

**MINUTES OF THE MEETING UNDER CHAIRMANSHIP OF PSA TO GOI TO IDENTIFY AND
PRIORITIZE THRUST AREAS IN SCIENTIFIC RESEARCH ON 'FOOD SECURITY AND
NUTRITION' HELD ON JULY 7, 2017 AT VIGYAN BHAWAN ANNEXE, NEW DELHI**

The following attended the meeting:

1. Dr. R. Chidambaram, Principal Scientific Adviser, Government of India **Chairperson**
2. Prof. Ramesh Chand, Member, National Institution for Transforming India, NITI Aayog, New Delhi
3. Dr. Soumya Swaminathan, Secretary, Department of Health Research and DG, ICMR, New Delhi
4. Dr. Swati Basu, Scientific Secretary, Office of the Principal Scientific Adviser, Govt. of India
5. Smt. Sarita Mittal, Joint Secretary, DHR
6. Dr. Vinod Paul, Professor & Head, Department of Paediatrics, AIIMS, New Delhi
7. Dr. Anura Kurpad, Professor, Department of Physiology & Nutrition, St. John's Research Institute, Bangalore
8. Dr. Manoj Nesari, Adviser, Ayush
9. Dr. Sutapa Mukherjee, Joint Technical Adviser, Food and Nutrition Board, Ministry of Women and Child Development
10. Shri Suresh Kumar, Scientist 'F', Office of the Principal Scientific Adviser to the Govt. of India
11. Dr. Bharat Bhushan, Scientist 'D', Vigyan Prasar, DST
12. Dr. Priyanka G Bansal, Scientist-'C', Division of Nutrition, ICMR, New Delhi

Dr. Chidambaram in his opening remarks emphasized the importance of nutritional Security that bridges the Food Security and Good Health which is central to many of the sustainable development goals. He opined that it is time to identify various issues pertaining to "malnutrition", and other health impacts, including micronutrient deficiencies. He urged that thrust areas need to be defined where specific issues could be addressed through appropriate S&T interventions to assure nutritional Security. He also noted that various programmes/schemes on 'Food Security and Nutrition' have been initiated by other Ministries and Departments. He stated that a meeting with the agriculture experts has already been scheduled for deliberating on strategies to improve nutritional content in food to combat the problem of malnutrition. A combined meeting will subsequently follow with a time bound roadmap through inter-sectoral approach. He suggested some of the thrust areas pertaining to cultivation of different kinds of quality crops, appropriate utilization of traditional knowledge like Ayurveda to improve nutrition, development of methodologies for early detection of malnutrition, utilization of epidemiological data for ascertaining the impact of the investments in the field of nutrition and so on. He presented an interesting analysis done in the USA on economic arguments for investing in Nutrition research/intervention with a benefit-to-cost ratio of almost 13 to 1.

Dr. Soumya Swaminathan mentioned that nutritional status of an individual is governed by several factors like food availability; affordability; awareness, etc. However, besides these, other factors like hygiene & sanitation; access to health services; infections, etc., are also equally important. Dr. S. Swaminathan said that as per NFHS-4; prevalence of underweight and stunting among pre-school children has decreased marginally. However, 'higher rates of wasting' has emerged as a challenge. Further, other micronutrient deficiencies especially anemia still continues to be a major public health problem in the country. Dr. Swaminathan mentioned that there is a consensus that nutrition and agriculture are inter-linked and production of targeted nutrition-rich crops can potentially improve nutrient intake and nutritional outcomes. Therefore, an Expert Committee to deliberate on integration of agriculture and nutrition for demonstrating freedom from hunger was constituted by ICMR under the Chairmanship of Prof. M S Swaminathan, Founder Chairman and Chief Mentor, M S Swaminathan Research

Foundation, Chennai. The first meeting of the committee was held on July 3, 2017 to deliberate to develop an operational model which may be implemented in three model districts in the first phase, i.e. Koraput (Odisha); Thane (Maharashtra) and Gorakhpur (UP). She also informed the group that National Nutrition Monitoring Bureau (NNMB) under ICMR will soon release its report of urban survey which was carried out in 16 States of the country and would give recent dietary estimates and deficiency patterns of the population. Dr. Soumya Swaminathan also informed the following:

1. To improve the nutritional status of the population, it is important to **introduce changes at policy level, like introduction of nutritious food items for e.g. pulses and millets in Public Distribution System (PDS) and strengthening Mid-Day Meal Programme (MDM).**
2. A committee has been constituted by Ministry of Women and Child Development to discuss ideal quantity and quality of food that should be provided through Anganwadi centres and in mid-day meal for school going children.
3. Besides, availability and affordability of food by the masses; absorption of nutrients from the foods consumed is one of the important factors to determine the nutritional status of an individual. Enteric infection; poor sanitation; high phytate content etc may limit the absorption of nutrients from the food consumed.
4. **Quality of proteins consumed is one of the important determinants in assessing the overall nutritional status. e.g. animal proteins are considered better than plant proteins.**
5. **Fortification is one of the strategies to enhance the nutritional content of the food stuffs and Ministry of Women and Child Development are bringing out policy on food fortification of oil, milk, wheat and salt.**

Dr. A.V. Kurpad then made a presentation on 'Food Security and Nutrients' and emphasized that poor dietary diversity and impaired intestinal absorption are two of the major reasons for the national supplementation programs not yielding desirable results in terms of reducing malnutrition. He then presented NFHS-4 data on Protein energy malnutrition and mentioned that prevalence of stunting among under 5 years children is high in both rural and urban India which is basically due to poor protein quality (poor in amino acids, i.e. lysine and threonine) being consumed in the country. Similarly, anemia whose prevalence is approx.. 50-55% among different age groups across the country is mostly due to the fact that most of the iron intake in the country is cereal based; which has high phytate content and has inhibitory effect on iron absorption. In addition, high calcium intake especially in northern part of the country further limits iron absorption. Dr. Kurpad mentioned that besides iron, other nutrients like folic acid and vitamin B12 are equally important for effective erythropoiesis in the body and vitamin B12 deficiency is quite prevalent in the country as it is available from non-vegetarian foods. **Dr. Kurpad suggested that working with agricultural scientists to produce more iron/less phytate grains; and fortification of food with iron enhancers may provide possible solution to the problem of poor iron absorption from Indian diets.** He highlighted following as priority research areas for ensuring nutrition security in the country:

1. Define nutrient security in terms of what is absorbed and utilized, not only production and intake of foods
2. Map the extent of the problem, gaps, health outcomes, (i.e. map nutrient intake, production and availability)
3. Evaluate absorption and utilization (intestinal health and absorption of key nutrients; evaluate food patterns that are inhibitory for absorption like phytate, polyphenols and calcium; evaluate solutions for improving intestinal health and bioavailability)

4. Develop agriculture-nutrition-public health linkages to address production; food processing; intestinal health and randomized controlled trials to build evidence on anemia, stunting and sarcopenia
5. Modeling and evaluation of impact by diet fortification and diversification.

Dr. Chidambaram then asked **Dr. V. K. Paul** to share his views. Dr. Paul made a presentation on '*Understanding the biology of child undernutrition*'. He emphasized that **the first 2 years of life is the most crucial window for optimum growth and development and hence, needs to be monitored properly**. He indicated that research has shown that a baby born low birth weight (LBW) may follow a lower growth trajectory throughout life. He also highlighted major determinants for low birth weight such as maternal age; antenatal check-ups; mother's BMI and height, etc. He further opined that available literature has indicated that maternal energy supplementation can lead to a decrease in LBW by about 32%. He raised following issues:

1. **Diarrhea is associated in approx 25% cases of undernutrition** and recurrent episodes may further worsen the condition of a child. He also shared that the prevention and treatment of diarrhea is well known and awareness needs to be created among the masses on how to manage diarrhea.
2. **Infant and Young Child Feeding practices needs to be strengthened**. The percentage of women initiating breast feeding within one hour of delivery and colostrum feeding is still low in the country. Further, timely and appropriate initiation of complementary feeding needs to be emphasized. These areas need active intervention through education.
3. **7% of the children have Severely Acute Malnutrition (SAM) and needs to be addressed on an urgent basis**; and the management guidelines for the same are already well established but needs to be reinforced.
4. Dr. Paul emphasized the importance of birth spacing and anemia screening for all children.

Dr. Manoj Nesari (Ayurveda Expert) shared his opinion on traditional Indian diets and discussed the dietary pattern of the population that has changed over the decades. He mentioned that the varieties of rice and millets which were available 40-50 years back have now all vanished leading to reduction in food diversity. Further, some of the foods that have medicinal values like horse gram dal for treatment of bronchial asthma are not known to masses. He mentioned that even the types of vegetables consumed have changed. People now do not know of many vegetables which were consumed earlier. Similarly, type of fats and oils used have also been changed. Hence, **knowledge about local foods available and consumed are very important while planning any area specific intervention**. He further briefed the group that as per Ayurveda, the digestion capacity of every individual is different. Hence, what may prove good for one may not hold true for the rest.

Dr. Nesari further suggested some methods to improve acceptability of traditional foods especially by children. For eg. Kheel Ladoo; millet popcorns etc. He also informed the group that there are certain foods which are believed to lower the duration of labour by around 2 hours and also increase birth weight by upto 200 gms. Dr. Chidambaram opined that these are important inputs that may be appropriately integrated w.r.t. anaemia, diarrhea and pre-natal management.

Sh. Ramesh Chand supported interdisciplinary approach to **improve nutrition and emphasized appropriate blend of traditional and modern knowledge to address the**

problem of undernutrition. He said that **role of nutrition education and awareness** is very important in improving nutritional status of the population. He informed the group that **agriculture situation in the country has improved substantially in terms of quantity, and now more emphasis is required on quality of food and consumption of safe food by the population.**

Dr. Sutapa Mukherjee then briefed the group about initiatives taken by Women and Child Development as follows;

1. Revision of Supplementary Nutrition guidelines for all vulnerable age groups under ICDS
2. Development of operation based guidelines for SAM children
3. Food fortification is being taken up as a policy decision

After all stakeholders shared their opinions, the house was open for discussion. There was a consensus on the following:

1. Inter-sectoral approach involving agriculture, nutrition, soil scientists is required to comprehensively address the problem of undernutrition
2. A roadmap with attainable goals to be prepared in consultation with all concerned
3. Emphasis to be laid on qualitative aspect of food rather than quantitative

It was decided that to begin with, projects need to be formulated for two target groups having trackability. This will ascertain quantification of the impact of nutritional intervention on the target group. The intervention could be a combination of the utilization of modern and traditional knowledge along with appropriate region-specific variation. Two such target groups identified are as follows:

- i) **adolescent group** : Navodaya Vidyalaya which is a residential school spread across the country, catering to the disadvantage section of the society could be a possible option
- ii) **0-2 years target group** : This may be preferably in the tribal belt having limited number of people for effective tracking

The meeting ended with a vote of thanks to the Chair.
