPS); National Maternity Benefit Scheme (NMBS); National Family Benefit Scheme (NFBS). The first interim order issued by the Supreme Court on November 28, 2001, was to redefine social schemes and to convert benefits of them into legal entitlements. Supreme Court appointed in May 2002, two Commissioners funded by the Government, Dr. N.C. Saxena, former Secretary in Planning Commission, and Mr. S.R. Sankaran, former Secretary of the Ministry of Rural Development (resigned in November 2004) for the purpose of monitoring the implementation of the interim orders mainly directed to the Central Government (Food Ministry, the Ministry of Rural Development, and the Department of Women and Child Development) and the State Governments (Chief Ministers) and also of analysing secondary data for monitoring the performance of State Governments.

In her announcement of the draft on Food security Bill, Mrs Patil mentioned that 25 kg of rice or wheat per month at Rs 3 a kg would be distributed to families identified as Below Poverty Level (BPL), and that the draft would be put up on the website of the Ministry of Food and Public Distribution for public debate. A long debate followed between the Empowered group of Ministers, the National Advisory Council and the civil society, generating several versions of the draft. The final version called National Food Security Bill 2011 was approved by the Union Cabinet in December 2011 and it is till today under the examination of the Parliamentary Standing Committee on food which should ratify it. However, the draft continues to provoke controversies because some issues pointed out during the revision of the bill have been taken into account.

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[5] Article 39a: "he State shall… direct its policy towards securing that the citizen, men and women equally, have the right to an adequate means of livelihood…"

[6] Article 47: "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…"

The present draft proposes to cover through the PDS 75% of the rural population and 50% of urban population identified 1- as priority category with 7 kg food grains per person per month at Rs. 3 per kg for rice; Rs. 2 per kg for wheat and Rs. 1 per kg for coarse cereals and 2- as general category with 3 Kg food grain per person per month at half the minimum support price of grains. It proposes also to provide food in the various social schemes[7]: MDM (one fresh cooked meal at noon by school day up to 8 standard children admitted in accordance with Section 12 (1) of the Right of Children to Free and Compulsory Education Act, 2009 as well as drinking water), AAY and Annapurna (one meal per day for destitute and homeless persons, casual workers, migrants served in Community kitchens), ICDS (food grains or fresh cooked food to children up to 6 years) and NMBS (nutritious food to women during pregnancy and six-month lactation), and also in Nutrition rehabilitation centres developed in hospitals or Primary Health Centres to care severely malnourished children.

The last draft is controversial by the NAC, activists and civil societies on three major points: its feasibility in terms of cost and availability of food grains; its lack of concern on nutrition security; identification of households targeted as 'priority' and 'general' categories that replace the old categories, BPL (Below poverty Line) and APL (Above poverty line) created in 1997 when the PDS became targeted. In short, the draft doest not respond to the definition of the Right to food in terms of quantity (point 1), quality (point 2) and access to all (point 3).

To the first point, the government claims to be capable to find the necessary funds to implement the schemes and to dispose of efficient food grains stock to provide the beneficiaries under the NFSB 2011. Indeed, the Ministry of Agriculture had launched in 2009 the National Food Security Mission with the perspective to enhance the production of rice, wheat and pulses for attaining 10, 8 and 2 million tonnes respectively at the end of the 11th Plan.

To the second point, the government added 'coarse cereals'[8] in its definition of food grain. The PDS scheme regulates only the distribution of food grains that are until now defined as rice or wheat according to rice- or wheat-eater states. The opponents of the bill had expressed their concern about the lack of awareness from the government of the nutritional quality of food. So, the introduction of 'coarse cereals' in ration shops marks an effort from the government in this direction that is appreciated because it responds to the

[7] The draft proposes also to include, for specific schemes, financial help, health assistance and follow-up notably for pregnant and lactating women and destitute groups.

[8] The term 'coarse cereals' that defines 'indigenous' cereals traditionally consumed by population means in this context, varieties of sorghum and millets. This term, commonly used, mirrors the poor status attributed to these cereals comparatively to rice or wheat.

demand both of nutritious diet support groups and of farmers and environmentalists. Admittedly, sorghum and millets which have experienced a sharp decrease in consumption and cultivation to the profit of rice or wheat are promoted for their micronutrients content higher than those in rice and, in less extent, in wheat, and for their cultural properties that help to protect environment (poor demands in chemical inputs and in water, well adaptation to poor soils) and farmers in arid and semi-arid areas (resistance to drought; poor demand in water). However, the introduction of sorghum-millets is considered as largely inefficient and opponents to the bill demand the regulation of pulses in PDS that is basically necessary to increase proteins and micronutrients content of diet. This demand is highly relevant for fighting vigorously malnutrition which is an endemic issue in India. In poor households, pulses that represent often the main intake of amino-acids and micronutrients, because milk, dairy products are too expensive and meat-fish-egg, when they are allowed, are not always consumed in efficient quantity due their high cost and volatility of prices[9]. Nevertheless, it does not seem that the government will take seriously this demand, because of its cost and the availability of pulse in the domestic market.

The third point regarding the criteria of eligibility for targeting priority or general households is entirely eluded in the Bill. For evaluating the coverage of population by the Food security Bill, several surveys based on the minimum revenue and wealth criteria have been conducted by the Planning Commission. But none have been decided on so that the draft will cover 70% of rural households and 46% of urban households without specifying how households will be selected. If the evaluation of beneficiaries resulting from the report of Saxena committee has not been considered by the government because of the large number that will generate too high cost, the proposition resulting from the report of Tendulkar committee has been hard-fought. That proposed that the BPL was established on the daily expenditure threshold of Rs.26 and Rs.32 for rural and urban households respectively, revenue deemed highly inefficient to achieve the Recommended Dietary Allowance of 2400 and 2100 calories for rural and urban population respectively which was defined in 1979 as norm for defining the minimum caloric daily requirement. To avoid the process of identification of 'priority' and 'general' households and that of the BPL households deemed too rigid, activists and the NAC demand the

[9] The 61th round of the National Sample Survey evaluates the general consumption per capita per month at 1.19 egg, 200g of fish and 160g of meat (Gandhi, Vasant P. and Zhou, Zhang-Yue, 2010, Rising Demand for Livestock Products in India: Nature, Patterns and Implications, *Australasian Agribusiness Review*, 18, Paper 7, 103-135)

universalisation of the schemes like it is already implemented by the Kerala and Tamil Nadu state governments.

The long and difficult development to achieve the NFSB mirrors the importance of food problems which Indian people are facing. If India attempts to display outside the image of a booming economy, it is deterred by the prevalence of child and mother mortality, of malnutrition and low birth weight, and the low indicators on access to drinking water, food, health, that classify it among the countries which show the least improvement of the life quality of their populations, in spite of its interventional schemes. To remedy to this situation, it is necessary that the country acquires laws, but also adequate manpower to control that the schemes are applicable and also well implemented, a paramount issue which the central government has to seriously consider. The NFSB is fundamentally necessary to relieve food anxiety of millions of Indians, but especially to improve the quality of their diet on which their health and mental balance depend upon. So, improving food and nutrition is a means to break the vicious circle of diseases and financial burden, and to reduce the disparity inside the society as food impact on intellectual capacity and work resistance.

1-2 Food Security In History

Since modern times, the price of cereals has been a central question in economic theories and public debates. This question is still largely at the heart of economic analysis as the 2007-2008 world food crisis has provoked a high volatility of food prices in many countries, notably in those that do not possess an economy efficiency strong and stable. Nevertheless, if food security is largely debated today, it needs to mention that the question of volatility of price and access to food stem from the end of 16th century in European countries, as Alain Clément shows it by exploring the French and English economists' writings from the 16th to the 19th century.

According to his paper titled '*Price volatility and food security in Europe: The Intellectual theories and their contribution to the contemporary debates*', the awareness of food prices' instability emerges in mercantilists' writings since the 16th century. During the 16th and 17th century, mercantilists considered people's behaviour as responsible of price fluctuation and developed the theory of 'fair price', a concept resulting from the Aristotelician and Thomist doctrines, which aims at protecting producers as well as consumers' interest in order to consolidate the stability of food prices. Bodin, a French mercantilist, showed notably that the concerted action between merchants and *monopolies* for increasing their own enrichment (called the 'plot theory') induced the expensiveness of food which was prejudicial to the consumers. Since the 18th century, thanks to a better knowledge

of the market, food price volatility was seen as stemmed from three major factors: 'natural volatility' (climatic and environmental vagaries); 2) 'endogenous volatility' (traders' speculation) and 3) 'imported volatility' (tension of the international market on the national market). Depending on epochs, mercantilists as well as economists proposed some solutions for stabilizing the food grain market which were essential for assuring food security to people. Before the 18th century, the main response of mercantilists were to maintain food price between a minimum and a maximum by forming and controlling stocks and by establishing subsidies and taxes at export and import in order to protect the domestic market. Since the 18th century, with the emergence of the liberal economy ideology, some mercantilists, interpreting the inflation phenomenon as mainly of natural origin, proposed the free circulation of products beyond the borders in order to compensate the fluctuation of agricultural yield resulting from climatic vagaries, and the development of social revenues to ensure food security and compensate the increase in prices. But, for the opponents of economic liberalism who attributed to price inflation an endogenous origin, the solution passed by a control of prices by the State, by organising food public stocks to counteract both fluctuation of production and speculative actions of traders and controlling export and import markets. During the 19th century, the opposition of economists between liberalist and interventionist actions continued but the increase in social revenues to compensate high food price was abandoned. The stabilization of prices when volatility resulted from natural causes meant certain conditions. Liberal economists proposed to open the international market. But, as they deemed this action as not efficient enough, they encouraged on the one hand, an agriculture more performing, a 'high agriculture' using techniques capable of producing surplus at lower cost for compensating losses, and on the second hand, the modernization of the market although it was limited by the how perishable the food items were, notably cereals. When volatility of price was caused by endogenous factors, economists' positions were either to force the State to counteract speculators or, inversely, to deny any role of the State which was deemed as inefficient to fight speculative actions of traders.

Although Alain Clément's presentation concerns the past and Europe, one may observe that inflation issues and the solutions to resolve them have not really changed. Regarding India where volatility of prices is high and shows a hike in prices in 2010 as high as 20%, the main means used by the government which has liberated its economy in 1990s, is to regulate the import-export market. The ban on the onions export in December 2010 decreed by the government for stopping the increase in prices is a good example. The government has also initiated some programmes to increase food production,

such as Rashtriya Krishi Vikas Yojana, the Food Security Mission, and the national Horticulture Mission. However, some Indian economists point out the urgency of creating a much more productive and remunerative agriculture. They encourage mechanization and the development of agro-technology suitable to environment, as well as the modernization of the market, notably by diversifying food products in order to avoid the recourse to the international market (case of pulses), by improving infrastructures such as transport, road network, cold chain, storage areas or processed food. The loss of agricultural products due to the bad and inadequate infrastructure is estimated between 40% and 60% according to the foodstuffs; it plays a considerable role in food prices inflation[10]. They also denounce the speculative methods of traders which do not allow farmers to compensate their production costs. The price of food products to consumers is often 20 times higher that that returned to farmers.

The energy requirements (Recommended Dietary Allowances (RDAs), or more recently, the Dietary Reference Intakes (DRIs) for humans, have been defined by international organizations (World Health Organization) and national organizations. Although their values are debated notably regarding categories of nutrients from which calories are quantified and evaluation of physical and biological activities, they serve as norm to define the minimum energy requirement to maintain a body in good health and consequently to evaluate under- and malnourishment. For developing countries, the threshold of the daily caloric intake has been defined at 2400 in rural and 2100 in urban areas. In India, these values were used to define BPL population in 1979 and they serve as reference to evaluate the access of food. As previously mentioned, the percentage of Indians who have a daily caloric intake lower than the RDA is increasing so that a new identification of BPL population is become necessary. However, the presentation of Mohamed Houbaida does not support the relevance of RDA's thresholds and considers that, in the case of Moroccans, a diet poor in energy was seen as an advantage when people were exposed to food scarcity.

Mohamed Houbaida's paper '*Dietary and food security in Maghreb in a historical perspective*' puts in perspective texts by Arab physicians and ethnographs evoking the diet of populations of the Maghreb region with discourses by some physiologists who studied in 1960s the diet of inhabitants of the Maghreb. Before the establishment of the French Protectorate in Morocco,

[10] On the analysis of food security, one can consult the interventions of Ashok Gulati (IFPRI-International Food Policy Research Institute) and Arun Kumar (Centre for Economic Studies and Planning; JNU) in the report in Journal of the Centre for Public Policy (22 January, 2010) of the round-table discussion on 'Food Inflation – Policy imperatives'.

common people are described as relatively tall but thin, even underweight. This appearance is explained by their frugal diet, mostly vegetarian and composed of cereals, pulses, vegetables and fruits. This description is already mentioned formerly by ethnographs such as Léon l'Africain (16th century) who explains that the dietary pattern at Fez includes three light meals composed of cereals, fruits and vegetables and depends on the social and religious status of people. A hagiographic text of the 18th century written by Ibn Askar specifies this hierarchical system of food pattern: religious notables, VIP and descendants of the prophet are fed with rich and expensive foods, according to their rank: white bread, butter, honey, couscous with mouton, and other savouries; common people receive wheat or barley, dates and fruits. However, some Arab physicians such as Ibn Khaldoun and Harith Ibn Kalada[11] consider that a frugal diet is much more recommended for maintaining health because excess of food provokes indigestion. Ibn Khaldoun emphasizes that in case of famines, well-nourished people are not able to survive while common people resist. Highlighting that this statement has been also confirmed by the physiologist Charles Kayser from his research, Mohamed Houbaida concludes that although these statements may be questionable with regards to the nutrient requirement defined by nutritionists in relation with physical activity, the high consideration of nutritional value of the North African diet has to be thought in a global system of life. He cites a research on nomads which shows that they live with a daily diet of 1500 calories thanks to their physiological adaptation of the milieu, and he claims that this study confirms the pertinence of Ibn Khaldoun's observations.

This presentation raises some questions that need to be addressed, notably the adequacy of the comparison of dietetic notions between the past and present. Today, nutritionists raise an alarm against the change of food pattern which favours the over-consumption of meat, dairy products and fat and the increase in risk of metabolic diseases. They recommend consumption of vegetables, fruits, dry fruits and olive oil, that is to say, the diet described for common Morocco people. However, can one affirm that the diet of these people was well balanced as texts give no indication on the quantity and frequency these foodstuffs were consumed? Can one affirm that these people were in good health as they give no indication on their life expectancy, chronic diseases, infant mortality, nutritional status, etc., i.e. indicators used to document the quality of diet? In fact, the high consideration for the diet of poor compared to those living in abundance seems to mirror a moralizing discourse for which it would be interesting to know the

[11] Ibn Khaldoun, *al-Muqaddima* (14e siècle) French traduction: V. Monteil, *Discours sur l'histoire universelle*, Paris, 1978, t. 1, pp. 174-180; regarding Harith Ibn Kalada, M. Z. Siddiqi, *Studies in Arabic and Persian Medical Litterature*, Calcutta University, 1959, pp. 6-7.

socio-economic and environmental contexts of ethnographers and medical practitioners mentioned by the paper's author, as well as the ideological background in which Charles Kayser has conducted his works. This presentation is not without reminding the myth of Hunza, community of Himalaya whom the good health and life were largely idealized by botanists and ethnographers at the beginning of the 20th century until physicians discovered that they were affected by diarrhoea, chronic diseases and high level of mortality[12]. Let us add that traditional medicines are quite often influenced by religious concepts so that they provide diet recommendations to diverse categories of people. The ascetic's diet is often very poor in calories and in varieties in order to purify the body and mind. In Indian traditional medicines: the yogi must eat one meal per day while common people have to eat twice a day, the one who eats three times is considered as mad. Apart from the ideological conception, a physiological reason with regard to the humoral system is given by texts: easy digestion is possible only if air is contained in the stomach[13].

The vegetarianism described by Mohamed Houbaida can be defined as unintentional, caused by a situation of poverty or scarcity. This is also the dietary situation of millions of Indians who, while non vegetarian, have little access to meat-fish-egg due to high inflation of these products or are forced to reduce their consumption in certain non vegetarian items such as mutton because of its prohibitive price. This unintentional vegetarianism in India which is little compensated by pulses intake due also to their high price, justifies the relevance of the topic tackled by Satheesh Periyapatna '*Centre-staging the marginalised: Millets into India's public food policy*'. It proposes revival of the consumption and cultivation of millets and sorghum and to introduce them in the government food programmes. This presentation concerns a programme developed by the Deccan Development Society (DDS), an NGO established in Medak, Andhra Pradesh. In this region as well as in the South India, millets and sorghum traditionally have constituted the staple food of population until rice became prevalent, and even, entirely replaced them, notably in urban consumption, and

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[12] On the myth of Hunza, one can consult R. W. McColl (2005). Encyclopedia of World Geography vol1. Facts on Files, New York: 439-440; Harvey Levenstein (1994). Santé-bonheur. In C. Fischler (ed.), *Manger magique. Aliments sorciers, croyances comestibles, Autrement*, Paris: 156-168.
See also two authors who were influenced by Hunza's life: in organic farming: Sir Albert Howard (1963). *An Agricultural Testament*. New York/ London [1st ed. 1940]); in diet: Robert McCarrison (1936). *Nutrition and National Health*. London, Faber and Faber.

[13] We refer to siddha medicine which shares common theoretical concepts with ayurveda (Thirunarayanan, T. (n.d.). *An Introduction to Siddha Medicine*, Tiruchendur: Thirukumaran Publishers).

the Tamil Nadu state. The change, which started in the 19th century with the development of commercial crops by British (cotton, sugar cane, groundnuts) at the expanse of millet and sorghum cultivation, was accelerated by the policy of the Green Revolution. The intensive production of rice and wheat has allowed developing food programmes in which only rice or wheat are distributed as subsidized food grains according to the prevalent cereal consumed by States: wheat in North and milled white rice in South and in some eastern and north-eastern states. Since long back, the first nutritionists at the beginning of the 20th century identified the replacement of millets and sorghum by milled white rice as one of causes for diseases and mortality related to malnutrition. The poor nutritional value of rice and research comparing its nutritional composition with that of millets-sorghum confirmed these pioneer works. In more that millets and sorghum are enabled to provide some nutritional value to the diet, notably that of poor, they are considered as beneficial for environment and suitable to the region of the Medak. Medak is a semi-arid region composed of black and red soils. Red soils are quite often held by small and marginal farmers who had little financial means to cultivate them until DDS encourages the cultivation of millets and sorghums. Comparatively to commercial crops developed in the black soils of the Medak, these cereals are capable to grow in red soils with little micronutrient and water inputs.

To conduct its programme on the revival of cultivation and consumption of millets, DDS has used the knowledge of people on agricultural practices (farming, selection of seeds, storage of grains) and food preparation, and has involved women for the creation of a *sangham* (association) for promoting millets and sorghum in other villages. Activities of DDS are numerous, but their main perspectives in relation to food security, are to enable poor to be less dependant on the PDS rice thanks to the consumption of their millets, to have more nutritious food, and for certain, to get some money from the sales of their surplus. Strengthened by the good response from the villagers of this area, the association invests a lot to create a national awareness on millets and sorghums and to force the State and Central governments to introduce them in its food programmes. This objective supported by Indian farmer associations, academics, the NAC and activists has finally been adopted by Central government which has inscribed these cereals in the definition of food grains for the PDS. However, it does not cover other programmes such as mid-day meal, food served in *anganwadi* (crèches) while they would be very useful to help young people to appreciate their taste. The question which needs to be addressed is that the decline in millet and sorghum cultivation has to be corrected before expecting that they will be available in ration shops or other food programmes; the lack of

availability of products to supply the PDS is a recurrent critic in media for denouncing the malfunctioning of state or central government policy.

In coherence with its programme which aims to enhance biodiversity and to protect the health of people and environment, DDS invested recently in the fight against the Genetically Modified crops (GM). This topic is particularly sensitive in India where many states declared total ban on the introduction of GM seeds.

Mira Kamdar's presentation entitled '*After Bt Brinjal: the promise and perils of GMOs and Indian agriculture*' tackles this burning topic, notably by examining US efforts to increase its presence on the food market in India. The development of GM seeds offers great commercial potential, especially if one considers the prevalence of under-nourishment, malnutrition, risk of food shortages and the increase in population which India must confront.

India is already one of the world's largest producers of GM cotton, but the question of GM crops became much more sensitive when a genetically modified aubergine, a vegetable commonly consumed in India for which Indian farmers experience high loss because of insect attacks, was to be commercialized. The aubergine, dubbed *"Bt Brinjal"* had been developed from an indigenous variety by Mahyco (Maharashtra Hybrid Seeds Company Ltd) and the Tamil Nadu Agricultural University on behalf of the US-based multinational Monsanto and the support of the US government provided through the US Agency for International Development (USAID). USAID promotes the cultivation of GM crops in developing countries through its Agricultural Biotechnology Support project, and entrusts the task of bringing these food crops to market to American agribusiness multinationals, among them, Monsanto. The system promoted by the US mixes private and public interests, resulting in a lack of transparency on research protocols and results, as well as on the question of safety for consumers.

Mira Kamdar decodes the strategy behind the India-US Knowledge Initiative on Agricultural Education, Teaching, Research, Service, and Commercial Linkages (AKI) signed by Prime Minister Manmohan Singh and President George W Bush on 18 July 2005. The US's private-sector representatives on the AKI's board are the agri-food giants Monsanto, Archer Daniels Midland and the leading mass retailer Wal-Mart. They favour: "*the active participation of [American universities] in helping lay the foundation of an agricultural education and research system in India*" and "*resolve[ed] to initiate a new ... partnership*". The AKI sets up inter-linkages between universities, private-sector agribusiness and government regulators which favour the commercialization of GM crops by agribusiness.

However, as Mira Kamdar points out, the US proposition that GM crops

offer the best way forward to ensure food security for India and other developing countries is not without its critics. She cites the report of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), published in April 2008, an effort in which 400 scientists and agriculture experts from around the world participated[14]. The report concludes that "*For many years, agricultural science focused on delivering component technologies to increase farm-level productivity where the market and institutional arrangements put in place by the state were the primary drivers of the adoption of new technologies. The general model has been to continuously innovate, reduce farm gate prices and externalise costs*". Mira Kamdar explains: "*Impressive production results have been achieved at the expense of social equity, of the ability of local communities to master knowledge and of the environment, which has reached the limits of its absorption. The report has serious reservations over purely technological solutions and questions the usefulness of GM crops, emphasizing their potential dangers*". The lack of transparency in the development and commercialization of GM food products provoked widespread public backlash in India, leading the Union Minister of Environment of Forests, Jairam Ramesh to impose a moratorium on *Bt brinjal* on 16 October 2009, while it was already approved by the government. Jairam Ramesh, today Union Minister for Rural Development, was accused by the Prime Minister for having imposed his moratorium on *Bt brinjal* under the influence of NGO's based in US and Scandinavia. In his defence, Ramesh reiterated that "*his position on Bt Brinjal was determined by the positions of the State governments, the lack of consensus among the scientific community, the fact that the tests were not completed and that there was no independent professional mechanism to instil confidence among the people*". And he added "*I did not ban Bt Brinjal. I decided to put a moratorium. Let's fulfil all these four conditions and then revisit the whole issue*" (The Hindu, February 26, 2012). Debates on GMOs continue in India, questioning the lack of proof on safety, the infestation of GM crops by insects, the hegemony of agri-food multinationals, and the alienation of farmers to seed multinational agencies or debt due to bad investment return. These issues are mobilising more citizens to question the wisdom of the mass introduction of GMO crops.

The following presentations have concerned the food system of three communities: Indian dalits of Medak, Konda reddis, an Indian tribe of Andhra

[14] This report, entitled 'Global report', results from a meeting at Johannesburg, South Africa, involving scientifics and stakeholders of 58 countries. See the report: http://www.agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Global%20Report%20%28English%29.pdf (retrieved April 25 2012)

Pradesh, and Peuls, a large pastoral people of Africa. These food systems are defined, by the speakers as nutritious and well balanced in accordance with nutritional security.

The first one by Salomé Yesudas B. presents studies conducted in Medak villages where DDS is established. Using focus group discussion, semi-structured interviews, ethnography, and food questionnaires and methodologies such as Food Frequency Questionnaire, Matrix ranking, Inventory, the study has documented the knowledge on food plants and has analysed the nutritional value of the food pattern of dalits[15] living in these villages. The study reveals that the food list includes an extensive variety of cereals including millets, pulses, oil seeds, fruits, vegetables, greens, roots and tubers (329 species/varieties). Preparation of food from roots, leaves, flowers, fruits, gums and bark, which are consumed seasonally, uses diverse processing methods such roasting, boiling, sun smoking, drying, and shade drying. For staple food, dalit women complement rice by millets and sorghum which is prepared also in diverse manners. These cooking processes have been documented by DDS's *sangham* in order to perpetuate the consumption of traditional foods by the new generations. The studies have benefited from the support of International agencies involved in the development of indigenous people as well as of the National Institute of Nutrition (NIN). NIN has carried out analyses of micronutrients contained in plant foods, notably in uncultivated plants which are collected by dalit women according to the seasons. They show that the composition of food system of dalits comparatively to the standard food is richer in variety as well as in micronutrients. As intakes of energy, protein, iron and vitamin A in India are usually reported as inadequate, these findings, which seem to validate that the traditional food consumed by dalits are rich nutrient sources, confirm the DDS's ideology aiming to introduce millets and also pulses and vegetables in Indian diet. Indeed, according to the studies, sorghum contributes in daily diet to 29% of energy, 33% of protein and 53% of iron, and green leafy vegetables to 21% of vitamin C and 38% of vitamin A. This food composition can be interesting for women and children, more specifically for those living in rural areas, who are reported as suffering of chronic anaemia and malnutrition, mild and even severe. An interesting finding in Salomé Yesudas B.'s studies is that the most plants growing in red soils are richer in vitamin C and β carotene that those growing in black soils. This should be a good case to encourage dalits to (re)cultivate their

[15] Dalit is a positive term used for lowest castes, also called untouchables or scheduled castes. The term dalit has been especially promoted by B.R. Ambedkar, a jurist de caste *mahar* (untouchable caste of Maharashtra), who campaigned against social discrimination and abolished untouchability in the Indian Constitution, 1955.

lands. Moreover, the uncultivated foods which are part of their cultivated lands are excellent sources of minerals and vitamins, specially vitamin C and iron which need each other for better absorption in body.

The second paper by Salamatou Sow entitled "*Kosam ja'banii gawri, 'the milk supplement millet'. Food practices and representations in Peuls of Sahel*" is relatively close to that of Salomé Yesudas B. by the fact that it presents a traditional food system still alive. It focuses on the strong relationship between bovine cattle and Peuls and their high value attributed to milk which, mixed with finger millet, composes their menu. Nevertheless, this presentation is more sensitive of the cultural and religious dimensions of these foods than of their nutritional aspect which runs across the previous one. Peuls form a large community in Africa, scattered from Senegal to Nile rivers. Despite their large zone of settlement which includes various ecosystems and populations, they have a common activity which is the bovine rearing. Bovines (zebus) represent a very strong symbolic value for Peuls; in their collective unconscious, they are perceived as a gift that God has left in their care. They are the *raison d'être* of Peuls and all the activities and moral values of their pastoral life are organized around the bovines and their representation. It is for their wellbeing and care that Peuls set out on long transhumance to reach rich pasture and water. The bovine rearing practised by Peuls has been qualified by economists of contemplative to the fact that its motivations are much more symbolic and cultural than economic. Bovines are not reared for meat, but for themselves and their beneficial effects, among them milk *kosam*, a term coming from *kosamti* which signifies 'that is the best'. Milk constitutes the basis of Peuls' diet in association with cereals (finger millet) and some greens. The fresh milk is consumed with finger millet and the surplus is transformed in curdled milk. Peuls associate milk with health. They feel that drinking milk strengthens their body and give them a thin and soft skin. So that all the daily activities of Peuls, which differ according to the gender: males take care of the cattle; females take care of the milk, are organized around milk and finger millet. A part of Peul community stayed nomadic while the other part began sedentary living and involved in agriculture and cereal cultivation, but each sedentary family has pastoral parents who they regarded as rich because of their cattle. So if one notices a change in the Peul community organization, bovines mark a highly value icon of this community. Salamatou Sow concludes that milk and finger millet, which constitute the diet patrimony of Peuls, need to be preserved and taken into account in all development programmes because of their cultural importance in the Peuls' live and of their nutritional values. Like in other developing countries, diet in Niger, Mali etc is drastically changing in urban areas with a shift to rice and maize that caused metabolic disorders. Finger millet

is becoming less appreciated by youth who consider it as coarse food so that Peul's food pattern should be protected in order to improve the health status of urban population.

The third presentation by Thanuja Mummidi entitled "*Threating Nutritional Security: State induced dietary change among the Konda Reddis, South India*" differs from the two previous papers as it explores the impact of the government food programme on the food system of Konda Reddy of Andhra Pradesh. The habitat of this tribe is organized in *gumpus*, small clusters comprising average six households, located in hills in the North of Andhra Pradesh. Traditionally, the Konda Reddy's food system is constituted of cereals (diverse millets), pulses, vegetables and greens cultivated by shifting or slash-and-burn cultivation (*potu*), collection of wild plants (tuber, bamboo, mushrooms, green leaves, fruits, flowers) and wild animals from the forest, vegetable produced in kitchen gardens and livestock (chicken and pigs). This integrative food system that mirrors the biodiversity of their environment is a part of their identity and it is strongly internalized: "*We see ourselves as people of the hills. We are Konda Reddis, heads of the hills, we do not see ourselves as agriculturists. We have always been practicing hunting and collection along with podu; it goes together. And bamboo; I do not know how we learnt to weave bamboo into baskets but our elders did it and we learnt it from them. As we watched our elders do it we got into the practice of doing it too. We live in the hills because we have a lot of aadayam, resources to live on. We have bamboo all year through to make baskets and winnows and mats; we barter and sell these articles to the koyas and we are able to use this cash in the market to buy oil and other vegetables.*" Valla Bhima Reddi, the author of this sentence highlights not just the diversity of resources available to the Konda Reddis from their hill environment but also the integration of their varied economic pursuits. Linked to the place in which a resource is available and the corresponding economic activity, Konda Reddis divide their territory into three categories, namely, *adavi* (forest), *podu* (cultivable land) and *gumpu* (settlement). In turn, each spatial category is perceived as social units with their respective living forms: konda devar (hill god) lives in the forests, the grama/bhumi thalli (village/earth mothers) live in the cultivable land and the kutumbam devar (descent group god) lives with them inside the settlement. What emerges from their representation of the space is a consistency of a tripartite classification: 1-the territory and its respective 'life forms'; 2-the economic activity that takes place in it or from it; and 3-the ritual and symbol specific to it. The integrative model of the space is well expressed by a Konda Reddy *"If we do not offer the first harvest crops to the spirits then they will come like tigers and eat us or our livestock; we live in the midst of seven hills. The seven hills correspond to this entire territory of hills- all seven hills are related as family –mother, son, daughter son-in-law, father and so on.*

Konda Rajus, (hill kings) are not our relatives, they do not visit us, they are only visible to the vejju, shaman; we pay them taxes to protect us ; we live here and go around the forest for hunting and collection, for bamboo, we ask them to protect and save us from all harm; these hills and its resources belong to the konda rajus we are living in their land and so we pay taxes (sunkulu soonallu); but not from now we have been living here since this earth was made."

In 1978, the government launched a project in favour of scheduled tribes development. Because Konda Reddis lived in isolated and remote places in hills that work against development's ideology and also to discourage *potu* cultivation, they were classified 'vulnerable tribal group' and thus aimed by the project. The project was to resettle Konda Reddis in plains where they were expected to develop agriculture. The programme was implemented only in 1997, and from there, they got ration card and access to the PDS rice. This government intervention had impacted not only on their life but also in their nutritional status because rice has become their staple food. Nevertheless, rice has not still entirely replaced their traditional diet and some Konda Reddis continue *potu* cultivation. So, there is a coexistence of the traditional and the new modes of life and this coexistence explains the ambivalent perception on rice and millet (jonna; sama) as well expressed by a Konda Reddi woman during the two-hour discussion with Thanuja Mummidi: " *Yes they give us rice; but, when you eat rice you are hungry very soon; you are forced to come home at mid-day and cook again… jonna is not like that; if we eat in the morning then only as the sun descends we will come home …*" "*We get 35kg rice at Rs. 2/kg /month; we are two adults …children eat in the school; 35kg covers more or less the whole month; it is ready to cook … with jonna – I have to pound it everyday day before cooking and it takes longer to cook -it also does not taste as nice as rice – jonna is big course grain; I like sama instead its small grain and tastier*". Thanuja Mummidi adds that the representations of space, spirits, etc. have not completely disappeared. However, she questions the impact of these changes in the future, notably with regard to the development of commercial crops that could transform the relationships within the group, its solidarity and identity.

The two last presentations related to food security concern workers: the first in the context of internal migration and the second in the context of textile industry. The approach used in these two papers is very different because the first shows how food, as a cultural marker, structures the social relationship within diverse categories of migrants and between migrant workers and the power, while the second analyses from a survey access to and consumption of food and does not question food culture.

Entitled "*Class and caste through the lens of food: migrant workers in Kerala*",

the paper of Mythri Prasad is based on fieldwork among migrant workers from North and North Eastern India who work in construction sites and factories in Kerala. It illuminates the functions played by food practices in the world of migrants notably through the paradigms of food as taboo, as locus of conflict and as identity marker. The paradigm of food taboo, she presents, concerns the reference to 'rat eating' used by an upper caste worker to degrade lower caste workers. These lower caste workers defend themselves to eat these animals that they consider as taboo and impure, claiming that this food practice was that of Musahar, migrant workers from Bihar who left the camp. Mythri Prasad explains that the reference of 'rat eating' is not to question if lower caste do or do not eat rats. Its function is to stigmatize the Others (lower caste) in a context of the re-composition of caste stratification induced by migration from diverse regions with their own caste system; it is a means to continue to stigmatize a group by positioning it in the new space, that of the work in the migration context. In the second part of her presentation, she shows how identity paradigm is linked to food. In this context, migrants do not share the same language, the same caste and religion, and the same food (taste, ingredients, habits). Nevertheless, a Sunday market, situated near their work place acts as a convergence point between migrant workers. Bengali, Behari or Odishi gather together and eat their food specialities, discuss, make friends and solidify social relationship. Restaurants are extremely crowded due to the fact that Mythri Prasad explains that eating 'home food' is the main reason to go to Sunday market. Nevertheless, this Sunday market is also instrumentalized by workers who organize and hold action and protest meetings against abuses from the employers and police, briefly, for contesting the power. To quote the conclusion of the speaker: "(the restaurant) *works as a cultural space and food acts as the backdrop and means to much social life. Food practices act as a vehicle for a cultural politics and place making for migrants in the face of marginalization from society in Kerala and oppression from the State (…) A sense of place and geographical proximity are crucial to community formation. Food practices can give a coherent and concrete form to communities at moments when they lack it*".

The study presented by Ajeet Jaiswal "*Study on the intake and expenditure of calories among the manufacturing worker"* has been realized in Varanasi district, Uttar Pradesh. This North State is very populated and not so well developed with a rate of literacy of 57.37%. In Varanasi district, the percentage of workers is 28.5% of the total population, among them 29.8 % belong to rural area and 26.7% belongs to urban one (Census of India 2001). The other workers are engaged in agriculture, mining and business. The objective of the study has been to assess and to compare the nutritional status between textile workers and non textile workers. 463 persons working at different sectors in twenty-one textile factories and 457 non textile workers have been surveyed regarding their body

measurements and dietary intake[16] (data are presented below). Regarding the body measurements, Ajeet Jaiswal's study reveals that the weight of textile workers is lower than that of non textile worker. Body Mass Index lower than 18.5 is more frequent in textile workers (30.95% versus 25.99%) while overweight and obesity cases are less in this group, respectively (5.01% versus 10.21%) and (0.66% versus 4.25%). These findings are correlated with the difference of consumption between the two worker groups. The textile workers consumption in all the food categories is lower than that of the RDA, that of women being worse than that of men who eat much more micronutrient-rich food such as pulses, fruits, dairy products and vegetables. The data also inform that the staple food of these workers is finger millet or rice; that the majority of them does not have three meals a day regularly, and the consumption of non vegetarian food is irregular (once to three times per weeks). Ajeet Jaiswal states that the deficiency in nutrient intake of textile workers is due to their insufficient wages and their ignorance on nutritional status of food. In conclusion, he proposes that the incomes of these workers are enhanced, that the educational standard is uplifted, that the education includes awareness on food and nutrition and that poor economic households are more helped in order they benefit from a balanced diet. One expects that this study, which has been published, will be read by policy makers of Uttar Pradesh, a state well known for its poverty and low standards of governance.

[16] Standardized according to: Gopalan, G., Ramasastri B.V. and Balasubramanian, S.C. (2007). *Nutritive value of Indian foods.* Revised and Updated by B.S. Narasinga Rao, Y.G. Deosthale and K.C. Pant Hyderabad, National Institute of Nutrition, ICMR (1st publication 1971).

Table 4. Consumption of Food items by the Textile Workers and Non Textile Workers: A comparison

Subjects	Food items	RDA*		Amount consumed				% consumed Less than RDA	
		Males	Females	Males		Females		Males	Females
				Mean	%	Mean	%		
Textile Workers	Cereals & Millets	480	360	315.8	65.79	242.7	67.22	34.21	32.78
	Pulses	90	75	59.35	65.94	28.32	37.77	34.06	62.23
	Milk & milk Products (ml)	300	300	198	66	176	58.66	34.0	41.34
	Vegetables	400	300	120.6	30.16	96.88	32.29	69.84	67.71
	Fruits	100	100	26.4	26.4	22.8	22.8	73.6	77.2
	Sugar & Jaggery	40	25	28.59	71.47	22.45	89.8	28.53	10.2
	Fats & Oils	35	30	48.8	139.4	42.5	141.6	More than RDA	
	Meat, fish, Eggs	30	30	28.2	94	26.8	89.33	6	10.67
Non Textile Workers	Cereals & Millets	480	360	325.9	67.9	265.5	73.76	32.1	26.24
	Pulses	90	75	68.45	70.05	42.35	56.46	23.95	43.54
	Milk & milk Products (ml)	300	300	204	68	188	62.66	32	37.34
	Vegetables	400	300	185.4	46.35	116.7	38.90	53.65	61.10
	Fruits	100	100	38.8	38.8	36.4	36.4	61.2	63.6
	Sugar & Jaggery	40	25	32.43	81.07	23.54	94.16	18.93	5.84
	Fats & Oils	35	30	48.5	138.6	42.5	141.6	More than RDA	
	Meat, fish, Eggs	30	30	29.2	97.33	27.8	92.66	2.67	7.34

*ICMR (1998).

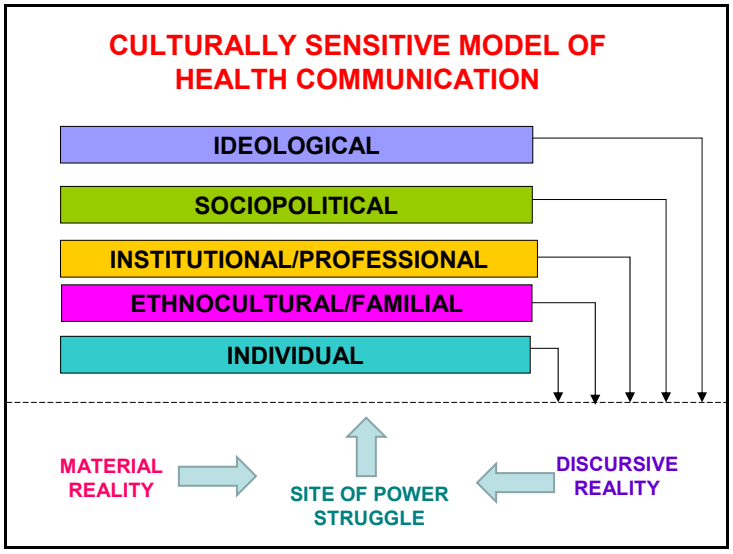
2- FOOD-RELATED HEALTH

This part is composed of five presentations which tackle either malnutrition or metabolic diseases, sometimes both. It is difficult to draw a precise frontier between people affected by malnutrition or by metabolic disorders as they are often present in a same person. So far, most attention has been aimed at people living in urban areas as India has experienced an increase often described as epidemic in proportion of diseases such as hypertension, diabetes, cardiovascular disorders, and micronutrient deficiencies. Though the exact aetiology and interrelationship of these conditions is not fully understood, one known risk factor is changes in patterns of food consumption.

The papers have been presented by nutritionists and by anthropologists. This combination has allowed to enrich the discussion, notably on the complexity of the act of eating which is well explored in the social sciences (anthropology, sociology, history, psychology) but tends to be neglected by nutritionists.

2-1 Malnutrition: A Necessity To Evaluate, to Understand For Improving

The presentation of Vandhana Ramadurai entitled "*Application of the Culturally Sensitive Model of Communication to understand health and hunger issues among women who live in an Indian slum*" focuses on the different layers that need to be examined in order to comprehend the meaning at play in the social construction of reality involving health issues outside a clinical settings. The different layers, namely ideology, sociopolitics, institution and professional milieu, ethnocultural/familial milieu and individual, form the Culturally Sensitive Model of Health Communication developed by Barbara Sharf (scholar in Health communication) and John Kahler (physician) (see below).



Vandhana Ramadurai proposes to use this model in order to understand hunger and food-related health issues among women living in slums (Bangalore). She argues that 1- all these layers are always in concurrence and are not equally salient at any one time and 2-the model helps to identify the different levels of meanings by people in interactions (NGO workers, professionals, intervention-concerned people, policy makers) while they are communicating on the same thing. Her presentation is only exploratory as she is at the beginning of her fieldwork so that she defines each layer through questions that she seems to her the most relevant to explore. Regarding ideological layer, she wants to analyse how the neoliberal policies and discourses impact on slums and slum dwellers with regard to the warning of the United Nations Human Settlements Programme (2003) which points out that the growth of international trade, privatization of goods and services, reform of regulation of the market and reduction of public welfare can have very negative impacts on poor. She expects to understand how national as well as international policies and discourses affect the slums and food availability within the slums and also how religions influence

the meaning of food in this milieu. For the sociopolitical layer, she proposes to explore the politics surrounding food. Based on interviews with NGO, policy makers, slum women and on observations she will try to identify the slum families who are most food insecure and to document the conditions that put families at risk for hunger. For the institutional/professional layer, she quotes Geist-Martin (2003)[17] who defines it as: "*the focuses on the meanings about [food] that are held and communicated by health care organizations, federal and state governments, [NGOs], and individuals in professions such as medicine, nursing, and social services*". Vandhana Ramadurai observes that the Rajendra Nagar slum has witnessed many NGOs which developed health care, education, sanitary, food security programmes etc. in which they involved slum women[18]. So, the question she will try to explore is how NGOs conceptualize the women's responsibilities towards food and their involvement in all food aspects. Food, as explained by sociologists and anthropologists, in embedded in culture (tradition, religion) and social universe (family, community, friend or work place). Addressing the ethnocultural/familial layer, Vandhana Ramadurai expects to document how food is more than an issue of sustenance for slum women and what is the place of food in social capital and networks of these women. Lastly, tackling the last layer which concerns the individual, she proposes to analyse intimacy, emotion with food and the role in social construction that each slum woman attributes to it: what means to be in charge of food and how this role empowers or disempowers them. Although this presentation is based only on concepts, it is useful to highlight the importance to take into account the plurality of factors at play in order to bring adequate solutions.

The presentation of A. Shahin Sultana concerns malnutrition and notably one of the goals defined by the Millenium Development Goals (MDG), United Nation, for 2015: the Child Mortality reduction. This goal is to reduce by 3/4 the under-five child mortality rate between 1990 and 2015 in the world, i.e., for India, to reduce mortality from 125 deaths per thousand live births in 1988-92 to 42 in 2015. But the recent data show that only a few Indian states such Kerala, Tamil

[17] Geist-Martin, P., Ray, E.B., & Sharf, B.F. (2003). *Communicating health.* Belmont, CA: Wadsworth/ Thomson Learning.

[18] Involvement of women in development programmes is very common today in all developing countries because women are considered as more knowledgeable for identifying all the issues that hindrance to the family welfare and they are more concerned to find solutions. Devoted to their family care, they are also considered as much more rational with money expenses. Nevertheless, given primacy to women in a society like India where men hold the power is not without generating tension and conflict inside the family; an aspect very little explores in the study of NGOs.

Nadu, Himachal Pradesh, Manipur, Sikkim and Goa will be able to achieve this. The cumulative reduction between 1990 and 2004 for all India is only of 30.89%[19]. The United Nations estimate that, every year, 2.100 millions Indian children die before reaching the age of 5, most from communicable diseases (diarrhoea, typhoid, malaria, measles, pneumonia); diarrhoea alone is the mortality cause of one thousand Indian children per day. To counteract child mortality, breastfeeding has been one of key factors to be encouraged, notably during the first hour of birth so that the child was fed with the colostrum. Colostrum, the first milk secreted at birth, is a previous substance rich in protein, vitamin A and antibodies that boosts immunity of the child and protects it against diseases. But in India, like in many societies, colostrum commonly perceived negatively because of its aspect (yellow colour; density), is not given to the child, and mothers use to squeeze their breasts to remove this substance before feeding the baby. Quite often, babies are fed with water or sugar water the first day.

The data from the three rounds of the National Family and Heath Survey (1992-1993; 1998-1999; 2005-2006; see below) presented by A. Shahin Sultana shows a very high difference between states regarding breastfeeding attitude. In some states like Bihar or Haryana, the percentage of babies fed from the first hour of birth is very low (1.5 and 2.7% respectively) while in other states like Nagaland or Arunachal Pradesh, the percentage is high (64.3 and 40.6% respectively). The comparison of data also highlights the alarming decline of breastfeeding in certain states such as Punjab where only 44.5% of women breastfeed in 2005-2206 while they were 92.9% in 1992-1993. Nevertheless, it shows also an improvement in some states for feeding baby with colostrum (South, West, North-East states and Odisha) as well as for breastfeeding (South states and Himachal Pradesh). This improvement may be due to the impact of programmes aiming to give awareness on the importance of maternal milk and colostrum for the baby's health. However A. Shahin Sultana mentions that in spite of the educational role attributed to paediatricians and maternity doctors, few advice mothers to feed their babies just after the birth, and even, to encourage them to breastfeed[20]. She identifies many factors that explain the reluctance for colostrum and breastfeeding. Poverty and circumstances play an important role because the women have to work rapidly after delivery and

[19] See: http://www.indexmundi.com/india/children-under-five-mortality-rate-per-1,000-live-births.html#E
(retrieved on 20 March 2012)

[20] See *Assessment of Status of Infant and Young Child Feeding (IYCF) practice, policy and program Achievements and Gaps. Indian report* (2005).
http://www.worldbreastfeedingtrends.org/report/India.pdf (retrieved on 20 March 2012)

according to their work, they cannot feed the new-born, like in the case in construction work where contractors do not allow mothers to bring their children with them. Family pressures and notably impact of the mother-in-law's decision on the new mother, lack of community support, maternity entitlement, quality care during pregnancy and delivery, access to information, and presence of other children, are many factors interfering in breastfeeding practices. An important 'modern' factor which contributes to discourage breastfeeding is the caesarian practice because women consider that this surgery act weakens their body and thus that their milk is not healthy for the baby. Given that caesarian is more and more practised in India, in private as well as now in government hospital, it is important that maternity professionals deconstruct this perception and encourage the mother to feed their baby as soon as possible after delivery. In conclusion, A. Shahin Sultana proposes some perspectives for promoting breastfeeding which is crucial for decreasing infant mortality and nutritional deficiencies, among them, launching awareness campaigns in all sectors (medical, social, educational) and developing education in diverse milieus: schools, family centres such as *anganwad*i, maternity, public spaces etc.

State	NFHS 1			NFHS 2			NFHS 3			
	% started breastfeeding within first 1 hour of birth	% started breastfeeding within 1 day of birth	% whose mothers expressed first milk from breast	% started breastfeeding within first 1 hour of birth	% started breastfeeding within 1 day of birth	% whose mothers expressed first milk from breast	% started breastfeeding within first 1/2 hour of birth	% started breastfeeding within 1 hour of birth	% started breastfeeding within 1 day of birth	% whose mothers expressed first milk from breast
North										NO DATA
Delhi	6.1	30.5	71.9	23.8	51.2	59.9	22.6	26.5	55.3	
Haryana	2.7	43.9	37	11.7	31.1	70.3	21	21	67.9	
Himachal Pradesh	12.2	42.6	U	23.7	42.9	86.2	44.1	45.4	77.6	
Jammu Region of J&K	7.1	41	86	29.6	59.2	77.1	31.5	31.6	72.3	
Punjab	5.3	22.7	62.9	6.1	19.5	67.3	11.4	12.7	44.5	
Rajasthan	7.9	30.5	56.6	4.5	53.9	69.1	13.7	14.1	34	
Uttaranchal	-	-	-	-	-	-	30	33.5	71	
Central										
Chhattisgarh	-	-	-	-	-	-	22.7	25	63.9	
Madhya Pradesh	11	27.7	U	9.9	29.3	71.1	14.7	15.9	52.6	
Uttar Pradesh	4.7	11.6	60.9	6.5	13.4	75.6	7.2	7.3	23.7	
East										
Bihar	1.5	11.8	60.1	6.2	20.7	42.1	2.5	3.7	30	
Jharkhand	-	-	-	-	-	-	10.9	10.7	43.1	
Orissa	17.7	66.8	70.8	24.9	64.2	68.1	50.7	54.9	82.9	
West Bengal	10.8	33.8	U	25	50.9	76.3	22.5	23.5	72.9	
North East										
Arunachal Pradesh	40.6	70.2	42.7	40	77.1	48.5	58.1	58.6	87	
Assam	20	53.2	70.3	44.7	77.9	64.1	49.3	50.9	74.7	
Manipur	12.1	21.9	69.4	27	47.5	89.9	57.4	57.8	79.8	
Meghalaya	3.3	69.1	64.4	26.7	71.6	66.9	57.2	57.3	90.3	
Mizoram	29.9	68.1	78.8	34	78.2	68.7	60.1	60.4	90.6	
Nagaland	64.2	83.8	49.2	26.5	70.2	59.8	54.1	54.2	82.9	
Tripura	7.3	28	68.9	-	-	-	42.7	42.9	68.4	
Sikkim	-	-	-	81.4	78.4	74.5	68.7	84.6	77.1	
West										
Goa	28.5	44.1	61.9	84.4	61.3	47.4	39.1	39.4	82	
Gujarat	14	25.7	57.2	18.1	36.6	61.1	25.2	27.6	58	
Maharashtra	7.4	18.2	70.5	22.8	47.7	68.4	31.5	32	73.4	
South										
Andhra Pradesh	20	27.5	U	18.2	27.2	52.4	24.4	24.6	58.1	
Karnataka	8.4	15.2	61.9	15.5	41.3	61.4	33.1	33.7	74.6	
Kerala	14.3	77.5	46.5	42.9	92	53.6	56.1	56.5	95.7	
Tamilnadu	21.3	54.5	U	58.3	73.7	21.5	57.7	58.3	91	

Realized from National Family and Health Surveys, Gvt of India

2-2 Metabolic Diseases: Understanding The Socio-Cultural Context

The first presentation by R. Srinivasan and V. Raji Sugumar entitiled "*Dietary Transition and Life Style Disorders: Counteracting the Hippocratic Maxim"* points out the factors that explain the development of metabolic disorders, called here 'life style disorders' with reference to the change on mode of life.

R. Srinivasan's talk discusses the change in food categories consumption in India by basing on tables realized by Angus Deadon and Jean Drèze[21] from the data of the NSSO (National Sample Survey Organisation), Ministry of Statistics and Programme Implementation, Government of India. The data presented by the speaker compare outcomes collected in 1983 (NSSO 38th round) and in 2004

[21] Deaton, Angus, Drèze, Jean (2009). Food and nutrition in India: Facts and Interpretations. *Economic and Political Weekly*, vol 44-7, February 14, pp. 42-65.

(NSSO 61th round).

Table. 1 Consumption of calorie and cereals and expenditure there on...

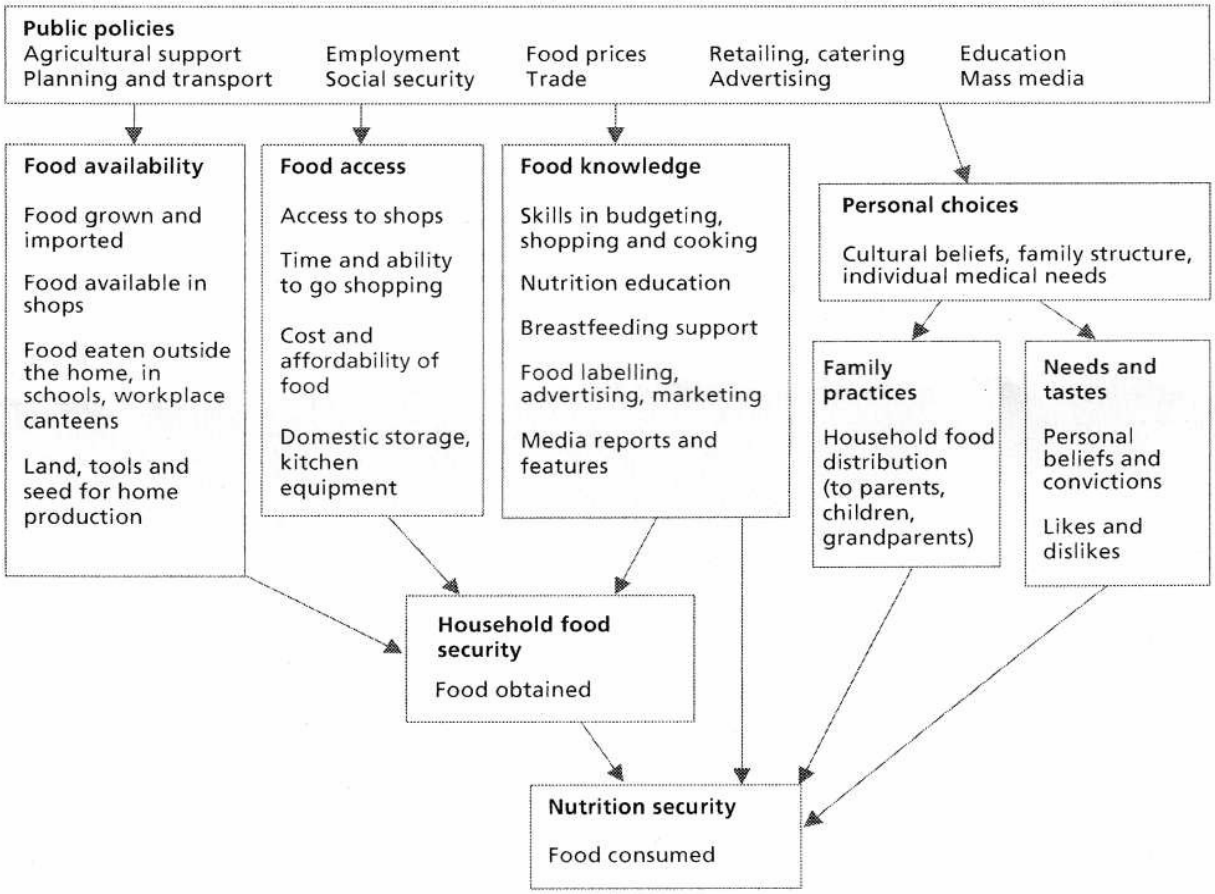
Sl.No	Particulars	1983	2004-05	Difference +/-
	Calorie consumption (kc)			
1	Rural	2240	2047	-193
2	Urban	2070	2021	-49
	Protein (gms)			
3	Rural	63.5	55.8	-7.7
4	Urban	58.1	55.4	-2.7
	Fats (gms)			
5	Rural	27.1	35.4	8.3
6	Urban	37.1	47.4	10.3
	Consumption exp per household at 1993 prices			
7	Rural	251.3	318.3	67
8	Urban	400.8	530.4	129.6
	Food exp per household at 1993 prices			
9	Rural	167.5	184.1	14.6
10	Urban	237.3	243.7	6.4
	Expenditure per 1000 Calorie			
11	Rural	74.4	89.1	14.4
12	Urban	117.7	121.3	3.6
	Calorie from cereals			
13	Rural	1681	1386	-296
14	Urban	1303	1147	-157

Source: Deaton et.al., (2009) 'Food and Nutrition in India: Facts and Interpretations', EPW., Vol XLIV No 7, pp 42-64.

The comparison shows a decline in cereals (with a shift from coarse cereals to rice or wheat) and proteins consumption and an increase in fat and sugar, and also in processed food. It shows also a decline in calories. Decrease in cereals and increase in fats corresponds to the model of nutritional transition that concern developing countries nowadays. However this decrease in consumption of certain food categories is certainly less than it is revealed in data because it is not certain that they include food consumed outside when eating-out is more and more frequent notably for men. The two other tables presented by R. Srinivasan on food expenditure according to twelve groups financially discriminated show a decrease of expenditure of cereals, pulses and also in spices and vegetables. The expenditure for meat-fish-egg category decreases in urban economically rich population when it increases in rural economically rich groups; these findings may be distorted by the eating-out habits in urban area which allow consumption of meat-fish-egg, even by upper vegetarian caste (Caplan 2008; Michelutti 2008; Strumpell 2008[22])

[22] Caplan, Pat (2008). Crossing the Veg/Non-Veg Divide: Commensality and Sociality Among the Middle Classes in Madras/Chennai. *South Asia. Journal of South Asian Studies*, 'Food: Memory, Pleasure and Politics', 31-1, 118-142; Michelutti, Lucia (2008). 'We are Kshatriyas but we behave like Vaishyas': Diet and Muscular Politics Among a Community of Yadavs in North India. *South*

Raji Sugumar' talk concerns the impact of diverse diets on the metabolism. The diet and nutrition security results from the conjunction of numerous factors including agricultural policy, urbanization, transport, employment, socio-economic status, education, media impact on food availability, food access, food and nutrition knowledge, food choice, cultural influences, family structure, health situation etc. (see below)



Raji Sugumar argues that all imbalanced diets can be detrimental. Diet too rich in fat and protein but poor in carbohydrate is similar to semi starvation. It depresses utilization of glucose, and low sugar intake can elevate the blood glucose level even when compared with diet rich in high carbohydrate. When

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Asia: Journal of South Asian Studies, 31-1, C. Osella and F. Osella (eds),'Food: Memory, Pleasure and Politics', 76-95; Strumpell, C. (2008). We work together, we eat together': Conviviality and modernity in a company settlement in south Orissa. *Contributions to Indian Sociology*, 42-3: 351-381.

such a diet is followed 4-16 weeks, it may cause diarrhoea or constipation, fatigue and nausea and also gall formation that is also common for people who gain weight very quickly and are obese. Obesity which increases drastically in India today is an important marker for metabolic dysfunction. Although twenty percent of obese people are healthy, many parts of the body system can be affected by a obesity state: mental system (depression); cardiovascular system (high blood pressure, cardio-vascular disorders CDV, heart failure); endocrine system (type 2 diabetes); sexual system (sexual dysfunction; sexual organ cancer); immune system (infection); respiratory system (apnoea, asthma); digestive system (colon and kidney cancer, gall formation) and bone-joint system (osteoarthritis). All these disorders listed by the World Health Organisation as common no-communicable diseases[23] are responsible of 50.1% of deaths in India (2004). In conclusion, Raji Sugumar proposes to increase awareness on unhealthy food and practices in order to prevent the development of non-communicable diseases. It includes advertisements for reducing trans fatty acids and salt to avoid dyslipidemia and control blood pressure, restriction of availability of energy dense foods and high calorie non-alcoholic beverages in schools, canteens, work place etc. compensates by an increase in availability of healthier foods, notably fruits and vegetables, ownership of marketing to reduce impact of unhealthy foods to youth, improvement of the labelling providing simple, clear and consistent information of products, increase in alliance with food industry in order to introduce new products with a better nutritional value. She points out that the draft 'Health Policy of India 2002'[24] which is too far from the reality needs to be rewritten in order to adjust the policy regarding the practices and the present health situation. Most of these tracks, notably those which interfere on the market and distribution, she proposes are important because they are the root of the issue. Listing food to avoid and food to eat is certainly not efficient and knowledge and practice diverges quite often, notably in the food consumption because many other factors have in play like organoleptic properties, conviviality, pleasure and displeasure, imaginary and symbolic representation, etc.

What we eat and do not eat, what we have to eat and have not to eat, is not a question of ignorance. Some people have the knowledge on food and nutrition and know what is a healthy or an unhealthy food but they are not

[23] These diseases are : asthma, cancers, CVD, congenital disorders, diabetes, Chronic Obstructive Pulmonary Disease, diseases of the digestive system, eye diseases, genital and urinary diseases, neuro-psychiatric disorders, musculoskeletal disorders, skin diseases.

[24] http://mohfw.nic.in/NRHM/Documents/National_Health_policy_2002.pdf

prone to change their consumption. The talk "*Changing eating habits for health reasons? Commensality and living situations must be considered*" by Tristan Fournier proposes to comprehend why people refuse to change their diet, while they are affected by a metabolic disease, through the prism of culture, psychology and symbolic representations. From a study carried out with French hypercholesterolemic people[25], he argues that the social context and living situations have to be considered when the doctor prescribes dietary recommendation to patients affected by food-related diseases. Hypercholesterolemia has been identified as a major risk factor for CVD, but it is a rectifiable risk factor if appropriate diet is well respected. Nevertheless, medical practitioners complain about the lack of compliance from their patients with food recommendations. As shown by sociologists, the level of nutritional knowledge is important in western countries, but not sufficient for improving food changes in a long-term, so that it needs to explore three factors: 1- the social status of the patient; 2- the stage of the life of the patient and 3- the commensal practices of the patient. The presentation focuses the third point: importance of commensality in eating practice in France. In many cultures, a *proper* meal is a shared meal. Commensality has three important characteristics: it facilitates, it supports and it controls social relationship. These three aspects may promote healthy as well as unhealthy food habits according to the eating place and situation. In festive situation, eating at a restaurant or at a friends' may create a break in the dietary prescriptions. As a patients point out "*At restaurant or at friends' house, I consistently deviate from the prescription because I am there for indulging myself*" "*I still eat some cheese when I have dinner or lunch at friends' house. Before the meal, I never wonder about what I will eat, but during the meal, I often think about the recommendations when someone proposes more meat or cheese for example. Actually, I think that dieting is really difficult when sharing a meal with friends. It is more difficult at friends' house because you do not know how foods are prepared and how to refuse dishes prepared by your friends*". The non compliance with diet is also explained by the fact that hypercholesterolaemia is rooted in 'moral' representations led to stigmatization as "*the one who is hypercholesterolaemic is the one who eat anything or/and too much*". So, Tristan Fournier classifies the patients in four categories according to their compliance with proscribed foods. Those who are 'prudent' are the more aware of diet advices (56.6%) comparatively to the

[25] His study comprises 1- qualitative surveys: interviews of 12 experts; in-depth interviews with 21 hypercholesterolaemic people, focus group with 8 hypercholesterolaemic patients and 2- quantitative survey: Telephone questionnaires (N = 802) to analyse two separate variables built: "Compliance with diet" (diet, diet infringement, difficulties encountered, cheese-eating situation) and "Food handling" (cooking, shopping, eating out).

three other groups which, either consider food as 'functional' (48.3%), have 'hedonist' attitude (40.7%) or see eating as 'convivial' (35.6%). In daily life, it is easier to follow the food prescription as the household is a place where control may be done. Nevertheless, according to situation, the control is more and less slack and is depending on people with whom food is shared. This is revealed by the author's statistics that show that there are as many patients who consider that eating meal in family discourage them to be compliance (45.1%) as patients who consider that it helps to be compliant (44.9%)[26] if the spouse has a positive attitude such in this example: *"I have been mainly supported by my spouse. When I was about to buy some cheese, she just said to me: no, you can not"* or conversely family may be an obstacle: *"I have a husband and some children, so I can not eat a soup alone! […]. What I am going to say is quite harsh but I am sure that it would be easier for me to comply with the prescribed diet if I were alone"*. The author argues that more a person depends on a food provider, less he/she complies with the diet, and thus, in household where it is often the woman who prepares food and serve food to the family, woman tends to be more compliant with her food prescription than men. Tristan Fournier's presentation invites doctors and dieticians to be more aware of their patients' environment. The socio-cultural and symbolic dimensions of food are quite often neglected by dieticians or doctors who tend to speak with patients in term of nutrition values.

The presentation of Louis Borst, entitled the "*Social aspects of negotiating a diabetic diet: extended cases from rural Tamil Nadu*", is also concerned by socio-cultural factors which interfere in food choices and habits. It is based on a six-month ethnography following diabetics in a village in Vellore district. According to Anjana et al. (2011) and Kumar et al. (2010)[27], Tamil Nadu has a diabetes prevalence of 10.3% (13.7% in urban; 7.8% in rural). The prevalence in rural areas has increased 3-4 times the last three decades[28]. This might be surprising because type-2 diabetes is associated with a sedentary lifestyle and overconsumption, which is presumably less in rural areas where labourer work is still the main source of income. The increase in prevalence in rural areas is particularly worrying because low education, low income and long distance to health care facilities are known to affect the long term outcome of diabetes negatively. Type2

[26] In this statistics realized from 769 interviews by phone, 10% of patients are bachelors.

[27] Anjana RM, Pradeepa R, et al. (2011). On behalf of the ICMR–INDIAB Collaborative Study Group. Prevalence of diabetes and prediabetes (impaired fasting glucose and/or impaired glucose tolerance) in urban and rural India: Phase I results of the Indian Council of Medical Research–INdia DIABetes (ICMR–INDIAB) study, *Diabetologia*, 54:3022-3027.

[28] Gupta Sanjay Kumar, Singh Zile et al. (2010). Diabetes prevalence and its risk factors in rural area of Tamil Nadu, *Indian Journal of Community Medicine*, 35(3):396-399.

diabetes can be controlled by medication, changing mode of life and diet, but that these are heavily reliant on sociological and behavioural factors. Quoting Caroline Wilson "*one of the most problematic issues for those concerned with the promotion of 'healthier' lifestyles is the relationship or lack of relationship between health beliefs and behaviour. …Consequently, there has been a shift away from explaining behaviour in terms of 'health beliefs', towards understanding peoples' logic, knowledge and practices, grounded in the context of everyday life*"[29], Louise Borst argues that a better understanding of daily self-management practices may help improve quality of care for people with chronic diseases. The objective of her research is to examine the perceptions of people affected with type2 diabetes in relation to the practices and strategies they employ in response to their diabetes on a day-to-day basis. During 6 months, Louise Borst and Gifta Priya Manohari, a social worker based at the Community Health Department at Christian Medical College Vellore and co-investigator for the research, followed ten diabetic patients and their household members through weekly home visits. For conducting her study, she has selected ten patients with their family living in a village of the Kaniyambadi block. The sample size is small, but the qualitative approach based on the extended case method uses semi-structured interviews, focus group discussions, informal discussion and prolonged observation to understand peoples' perception and actions on health from a people-centred perspective. According to her observations, three types of explanation on diabetes development emerge. One is embedded in a medical discourse "*Diabetes will come to the people who have very low activities, when they just rest themselves, when the calories are not burned, and to those who take lots of sugar, sweet items*". The second draws from environmental explanation "*Because food is now being made with a lot of pesticides, fertilisers, so it get polluted and spoilt. More than 80% of people get diabetes because of these*..." And the third uses psychosocial explanation: "*It is not because of diet or medicine* (that my blood sugar is uncontrolled). *My elder son was in love with a girl. His father was not happy about the girl. But this fellow ran away and they got married. So the father is telling he has created a wrong name, a bad reputation in this society. So he's not allowing his son to come here. The moment he will come once again, the family will be very happy and I will be very normal*". In sum, Louise Borst notices that the people afflicted by diabetes and their family members make direct relation between the impact of food and diabetes. They use humoral and biomedical understandings, ecological explanations, and have ideas on quantity, quality, and cost of food. Individuals afflicted by diabetes express profound connections between perceptions of their life-events and the

[29] Caroline Wilson (2010). Eating, eating is always there': food, consumerism and cardiovascular disease. Some evidence from Kerala, south India. *Anthropoly and Medicine*, 17(3):261-75.

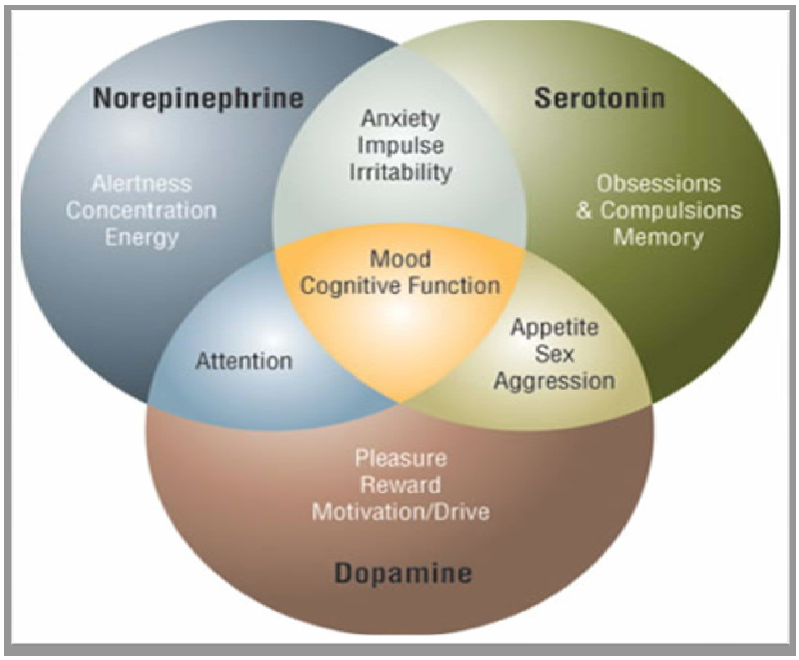
development of their disease; peoples' concerns are rooted in everyday life, but not in a pathophysiological perception. Nevertheless, she mentions that all people are not autonomous to take control of their own food intake, such as widows who depend on their children. She concludes that patients with little or no financial support from household members are more likely to suspend or stop-and-start treatment, and they rely on their social network at large to mobilise resources for therapy. Family support enhances individuals' ability to manage a chronic disease, but household members assume ambiguous roles of support and control towards the diabetic, which may cause discord within families. Her focus on the fact that the management of chronic illness is vested in the social domain reaffirms the importance of commensality pointed out by Tristan Fournier.

3- FOOD, HEALTH AND MENTAL HEALTH

3-2 Food, Drink And Mental Health

The presentation by Sadhana Rajkumar traces the link between the previous topic, the food-related diseases, and this present on the relationship between food and mental health. Entitled "*Good diet and nutrition for promotion of health and prevention of diseases*", it focuses on the importance to maintain a healthy diet and good habits to prevent diabetes and mental disorders. According to WHO metabolic diseases are projected to be responsible by 2020 for 75% of all deaths worldwide. They are attributed to drastic changes of lifestyle, faulty eating habits, poor purchasing power, frequent infections, rapid urbanization and especially deviations from traditional food habits. Increase in the consumption of processed foods, ready-made foods and lack of physical activities are pointed out as some of the major unhealthy practices. The speaker mentions that, in India, there is a widespread belief among the general population that one can achieve good nutritional status through pills and supplements. This is due to the commercially-motivated propaganda which has tended to promote the use of synthetic nutrients as the answer to the nutritional problems of developing countries. This point is particularly important because fortification of food with micronutrients is very widespread in India by nutrition campaigns to fight malnutrition and anaemia in children, when it would be more effective to encourage a better balanced food. A 'dietary guidelines' for Indians has been drawn in order to improve the nutritional status of the population without having recourse to food fortification or supplement. It recommends 60-

70% of total calories from carbohydrates (mainly from cereals and starchy vegetables); 10-12% from proteins and 20-25% from fats. One may regret that Sadhana Rajkumar does not comment this guideline which does not provide any indication on the choice of cereals while certain cereals such rice are considered as responsible of micronutrient deficiencies and diabetes. She explains that diabetes is a major metabolic disease because it may induce many complications such as retinopathy, nephropathy, neuropathy, severe wounds which occur and progress rapidity. She affirms that the South Indian food pattern followed today favours the development of diabetes as it is composed of a large consumption of white milled rice and very little of vegetables and greens; the consumption of fruits is particularly poor and that of pulses in decline. Nevertheless, consumption of pulses in Indian diet is central as they constitute the principal source of proteins with dairy products due to the fact that the consumption of meat-fish-eggs is low. Proteins are fundamental for mental balance; certain amino-acids are necessary to synthesize neurotransmitters involved in the well functioning of the body and especially of the brain. Dopamine/norepinephrine plays a role in the muscular movement, tissue growth, attention, concentration, pleasure, emotions and its deficiency may cause loss of motivation, even depression. Serotonine favours prudence, calm, reflection and its deficiency causes impulsivity, irritability, aggressive and violent behaviour, even suicide tendency. GABA is a sedative that helps to relax, to reduce muscular tonicity, and cardiac rhythm and also sleepless and anxiety. Adrenaline allows to react in stress situation, and its deficiency causes, lethargy and acetylcholine, and plays a role in memory, and its deficiency causes, memory troubles, even dementia.



The function of these neurotransmitters is taken into account in research for preventing and treating illnesses like depression and anxiety by prescribing diet rich in amino-acids available in vegetables, dry fruits, yogurt, pulses and beans, egg, whole grains, chicken, fish, mushrooms, seeds (flax, sesame, cocoa) etc. Sadhana Rajkumar concludes by recommending the consumption of complex carbohydrates, quality protein and quality fat.

The presentation by Susan Bose entitled '*Nutrition and mental health: importance of balanced diet'* is close to Sadhana Rajkumar's talk regarding the role of proteins in mental development. Human brain requires high energy and good diet for its well functioning so that serious deficiencies of micronutrients may not cause impaired brain function. Addressing mental health problems with changes in diet and counselling may, in some cases, show better results than using drugs. Thus, special diets are prescribed in the treatment of persons affected by certain type of mental disorders such as eating disorders, obviously, or substance abuse, and also in the treatment of iatrogenic effects of medication for mental disorders. According to the medication, the appetite or food-related functions such as saliva production, ability to swallow, bowel function, may be affected and the patient can looses weight or, more commonly, to gain it.

An imbalanced diet can have some bad effects on the body and mind, notably when diet is too poor in micronutrients as it is often the case in India. Chronic deficiency in vitamins of the B-complex, notably B12 and B9 can damage nervous system and impaired brain function. At level, only slightly lower than

normal, a deficiency of B12 causes a range of symptoms such as fatigue, depression, and poor memory. Though is very rare, vitamin E deficiency induces changes in red blood cells and nerve tissues that progresses to dizziness, vision changes, muscle weakness, and sensory changes. Vitamin B12 and vitamin E because of its antioxidant property are studied for treating neurological conditions and impaired cognitive functions such as in Parkinson's or Alzheimer's disease. Iron deficiency leads to more and less serious anaemia with low haemoglobin level. As the role of haemoglobin is to transport oxygen to organs, its deficiency means that insufficient oxygen reaches the brain that causes fatigue and weakness. Iron deficiency during the first two years of life can lead to permanent brain damage. The part played by other trace minerals like magnesium, zinc, copper and manganese cannot be ignored and if they are deficient, they can provoke neurological impairment, restlessness, nervousness and unsteadiness.

At the level of nutrients, a diet too rich in carbohydrates significantly affects mood and behaviour due to the increase of tryptophan that reduces the level of neurotransmitters in brain, notably that of serotonin. The increase of serotonin level in the brain enhance mood and has a sedative effect that causes sleepiness. Some researchers have claimed that a high sugar intake causes hyperactivity in children, but more studies need to be done to support this conclusion. Other studies have looked at the effects of a particular category of fat, the omega-3 fatty acids found in fish oils, and brain functioning. Although a few studies suggest omega-3 fatty acids are helpful for stabilising bipolar affective disorder, depression and stress, results are not efficient to be validated. This indicates that the research on the domain of diet needs to be developed as it can play a role in improving physical health and mental balance. As a large part of Indians lack of a basic healthy diet and suffer of malnutrition, they are particularly vulnerable to develop retardation and mental disorders.

The third presentation of this part differs from the previous ones by its topic that concerns intoxicated drink (and substances) that is classified as food because of its caloric value. Entitled '*Family and social issue in substance abuse*', Sunil Kumar tackles the difficult and huge problem of alcoholism and some drugs such as tobacco (mastication and smoking) and ganja in India and more specifically in Tamil Nadu. As a psychologist, he emphasizes the difficulty to treat this condition due to the fact that it is a complex phenomena in which interferes with social, cultural, biological, geographical, historical and economic factors. Alcohol consumption knows a strong increase of 6% per year that it estimated to grow at the rate of 8% per year. It concerns mostly men but the

consumption in women is on the rise[30]. The major issue is that the mean age of initiation of alcohol use has decreased from 23.36 years in 1950 to 1960 to 19.45 years in 1980 to 1990; it would be at 13 years in 2000 to 2010. If drug abuse was associated with social functions and religious believes in the past, it tends to be influenced more and more by the economic stress and the change of cultural values such as the disintegration of the joint family system, absence of parental care in modern families where both parents are working, decline of old religious and moral values. The processes of industrialization, urbanization and migration have led to loosen the traditional system of social control rendering individuals vulnerable to the stresses and strains of modern life. Alcohol is more and more linked with social relationship and leisure (eating out in non-vegetarian restaurant, party, religious festival, function). It can also play a role in adolescents by facilitating their integration into the world of adults and of work. Regarding the women, poverty, marginalization and pressure inside the family are factors that encourage alcoholism. Sunil Kumar emphasizes that despite alcohol consumption poses dilemmatic concerns to the policy makers regarding health and high harm at the social and familial levels, the state of Tamil Nadu is on a way to increase its tax revenue thank to alcohol. In 2010 -11, sales of liquor in the State touched 14.965 millions rupees and thanks to the extension of the opening time of the government wine shops[31], the Tamil Nadu government expects to generate 18.0 millions of tax revenue[32]. The lack of distinction between 'user' and 'pusher' of alcohol by government, its easy access and availability, poor implementation of legal measures, and low efforts for setting up treatment centres[33], do not encourage the reduction of alcohol consumption. This is more as

[30] One can consult the article quoted by Sunil Kumar: Vivek Benegal (2005). India: Alcohol and Public Health. *Society for the Study of Addiction*, 100: 1051-1056.

[31] Definition in the website http://tasmac.tn.gov.in: "The Tamil Nadu State Marketing Corporation Limited (TASMAC) is a company incorporated under the Companies Act, 1956 on 23.05.1983 with Registered Office at Chennai. TASMAC is vested with the exclusive privilege of wholesale supply of IMFL for the whole State of Tamil Nadu as per Section 17 (C) (1-A) (a) of the Tamil Nadu Prohibition Act, 1937 (Tamil Nadu Act X of 1937). It has taken over the wholesale distribution of Indian Made Foreign Liquor from the Private Sector in the whole of Tamil Nadu during May 1983." (retrieved on April 30 2012)

[32] An article entitled 'Tamil Nadu's liquor revenue rises to Rs 18K cr' published the 20 April 2012 in the Times of India confirms this expectation and highlights an increase of 20% in revenue from liquor sale between 2010-2011 and 2011-2012 fiscal.
http://articles.timesofindia.indiatimes.com/2012-04-27/chennai/31439825_1_liquor-sales-foreign-liquor-liquor-prices (retrieved on 20 April 2012)

[33] According to Sunil Kumar, nearly one-fourth of the centres do not provide any de-addiction services at all, and only about13% of the evaluated centres are optimally functional. Almost all the functioning centres keep their activities limited to providing out-patient and/or inpatient services; only a minority proposes community-based counselling.

serious than alcoholism and ganja have severe consequences on household economy, health and social and marital harmony. Eighty five percent of men consuming alcohol frequently or daily are violent towards their wives and children, and more than half of abusive incidents are under the influence of alcohol; forty percent of accidents at work place are due to alcoholism. Alcohol and ganja abuse leads to separations and divorces and causes emotional hardship to the family. They are responsible for incidents of teasing, group clashes, assault and impulsive murders in neighbouring as well as in family. Women substance users are greatly stigmatized so that they have quite often poor emotional support from health system, spouse (who may be substance user himself) or from their children. So, Sunil Kumar concludes that with most drug users being in the productive age group of 18-35 years, the loss in terms of human potential is incalculable. This communication is well informative on the consequences of drug abuse in India which knows a strong explosion since the liberalization of sales in 1990s. It also points out on the low awareness of drug abuse in the medical milieu while it is responsible of diseases, economic burden, social conflicts, family disharmony. But while the author is a psychologist, one can regret that he does not inform the counselling methods and therapies used in India to treat alcoholism.

Sunil Kumar was accompanied by Paul Sounderapandian, a recovered alcohol consumer he treated, who described his experience of alcohol and drug and his difficulty in giving up, and consequences on him and family.

3.2 Taking Charge Suicide: Example of a Development of a Helpline in India

The NGO SNEHA has been established at Chennai in 1986 to help people affected by suicidal thinking. The association's activities are presented by Gayatri, its executive director. SNEHA's services consist to help people through 24 hours helpline system, and also in face to face engagements, after discussion on phone, when people accept to come to the centre. The centre gives importance to the friendly relationship with the people in distress, that is to say, that the volunteers have to be able to listen without any judgment or criticism, to discuss with them and to help them. The main objective of the centre is that from helpline, people to come to SNEHA and to keep in touch with staff so that they can be monitored with regard to their depressive mood, stress and suicidal thinking. It also acts to help the survivors by working closely with the family of the person who attempted suicide.

Since the tsunami, SNEHA has been selected by a university of Australia to help children and adults affected by post-traumatic disorder through psychotherapies. Thanks to founding, the centre employs some therapists who provide care to suicidal people. Considering the importance of suicides among adolescents, the association has developed programmes with youth which consist of organizing interventions in school for creating awareness among students. This is important to point out that suicides of children and adolescents need a particular attention due to its drastic increase linked to the numerous issues they face up in the present society: pressure from parents for high marks at school, lack of sleep due to tuition and home school work, difficult familial environment (marital violence, alcoholism, poverty etc.), marriages (arrangement versus love) etc. The NGO conducts also some programmes in rural areas to help farmers. Farmers' suicides rate is the focus of media. Nevertheless, it is very problematic because it does not show any statistic on suicide in other professional groups and thus it is difficult to identify that farmers commit suicide more frequently than other professions[34]. The mode of suicide used by farmers is pesticide intake, pesticide being a kind of symbol of farmer debt. The association acts in some villages with high suicide rate near Chennai. In order to avoid that farmers with suicidal thinking kill themselves, pesticides are stocked in a room and given to the farmers when they need for agriculture. SNEHA claims that by this way, number of suicides may be prevented. Obviously, that does not help farmers to clear their debts, notably those contracted for children's marriages which are certainly one of the reasons of debts and consequently suicides.

3-3 Interrelation Between Health And Mental Health Issues

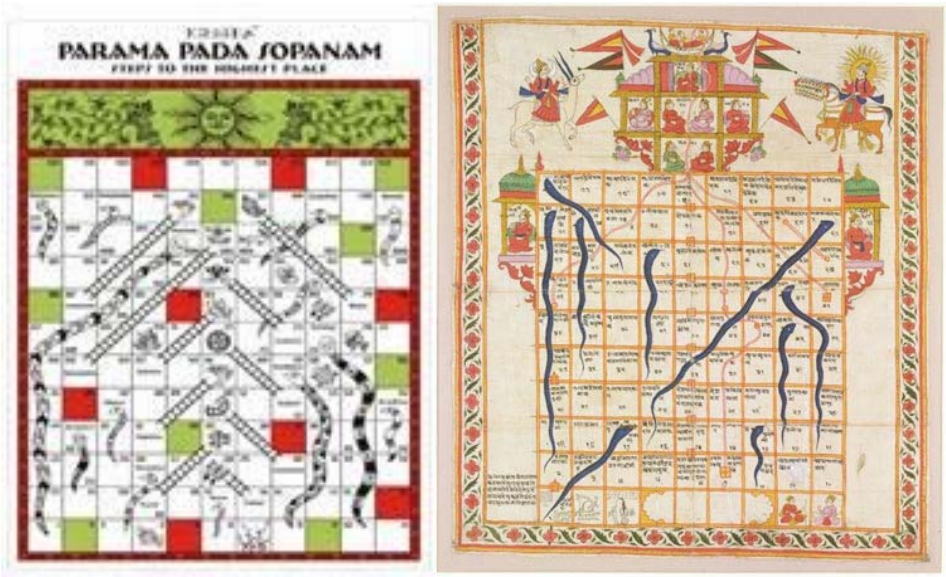
The presentation of Renu Weiss "*Physical health and mental health interlinkages*" concerns the health condition of mentally ill women that she treats at The Banyan, as a general medical practitioner. It presents several case studies of mentally ill women who are also affected by physical diseases (cancer, injuries due to violence or accident, eating disorders, etc). People with persistent mental illness have high early mortality rates because physical diseases may occur as a direct result from the mental disorder or indirectly, due to medication which can causes weight gain and consequently diabetes, heart attack. Mental illness is one of the main causes of premature death after heart diseases because a large

[34] According to the National Crime Records Bureau, in 2001, 13708 persons committed suicide. Farmers concern 9.7 % of suicides while they make up of 51.9% of the Indian workers; non farmers concern 13.5% of suicides.

proportion of patients do not receive biological tests for assessing metabolic risk factors, even the simplest ones such as blood pressure. Due to the bad perception of mental illness, mentally ill patients, and especially women, are less likely to be in contact with health service and to have their mental illness identified and treated. The physical health-related effects of mental illness can be impacted by many factors: poverty, poor sanitation, social discrimination including bad quality food, smoking and substance abuse and dietary habits. Due to their mental illness and position as mentally patients and their behaviours that lead to high health risks, patients with mental illness are prone to have heart attack, metabolic and endocrinal disorders, respiratory diseases, infection, and dental disorders. Certain physical diseases such as tuberculosis, hepatitis C and B, HIV, metabolic diseases (obesity, cancer, diabetes, hyperlipidemia, CVD, hypertension), impaired lung function and obstetric complications are also much more frequent. So, people with mental illness are among the most socially and medically marginalized. If they are lucky to be treated for their mental disorders, their physical health issues are not addressed so that they die more often and earlier of these diseases than general population. Renu Weiss argues that there are disparities not only in health care utilization but also in health care provision, and that some serious illnesses can be an obstacle to diagnose a physical disease if the patient can not communicate, that consequently will aggravate the disease. She emphasizes that this awareness on the close relationship between mental health and physical health serves to encourage screening, assessment and monitoring physical health condition of mentally ill patients, to train health service providers and to reorient health service from a focus on acute care to preventive health care. She adds that health services have to be more coordinative and integrative in order to treat all issues including substance addiction and dental diseases. This is the holistic approach that The Banyan seeks to develop in its different centres.

The holistic approach crosses the last communication entitled 'Route map to Well-th' presented by Anbudurai, a psychiatrist strongly influenced by Indian philosophy. It presents an ideal model of wellness state as a holistic system which begins before birth and achieves by the Liberation (soul). Wellness state is dependent on many factors: physical, socio-cultural, environmental, occupational, intellectual, emotional and spiritual which, according to the personality, can play a role more and less important. Anbudurai proposes to use a traditional Indian game 'parama pada sopanam' (snakes and ladders or ladders to salvation) or vaikuntapāli (steps of Vaikuntha; see below) inspired by Vaishnaite epics (notably Ramayana) in which ladders represent virtues (faith, reliability, generosity, knowledge and asceticism) and snakes that carry names of

epic's personages represent vices (disobedience, vanity, vulgarity, theft, lying, drunkenness, debt, rage, greed, pride, murder and lust). The aim of the game, evaluated from 0 to 100 is to avoid vices in order to reach God[35]. His objective is that this game can be used in counselling session with patients for symbolizing the lifestyle choices which influence the personality of the individual.



Anbu Durai's communication emphasizes on the importance to maintain balance in all activities: well balanced food, work and leisure that associates physical (yoga, sport), intellectual and artistic activities. This may be realized only if the health, food, education, work, housing and sanitation, social security, recreation and leisure and the respect of human rights are well insured. He evaluates the quality of life as composite measures resulting from physical, mental and social wellbeing factors perceived by each individual or by group of individuals, that are: happiness, satisfaction and gratification experienced in family, marriage, work, school; self esteem, creativity, and schooling; belongingness and trusting others; comfort in the physical environment, freedom of action, justice and freedom of expression.

Anbu Durai's talk contrasts sharply with the others that have tackled the food and health issues to which countries' populations have to face up, notably to get a good and well balanced food, and to be relieved for ailments resulting from poverty, inequality, discrimination, rapid changes in life, life stress etc..

[35] See the website : http://satyameva-jayate.org/2010/12/04/snakes-and-ladders/ (retrieved on 30.04.2012)

Nevertheless, its interest is to emphasize on the holistic dimensions of human being which need to be taken into account to improve life quality and self realization. So, this communication as well as some others that have emphasized on the plural dimensions of food habits, food-related diseases and mental illnesses, encourages the interdisciplinary reflections which are basically necessary to comprehend the overall food and health issues and to draw strategies and develop means to fight them. Although a good number of papers are interested in the context in which food and health issues are embedded or in reasons that explain these issues, some have brought some concrete possible responses and the discussions have sought to make emerged the means to enhance food security and to provide health and mental health, i.e., the prime perspective of the conference.

CONCLUSION

The conclusive comments of the three-day conference have been presented by Dr.Lakshmi Ravikanth from BALM, who has also synthesized the key outcomes of the conference.

Dr Lakshmi has stressed on the importance of the inter linkages between access to food, quality of food, and impacts on general and mental health on people especially prone to several types of marginalisations and vulnerabilities. Development concerns such as poverty, nutritional deficiencies, education and lack of employment opportunities are not stand alone, but they form an intrinsic chain reaction thereby affecting the general wellbeing of individuals. These are further exacerbated with conditions such as homelessness and gradual deterioration of general and mental health, for which 'life on streets', causes severe impairments. Prolonged deprivations such as the above, offset growth and development of individuals, affecting communities, societies and nations on the whole, whereby inequities create stark imbalances in socioeconomic securities and hinder the overall well being of all humanity. These are global realities that stare us in the face of development. As the deadline to achieving the Millennium Development Goals (MDGs) fast approaches, the basic questions regarding the quality of life of individuals is being raised, from several perspectives.

Dr.Lakshmi has emphasized on the definition of wellness as defined by the WHO quoting that wellness is: "the optimal state of health of individuals and groups, with two focal concerns: the realization of the fullest potential of an individual physically, psychologically, socially, spiritually and economically, and the fulfilment of one's role, and expectations in the family, community, place of

worship, workplace and other settings." With this definition of health being used largely in the development sector, it is important for policy makers, Non Governmental Organisations (NGOs), students of diverse social science disciplines, and other community stakeholders in different domains to work together, collaborate and synergize strategies and means by which these intrinsically linked problems may be tackled.

The conference threw up numerous issues faced by several social scientists not only in Lower and Middle Income Countries (LAMIC), but also from High Income Countries (HAMIC). These issues ranged from the high incidence and prevalence of non-communicable (lifestyle) diseases (such as diabetes, high cholesterol, cardiovascular disease), the food security bill in India, the usage of genetically modified foods, the importance of local crops and the superiority of millets with regard to nutrition and crop development, and of slum dwellers.

These subjects made it more clear that malnutrition, poor diets, and mental health issues are highly interlinked, and they cause far-reaching and debilitating disease burdens. The urgency of the situation warrants that, in order to ease the economic and social disease burden caused by these issues, policy makers need to invest in holistic and comprehensive plans. The partnerships fostered between different stakeholders in different sectors would provide a wide network through which the same goals of a more socially and economically safe, secure, and productive future can be achieved.

KEY OUTCOMES OF THE CONFERENCE:

- Policies, plans & implementation to make 'Food for All" especially in LAMIC nations must become a global concern. Huge volatility of food prices, bogie shortages, creation of false markets to be curbed for more equitable distribution with fair prices.
- National Food Security Bill (India) and benefits must influence 'Right to Food' to promote food and nutritional securities. Raise food entitlements in the PDS Scheme. Subsidies on food and other social benefits to be linked.
- Agriculture must be adapted to suitable contexts – region specific cultivation, small farming and multiple produce for self sufficiency in villages. It is necessary to increase awareness on the important contribution of agriculture for the future of population by de-stigmatizing

the profession, encourage financial help to agricultural work notably of small and marginal landowners, develop diplomas and education at different level in agriculture, protect landowners against promoters.

- Reservation on genetically modified foods must be maintained as long as research information and benefits are inconclusive. Excess use of bio-technology for agriculture is detrimental, as it will create social inequities and bring about further economic disparities.
- Millets and sorghum must be introduced into public food policy and Govt. food programs and pulses must be increase in quantity and in variety.
- It needs to develop inter-sectoral linkages between food, health and mental health by integrating benefit schemes for BPL families.
- Public interest messages and media must be much more encouraged to promote consumption of healthy foods and to increase knowledge on the impact of unhealthy and inadequate food intake on non-communicable diseases. Focusing on traditional foods would favour an integrated food system in harmony with bio-diversity and protection of environment.
- Formation of strong bodies would be required to oppose to commercially motivated food propaganda, processed foods, synthetic supplements and fortification of food in school and *anganwadi* programmes.
- I would be necessary to increase the role of women which is not merely in food preparation and sustenance but is a social capital, notably for organizing networks of "slum women". Involvement of women in dietary and nutritional programs is strongly recommended as they are the food-givers.
- Awareness campaigns in all sectors and educational programs with regard to breast feeding for growth of infants and long term impact on health and mental health need to be strongly developed.
- Importance in increasing pre and post natal care for health and mental health has been quite often pointed out in many presentations.
- It is necessary that physicians are aware of the social context and living conditions when they prescribe dietary recommendations especially for food-related diseases such as hyper cholesterol, diabetes etc. Adoption of an inter-disciplinary approach to food and health, concentrated on satisfaction and contentment quotient, positive or negative health indicators, life style stresses, and other aspects of well being is strongly required.
- It needs to develop diet and nutritional counselling for promotion of healthy life style and establishing relationships between health facts and myths, beliefs and behaviour. For this objective, the training of all health

care providers for basic health indicators and service minimums for food, health and mental health is imperative.

- Regular self management practices that entail a balance among food, exercise and meditation would be beneficial for patients with chronic diseases.
- For health and mental health problems, it would important to increase protein, vitamin intake, dietary counselling along with medical treatment etc.
- Periodic assessment of metabolic risk factors for persons with mental illness for example – BP, heart, and endocrinal system have to seriously done.
- Screening, assessments, monitoring, physical health parameters, emotional conditions and mental health of people under acute and palliative health care should be done systematically.
- Regulation on alcohol availability through Govt. outlets is also necessary to decrease alcoholism, and in same time, addiction have to be considered as a true disease that requires medical treatment and follow-up and the creation of de-addiction and rehabilitation centres and community based counselling.