Uttar Pradesh Rajarshi Tandon
Open University

UGHN-120

Policy Program and Interventions

UGHN-120: POLICY PROGRAM AND INTERVENTIONS

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BLOCK- 1: CURRENT SITUATION IN INDIA, NEED FOR POLICIES, EXISTING POLICIES

The First unit provides insights into India's current socio-economic and health landscape, highlighting rural and urban disparities in food availability, mortality, morbidity, and nutritional challenges. It also examines the situation of women and children, emphasizing maternal and child health, and explores the significance of the poverty line in influencing health outcomes. This block aims to equip learners with practical knowledge of programme implementation and the prevailing health issues in India. Unit II explains about the Indian policies on food security are intended to give the underprivileged and vulnerable groups as a safety net. Ensuring that every citizen always has access to enough food that is safe and healthier. This method acknowledges that providing calories is only one aspect of food security; another is making sure that there is enough nutrition to promote healthy growth and development. Based on the ideas of equality and inclusion, India's food security policies seek to meet the needs of underserved populations and close the gap between rural and urban regions. These policies aim to establish a robust and sustainable food system by boosting agricultural output, aiding small farmers, and putting in place focused welfare initiatives. In third Unit we will study about agriculture policies of the majority of countries are under intense pressure for internal reforms in light of the shifting global landscape toward an open market economy. The emphasis on eliminating trade-distorting factors in order to promote free competition and boost production efficiency is the primary cause of the stress.

UNIT – I CURRENT SITUATION IN INDIA WITH REGARDS TO NATIONAL AND REGIONAL LEVEL RURAL AND URBAN

Structure

1.1 Introduction

This unit will include current situation in India with regards to national and regional level especially about the common nutritional problems in India. Rural populations continue to be more vulnerable to communicable diseases such as tuberculosis, malaria, and diarrheal infections due to limited healthcare access. Meanwhile, urban areas witness a rise in non-communicable diseases (NCDs), including diabetes, hypertension, and heart disease, driven by sedentary lifestyles and unhealthy eating habits. The nutritional landscape presents a complex picture. Malnutrition, characterized by stunting, wasting, and micronutrient deficiencies, remains widespread in rural communities, particularly among children. On the other hand, urban areas are witnessing a surge in obesity and related metabolic disorders due to changing dietary patterns and reduced physical activity. Addressing these challenges requires region-specific policies, improved healthcare infrastructure, and targeted nutrition interventions to bridge the health and nutrition gap across India's diverse regions. This unit focuses on the current scenario of Women and children from low-income households. Strengthening welfare schemes, improving healthcare services, and promoting gender equality are essential to enhancing their quality of life and ensuring a healthier future.

After learning to this unit, the student will be able to

- Understand the concept of food availability, mortality, and morbidity.
- Gain the insights of current situation of maternal and children.

1.2 Food availability

The core component of food security is producing food. The Food and Agriculture Organization of the United Nations (FAO) provided the globally recognized definition of food security in the Rome Declaration on World Food Security (WFS) in 1996, which was amended in the global FAO's State of Food Insecurity in 2001.It is considered as the state in which everyone, everywhere, has physical, social, and financial access to enough safe, nourishing food that satisfies their nutritional requirements and choices for an active and healthy life."The urgency of switching to the idea of "Nutrition Security," that he described as "physical, economic, and social availability of a healthy diet, water that is safe to drink, clean environments, primary healthcare, and nutritional knowledge," has long been emphasized. The definition has three facets: absorption, availability, and accessibility.

a) The physical availability of food supplies in the required amounts is referred to as availability. Utilizing grains like wheat as a substitute for food (which makes sense in a situation where they make up a significant portion of dietary intake), the availability of food grains is determined by adding net imports, withdrawal of stocks, and local manufacturing net of feed, seed, and waste. Infrastructure for logistics and storage as well as market integration within a country determine physical availability in any area.

b) A person's initial endowments, what they can obtain (particularly in terms of physical and financial access to food), and the opportunities available to them to attain entitlement sets with adequate food—either through their own efforts, government intervention, or both—all influence their level of access.

c) Absorption is the process by which the food is used by the body. In consequently, this is most closely associated to the availability of water that is safe and clean for consumption, sanitary conditions, clean surroundings, primary healthcare, as well as nutritional awareness and proper practices.

The World Food Programme (WFP) estimates that 195 million Indians suffer from undernutrition. Chronic undernutrition affects 43 percent of Indian children. Out of 113 large nations, India comes up at number 68 on the 2022 Global Food Security Index.

Need for food security:

- Population: India has a sizable and expanding population of about 1.3 billion people. Food supplies and agricultural output are under a lot of strain due to the rising demand for food.
- Agricultural Produce: A number of problems, including dispersed land holdings, poor irrigation systems, a dearth of contemporary farming methods, and restricted access to capital and technology, contribute to India's agricultural sector's low produce.
- Natural calamities and Change in climate: The yields for crop and productivity in cattle are impacted by weather unpredictability, such as floods, droughts, and extremely high temperatures.
- Limited supply of Water: Monsoon rains are crucial to Indian agriculture. The patterns of Rainfall, however, are becoming more erratic, which causes scarcity of water in some areas.
- Low soil profile: Degradation of soil threatens crop yield due to components like erosion, excessive use of chemical fertilizers, and inadequate land utilization protocols.
- Distribution and Storage: Poor refrigeration and distribution systems and ineffective storage facilities lead to significant food losses and waste.
- Poverty and Inequality: Many people, especially in rural areas and marginalized

communities, find it difficult to regularly afford and obtain wholesome food.

India is one of the largest producers of food globally. The country produces a significant share of the world's cereals, pulses, fruits, and vegetables. According to the Ministry of Agriculture & Farmers Welfare, India produced approximately:

- 329 million tonnes of food grains in 2023-24, which included wheat, rice, maize, and coarse cereals.
- 135 million tonnes of rice and 110 million tonnes of wheat, making them the staple crops of the country.
- 27 million tonnes of pulses, contributing to a major source of protein for the population.
- 324 million tonnes of horticultural produce, including fruits, vegetables, and spices.
- India is also a leading producer of dairy and livestock products: The country produced over 230 million tonnes of milk in 2023, making it the largest milk producer globally.
- Egg production reached approximately 138 billion units, while meat production stood at around 9 million tonnes.

Despite high agricultural production, the availability of food per individual varies significantly across regions due to disparities in distribution and accessibility. According to the Food and Agriculture Organization (FAO) and the NITI Aayog, the per capita food availability in India in 2023 was approximately:

- 190 kg of cereals per person annually.
- 12 kg of pulses per person annually.
- 75 kg of vegetables and 55 kg of fruits per capita per year.
- 400 grams of milk per person per day, which is above the World Health Organization (WHO) recommended daily intake of 250 grams.

However, the availability of protein-rich foods such as pulses, meat, and fish is still lower than the global average, especially in rural areas. This affects the dietary diversity and nutritional status of vulnerable groups.

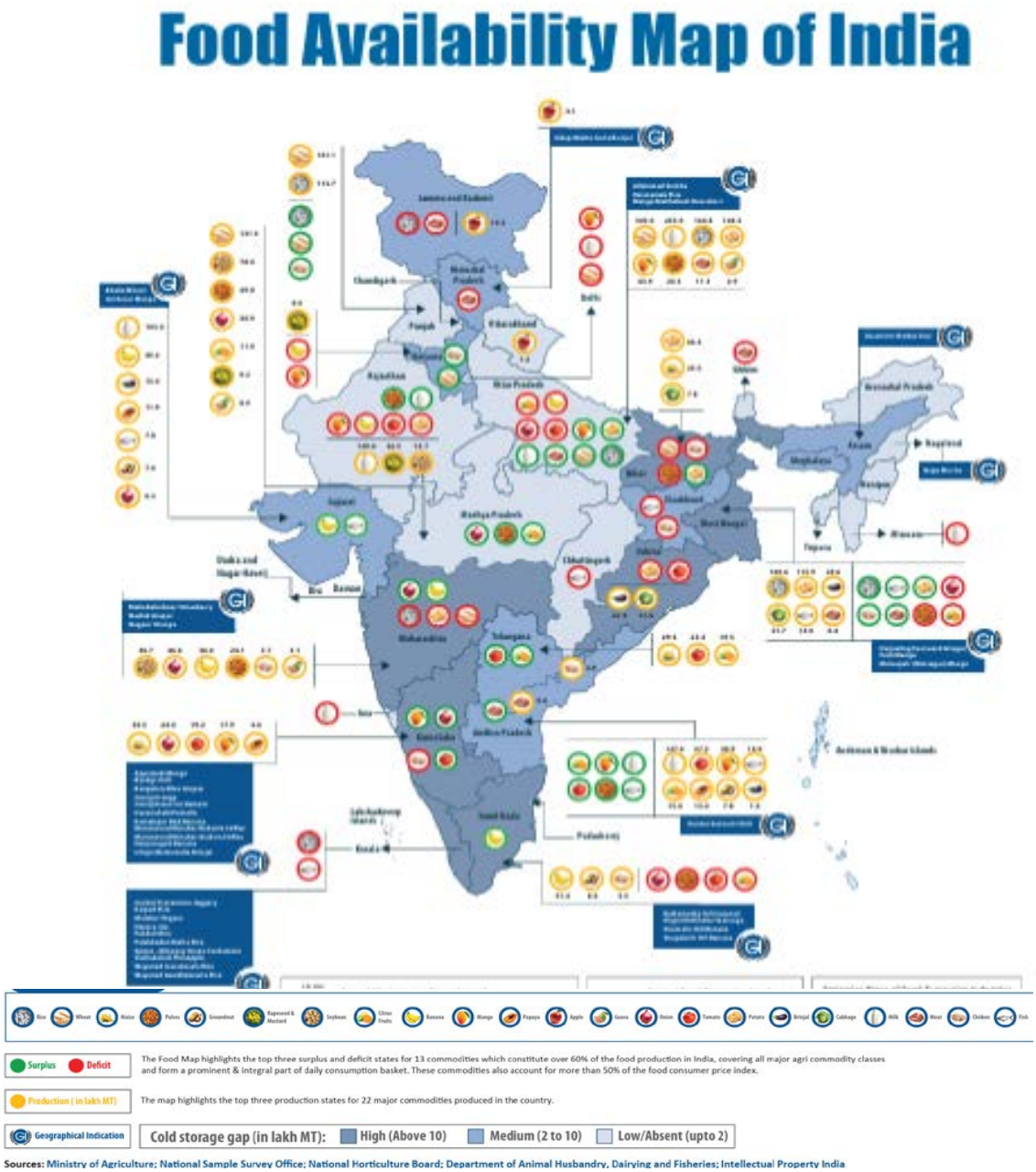
While India produces enough food to meet the needs of its population, uneven distribution and accessibility remain major challenges. The Public Distribution System (PDS) plays a key role in ensuring access to subsidized food grains for low-income households. Under the National Food Security Act (NFSA), approximately 800 million people receive subsidized food grains every month. This includes:5 kg of rice or wheat per person per month at highly subsidized rates. Free food grains were distributed to millions under the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) during the COVID-19 pandemic. However, despite these programs, issues such as leakage, inefficiencies, and corruption hinder effective food distribution. Many vulnerable populations, especially migrant laborers and homeless individuals, still struggle with food insecurity.

Food availability is also impacted by post-harvest losses and food wastage. According to the Food Corporation of India (FCI) and the Food and Agriculture Organization (FAO), India loses approximately 40% of its food due to poor storage, inefficient transportation, and supply chain issues. Annually, about 67 million tonnes of food are wasted, which is equivalent to the total consumption of the United Kingdom. Fruits and vegetables account for the highest food loss due to their perishable nature, with around 30-40% being wasted. Reducing food wastage through better storage facilities, improved logistics, and consumer awareness is essential to enhance food

availability. Additionally, Climate change poses a significant threat to food availability in India. Erratic rainfall, rising temperatures, and frequent droughts or floods impact crop yields. For instance: In recent years, wheat production in northern India has been affected by heatwaves, reducing yield by 3-4%.Floods in coastal regions have damaged rice and maize crops, impacting the overall food supply.

Besides this, India is not only a major food producer but also an exporter of several agricultural commodities. In 2023-24, the country exported approximately22 million tonnes of rice, making it the largest rice exporter globally, 4.5 million tonnes of wheat, despite domestic price controls. However, India also imports certain food items to meet domestic demand, particularly edible oils and pulses. In 2023, India imported15 million tonnes of edible oils, including palm oil and soybean oil, 2.5 million tonnes of pulses, mainly lentils and chickpeas, to bridge the gap between domestic production and demand.

Figure 1: The availability of different food commodities across the India



1.3 Mortality

Mortality and morbidity are interlinked, but both are separate events. The rate at which people die within a nation is known as its mortality rate. The total number of people tends to decline due to the constant force of attrition. Globally, there are two basic distinctions exist between fertility and mortality conditions. Even in the distant past, when life was entirely dependent on the forces of nature, the mortality rate was low in comparison to the birth rate. It was difficult to reduce the death rate because the birth rate was almost at its biological limit to maintain population growth. It is quite difficult as food and nutrition supply is unpredictabile.Other elements that may help reduce the death rate, including adequate housing, technical advancements, and the medications required to combat illnesses and natural disasters, were still in their infancy.

As per WHO and the UN, "death is the permanent disappearance of all evidence of life at any time after birth has taken place." Without the ability to do resuscitation, crucial functions cease. Additionally, it should be mentioned that there are distinct stages of mortality, and different terms are used to distinguish between them. The WHO's (1978),has given various definition according to the 9th edition of classification of diseases are as follow:

- When a non-viable pregnancy is removed from the uterus prior to eight full weeks have passed since the first day of the last menstrual cycle is termed as Abortion.
- The demise of the fetus at any point between the eighth and twelfth weeks following the first day of the last menstrual cycle is known as Miscarriage.
- Death of Foetal is death, regardless of pregnancy length, before a result of fertilization is fully expelled or extracted from its mother.
- A stillbirth occurs when the fetus is delivered dead after 37 weeks pregnant.
- Any live birth that occurs within a few hours of birth is referred to as perinatal mortality.
- Neonatal death is the term for death that occurs before a baby is one month old.
- Infant death is the term used to describe any live birth that occurs between the time of birth and the end of the first year of life.

It is commonly measured through indicators such as:

Crude Death Rate (CDR): The total number of deaths per 1,000 individuals in a year.

Infant Mortality Rate (IMR): The number of infants dying before their first birthday per 1,000 live births.

Maternal Mortality Ratio (MMR): The number of maternal deaths per 100,000 live births.

In India, mortality rates have gradually declined due to advancements in healthcare, expanded immunization coverage, and improved maternal and child health services. However, disparities persist, with rural areas and economically disadvantaged groups still facing higher death rates.

As of 2022, there were 29 deaths per 1,000 live births among children under five. In 2022, the infant mortality rate stood at 26 deaths per 1,000 live births. The neonatal mortality rate was 18 deaths per 1,000 live births in 2022. In 2020, the maternal mortality ratio was 102.7 per 100,000 live births.

1.4 Morbidity and illness

Any deviation, whether subjective or objective, from a condition of physiological or psychological well-being has been referred to as morbidity. In actual, morbidity includes incapacity,

illness, and damage. Additionally, while the phrase is employed in this course to indicate the number of people who are unwell, it may also be used to express the length of time these people have been ill or the phases of health issues they have undergone.

The percentage of people in a population that have a specific condition or characteristic at a given moment or during a set span time frame is known as prevalence, or prevalence rate. In contrast to incidence, which is restricted to new instances alone, prevalence consist of all cases—both new and preexisting—in the population at the time allocated.

The prevalence as assessed at a certain moment in time is referred to as point prevalence. It is the percentage of people who have a specific illness or characteristic on a given day. Prevalence measured over a period of time is referred to as period prevalence. It is the percentage of people who have a specific illness or characteristic at any given point in time.

India continues to grapple with a dual burden of diseases. While communicable diseases like tuberculosis, dengue, and malaria remain prevalent, non-communicable diseases (NCDs) such as diabetes, hypertension, and cardiovascular conditions are on the rise due to lifestyle changes. Additionally, malnutrition and inadequate sanitation contribute significantly to disease prevalence, especially in vulnerable populations.

In 2023, the incidence of tuberculosis was 195 cases per 100,000 population, a reduction from 237 per 100,000 in 2015. In 2022, the malaria incidence rate was 2.56 cases per 1,000 population at risk. Chronic respiratory diseases accounted for 12% of all deaths in India in 2023, affecting approximately 18 million people.

Reducing mortality and morbidity in India requires a holistic approach, including enhanced healthcare access, preventive measures, public health awareness, and strengthened infrastructure to ensure better health outcomes for all. The statistics highlight India's ongoing health challenges, including maternal and child health, infectious diseases, and non-communicable diseases. Continued efforts in healthcare infrastructure, preventive measures, and public health initiatives are essential to improve these health outcomes.

1.5 Nutritional problem

India, a country known for its vast cultural variety and economic inequality, continues to face serious public health challenges related to nutritional issues. Despite of notable advancements in a number of areas, the nation still faces the challenge of malnutrition and associated health problems. The country faces a triple burden of malnutrition, comprising undernutrition, micronutrient deficiencies, and rising obesity rates, which collectively impact the health and well-being of its population. Nutritional problems continue to exist in India because of socioeconomic conditions, poverty, and a lack of understanding. Malnutrition is a serious problem that requires a thorough grasp of its root causes in order to be properly addressed.

Nutritional issues are widespread in India and impact people of all ages and socioeconomic backgrounds. Malnutrition, which includes both undernutrition and overnutrition, is still a serious problem. Even if there is a growing middle class and the economy is expanding, a sizeable portion of the populace still has difficulties getting access to wholesome food. There are several ways that nutritional deficits show up, including:

Inadequate protein and calorie consumption is a hallmark of PEM, which is common in both adults and children in India. Resulting in poor immune function, reduced development, and heightened vulnerability to infections. Many people suffer from deficiencies in vital micronutrients like Zn, I, Fe & vitamin A. Among the many health issues that are exacerbated by these deficits are eye difficulties, anaemia, and poor cognitive development.

According to the National Family Health Survey (NFHS-5) (2019-21), approximately35.5% of children under five are stunted (low height-for-age), indicating chronic malnutrition.19.3% of children in the same age group are wasted (low weight-for-height), reflecting acute undernutrition.32.1% of children are underweight, showing the prevalence of general malnutrition. These figures highlight the severity of nutritional deprivation among children, particularly in rural and economically disadvantaged areas. Malnourishment during childhood not only affects growth and development but also impairs cognitive abilities and increases susceptibility to infections.

Micronutrient deficiencies, often referred to as hidden hunger, are widespread in India, particularly among women and children. The NFHS-5 revealed that67.1% of children aged 6-59 months and 57% of women aged 15-49 years are anemic, primarily due to iron deficiency. The Comprehensive National Nutrition Survey (CNNS) (2016-18) found that nearly 22% of school-age children and 32% of adolescents have zinc deficiency, which weakens immunity and slows growth. Vitamin A deficiency, which can lead to impaired vision and increased disease susceptibility, affects approximately 62% of preschool-aged children, according to the Global Nutrition Report (2023).Iodine deficiency is also common in certain regions, despite the widespread use of iodized salt, leading to goiter and other thyroid-related disorders. Micronutrient deficiencies contribute to increased morbidity, developmental delays, and reduced productivity, creating long-term health consequences for individuals and the nation.

While undernutrition and micronutrient deficiencies persist, India is simultaneously experiencing a growing prevalence of overweight and obesity, particularly in urban areas. Sedentary lifestyles, changing dietary patterns, and the consumption of processed and calorie-dense foods are contributing to this trend. According to NFHS-5, 24% of men and 22% of women aged 15-49 years are overweight or obese, a significant increase from previous years. Childhood obesity is also on the rise. The CNNS reported that 5% of children aged 5-9 years and 8% of adolescents are overweight, raising concerns about early-onset diabetes and other metabolic disorders. The Indian Council of Medical Research (ICMR) estimates that nearly 77 million people in India are living with diabetes, a figure expected to increase in the coming decades due to obesity-related risk factors. The increasing rates of hypertension, cardiovascular diseases, and metabolic syndrome are directly linked to obesity and poor dietary habits. This nutritional transition reflects the growing burden of non-communicable diseases (NCDs), which place significant strain on the healthcare system and reduce overall life expectancy.

Nutritional challenges in India vary significantly based on gender, region, and socioeconomic status. Women and girls often face greater nutritional disadvantages due to gender-based disparities in food distribution, cultural norms, and reproductive health demands.NFHS-5 data indicates that 57% of women of reproductive age are anemic, which impacts their overall health and increases the risk of maternal and neonatal complications.

In rural areas, malnutrition rates are notably higher. 37% of children in rural regions are stunted, compared to 27% in urban areas, due to factors such as poverty, food insecurity, and limited access to healthcare services. Conversely, urban areas report higher rates of obesity and overweight, driven by sedentary lifestyles and the consumption of processed foods. The tribal and marginalized communities often experience worse nutritional outcomes due to limited access to nutritious food, poor sanitation, and inadequate healthcare facilities. According to the Global Hunger Index (GHI) 2023, India ranks 111th out of 125 countries, indicating the persistent challenge of hunger and malnutrition.

The Indian government has launched several initiatives to combat malnutrition and improve nutritional outcomes. Some of the programs are as follows:

- Poshan Abhiyaan (National Nutrition Mission): The program was launched in 2018, it aims to reduce stunting, wasting, and anemia among children, adolescents, and women through improved nutrition interventions and monitoring systems. It is also known as the National Nutrition Mission (NNM), the program seeks to reduce stunting, wasting, and anemia by addressing the underlying causes of malnutrition through a multi-sectoral approach. With the vision of creating a "malnutrition-free India" by 2022, the mission promotes convergent action across different ministries, including health, women and child development, rural development, and education, to ensure the effective delivery of nutrition-related services. The core objectives of Poshan Abhiyan include reducing stunting among children under five years of age from 38.4% to 25%, decreasing underweight prevalence from 35.7% to 25%, and lowering anemia rates in women and children. The mission also aims to improve maternal nutrition and promote optimal infant and young child feeding practices. To achieve these goals, the program uses technology-driven interventions, such as the Integrated Child Development Services-Common Application Software (ICDS-CAS), which enables real-time monitoring and better service delivery by Anganwadi workers. A key highlight of Poshan Abhiyan is the Poshan Maah (Nutrition Month), observed every September. During this period, extensive awareness campaigns, health camps, and community activities are conducted to educate people about the importance of nutrition, breastfeeding, and complementary feeding. The mission also emphasizes behavioral change communication through mass media campaigns village health and nutrition days, and school-based interventions. Since its launch, Poshan Abhiyan has made significant strides in strengthening India’s fight against malnutrition. By promoting convergent action, leveraging technology, and engaging local communities, the program aims to create a healthier and more nourished population, contributing to the overall socio-economic development of the country.

- Mid-Day Meal Scheme (MDMS): This program provides nutritious meals to over 120 million school children daily, improving their dietary intake and school attendance. It’s flagship program launched by the Government of India in 1995 with the objective of providing free, nutritious meals to school children. It aims to improve the nutritional status of children while encouraging school enrollment, attendance, and retention, particularly in economically disadvantaged areas. The scheme covers students in government and government-aided schools from Classes 1 to 8, ensuring that children receive at least one hot cooked meal during the school day. The meals provided under the scheme are designed to meet the nutritional requirements of growing children. According to the guidelines, each primary school child (Classes 1-5) is entitled to receive a meal containing 450 calories and 12 grams of protein, while students in upper primary classes (Classes 6-8) receive 700 calories and 20 grams of protein. The meals typically include rice, pulses, vegetables, and occasionally eggs or fortified foods, promoting a balanced diet. The scheme also plays a crucial role in addressing classroom hunger and reducing malnutrition. By providing free meals, it encourages regular school attendance and reduces dropout rates, especially among children from marginalized communities. Additionally, the MDMS promotes gender equality by motivating families to send their daughters to school, ensuring better access to education for girls.Over the years, the scheme has been expanded and strengthened through collaborations with non-governmental organizations (NGOs) and private partners. In 2021, it was renamed PM-POSHAN (Pradhan Mantri Poshan Shakti Nirman), with an extended focus on nutritional security and monitoring. The Mid-Day Meal Scheme continues to be a key initiative in India's efforts to combat child malnutrition and promote universal education, contributing to the overall well-being and development of the nation’s children.

- Integrated Child Development Services (ICDS): It offers supplementary nutrition, immunization, and health services to children under six years and pregnant and lactating women. It was launched by the Government of India in 1975 with the goal of improving the health, nutrition, and development of children under six years of age, as well as pregnant and lactating mothers. It is one of the world's largest early childhood care programs, designed to address malnutrition, child mortality, and developmental delays by offering a range of services through Anganwadi centers.

  The key services provided under the ICDS include:

  - Supplementary nutrition: Children and mothers receive nutritious meals and food supplements to prevent malnutrition and improve overall health.
  - Health and immunization services: The program ensures regular health check-ups, immunization, and referrals to healthcare facilities.
  - Early childhood education: Preschool education is provided to children aged 3-6 years to promote cognitive and social development, preparing them for formal schooling.
  - Health and nutrition education: Mothers and caregivers are educated on nutrition, hygiene, and childcare practices.
  - Monitoring and growth promotion: The health and nutritional status of children are regularly monitored through growth charts and health records.

The ICDS has played a crucial role in reducing child malnutrition and enhancing maternal health across rural and urban areas. The Anganwadi workers, who are the backbone of the program, act as frontline service providers, delivering essential health and nutrition services to marginalized communities. Over the years, the ICDS has been strengthened through policy reforms, including the POSHAN Abhiyaan, which integrates technology and data-driven monitoring to improve service delivery. The program continues to be a cornerstone of India's efforts to ensure better maternal and child health outcomes, contributing significantly to the country's public health and nutrition landscape.

- Anaemia Mukt Bharat: It is a flagship initiative launched by the Government of India in 2018 to combat anaemia prevalence among children, adolescents, women, and pregnant mothers. The campaign aims to reduce anaemia by 3 percentage points annually through a six-pronged strategy focusing on prevention, diagnosis, and treatment. Given the alarming rates of anaemia in India, with over 57% of women and 67% of children affected, AMB plays a crucial role in addressing this widespread public health challenge. The program emphasizes proactive interventions such as the distribution of iron and folic acid (IFA) supplements, regular deworming to prevent parasitic infections, and promoting dietary diversification by encouraging the consumption of iron-rich foods. Additionally, it integrates behavior change communication (BCC) campaigns to raise awareness about the causes, symptoms, and prevention of anaemia. To ensure effective implementation, the initiative uses real-time data monitoring systems and involves healthcare workers, ASHAs, and Anganwadi centers to deliver services at the grassroots level. Regular screening and testing are also conducted to identify anaemic individuals early and provide them with appropriate treatment. By promoting collaborative action across sectors such as health, education, and nutrition, Anaemia Mukt Bharat aims to improve overall health outcomes, particularly for women and children. The campaign’s

community-driven approach and focus on long-term sustainability make it a pivotal step toward reducing anaemia-related morbidity and improving the nutritional status of the population.

- Fortification Initiatives: The government promotes the fortification of staple foods like wheat flour, rice, and edible oils with iron, folic acid, and vitamin D to address micronutrient deficiencies.

1.6 Economic status

India is one of the fastest-growing economies, with a GDP of approximately $3.7 trillion in 2023. Despite this growth, many families still struggle to afford nutritious food. Rising food prices make it even harder for low-income households to maintain a balanced diet. For millions, meals often lack essential nutrients like protein, iron, and vitamins, leading to malnutrition and micronutrient deficiencies.

1.6.1 Population

With a population of over 1.4 billion (2023), the demand for food keeps increasing. In rural areas, access to diverse and nutritious food remains a challenge, while urban lifestyles have led to a rise in obesity and diet-related diseases due to increased consumption of processed foods. Managing food distribution efficiently is crucial to ensuring that everyone gets adequate nutrition.

1.6.2 Infrastructure

India has made significant progress in infrastructure development, including expanding road networks, transportation systems, and digital connectivity. However, rural areas still face infrastructure deficits, such as inadequate healthcare facilities, poor road connectivity, and limited access to electricity and clean water. Without proper storage facilities, large quantities of food go to waste. Limited access to health and nutrition services means many cases of malnutrition go undetected and untreated. Programs like the Mid-Day Meal Scheme and POSHAN Abhiyaan aim to address these issues, but their success depends on better infrastructure and accessibility. Urban areas, although better equipped, struggle with traffic congestion, pollution, and overburdened public services.

1.6.3 Environment and Sanitation

Poor sanitation and unclean drinking water contribute to illnesses like diarrhea, which prevent the body from absorbing nutrients properly. Many communities, especially in rural areas, still lack proper toilets and clean water, making them more vulnerable to malnutrition and infections. Improving hygiene and sanitation is essential to breaking the cycle of disease and undernutrition.

Improving economic stability, population management, infrastructure, and sanitation is vital for ensuring sustainable development and enhancing the quality of life in India.

1.7 Women and children situation

Women and children in India continue to face several challenges related to health, nutrition, and access to essential services. Despite ongoing efforts, malnutrition, limited healthcare access, and gender inequality remain major concerns.

A large percentage of women, especially in rural areas, suffer from anemia and malnutrition due to poor dietary diversity and inadequate healthcare. According to NFHS-5 (2019-21), 57% of women aged 15-49 are anemic, which affects their overall health and productivity. Maternal mortality, although gradually declining, is still higher in marginalized regions due to limited access

to quality healthcare. Malnutrition among children is a pressing issue. Nearly 35.5% of children under five are stunted, 19.3% are wasted, and 32.1% are underweight. This is largely due to insufficient nutrition, poor sanitation, and poverty, which hinder their physical and cognitive development.

1.8 Poverty line & its significance

Poverty has a profound impact on the lives of women and children. Families living below the poverty line (BPL) often struggle to meet their basic needs, making them more vulnerable to malnutrition, disease, and lack of education. With limited income, BPL families frequently depend on low-cost, nutrient-deficient food, leading to micronutrient deficiencies and chronic malnutrition. Women and children from impoverished households often have restricted access to healthcare, making them more susceptible to preventable diseases and higher mortality rates. It reduces children's chances of receiving quality education, impacting their future growth and opportunities. Girls, in particular, face a higher risk of early marriage and school dropout due to financial constraints.

Significance of the Poverty Line

The poverty line is a key benchmark used by the government to identify families eligible for welfare programs. It plays a vital role in addressing the nutritional and health needs of women and children by:

- Providing Nutritional Support: BPL families benefit from government schemes like the Integrated Child Development Services (ICDS) and Mid-Day Meal Program, which aim to reduce malnutrition and improve child health.
- Ensuring Healthcare Access: Families below the poverty line receive free or subsidized healthcare through initiatives like Ayushman Bharat, which offers financial protection against high medical costs.
- Promoting Education and Welfare: Children from BPL families receive free or subsidized education, scholarships, and access to developmental programs, promoting better opportunities for their future.

1.9 Let Us Sum Up

At the national level, while the country has made significant strides in food production, the availability and accessibility of nutritious food remain uneven. Rural areas often struggle with food insecurity due to poverty, inadequate infrastructure, and seasonal unemployment. In contrast, urban regions face a growing trend of overnutrition, with an increasing reliance on calorie-dense, processed foods, leading to lifestyle-related health issues. In terms of mortality and morbidity, India has made progress in reducing maternal and child deaths. However, regional disparities persist. The situation of women and children remains concerning. In rural regions, women frequently face limited access to healthcare, education, and nutritional resources, which affects both their own health and that of their children. Child malnutrition, anemia, and undernutrition continue to be pressing issues. In urban settings, while healthcare access is relatively better, women are increasingly prone to lifestyle diseases, and maternal nutrition issues still persist.

1.10 Check your progress

1. In a survey of 1,150 women who gave birth in Maine in 2000, a total of 468 reported taking a

multivitamin at least 4 times a week during the month before becoming pregnant.Calculate the prevalence of frequent multivitamin use in this group.

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2. What are the key factors contributing to food insecurity in rural India?

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3. What are the major causes of mortality in rural and urban India?

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4. How have maternal and child mortality rates changed in India over the past decade?

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5. What are the most common nutritional deficiencies affecting children in rural India?

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6. What are some of the major interventions aimed at addressing malnutrition in India?

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7. How does maternal malnutrition impact child health and development?

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8. What government programs are in place to improve the health and nutrition of women and children?

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Multiple-Choice Questions (MCQs)

1. What is one of the major causes of food insecurity in rural India?
   a) Lack of food production
   b) Seasonal unemployment and poor infrastructure
   c) High urban population density
   d) Excessive food wastage
2. Which disease is a leading cause of morbidity in rural India?
   a) Diabetes
   b) Hypertension
   c) Tuberculosis
   d) Cancer
3. Which government program aims to combat malnutrition in women and children?
   a) Ayushman Bharat
   b) National Food Security Act (NFSA)
   c) Integrated Child Development Services (ICDS)
   d) Pradhan Mantri Awas Yojana
4. Which factor significantly affects maternal and child health in rural India?
   a) High literacy rates
   b) Limited access to healthcare services
   c) Availability of advanced medical facilities
   d) Low infant mortality rate
5. Which of the following is a government initiative aimed at improving food security?
   a) Skill India
   b) Mid-Day Meal Scheme

c) Make in India

d) Swachh Bharat Abhiyan

Answer: b) ,c) , c) ,b) , b)

UNIT-II NEED FOR POLICIES

Structure

2.1 Introduction

In a recent study that calculated the prevalence of Zero Food Children across 92 low- and medium-income countries (LMIC), India was categorized as poor.

In order to considerably improve the nutritional condition of women and children, nutrition policy aims to integrate several social protection programs and schemes. It is crucial to remember that the social protection area is dynamic and ever-changing when it comes to addressing nutrition security. Nutrition programs are an attempt to combine several social protection programs and initiatives in order to greatly improve the nutritional condition of mothers and children. An overview of India's nutrition and social protection initiatives is given via the carefully chosen information.

Objectives:

Learners will be able to

i. keep an eye on all nutrition-based programs, and emphasizes a life-cycle perspective

ii. address Poshan Abhiyan requirements for the provision in the growth monitoring equipment.

iii. Identify and monitoring children suffering from severe acute malnutrition and organizing a planting campaign to promote kitchen gardens at the local level

Indian policies on food security are intended to give the underprivileged and vulnerable groups as a

safety net. Ensuring that every citizen always has access to enough food that is safe and healthier. This method acknowledges that providing calories is only one aspect of food security; another is making sure that there is enough nutrition to promote healthy growth and development. Based on the ideas of equality and inclusion, India's food security policies seek to meet the needs of underserved populations and close the gap between rural and urban regions. These policies aim to establish a robust and sustainable food system by boosting agricultural output, aiding small farmers, and putting in place focused welfare initiatives.The Ministry of Women and Child Development (MoWCD) established this highest authority, which is led by Vice Chairperson NITI Aayog. It develops general principles and standards, keeps an eye on all nutrition-based programs, and emphasizes a life-cycle perspective. In order to provide policy directions to solve India's nutritional concerns, it evaluates and organizes convergence among Ministries. The Council convened twice in 2020 and addressed the following topics:

1. In accordance with the POSHAN Abhiyaan provision, the States and Union Territories are expeditiously procuring smartphones and growth-monitoring equipment. The procurement progress is tracked on a monthly basis. The Vice Chairperson of NITI Aayog will receive a progress report from MoWCD along with the deadlines for device procurement and the steps taken to accelerate them. As of August 2020, 56.36% of smartphones, 65.58% of infantometers, 64.19% of stadiometers, 63.99% of infant weighing scales, and 66.75% of mother and child weighing scales have been purchased.

2. The Covid-19 incident led to the third POSHAN Maah being moved to a digital format. Identifying and monitoring children suffering from severe acute malnutrition and organizing a planting campaign to promote kitchen gardens at the local level were the two main initiatives of Rashtriya POSHAN Maah 2020. The vice chairperson of NITI Aayog addressed a letter inviting NGOs and CSOs that are registered on the organization's Darpan site and are involved in nutrition and health to take part in the POSHAN Maah events. By responding to their inquiries about POSHAN Maah and how they may contribute to it, as well as by providing connections to Information, Education, and Communication (IEC) resources on the POSHAN Abhiyaan website, NITI Aayog assisted these NGOs and CSOs. These groups provided an enormous reaction.

Factors leading to current problems/situations in policy making

I. **Culture:** Political culture is a society's prevailing perspective toward politics and governance. It usually refers to the psychological aspects of political conduct, such as attitudes, beliefs, and ways of evaluating things. A political culture is the result of both the collective history of a society and the individual experiences that shape its socialization throughout time. It is possible to discern between the elite and mass subcultures within a nation's political culture, which represent divergent philosophies among the less involved individuals and political decision makers. There may be several subcultures within the mainstream culture, depending on factors like class, ethnicity, geography, or other distinctions. Studies of somewhat similar phenomena have previously been conducted under the headings of national character temperament, ethos, spirit, or myth.

Every human has a culture that they rely on to give their lives significance. It establishes a variety of dynamic parameters. whereby choices and deeds take place in relation to peer groups, workplaces, communities, families, and surroundings. Daily cultural practices have an impact on how we view ourselves, one another, and our role in the natural world, yet culture itself may be quite hard to observe.

Acknowledging culture requires the challenging task of critically examining presumptions,

challenging accepted wisdom, and recognizing how shared group values can diverge significantly, either positively or negatively. This is true when difference fosters creativity in modifying our presumptions, and negatively when it causes miscommunication and conflict.

Cultures and microcultures that exhibit certain thinking and behavior patterns are also developed by organizations, educational institutions, and professions . In the absence of deliberate endeavors to investigate, comprehend, and confront the interaction between explicit and implicit ideas operating within corporate cultures, detrimental prejudices and behaviors may continue to exist. The cultural surroundings of their professional acts might hinder their capacity to change working standards, as many public health professionals understand. This has made it more difficult for public health institutions to adequately address the medical requirements of varied communities, which in turn spurred a renewed focus in creating a health and well-being strategy that is culturally sensitive. Policymakers frequently lack a thorough grasp of the cultural factors that shape both individual and society behaviors, relying instead on general mortality and morbidity data to guide policy recommendations in traditional health impact evaluations. Despite being founded on meticulously gathered statistical data, the ensuing reports and policies may not align with people's subjectively defined experiences and perceived needs or with what is practical at the policy level.

The following eight policy solutions are presented for policymakers to take into account in order to assist the development of integrated and balanced data gathering and analysis. They are repetitive and interrelated by nature, even if they might be seen as progressive stages.

1. Encourage awareness of the connection between culture and health. This call for a definition of culture that emphasizes how all ideas and actions are influenced by cultures of value and practice and avoids being confused with race or ethnicity.
2. Provide explicit directions and chances for policymakers to examine and consider their own cultural norms and how they affect perception and judgment. These could consist of various self-evaluative workshops, training courses on diversity education, and other initiatives that foster increased self-awareness and improved communication abilities with relation to common behaviors and viewpoints.
3. Encourage the development of a broader body of evidence featuring studies from the social sciences and humanities, with an emphasis on mixed-methods studies on the cultural and social determinants of health and well-being. This calls for the incorporation of many viewpoints, the creation of strategies for claiming lived experience as acknowledged and valued proof, and the incorporation of qualitative research results into quantitative data sets.
4. When developing health and well-being policies, take into account subjective definitions, experiences, and measures to better understand quantitative data and recognize and meet the needs of various groups In order to enable continuous discussions about perceptions of health, well-being, illness, and treatment methods among researchers, people, and communities, new vulnerability and resilience assessment techniques must be developed. These strategies may also entail the use of interactive communication platforms.
5. Recognize the moral conundrums that might occur when different health and healthcare systems have different values. In order to do this, it is necessary to establish inclusive public spaces (such as open policy forums and policy-driven online discussions) where people with less influence can speak directly to legislators about barriers to prevention and adherence. Additionally, new professionals must be trained to evaluate, comprehend, and represent the health needs of culturally diverse communities.
6. Encourage the creation of tools to gauge the cultural competency of services and policies as well as tools that raise awareness of the significance of culture to health and wellness.

Cultural competence toolkits, training sessions, knowledge translation platforms, and other types of assistance might be examples of such tools. Both quantitative (using relevant metrics) and qualitative (for instance, utilizing storytelling techniques) evaluations of such projects are necessary.

7. Make culture and well-being the focal points of a health-in-all-policies approach to enhance the ability to collaborate across boundaries. Policymakers' strong, evident dedication to a whole-of-government and whole-of-society approach is required to prove this.

8. Exchange best practices. A diverse range of viewpoints and novel contexts for exchanging best practices are advantageous to a culturally grounded approach to health and wellbeing. It will be crucial to record and share successful ideas that are scalable and repeatable as communities test out new tactics and procedures.

I. Health Economics

The focus of health economics is on applying economic concepts and laws to the field of health. Broadly speaking, it involves analyzing and assessing the health system and health policy from an economic standpoint. It includes, among other things, market mechanisms, health care supply and demand, economic evaluation of individual diagnostic and therapeutic procedures, health determinants and their assessment, health system planning, and an assessment of the efficiency and equity of health care systems. The procedure includes figuring out the expenses associated with solving the issue as well as the fallout from it. After that, a choice is made on where to spend in order to maximize the benefits of the resources already available.

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Health policy and system analysis and assessment are crucial because they enable us to plan the allocation of medical resources needed to address issues. Since we already know that malnutrition has several causes, concentrating just on health resources won't address the issues. Concentrating on food resources becomes crucial since nutrition is a predictor of health.

The nutritional status of a person or society is influenced by several things. such as the volume of food produced, the storage of food, its cost, subsidies, distribution, targeted public distribution, and governmental regulations, among other things. Although the globe has produced more grain per person during the last three decades, you might be startled to learn that millions of people have perished from hunger-related causes in any one of those years. Possibly a billion people are prevented from eating as much food as they would want to on any given day due to their financial situation, and hundreds of millions are prevented from growing and exercising due to insufficient food intake. Malnutrition can therefore be significantly avoided by carefully arranging the dietary supplies. The problem of ensuring fair distribution of the food supplies at hand is multifaceted.

Thus, malnutrition may be substantially avoided by carefully arranging the food supplies. It is a multisectoral task to ensure that the available food supplies are distributed fairly. In order to make optimal use of the food resources that are now available, the field of "nutritional economics" attempts to examine this relationship.

Nutrition economics addresses the following topics:

1. The amounts of food commodities and how they have changed over time (Food Production Systems).
2. The evolution of food commodity prices over time.
3. The proportion of overall spending on nutrition and its evolution over time.
4. The growth of overall food expenditures at constant prices.
5. A description of dietary requirements based on the population's demographic makeup.
6. The conversion of commodities into nutrient-dense, biological values and their timely - development.
7. Creating balances between the nutritional requirements and the nutrient values.
8. Comparisons across international borders.
9. Developing the RFA/RDA (recommended food/dietary allowances).
10. Projected demand for food and nutritional commodities in the future.

As is clear, the demand for food and inputs like labor, land, fertilizer, etc., influence food production. Analysis of food production data is done in order to formulate policies. Food production also impacts food costs, which in turn affects people's food security.

The first two key facets of nutrition economics will be discussed in the section that follows.

These include:

1. Food commodity quantities and their evolution over time (Food Production Systems)
2. Food commodity prices and their evolution over time.

But first, we'll examine food security before moving on to these important topics. This is due to the fact that addressing malnutrition requires enhancing food security. Food security is the ability of everyone to always have access to adequate food for an active, healthy life.

*The following three specific goals for food security were included in the 1983 official definition by the FAO Committee on World Food Security:

Ensuring that food supplies are adequate, optimizing supply stability, and guaranteeing that everyone in need has access to available supplies. There are three levels of food security: individual, household, and community.

The following three factors may contribute to food insecurity in a particular circumstance. These have to do with the food's accessibility, availability, and proper use.

Food availability: This describes the individual's access to the appropriate food categories in enough amounts. Imports, donations, or home manufacturing might be the sources. To put it another way, the meal should be accessible to the person.

Food Access: People may buy or barter the amounts of suitable foods required to sustain consumption of an acceptable diet or nutrient level because they have sufficient incomes or other resources.

Food consumption and utilization: This describes the appropriate usage of food. Food preparation, handling, storage, balanced diet, vulnerable populations' nutritional needs, etc.

In a nutshell, nutrition security is the balance between the amount and quality of food ingested and

biological needs for energy and nutrients. The outcome measure of nutritional security is nutritional status. Conversely, information on the number of undernourished people, food production, distribution, and consumption, among other things, are indicators of food security. Food insecurity is clearly caused by a variety of reasons. It is only possible in a growing nation like ours through steady economic expansion. Numerous programs exist that might potentially enhance the population's nutritional status. These consist of:

- Boosting food production and creating buffer reserves
- enhancing the Public Distribution System (PDS) and food distribution
- Increasing purchasing power, distributing food to those in need, and providing direct or indirect food subsidies are all ways to increase family food security.
- Food supplements to meet the unique requirements of the elderly, pregnant women, and children.
- Education on nutrition

The health sector's efforts to address the negative health impacts of undernutrition, the negative effects of infection and unintended pregnancy on nutritional status, and the health repercussions of micronutrient deficiencies. In light of this, we can see that increasing food security on many levels is one of the several efforts to raise the population's nutritional status. There are several ways that nutrition economics might help increase food security. As an illustration, if food production rises, there will be more food available, which will enhance food security.

II. Food Production: A multitude of factors impact the level of food production. From the individual level (e.g., land acquisition, labor availability, labor management, equipment purchasing, etc.) to the policy level (food price, subsidies, imports and exports, etc.), the elements may be employed. Additionally, environmental influences are significant. To make decisions about resource allocation, economists must have a thorough grasp of how these elements interact. It demonstrates how the availability and production of food are determined by inputs such as land, labor, equipment, fertilizers, and market demand. To create policies, the government analyzes food production statistics. The market prices of food are also influenced by food production, which has an impact on consumer accessibility and availability. Numerous factors affect the amount of food produced. The elements may function at the individual level (e.g., land acquisition, labor availability, labor management, equipment purchasing, etc.) or at the policy level (food price, imports and exports, subsidies, etc.). Environmental influences are also significant. When deciding how to allocate resources, the economist must have a thorough grasp of how these elements interact.

Check your progress: exercise 1

Enlist the numerous factors affect the amount of food produced

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What does "health economics" mean to you?

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Describe the economic effects of malnutrition.

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2.2 List all of the government's expenditures on significant direct and in-direct nutrition initiatives

A. Elements that affect the creation of food

Using the right inputs to produce a sufficient output (food) is known as suitable food production. In order to use the inputs effectively, a labor force and strong managerial abilities are necessary prerequisites. Food production will rise Let's take a closer look at the technical aspects:

b) Technical aspects

Productivity is significantly impacted by technological advancements. Transportation, food processing, fertilizer manufacturing, seed production, etc., may all experience improvements. Research in agriculture is a costly endeavor. As a result, very few farmers have the means to conduct research. While mechanization has dominated land-rich countries, biotechnology advancements have been more popular in land-scarce nations. control the inputs.

In addition to these two elements, a) environmental conditions and b) technological aspects also affect manufacturing. Let's examine these elements in more detail:

Environmental conditions: No agricultural location has a year-round climate, as you are well aware. This is true even in tropical regions. The farming patterns are influenced by climatic fluctuations. For instance, rice production requires a sufficient amount of water, making the dry season unsuitable for cultivation. Additionally, there can be a labor shortage at specific seasons. By removing these seasonal barriers, food production will increase. However, excessive automation will supplant paid labor and impede societal advancement. Additionally, one must realize that seasonal volatility affects agricultural statistics as well. Because agricultural working patterns vary seasonally, policymakers must consider this when analyzing data and developing policies.

An element of risk and unpredictability is introduced for the farmer by seasonality. Because crops are less affected by climate change, the farmer invests in them as a result. Additionally, it deters him

from increasing his technological input investments. There are significant economic ramifications to how arable land is distributed. Problems with food storage and transportation of food and fertilizer affect the consumer's access to and availability of food.

The farmer faces a degree of risk and unpredictability due to seasonality. This leads the farmer to make investments in crops that are less susceptible to climatic fluctuations.

He is also deterred from making larger investments in technological contributions. Arable land allocation has significant economic ramifications. Food accessibility and availability for consumers are impacted by problems with food storage and transportation of food and fertilizer.

C. Understanding farmer response: The government's comprehension of farmers' responses has an impact on food output as well. The location of the supply curve is influenced by government policy both directly, through investments that reduce the marginal costs of agricultural production, and indirectly, through farmer decisions, as price policies change the incentives to employ more intensive farming practices in order to increase output. Even if the government has the power to alter policy, it's crucial to consider how farmers could respond. The only way to resolve this issue is to pay close attention to the precise question being asked and combine it with specialized statistical analysis of national or regional data.

D. Formulating an approach: It is imperative to devise a plan that leads to the rural economy improving. This might be accomplished through the formulation of policies that increase funding for the rural sector. Additionally, this would lead to better job prospects in rural regions. It follows that in order to produce food successfully, it is essential to comprehend how farmers make decisions and the policies that are developed in response.

2.3 The Cost of Food

Numerous variables influence the cost of the food items that consumers purchase. Every element covered below has the potential to influence pricing, both favorably and unfavorably for the customer. A summary of these elements will aid in comprehending the numerous challenges that policymakers must overcome in order to reach a choice that will benefit consumers and lessen the impact of malnutrition in the community.

The price of food is largely determined by the expenses of processing, storage, and transportation—collectively referred to as marketing changes. Prices may rise for storage during the off-harvest season for logistical or sentimental reasons.

For logistical reasons or because the storage-marketer wants to make some money during the off-season, storing during the non-harvest season may raise prices. The farther the ultimate customer is from the producing location, the higher the transportation expenses may be. Additionally, bad communication and road conditions will raise the cost. When rice is processed, such as by milling it before selling it to a customer, the price goes up, but the customer also prefers it over raw, unmilled rice straight from the field. Pricing is influenced by seasonality, namely the harvest and non-harvest seasons.

Price increases for seeds, fertilizer, insecticides, and other farm-related supplies will raise grain costs, but if these items are eligible for government subsidies, they may also assist to lower prices.

A wide swath of society does not always benefit from the way markets operate. Extremely uneven financial negotiating power is frequently introduced into the buyer-seller trade relationship. Every middleman engaged, from the level of production to the level of consumption, may have a desired interest in the pricing if there is no body in place to regulate prices. As a result, prices will

rise in proportion to the number of intermediaries in the chain.

In a capitalist system, when food is scarce, prices rise and only the wealthy can afford it. When there is a food scarcity in a socialist economy, the impoverished may have limited options for what they can eat due to rationing. The quantity of market players and competition has an impact on the reasoning behind decision-making. Effective competition, however, requires a sufficient number of players on both sides of the exchange connection to prevent any one actor from having a major impact on the exchange's result. Understanding the range of options available to farmers at the point of sale is the first step in determining how competitive price formation is likely to be.

The more buyers there are vying for the farmer's grain, the better the farmer may learn about the going rate and the simpler it is to move from one buyer to another with comparatively better conditions. The ability of customers to select one retailer over another at the other end of the marketing chain, where they purchase food, avoids extra earnings from high margins going to the retail-marketing agents if several rival retail stalls provide comparable goods and services.

Direct government-induced subsidies for goods will contribute to price reductions. International markets have a complex impact on pricing. It is not surprising to discover that prices are impacted by the worldwide price correlation as the local markets are essentially just a networking mechanism between the different foreign markets.

Prices will rise as a result of the labor costs associated with each step. Prices will rise as a result of government taxes. As a result, it is evident that a wide range of factors affect food commodity prices. Giving the impoverished access to reasonably priced food items can significantly increase the food security of the vulnerable population and, consequently, their dietary intakes.

Check your progress: Exercise 2

Food Security: What Is It? List the three factors that contribute to food insecurity

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Give a brief explanation of the elements that affect food prices.

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What are the different food production difficulties, and could you briefly describe them to anyone?

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2.4 Implementation of the National Food Security Act (NFSA)

The global food business has existed for centuries, but since the World Trade Organization was founded in 1995, the rate of globalization has increased.

The National Family Health Survey 2021 estimates that 33 lakh Indian children suffer from malnutrition. Additionally, according to the Global Hunger Index 2022, India does worse than any other South Asian nation outside of war-torn Afghanistan, ranking 107th out of 121. India falls into the "serious" category with a GHI score of 29.1. Studies are being carried out to examine and investigate the inherent causes of these discrepancies in the socioeconomic backgrounds of caregivers in light of these concerning statistics. Through the implementation of nutritional policies and programs, these surveys have prompted the government to take corrective action to improve the nation's malnutrition condition.

The nation's economy, social welfare, education, and health are all impacted by the severe issue of malnutrition. Children delayed physical and mental development, which results in decreased learning, production, and wealth, is one of the repercussions. Malnutrition exacerbates the cycle of poverty and underdevelopment by raising the risk of illnesses, which leads to high death rates and medical expenses. It lowers the potential for economic growth, labor force participation, and human capital.

The issue of malnutrition is complicated and calls for comprehensive nutritional policies that address its many facets. These policies should improve population food security and quality, increase nutrition education and awareness to help people make healthy dietary choices, strengthen healthcare services to prevent, diagnose, and treat malnutrition and related diseases, and coordinate with various sectors and stakeholders, including the private sector, education, environment, social protection, and agriculture, to create an environment that supports nutrition.

India's citizens are guaranteed food and nutrition security by the National Food Security Act (NFSA), 2013. The Targeted Public Distribution System (TPDS) provides subsidized food grains to about two-thirds of the population. Additionally, children up to the age of 14 and expectant and nursing mothers receive nutritional help from the NFSA. It also includes mechanisms for accountability and transparency as well as a grievance redressal process.

The high financial load and subsidy burden, the imprecise beneficiary identification and targeting, the low quality and quantity of food grains, and the agencies' insufficient infrastructure and ability are some of the implementation's difficulties. Information technology use, a decentralized procurement system, social audits and the grievance redressal process, and food basket diversification are some of the ways to close these gaps.

Priority Households (PHH) and Antyodaya Anna Yojana (AAY) households are the two groups of people who are eligible to receive 35 kg of food grains each month (5 kilogram per person per month) under the National Food Security Act. Coarse grains cost Rs. 1 per kg, rice costs Rs. 3, and wheat costs Rs. 2.

The prices of food grains in the Union Budget 2022 have not been changed. Rice, wheat, and coarse grains would continue to be offered at the PDS Issue rates of Rs. 3, Rs. 2, and Re. 1 per kilogram, respectively.

Both Priority Households (PHH) and Antyodaya Anna Yojana (AAY) households are eligible to receive 35 kg of food grains per month (5 kilogram per person per month) as beneficiaries under the National Food Security Act. One kilogram of wheat costs two rupees, three rupees for rice, and one rupee for coarse grains.

In the Union Budget 2022, the prices of food grains have not changed. For rice, wheat, and coarse grains, the PDS Issue prices would remain at Rs. 3, Rs. 2, and Re. 1 per kilogram, respectively. The Act becomes operative on September 12, 2013, with effect from July 5, 2013.

According to the United Nations General Assembly, the Act aligns with Goal Two of the Sustainable Development Goals. Goal 2 aims to ensure food security and sustainable solutions to eradicate all types of hunger by 2030.

The goal is to guarantee that everyone, everywhere, has access to enough wholesome food to live a healthy life. The Act covers programs including the Public Distribution System (PDS), the Mid-Day Meal Scheme (MDMS), and the Integrated Child Development Services (ICDS).

All of the states and union territories are putting the Act into practice.

Goals: By guaranteeing access to a sufficient amount of high-quality food at reasonable costs, the Act promotes food and nutritional security in the human life cycle approach, enabling people to live with dignity and for issues related or incidental to that.

2.4.1 Key Elements of the National Food Security Act (NFSA)

Coverage: The NITI Aayog calculated the state-by-state coverage using data from the NSSO's 2011–12 Household Consumption Expenditure survey.

Under the Act, up to 50% of people in cities and 75% of people in rural areas are legally entitled to subsidized food grains through the Targeted Public Distribution System (TPDS).

Therefore, almost two-thirds of the population is eligible to receive heavily discounted food grains under the Act.

Benefits: Under the Public Distribution System, the food grains would be supplied at much reduced costs.

- Women and children are guaranteed nutritional help under the Act. Under the MDM and ICDS programs, women who are pregnant or nursing are entitled to free, wholesome meals.
- Under the MDM and ICDS programs, children aged 6 to 14 would also be eligible for free, wholesome meals.
- Pregnant and nursing moms also receive maternity benefits of at least Rs. 6000.
- By designating the oldest woman in the home as the head of the household and giving her the authority to issue ration cards, the Act further empowers women.
- The Act also gives women more authority by designating the oldest woman in the home as the head of the household, with the authority to issue ration cards.
- In addition to managing the margins of Fair Price Shop (FPS) dealers in accordance with regulations, the Central Government assists the States in covering the costs they incur for the transportation of food grains throughout their borders.

- In the case that food grains are not available, the recipients are entitled to a food security payment.
- In addition to managing the margins of Fair Price Shop (FPS) dealers in accordance with regulations, the Central Government assists the States in covering the costs they incur for the transportation of food grains throughout their borders.

In the case that food grains are not available, the recipients are entitled to a food security payment.

Regarding the NFSA State Ranking Index: The State Ranking Index was developed to monitor the nation's adoption of the NFSA and other reform initiatives following state consultation. The Index promotes cross-learning, highlights the efforts of States and UTs, and encourages all States and UTs to scale up their reform activities. The Index will eventually encompass the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) procurement and distribution. The current Index is centered on the distribution of NFSA. This figure does not, however, represent the level of malnutrition, hunger, or both in a given state or union area. The Index is built upon three key pillars that represent the whole NFSA implementation through TPDS.

The first pillar is the NFSA, which evaluates Act provisions, coverage, and targeting.

Foodgrain distribution, transportation, and last-mile delivery to Fair Price Shops (FPS) are all taken into account in the second pillar's analysis of the delivery system.

The third and last pillar focuses on the department's nutrition initiatives.

2.4.2 Importance

- Food security issues in India have their roots in the 1943 Bengal Famine, which occurred during British colonial rule. The importance of food security to a country cannot be overstated, since it will positively impact the other factors that determine its growth:
- The agriculture industry benefits from it.
- The government can also use it to control the cost of food.
- Given that agriculture requires a lot of labor, an increase in this industry would lead to additional employment possibilities. As a consequence, poverty would decline and economic growth would be strengthened.
- The public's general health would improve if everyone had access to wholesome meals.
- Additionally crucial to the peace and security of the world is food security.
- Additionally crucial to the peace and security of the world is food security.

2.4.3 What does the National Food Security Act Means

- On a global scale, food security means that everyone, everywhere, has access to basic, nourishing food. It is defined by food's accessibility, availability, use, and stability.
- The Indian Constitution makes no specific mention of the right to food.
- Before the NFSA was passed, the right to human dignity—which may include the right to food and other essentials—was seen as part of the fundamental right to life under Article 21.
- What the National Food Security Act Means
- On a global scale, food security means that everyone, everywhere, has access to basic, nourishing food. It is defined by food's accessibility, availability, use, and stability.

- The Indian Constitution makes no specific mention of the right to food.
- Before the NFSA was passed, the right to human dignity—which may include the right to food and other essentials—was seen as part of the fundamental right to life under Article 21.

2.4.4 Duties under the NFSA

The NFSA outlines the responsibilities of the federal government, state governments, and municipal governments in great detail.

1. Central Government Requirements:

- Under the TPDS, the State Governments will get the necessary food grains from the central pool from the Central Government.
- Taking into account the number of people living in the eligible homes, the government would have to distribute the funds.
- According to the amount allotted to the State Governments, the Central Government would also arrange for the shipment of food grains.
- Help state governments cover their expenses related to intrastate transportation, food grain handling, and FPS margins.
- Establish and manage several tiers of storage facilities.

2. State Government Requirements:

- The different plans' execution and oversight will fall within the purview of the State Government.
- To distribute the allotted food grains to the recipients, arrange intra-state distributions.
- Identify the beneficiaries and eligible families, then make sure they are able to take use of the programs' advantages.
- To store the allotted food grains, establish and maintain scientific storage facilities at the district and block levels.
- Create formal license agreements for the FPS in accordance with the 2001 Public Distribution System (Control) Order.

3. Local authorities' obligations:

- They will be in charge of making sure the Act is implemented effectively.
- The State Government may give them more duties in order to carry out the TPDS development.
- The duties assigned to them by the state governments would have to be carried out by the local authorities.

2. 4.5 Obstacles to Food Security

The fight for food security faces several obstacles, some of which include:

Climate Change: farming is becoming more challenging due to rising global temperatures and unpredictable rainfall. In addition to crops, other animals raised for food, such fisheries and cattle, are also impacted by temperature changes.

Lack of Access: Remote locations are not easily accessible. Due to limited access, indigenous

people and other communities residing in isolated locations are unable to take advantage of the programs put in place to ensure food security.

Overpopulation: When there is a significant growth in the population without a corresponding rise in agricultural output, there is a food shortage.

Crops cultivated for non-food uses, such biofuels and colors, have decreased the amount of land used for agricultural agriculture.

The issue of migration from rural to urban areas is that it creates uncertainty about which PDS store to purchase the subsidies from.

2.5 National Food Security Act Criticisms

- States and UTs are still in charge of implementing the NFSA effectively, and as state governance varies, so does an implementation's efficacy.
- Lack of Transparency: A 2016 audit by the Comptroller and Auditor General (CAG) found that the NFSA was having the incorrect beneficiaries.
- It charges several states with enforcing the NFSA even if they have knowledge that their beneficiary list is fictitious.
- When food grains in PDS leak, it means that the intended recipients do not receive them. There are three possible sorts of leaks: theft of food grains during transit, diversion to non-beneficiaries at fair pricing stores, and removal of eligible recipients from the list.

2.5.1 Lack of Transparency

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- When food grains in PDS leak, it means that the intended recipients do not receive them. There are three possible sorts of leaks: theft of food grains during transit, diversion to non-beneficiaries at fair pricing stores, and removal of eligible recipients from the list.

2.5.2 Storage: The CAG audit found that the amount of space allotted for food grains could not be adequately stored.

2.5.3 Food grain quality

- People frequently lament that food grains need to occasionally be combined with other grains in order to be edible and that their quality is subpar. They have also lodged complaints that the grains include non-food items like stones.
- Methods to improve NFSA's efficacy include the government implementing integrated policy frameworks to support agricultural production and offering options for improved food storage. From the procurement of the food grains to their distribution, the use of information technology will help to increase the process' efficacy.
- The DigiLocker facility, for instance, was promoted for PDS deployment in January 2021. This will assist in making e-ration cards available to the One National One Ration Card Scheme beneficiaries at any time and from any location.
- The recipients should have access to information about the whole process, including the

quality of the food grains and the storage facilities used to keep them.

Check your progress: exercise 3

What does the National Food Security Act Means

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Key Elements of the NFSA

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Implementation of the National Food Security Act (NFSA)

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Duties under the NFSA

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Obstacles to Food Security

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2.6 Let Us Sum Up

The Ministry of Women and Child Development (MoWCD) established this highest authority, which is led by Vice Chairperson NITI Aayog. It develops general principles and standards, keeps an eye on all nutrition-based programs, and emphasizes a life-cycle perspective. In order to provide policy directions to solve India's nutritional concerns, it evaluates and organizes convergence among Ministries.

2.7 Check Your Progress

Short Answer Questions (2–3 lines each)

1. What is the main purpose of introducing policies related to food and nutrition in India?
2. List any two significant government expenditures on direct nutrition initiatives.
3. What do you understand by the term “National Food Security Act (NFSA)”?
4. Mention two major criticisms of the NFSA.

Long Answer Questions (in detail)

1. Explain the key elements and importance of the **National Food Security Act (NFSA)** in ensuring food and nutritional security in India.
2. Discuss the government’s major **direct and indirect nutrition initiatives** and how they contribute to improving public health.
3. Describe the **duties and responsibilities** under the NFSA and analyze the main **obstacles to food security** in India.
4. Evaluate the **criticisms of the National Food Security Act** with respect to transparency, storage, and food grain quality, and suggest possible solutions.

Glossary at a glance

I. Health Economics:

The focus of health economics is on applying economic concepts and laws to the field of health. Broadly speaking, it involves analyzing and assessing the health system and health policy from an economic standpoint. It includes, among other things, market mechanisms, health care supply and demand, economic evaluation of individual diagnostic and therapeutic procedures, health determinants and their assessment, health system planning, and an assessment of the efficiency and equity of health care systems. The procedure include figuring out the expenses associated with solving the issue as well as the fallout from it. After that, a choice is made on where to spend in order to maximize the benefits of the resources already available.

ii.The cost of food: The price of food is largely determined by the expenses of processing, storage, and transportation—collectively referred to as marketing changes. Prices may rise for storage during the off-harvest season for logistical or sentimental reasons.

UNIT-III

Policies existing in the country

Structure

3.1 Introduction

The agriculture policies of the majority of countries are under intense pressure for internal reforms in light of the shifting global landscape toward an open market economy. The emphasis on eliminating trade-distorting factors in order to promote free competition and boost production efficiency is the primary cause of the stress. As a result, current normative and theoretical concerns about policy issues aim to enhance a society's capacity for governance, substituting more market-linked policy objectives for the previous ones. It entails replacing the previous policies' pattern with new ones where it becomes crucial to examine market reactions. Furthermore, trade-related choices are frequently made by the central authority (i.e., the union government) in the framework of trade-led growth, where international commerce is meant to be the economic engine. However, the subnational governments are substantially involved in their welfare ramifications. In this regard, countries with federal constitutions will find themselves in circumstances where a well-thought-out strategy that appropriately takes into account the interests of subnational governments would be crucial.

Learning Objectives:

Learners will be able to:

i. know about minimum support prices (MSPs)

ii. acknowledge the food security schemes running by the government

iii. practice safe and healthy practices in land security farming

iv. understand the details of the agro and food policies existing in our country

3.2 Development policies which have in their perspectives and goals - improvement

Given the aforementioned ramifications, agricultural policymaking invariably goes through challenging stages. There are at least four valid explanations for these challenges:

First, practically all of agriculture is an unorganized industry, making it impossible to assess policy responses using objective probability.

Second, the agriculture industry does not receive information as quickly as other sectors do. When objective probabilities regarding outcomes are absent, information asymmetry leads to fragmented policy responses. Stated differently, policy reactions are not always predictable.

Third, rapid firefighting is frequently a fundamental policy requirement since agriculture in the majority of agroclimatic zones is highly dependent on the weather.

Fourth, because of the sector's close ties to customers and other industries, changes in the sector have an impact on the expansion of the whole economy. As a result, India's and many other nations' agricultural policy heavily rely on the government.

India's agricultural sector has advanced rapidly in the past half century. In order to prevent food shortages, it has made a substantial contribution to achieving food production self-sufficiency.

India's output of food grains hit a record of 230 million tonnes in 2007–2008, up from just 51 million tonnes in the early 1950s. Although less severely, the agricultural industry now faces the same obstacles as it had when the country gained its freedom. These include, to name three,

a) Unequal development among crops, geographies, and agricultural community segments;

b) Stagnation and poor production; and

c) Depletion of natural resources.

The five-year plans and the numerous programs put in place under them provide the majority of India's policymaking experience. A large portion of the population is unaware of the theory behind policymaking, which leads to policy being misunderstood as the government's method "for solving problems." In reality, nevertheless, policies are meant to accomplish particular (often measurable)

In reality, though, a policy works within a predetermined time frame for execution and employs a variety of tools to accomplish certain (sometimes quantitative) goals. According to Rao (1998), it therefore supports standardized monitoring and evaluation processes that allow for the assessment of results and the identification of variables that contribute to the policy's success or failure. Therefore, let's examine the "theory of policymaking" first before reviewing our experiences with agricultural policymaking in addition to other sector-related concerns.

3.3 National Agricultural Policy 2000

The NAP aimed to:

(a) boost rural infrastructure to facilitate quicker agricultural development; and

(b) encourage value addition by boosting agrobusiness expansion.

Increasing job prospects in rural regions and ensuring a greater standard of life for farmers, agricultural workers, and their families are two of the NAP's sub-objectives.

A strategy outlines the government's goals for a certain industry. The NAP's detailed agenda is inadequate in addressing the sector's endogenous and exogenous strengths and weaknesses, which will govern and guide it during the ensuing 20 years. Thus, there is some contradiction between the NAP and the tools it uses to accomplish its objectives. For instance, the NAP aims to safeguard the agriculture industry from globalization and liberalization while improving infrastructure for its expansion. This may deter private investment from outside and possibly prohibit farmers from becoming well-known. As a result, mechanisms for putting the NAP into practice are not well developed.

Under the direction of Professor M. S. Swaminathan, the National Commission on Farmers produced five studies that addressed important facets of the agriculture industry for the 2007 National Agricultural Policy. They included the primary suggestions from their previous studies into their final report on "National Policy for Farmers." It has been approved as a new National Agricultural Policy declaration by the government. Additionally, this policy restates the goal of raising the agriculture sector's existing annual growth rate of 2.3% to the adage "4 percent." Instead of blaming domestic market inefficiencies for the agriculture sector's deteriorating profitability, the statement acknowledges that global agricultural commodity prices are to blame.

Therefore, it presents a false impression of a home market that is connected with the global market, neglecting the reality that domestic markets are not only ill-coordinated but also rife with the worst flaws. Despite making the socioeconomic welfare of farmers the top priority, the steps used to achieve this objective are not methodically outlined. The strategy has around 15 objectives, including trade, pricing, biosecurity, support services, natural resource management, and farmer economic sustainability. The strategy emphasizes asset changes to give farmers more leverage and offers insightful commentary on water management. In order to identify significant action required to prevent the effects of drought, it offers a "drought code," which is reminiscent of the British Famine Code.

A new phrase for management through the Exclusive Economic Zone (EEZ) to promote growth is also used in the Policy. Launching a "Evergreen Revolution" to increase production in a sustainable manner is emphasized in the policy. In addition to the topic of bioresources and animal genetic resources, it employs a gender-sensitive, pro-nature, and pro-small farmer research approach. However, it's unclear from the policy how these broad and often conflicting objectives are to be met.

The policy aims to enhance the services and delivery system from the input perspective. The Policy lists several initiatives for social security, such as updating the Public Distribution scheme and the Minimum Support Price scheme. It assists SHGs and farmers' associations in utilizing post-harvest technologies to improve outcomes. The policy also covers sub-regions, cooperative farming, group farming, contract farming, farm corporations, and sub-categories of farmers and farming. But without disclosing the underlying mechanics, the topic is vague.

The strategy aims to encourage young people with education to pursue careers in agriculture by offering a variety of sporadic training programs.

The Policy essentially restates the National Agricultural Policy-2000's niches while adding new terminology and lofty objectives. The instrument side is unclear, and it ignores the regional aspects

of Indian agriculture, which are crucial to our federal structure.

Reforms in Agricultural Policy and Market: In the 1960s and 1970s, state-level Agricultural Policy and Market (APMC) striations and limitations of the current agricultural marketing system and create competitive, transparent, and barrier-free markets where farmers can sell their produce and buyers can offer them a better price in an open way.

A discussion to implement reforms in agriculture, particularly in farm marketing, began around the year 2000. The absence or slow development of agricultural reforms was cited by nearly all experts and high-level committees on agriculture that were occasionally established as a key obstacle to the industry's rapid expansion and modernization. It was determined that structural issues were not addressed by national and state level policy measures. It was determined that the primary cause of the structural issues facing the agriculture sector was not addressed by policy interventions at the federal and state levels.

check your progress: exercise 1

i. 'agricultural policymaking invariably goes through challenging stages'. Explain at least four valid explanations to justify this statement.

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ii. Aim of national agriculture policy 2000

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3.4 Food safety, nutrition, and health

India has poor child health and nutrition metrics. The Food and Agriculture Organization (FAO) of the United Nations reports that India is home to the greatest number of undernourished and hungry people. Despite becoming the largest exporter of rice, with 15% of its production sold abroad, India continues to rank low on the hunger indices year after year, according to the Global Hunger Index, which is published annually by two non-governmental organizations (NGOs), Concern Worldwide and Welthungerhilfe. While the country's population grew by 1.86 percent during the same period, food production has grown at a trend rate of nearly 3% from 1970–71.

Additionally, the rate of population increase has slowed in recent years, while the rate of food production growth has stayed constant.

The amount of food produced per person has obviously increased exponentially. For several years running, India has also had an abundance of wheat and rice. There has also been a significant sugar surplus recently. Some analysts claim that India is a paradoxical example of "hunger in the midst of plenty."

India's per capita consumption of meat and egg products was comparable to China's in the early 1980s. Over the ensuing three decades, China's supply of these goods surpassed India's fivefold. The Chinese consume three times as many vegetables and 80% more fruits than Indians do, in addition to consuming greater levels of meat and eggs. According to statistics on the food supply, India is seeing a significant movement toward the use of livestock and horticulture goods, although this transition is less pronounced than in China, where pregnancy and child health as well as nutrition have significantly improved.

3.5 Agriculture and Impact of Globalization

The present transition period is viewed from three different perspectives. "Committed liberalizers," "advocates of no-change," and "cautious liberalizers" are the terms used to describe the proponents of these viewpoints. The first viewpoint is distinguished by its belief in the growth paradigm that leads to equitable distribution. They contend that because of increased regulation, the agricultural industry is unable to realize its full potential for expansion.

Indeed, since independence, the state has consistently intervened in the agricultural sector, with its efforts notably escalating in the 1970s and eighties. At first, it was required, but it was anticipated that the sector's output and allocation efficiency would increase with the gradual removal. The agriculture sector's actions in the factor and product markets have been the cause of the producers' initiatives being restrained. Liberalization is therefore a necessary process, but it also has to be backed by institutional advancements that would allow the sector's growth potential to be released (e.g. telecom industry in India). The foundation of the international commerce sector was formerly the remaining exportable surplus.

In favor of the previous policy regime of protected agriculture, the second point of view put forward by the "advocates of status quo" vehemently contends that the current rate of liberalization may exclude the weaker segments and vulnerable areas. They contend that inadequate management of India's food grain industry necessitates maintaining a wedge between local and foreign pricing. Productivity trends in the 1990s have not been very promising. This leads to the strong opinion that,

eight years after economic liberalization began, the agriculture industry is growing more slowly rather than witnessing an unparalleled boom in growth patterns.

For example, agricultural output grew at a compound annual growth rate of 3.46 percent from 1980 to 1990, while it grew at a slower rate of 2.38 percent from 1990 to 1999. It is noted that technical advancements in agriculture have slowed, which has resulted in a slower pace of capital creation, even if the reduction in growth rates cannot be directly ascribed to the globalization process. It is also maintained that India has not experienced the Lewis process of labor transfer from the developing to the developed sectors. The rise in incremental rural income has been slowed down as a result.

A remarkably high percentage of Indian farmers, according to the allocation of land across different classes, own holdings of less than two hectares, leaving the remaining minority farm groups with the sole access to marketable surplus and market participation. As a result, the most disadvantaged farmers are excluded from the advantages of the growing process. Thus, a tiny minority will benefit from higher income as a result of marketization, increasing inequality.

According to the allocation of land among different classes, an astonishingly high percentage of Indian farmers own holdings less than two hectares, leaving the remaining minority farm groups with the sole access to marketable surplus and market participation. Therefore, the farmers who are most at risk are excluded from the advantages of the growing process. Marketization will therefore result in a tiny minority receiving more money, which will raise inequality.

Those who also think that the liberalization process will bring about new trends in the development of Indian agriculture represent the third point of view, which is emerging in the process of liberalization and is essentially similar to the first group but more cautious in their approach, hence the term "cautious liberalisers." However, they think that even while there will be major improvements in the quality of development, along with more efficiency, the advantages could not reach the weaker segments since their capacity to seize chances is already constrained. They believe that a cautious approach to the liberalization process is necessary, even though the competitive forces will boost growth.

They contend that although we must effectively negotiate under the WTO rules to maximize the benefits of trade-generated development, we also need to give domestic changes higher importance in order to prevent the likely welfare loss. This point of view emphasizes the urgent need for infrastructure improvements and internal market reforms (by loosening the current regulatory regime on factor and product markets) in order to precede the liberalization process. In other words, they believe that starting a more thorough domestic reform process is the best way to address the present market inefficiencies.

Even while improving infrastructure requires investment, the domestic price policy must be closely watched to ensure that the right price is passed on. While improving infrastructure requires investment, the domestic price policy must also be closely watched to ensure that the improvements are passed on.

3.5.1 Advantages for small/marginal producers as well as consumers

The discussion on the need for the demand of a more judicious policy on subsidies is tangled with the foregoing discussion about the cautious course to be taken by the government on liberalization measures. It is commonly recognized that subsidies for water, energy, fertilizers, and credit have led to the uneconomic use of these resources, which has resulted in inefficiencies in the manufacturing process. Therefore, to repair such harm, drastic and audacious measures are needed, such as carefully allocating the subsidies to the most vulnerable sectors and using the money saved by such programs for investments.

As a result, the "cautious liberalizers" think that the government should progressively remove its restrictions on the agricultural sector over a period of years that are appropriately graded in a good direction rather than doing it all at once. Recent discussions about capital formation in Indian agriculture have highlighted the decreasing trends in capital formation, particularly with regard to public sector investment. Therefore, on the one hand, the Commission on Agricultural Costs and Prices announces the support prices at the floor level. Conversely, there is the narrative of growing factor costs. This is combined with the backdrop of a marketing infrastructure that is outdated and marketing channels that are similarly outdated.

3.5.2 The government's holistic approach to agriculture transformation for resilience and productivity

Through programs like the review of research infrastructure, the creation of crop varieties resistant to climate change, the encouragement of natural farming among one crore farmers, and the creation of bio-input resource centers, the Indian government has laid out a comprehensive plan to improve agricultural productivity and resilience.

Achieving self-sufficiency in oilseeds and pulses, creating vegetable production clusters, integrating digital public infrastructure in agriculture, and promoting shrimp farming through NABARD are more initiatives. These programs seek to modernize agriculture and guarantee long-term growth in the industry. Let's take a quick look at each strategy and talk about how government initiatives have advanced in these fields.

In the Union Budget, Hon. Finance Minister Nirmala Sitharaman gave agriculture top priority and suggested launching NF with one crore farmers who would be certified and branded. With the cooperation of interested Gram Panchayats, scientific institutes will carry out the implementation.

Additionally, 10,000 need-based BRCs will be set up, establishing a dispersed network for the production of pesticides and microfertilizers at the national level.

Natural farming is a chemical-free agricultural practice that incorporates livestock, diverse crop systems, and natural farming techniques derived from Indian traditional wisdom. It aims to lower input costs for farmers while enhancing soil health and climate resilience through the use of non-synthetic chemical inputs.

In 2019–20, the Indian government launched NF in select regions under "Bhartiya Prakritik Krishi Paddhati – (BPKP)" under the Paramparagat Krishi Vikas Yojna (PKVY). It is proposed to use the National Mission on Natural Farming (NMNF) to upgrade BPKP in mission mode.

The NMNF is being suggested with the intention of promoting sustainable farming methods based on nature, which would reduce reliance on inputs obtained from outside sources, increase soil health, and lower input costs;

strengthen extension and research institutions' knowledge-based extension and on-farm agroecological research capabilities; gather and leverage the practical experience of NF farmers and scientific knowledge to enhance understanding and orientation regarding the advantages, potential, and methodology of NF; develop easily navigable, farmer-friendly certification processes for naturally grown chemical-free produce that are supported by science; and establish and promote a single national brand for naturally grown chemical-free produce.

The program will spend a total of ₹2481.00 crore over four years, from 2022–2023 to 2025–2026.

3.6 Government Programs to Promote Oilseed and Pulses Self-Sufficiency

With the help of several programs and efforts, the Indian government has made achieving

self-sufficiency in pulses and oilseeds a top goal.

In order to increase the availability of edible oils and lessen the burden of imports, the Government of India is implementing the National Food Security Mission-Oilseeds (NFSM-OS) from 2018 to 2019. This will be accomplished by expanding the area of Oil Palm & Tree Borne Oilseeds (Olive, Mahua, Kokum, Wild Apricot, Neem, Jojoba, Karanja, Simaroba, Tung, Cheura, and Jatropha) and increasing the production and productivity of oilseeds (Groundnut, Soybean, Rapeseed & Mustard, Sunflower, Safflower, Sesame, Niger, Linseed, and Castor).

Because to the government's efforts, the overall area used for oilseed farming grew by 17.5%, from 25.60 million hectares in 2014–15 to 30.08 million hectares in 2023–24. Consequently, from 86.30 lakh tonnes in 2015–16 to 121.33 lakh tonnes in 2023–24, the domestic output of edible oils has grown by more than 40% during the past nine years. Our reliance on imports has decreased slightly, from 63.2% to 57.3%, in spite of a sharp increase in domestic demand. Our farmers' assistance has allowed the planted area to grow to 4.7 lakh hectares under the National Oil Palm Mission.

3.7 Minimum Support Price (MSP)

MSP offers our farmers a price that is 50% more than the true cost of production, making it an alluring return on investment. Today's MSP is the greatest, having increased by 117% in Masoor, 90% in Moong, 75% in Chana Dal, and 60% in Toor and Urad compared to the amount given ten years ago. The Government of India is taking a significant step by encouraging farmers to diversify into pulses and lentils and offering guaranteed pricing for five-year contracts for government procurement through NAFED and NCCF.

3.8 High-Yielding and Climate-Resilient Types: India's Urgent Need

The Indian government has declared a major plan to transform agricultural practices across the country by introducing 109 new high-yielding and climate-resilient varieties of 32 field and horticultural crops. These novel cultivars have been painstakingly created to tolerate a range of climates, increase agricultural yields, and guarantee sustainability.

From 2014–15 to 2023–24, 2593 high-yielding cultivars were introduced, including 150 biofortified crop types and 2177 climate resilient (83% of the total) cultivars that are resistant to biotic and abiotic stress. More than 2200 kinds of 56 crops are being generated using more than 1.0 lakh quintals of breeder seed. The use of climate-resilient technology resulted in increased output even during the anomalous years.

3.9 Agriculture Transformation: DPI Project to Transform Digital Crop Surveys

By using digital technology to help farmers and improve agricultural productivity, the government's program to introduce Digital Public Infrastructure (DPI) in agriculture seeks to transform the industry. Encouraged by the success of pilot programs, this national program will be implemented over three years in partnership with state governments. A digital crop survey will be carried out in 400 districts during the Kharif season as part of the first phase. As a replacement for conventional survey techniques, this survey will employ the DPI to gather comprehensive data about the crops sown on each farmland plot throughout each of the three seasons and land usage to offer precise, real-time crop area information for each agricultural plot. The government may increase accuracy in agriculture strategy planning and execution, including insurance coverage, subsidy distribution, and catastrophe management, by digitizing these elements.

check your progress: exercise 2

Government Programs to Promote Oilseed and Pulses Self-Sufficiency

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The government's holistic approach to agriculture transformation for resilience and productivity

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3.10 Technology Project: Giving Farmers Access to Kisan Credit Cards to Empower Them

With its flagship Modified Interest Subvention Scheme (MISS), the Department of Agriculture & Farmers' Welfare (DA&FW) is committed to helping farmers by offering Kisan lending Card (KCC), an affordable lending option for immediate needs. Through the Kisan Rin Portal (KRP), which was introduced last year, the DA&FW has digitalized the claims procedure in order to improve the scheme's effectiveness, transparency, and prompt benefit payment.

As of right now, KRP has merged with the RBI, NABARD, 20 State Cooperative Banks (STCBs), 45 Regional Rural Banks (RRBs), 33 Scheduled Commercial Banks (SCBs), 356 District Central Cooperative Banks (DCCBs), and 171,221 bank branches.

For Kisan Credit Card (KCC) customers, the site is now processing Interest Subvention & PRI claims with an increased allotment of Rs. 22600 crores for 2024–2025.

The government is utilizing technology to provide easy and convenient access to agricultural financing through Kisan financing Cards (KCC), further expanding the capabilities of the Kisan Rin Portal (KRP) to guarantee broad access to institutional credit. In 2024, there would be 7.75 crore active KCC accounts, up from 6.46 crore in 2013 thanks to government efforts. Thus, the amount of credit that is still owed in these KCC accounts has increased from Rs. 3.63 lakh crore in 2013 to Rs. 9.81 lakh crore in 2024.

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The Indian government established the Micro Irrigation Fund (MIF) in collaboration with the National Bank for Agriculture and Rural Development (NABARD) to help the states raise funds for increasing the reach of micro irrigation. The country's total area covered by micro irrigation under PDMC from 2015–16 to 2023–24 was 90 lakh hectares, a 92% increase over the coverage in the nine years before to PDMC.

In May 2000, India welcomed its one billionth citizens, a baby girl named Astha. Food is an essential part of every living thing's existence. Man is the primary player in the food chain, managing food for both himself and other community members. "Any physical substance that fulfills all necessary nutrients to the body and satisfies appetite" is the definition of food. As per the definition, food is defined as "any wholesome stuff that living beings eat or drink or that herb absorbs in order to sustain life and physical growth."

Food qualities should include:

- Sanitized (clean) and free of adulteration (pure in all forms)
- Contains the necessary high-quality nutrients, vitamins, and minerals
- Sufficient in quantity
- Availability on time and in the consumers' locality
- Accessible to all hungry and in need
- Reasonably priced for everyone
- Consumable by all healthy and patient people

All types of consumption: edible and drinkable; preserved for consumption during off-season; and enhanced in value (by altering the time, location, and mode of consumption)

Therefore, the idea of food security is to make enough high-quality food available to everyone at a reasonable cost in an easily accessible manner.

"Every individual has physical, economic, social, and environmental access to a balanced diet that includes the necessary macro and micro nutrients, safe drinking water, sanitation, environment, hygiene, primary health care, and education as to lead a healthy and productive life," according to

Suresh (2012), who also noted that the National Commission on Farmers has expanded and improved the idea of food security.

Another crucial aspect of food security, health, and sustainable development is nutrition. The following is one definition of nutrition.

Eating a nutritious, well-balanced diet is the foundation of nutrition. You get the energy and nutrients you need to be healthy from food and drink. You might find it simpler to choose healthier foods if you understand these nutrition concepts. According to Rebecca Gillaspy, nutrition is the process by which the body absorbs nutrients from food. Nutrients are chemicals that enable the body to produce energy, maintain and repair tissues, and control other biological functions.

Food security may be described as "consumable foods available in accessible condition with affordable prices for all needy" based on the aforementioned criteria. It implies that food must be accessible to everyone who can afford its costs in a sufficient amount. "Adequate quantity of food at all times to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" is what the World Food Summit (1974) defined as "availability of food at all times." "Providing enough food so that everyone always has the physical and financial access they require" (FAO, 1983). Food security is explained in the World Bank's 1986 report on "Poverty and Hunger" 'Everyone should always have access to adequate food for a healthy, active life'.

3.11 FOOD AND NUTRITION SECURITY ISSUES

By introducing hybrid types of wheat and rice (paddy), India was able to meet its surplus food objective following the Green Revolution (1965–1966). The primary crops' compound annual growth rate from 1980 to 1990 was 2.85%, whereas the population's exponential growth rate from the 1981 to 1991 censuses was 2.20 to 2.14 percent. Consequently, the rate of increase in food production is higher than the rate of population growth (Suresh, 2012).

There are several types of food insecurity, including: i. chronic food insecurity; ii. nutritional food insecurity; iii. insecurity brought on by inadequate absorption of food; and iv. transitory food insecurity.

Demand-side factors such as low household purchasing power, high food prices, and the ineffectiveness and limited reach of food safety net programs or community support initiatives like the MGNREGA, Integrated Child Development Scheme (ICDS), Mid-Day Meal (MDM), Annapurna scheme, National Food for Work Program, Antyodya Anna Yojna, and several others may be the root cause of chronic food insecurity.

Chronic food insecurity may also be a result of supply deficiencies. Inadequate food production, issues with imports, issues with public food distribution management, or even an increase in population might all contribute to a shortage. The neglect of women and girls in households with regard to dietary preferences is sometimes attributed to patriarchal culture.

Malnutrition in children in India is the primary problem with nutritional security. Warner Shultink, the head of UNICEF India's Child Development and Nutrition Programme, asserts that "India leads the world in the number of malnourished children."

The primary metric for nutrition security is inadequate intake of calories and micronutrients, which raises the risk of death for the impoverished and certain vulnerable populations, such as pregnant women and children. Three criteria—weight for age (also known as stunting), weight for height (also known as wasting), and weight for age (also known as underweight)—can be used to assess nutritional security.

Based on these criteria, children from northeast states e.g., Meghalaya, Manipur, Mizoram and

Nagaland were judged to be stronger over other states.

3.11.1 The Conceptual Basis for Calculating the Risk of Nutrient Inadequacy

An individual has inadequate intake when the intake does not meet the requirement of the nutrient.

The term "average nutrient requirement" (ANR) or "estimated average requirement" (EAR) refers to the average daily nutrient intake amount that is thought to satisfy the needs of half of the healthy people in a certain age and gender group. Its main application is in population or group evaluation.

The terms Recommended Dietary Allowance (RDA) and Recommended Nutrient Intake (RNI) refer to the average daily nutrient intake amount that is enough to satisfy the dietary needs of almost all (97–98%) healthy persons in a certain life stage and gender group. The mean plus two standard deviations of the needs distribution is how the ANR/EAR is calculated. Individual diets are the main subject of the term's evaluation. Because it measures consumption, the RDA is not suitable for dietary evaluation of groups.

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The average daily nutrient intake amount that is thought to satisfy the needs of half of the healthy people in a certain like stage and gender group is known as the average nutrient need (ANR)/estimated average requirement (EAR). Its main purpose is to assess populations or groupings.

The average daily nutrient intake level that is enough to satisfy the nutrient needs of almost all (97–98%) healthy persons in a specific life stage and gender group is referred to as recommended nutrient intake (RNI) and recommended dietary allowance (RDA).

Lower Threshold Intake (LTI) and Lower Reference Nutrient Intake (LRNI) are terms that are generated from the ANR/EAR and are computed as the ANR/EAR minus two standard deviations of the needs distribution. The requirements of the poorest 2% of people may be met with this amount. To assess nutritional insufficiency, several nations have adopted alternative cutoff points, such as 5% or 10%; nevertheless, there is worry that these figures would establish a very low expectation of the individual nutrient intake adequacy level (Indian Council of Medical Research, or ICMR).

3.12 Food and Nutrition Security Program and Policy

3.12.1 Land Reforms

Land distribution has been a component of Indian state policy. perhaps the most groundbreaking land policy in India was the elimination of the Zamindari system, which involved feudal landholding practices. India's land-reform strategy had two distinct goals: "The first step is to eliminate the barriers to higher agricultural output that result from the outdated agrarian organization. Eliminating all forms of social injustice and exploitation within the agricultural system, ensuring equality of status and opportunity for all segments of the rural people, and providing security for the soil's tiller are the second goal, which is closely tied to the first.

Advantages

Decrease in absentee ownership: Research suggests that absentee ownership was significantly lower in the 1970s than it was in the 1950s.

- Compared to irrigated regions, absentee ownership has decreased far more in unirrigated areas. Much more land was transferred to resident cultivators in arid regions as a result of the tenancy and ceiling laws' forewarning effects.
- The large landowners' avarice was restrained.
- The fall of the feudal system.
- Rich peasants wanted increased mechanization in order to avoid pay conflicts with the new labor, which resulted in a surge in landless labor as previous tenants were evicted.
- Land reforms' results include the elimination of intermediaries like landlords.
- There is no longer a powerful class of Jagirdars and Zamindars. Because they now owned the land they farmed, peasants were less exploited. The Zamindars, who used a variety of tactics to circumvent the law, fiercely opposed this action. Under the names of their family, they registered their own land. In order to prevent them from gaining incumbency rights, they regularly moved tenants between separate property parcels.

Ceiling of the land

An person or family might maintain an equal distribution of land to a certain degree by capping the amount of their landholding. If there had been no land ceiling and merely landlord abolition, the land reforms would not have been at least somewhat effective. The land ceiling guaranteed that the wealthy Zamindars, the new incarnation, were not farmers or upper tenants.

Possession of land: Land contributes to one's social position as well as financial revenue. Previously, it was not required to retain records of holdings; however, land reforms changed that. Also, all tenancy agreements must be registered.

A rise in productivity was the result of more land being farmed and the fact that tillers now owned the land. In West Bengal and Kerala, land reforms were mostly successful due to the political resolve of the left-wing administrations to carry them out effectively. In these areas, there was a kind of revolution in the ownership and landholding patterns as well as the status of the peasantry. "Land to the tiller" was the supporting slogan. Additionally, there was some progress in the transfer of land in Jammu and Kashmir.

The disadvantages of land reforms

- In India, a large number of tiny and marginal farmers continue to offer prayers to the grasp of moneylenders, and they're still in debt.
- Poverty in rural areas persists.
- Each state has its own land ceiling.
- The Land Ceiling Act did not apply to many plantations.
- Huge land holdings under "benami" names are owned by several individuals.
- Agrarian reforms, which address ways to increase the productivity of land, particularly agricultural land, are also included in land reforms. The Green Revolution is one example of this.

The Central Land Reforms Committee's suggestions were put into practice in the late 1960s and early 1970s to address the numerous flaws in the land reforms. The crop pattern was used to decrease the ceiling. In order to accommodate inferior dry ground, it was reduced to 54 acres.

3.13 Security of Food and Nutrition and Water Policies

A vital natural resource, water is essential to life and one of the most valuable resources in the country. It cannot be produced commercially; it can only be recycled. Agriculture, industry, and households are its main uses.

Efficient use of water to maximize yield per unit of water used in farming is a major concern of water policy in every nation. The significance of water harvesting, macro and micro irrigation programs, etc., for food production.

Given the significance of water, the national water policy of 2002 encouraged the development and management of integrated water resources for the voluntary and sustainable use of the amount of surface and ground water that is available. establishment of a sophisticated information system; demand control and water conservation have also been acknowledged in the national water policy.

The following problems concerning India's sustainable water supply have been resolved by:

- Reduction in the amount of water available per person
- A decline in India's standing in comparison to other countries
- Issues with the water supply along the southern states' coastlines
- Issues arising from the glacier-based river valley system that have worldwide implications for its sustainability

3.14 Agro-chemicals

In developing countries, agrochemicals are seen as a powerful instrument or "magic bullet" that may significantly improve important public health metrics and boost agricultural productivity. Nonetheless, it has been demonstrated that agrochemicals provide serious hazards. The usage of pesticides has a detrimental effect on the environment. Biological methods must be used as an alternative to agrochemicals. Agrochemicals have an effect on plant growth. In addition to killing insects, pests, nematodes, weeds, and other organisms, the use of agrochemicals pollutes the environment. A detailed examination of their molecular level mechanism is required.

Three million cases of pesticide poisoning have been reported in developing nations, according to the World Health Organization (WHO). Long-term harm to human and animal health as well as nutritional security has resulted from the extensive and continuous use of agrochemicals, which has also had detrimental impacts on soil biodiversity, agricultural sustainability, and food safety. Farmers use a range of agrochemicals to grow plants and increase agricultural productivity. Among the agrochemicals are insecticides, herbicides, fungicides, and weedicides. This paper discusses agrochemicals and provides a description of each kind. It also emphasizes how agrochemicals function and their effects on the environment. Agrochemical use include both the risk and any countermeasures.

Check your progress: Exercise 3

I. Explain the Conceptual Basis for Calculating the Risk of Nutrient Inadequacy

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ii. what do you mean by Land reforms ?

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iii. Security of Food and Nutrition and Water Policies. Explain in detail.

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iv. Why agrochemicals are seen as a powerful instrument or "magic bullet"?

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3.15 The Sampoorna Grameen Rozgar Yojana

The Sampoorna Grameen Rozgar Yojana (Universal Rural Employment Programme) was established by the Indian government to provide food and profitable jobs to impoverished rural residents. Through this program, the government provides food grain and wages to people who are below the poverty line. a program created by the Indian government to give the impoverished inhabitants of rural India gainful jobs. A program created by the Indian government to give the impoverished inhabitants of rural India gainful jobs.The initiative's implementation was the responsibility of the Panchayati Raj institutions (PRIs).

The Jawahar Gram Samridhi Yojana (JGSY) and the Employment Assurance Scheme (EAS) were combined to become the Sampoorna Grameen Rozgar Yojana on September 25, 2001.The effort is self-targeting in nature and aims to give food and jobs to impoverished people in rural regions. Anyone in need of pay job in rural areas is eligible to apply for SGRY. This program helps those who wish to perform physical and unskilled labor in their village. The program's self-targeting nature is part of its nature.

The following people will be given preference when offered paid employment:

- Agricultural wage earners
- Paying unskilled laborers who are not employed in agriculture
- Farmers in the periphery
- Individuals affected by natural catastrophes
- Women from Tribes or Scheduled Castes
- Child laborers' parents have been removed from hazardous jobs.
- Parents of special needs children
- Due to their parents' disabilities, adult children who wish to earn a living

3.16 Mid-Day Meal Scheme

In order to address the hunger needs of the underprivileged children in the Madras Municipal Corporation, the Midday Meal program was established in India in 1925.

- The plan was gradually implemented in the states of Karnataka, Tamil Nadu, Gujarat, and Pondicherry by the late 1970s. It gradually began to spread to several other states as well.
- The Indian government made the decision to roll out this program across the country after weighing the advantages and results. As a result, in 1995 the National Program for Nutritional Support to Primary Students was introduced in schools. The National Programme of Midday Meal was the new name given to it later.
- The Indian Supreme Court ordered all states to give a professionally prepared meal in 2001.

3.16.1 Midday Meal Program aims to achieve the following significant goals:

- To boost school enrollment and retention, at least for primary education.
- To improve the nutritional status of economically disadvantaged pupils by feeding them a healthy lunch.
- To eliminate the current disparity in nutrition between boys and girls.

to eradicate hunger in the classroom and lessen the caste system among kids by bringing them together on a single educational platform.

The program was first introduced primarily for the government and government-supported schools. Over time, this idea spread to children enrolled in alternative and creative schooling as well as the education guarantee system.

The following changes were made to the Midday Meal Scheme in 2004:

- The central government covered the cost of cooking;
- States were required to pay a transportation subsidy, which was 75 rs. for special states and 100 rs. for non-special states.
- Offering the midday meal to students in the nation's drought-prone regions during the summer break.
- The In 2006, this plan underwent another revision with the following additions:
- The cost of cooking was raised to Rs. 1.80 in the northeastern regional schools and Rs. 1.50 in the remaining regional schools.
- A revision was made to the calorie chart, increasing the energy consumption to 400 calories and the protein intake to 12 grams.
- The In 2007, the program was expanded to include another group of students. Students from the educationally disadvantaged groups joined the program.
- In 2009, the list of Midday Meal programs was expanded to include madrasas.
- tracking, assessing, and overseeing government-initiated programs.
- Giving kids in the nation's drought-prone regions a midday meal during the summer break.

The In 2006, this scheme was updated once more, adding the following clauses:

- In all other regional schools, the cost of cooking was raised to Rs. 1.50, while in the northeast regional schools, it was raised to Rs. 1.80.
- The calorie chart was updated, adding 12 grams of protein and 400 calories of energy.

The program was expanded to include a new student category in 2007. Students from the educationally underprivileged groups joined the program.

- The Madras as were added to the list of Midday Meal programs in 2009.

3.16.2 MDM's features include:

- All children between the ages of 1 and 8 are eligible and entitled to a nutritious lunchbox every day, barring holidays.
- In order to cook meals, the schools must buy AGMARK-grade ingredients.
- Students must only get their midday meals on school property.
- In order to make meals, every school must have a culinary facility.
- If the remaining funds run out, the principal of the government school has the right to spend them for a midday meal. They must, however, give it back to the government once they receive their reimbursement from the MDM budget.

Samples of the products may be collected by the state food and drug administration.

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Check your progress: Exercise 4

1. Beneficiaries of Sampoorna Grameen Rozgar Yojana

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ii. Mid-day meal scheme. Highlight all important features of this scheme.

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3.17 Let Us Sum Up

Malnutrition in children in India is the primary problem with nutritional security. Warner Shultink, the head of UNICEF India's Child Development and Nutrition Programme, asserts that "India leads the world in the number of malnourished children." issues of inadequate food production, issues with imports, issues with public food distribution management, or even an increase in population might all contribute to a shortage. The neglect of women and girls in households with regard to dietary preferences is sometimes attributed to patriarchal culture.

Demand-side factors such as low household purchasing power, high food prices, and the ineffectiveness and limited reach of food safety net programs or community support initiatives like the MGNREGA, Integrated Child Development Scheme (ICDS), Mid-Day Meal (MDM), Annapurna scheme, National Food for Work Program, Antyodya Anna Yojna, and several others may be the root cause of chronic food insecurity.

3.18 Check Your Progress

Short Answer Questions (2–3 lines each)

1. What is the main goal of development policies related to food and nutrition in India?
2. When was the **National Agricultural Policy** introduced, and what was its primary objective?
3. What is the purpose of the **Minimum Support Price (MSP)**?

4. Name any two government programs that aim to improve the nutritional status of the population.

Long Answer Questions (in detail)

1. Discuss the main features and objectives of the **National Agricultural Policy (2000)** and its contribution toward achieving food and nutrition security.
2. Explain how **globalization** and **technological interventions** (like the DPI and Kisan Credit Card projects) have impacted Indian agriculture and farmers' empowerment.
3. Describe the various **government programs and schemes** such as the **Sampoorna Grameen Rozgar Yojana** and **Mid-Day Meal Scheme**, highlighting their role in promoting food and nutritional security.
4. Analyze the relationship between **food safety, agriculture, and nutrition policies** in India, and explain how these are linked to sustainable development and public health improvement.

Glossary at a glance

i. Minimum Support Price (MSP)

MSP offers our farmers a price that is 50% more than the true cost of production, making it an alluring return on investment. Today's MSP is the greatest, having increased by 117% in Masoor, 90% in Moong, 75% in Chana Dal, and 60% in Toor and Urad compared to the amount given ten years ago. The Government of India is taking a significant step by encouraging farmers to diversify into pulses and lentils and offering guaranteed pricing for five-year contracts for government procurement through NAFED and NCCF

ii. National Policy for the farmers: Under the direction of Professor M. S. Swaminathan, the National Commission on Farmers produced five studies that addressed important facets of the agriculture industry for the 2007 National Agricultural Policy. They included the primary suggestions from their previous studies into their final report on "National Policy for Farmers." It has been approved as a new National Agricultural Policy declaration by the government. Additionally, this policy restates the goal of raising the agriculture sector's existing annual growth rate of 2.3% to the adage "4 percent." Instead of blaming domestic market inefficiencies for the agriculture sector's deteriorating profitability, the statement acknowledges that global agricultural commodity prices are to blame.

iii. Recommended Dietary Allowance (RDA) and Recommended Nutrient Intake (RNI) refer to the average daily nutrient intake amount that is enough to satisfy the dietary needs of almost all (97–98%) healthy persons in a certain life stage and gender group. The mean plus two standard deviations of the needs distribution is how the ANR/EAR is calculated. Individual diets are the main subject of the term's evaluation. Because it measures consumption, the RDA is not suitable for dietary evaluation of groups.

iv.LandReforms: Land distribution has been a component of Indian state policy. perhaps the most groundbreaking land policy in India was the elimination of the Zamindari system, which involved

feudal landholding practices. India's land-reform strategy had two distinct goals: "The first step is to eliminate the barriers to higher agricultural output that result from the outdated agrarian organization. Eliminating all forms of social injustice and exploitation within the agricultural system, ensuring equality of status and opportunity for all segments of the rural people, and providing security for the soil's tiller are the second goal, which is closely tied to the first.

V. Lower Threshold Intake (LTI) and Lower Reference Nutrient Intake (LRNI) are terms that are generated from the ANR/EAR and are computed as the ANR/EAR minus two standard deviations of the needs distribution. The requirements of the poorest 2% of people may be met with this amount. To assess nutritional insufficiency, several nations have adopted alternative cutoff points, such as 5% or 10%; nevertheless, there is worry that these figures would establish a very low expectation of the individual nutrient intake adequacy level (Indian Council of Medical Research, or ICMR).

BLOCK II

NODAL MINISTRIES AND DEPARTMENTS, PROGRAMS AND SCHEMES AND OBJECTIVES

This block provides an in-depth understanding of the key ministries, departments, and institutional mechanisms at both the central and state levels that play a pivotal role in the formulation, implementation, and monitoring of various health and nutrition-related policies and programs in India. It focuses on how inter-ministerial coordination and decentralized governance contribute to achieving national goals of improved public health and nutritional security. The block begins with an overview of nodal ministries and departments responsible for designing and executing policies that address diverse determinants of health and nutrition, including the Ministry of Health and Family Welfare, Ministry of Women and Child Development, Ministry of Agriculture and Farmers Welfare, Ministry of Rural Development, and others. It further explores the wide range of government programs and schemes implemented across sectors such as health, nutrition, education, sanitation, and social welfare, all aimed at enhancing the well-being and quality of life of the population, particularly vulnerable and marginalized groups. The block also elaborates on the objectives, focus areas, and target beneficiaries of each major program or scheme, highlighting their role in addressing issues like malnutrition, maternal and child health, food security, and poverty alleviation. Through this integrated approach, the block emphasizes the collective efforts of various stakeholders in achieving national and global commitments such as the Sustainable Development Goals (SDGs), thereby providing learners with a comprehensive understanding of the policy and programmatic framework governing health and nutrition in India.

UNIT-IV NODAL MINISTRIES AND DEPARTMENTS AT CENTRAL AND STATE LEVEL

Structure

4.1 Introduction

The Prime Minister's Overarching Scheme for Holistic Nourishment, or POSHAN, was India's bold endeavor in 2018. To combat various types of malnutrition, Abhiyaan was implemented. Given that India's rates of malnutrition are high and have been slowly declining over the past ten years, the National Nutrition Mission aims to address the following crucial elements: leadership and an environment that supports it; the delivery of high-impact interventions, such as behavior change communication at scale; multisectoral convergence to address underlying drivers; adequate financing; monitoring to track progress and learn; and utilizing technology.

OBJECTIVES:

Learners will be able to know:

i. The strategy for establishing a dynamic social and behavioral change strategy group, the "POSHAN Abhiyaan

ii. stages of the implementation process, POSHAN Abhiyaan's main goal is to address the problem of multifaceted causes of malnutrition by means of cross-sectoral convergence and

contextualized planning

iii. To eradicate undernutrition, several sectors must take action

iv. Pradhan Mantri Matru Vandana Yojana

v. The Labour Room Quality Improvement Initiative (LaQshya)

vi. The program known as Home-Based Care of Young Children (HBYC)

Concerns about nutrition outcomes in India are specifically taken into consideration by POSHAN Abhiyaan. The three phases of the POSHAN Abhiyaan, which had a budget of Rs. 9046 crore, were intended to cover all States/UTs and districts: 315 districts in 2017–2018, 235 districts in 2018–2019, and the remaining districts in 2019–2020. POSHAN Abhiyaan is a comprehensive framework that aims to leverage funds, personnel, technical resources, and IEC activities from existing programs and schemes like the Public Distribution System, National Health Mission (NHM), Swacch Bharat Mission (SBM), National Rural Livelihood Mission (NRLM), National Rural Employment Guarantee Assurance (NREGA), Pradhan Mantri Matru Vandan Yojana (PMMVY), Integrated Child Development Services (ICDS), and National Health Mission (NHM).The plan is to coordinate all parties' actions in POSHAN Abhiyaan's main goal is to address the problem of multifaceted variables influencing malnutrition by means of cross-sectoral convergence and contextualized planning at every stage of the implementation process. Additionally, it seeks to focus national attention on the issue of malnutrition and treat it in a mission-mode, with the goal of achieving "Suposhit Bharat," or Malnutrition Free India, by 2022.

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Leading the charge to reduce the issue of malnutrition is the National Institution for Transforming India (NITI) Aayog. Through the creation and introduction of the National Nutrition Strategy (NNS) in 2017, NITI Aayog was instrumental in forming POSHAN Abhiyaan.

To highlight the multifaceted nature of malnutrition and real-time monitoring through ICDS-CAS, POSHAN Abhiyaan focuses on the updated package of interventions with an emphasis on the first 1000 days of a child's life and cross-sectoral convergence.

In accordance with the POSHAN Abhiyaan Guidelines, NITI Aayog has been given the responsibility of closely observing the Abhiyaan and conducting regular assessments throughout time. It has also been assigned the responsibility of creating biannual reports that document the POSHAN Abhiyaan's execution.

The POSHAN Abhiyaan Implementation Status Progress Report is the first of its kind. The Abhiyaan was just introduced in March of 2018. The study assesses how prepared States and UTs are to carry out the Abhiyaan in an efficient manner.

It is evident that, among the big states, Chhattisgarh has the greatest readiness scores, whilst Assam is now the least ready to start the implementation phase.

Meghalaya has the highest score among the minor states, while Sikkim has the lowest. Lakshadweep has the lowest preparedness score among the UTs, while Chandigarh is the most equipped to carry out the Abhiyaan.

The states and union territories that are most prepared in terms of governance and institutional

mechanism are Tamil Nadu, Meghalaya, and Dadar and Nagar Haveli. It is evident that every State has gotten funding from the Central Government, with over 60% of States designating the monies for the Abhiyaan's execution.

Meghalaya, Chandigarh, and Chhattisgarh are the States and Union Territories with the finest preparations for planning and strategy formulation. In order to create the State-level Convergence Plans, 11 major States, every minor State with the exception of Arunachal Pradesh and Sikkim, and one Union Territory (Chandigarh) called a State-level Convergence Action Committee meeting.

Andhra Pradesh, Goa, and Puducherry are the states most equipped to handle the POSHAN Abhiyaan's Service Delivery component. In all States and UTs, vacant positions—particularly at the managerial level—are a significant problem. The majority of states have either already purchased growth tracking equipment or have begun the process. After the POSHAN Abhiyaan was implemented, it was also noted that nine States had begun the training process using the Incremental Learning Approach (ILA).

POSHAN Maah Celebration: September 2018 was designated as Rashtriya POSHAN Maah, after a decision made by Vice Chairman NITI Aayog.

Establishing a dynamic social and behavioral change strategy group, the "POSHAN Abhiyaan Jan Andolan Strategy Group," at NITI Aayog was recommended by the National Council because behavior change communication is thought to be a crucial intervention to end the intergenerational cycle of undernutrition.

More than 12.2 crore women, 6.2 crore men, and more than 13 crore children (male and female) were impacted by the different events held during the POSHAN Maah. Notably, 30.6 crore persons were contacted in just 30 days.

Check your progress: Exercise 1

i. Budget allocation for the three phases

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ii. Goal and plans of Poshan Abhiyan

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iii. When is Poshan MAah is celebrated for the first time

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Note: The Abhiyaan has been greatly aided by POSHAN Maah.

When the Honorable Prime Minister spoke with ASHAs, Anganwadi Workers, and Auxiliary Nurse Midwives (ANM), he acknowledged the value of grassroots healthcare professionals and expressed gratitude for their work in creating a robust and healthy country.

Campaigns and initiatives like Beti Padhao Beti Bachao, WASH, MAA, and Swachh Bharat Abhiyaan were utilized on several levels by the corresponding Ministries. Replicated from the national level to the local level, convergence was one of the most important features of POSHAN Maah.

Suggestions: At every stage of the implementation process, POSHAN Abhiyaan's main goal is to address the problem of multifaceted causes of malnutrition by means of cross-sectoral convergence and contextualized planning. The following suggestions are made to increase POSHAN Abhiyaan's efficacy in the upcoming months:

1. Convergent Action: In the year prior, the relevant Ministries introduced a number of policies. As a team, we would have to make sure that they were implemented at the ground level in an efficient manner while taking those services' delivery capacity into consideration.

- The political and administrative leadership's strong commitment has been the foundation for nutrition programs' success on a global scale.This fact is acknowledged by the National Nutrition Council's membership, which consists of Chief Ministers of the States and Senior Ministers of the Union Cabinet.Therefore, we must keep interacting with the Chief Secretaries and Chief Ministers on matters that call for high-level monitoring and cross-sectoral initiatives. In order to expedite the convergent action necessary for the execution of POSHAN Abhiyaan, we also need a reinvigorated push for the establishment of institutional frameworks at the State, District, Block, and Village levels.
- The expansion of Village Health Sanitation & Nutrition Days (VHSNDs) has been shown to be an effective means of delivering integrated services at the village level in a number of Aspirational Districts. According to our analysis, the VHSND can provide a wide range of services that make up the package of interventions. It would also assist with streamlining the ASHA, Anganwadi, and ANM trio's due lists. We must increase its scope and guarantee the provision of high-quality services.
- Although a lot of work has been done in the convergent action focused on the Ministry of Drinking Water & Sanitation, MoRD, MoHFW, Ministry of Panchayati Raj, and MWCD, we

require a closer collaboration with the Ministry of Agriculture Cooperation & Farmers Welfare for nutrition-sensitive interventions in food production and agriculture. We ought to be able to connect Agriculture Universities and their Home Science departments with Districts to help them create wholesome family recipes utilizing food that is readily accessible in the area.

As of the report's production, the cumulative money usage under the Abhiyaan was around 6% of the authorized budget, with many States and UTs unable to even start the expenditure process. These are governance issues related to scaling up ICDS-CAS. Frontline workers and intended beneficiaries cannot fully benefit from the program even in cases where funds have been approved since they are too late to begin purchasing smartphones and growth monitoring devices (such a stadium, infantometer, etc.) through the GeM site. This requires decision-makers to prioritize it.

Human resources: Frontline worker vacancies, particularly among supervisory personnel, are a frequent occurrence in all states and territories. It is among the most significant threats to the Abhiyaan's success. In order for State Governments to properly carry out their duties, we must urge them to make extra efforts to invest in their training and capacity building in addition to filling these positions. Good supportive supervision may be a crucial factor in determining whether the Abhiyaan is successful or not.

Infrastructure: In order to guarantee both the quality of interventions conducted at the Anganwadi centers and the successful implementation of ICDS-CAS, network and infrastructure issues must be resolved. Network connection in challenging environments may need active interaction with the telecom sector. The establishment and hiring of staff for the State Nutrition Resource Centers (SNRC), State Program Management Units (SPMU), and District Program Management Units (DPMUs) must be accelerated because they will have a significant impact on the caliber and pace of program execution. In order to create a combined nutrition monitoring framework that incorporates the many sources of data now available on nutrition in India, it will be crucial to combine monitoring efforts given the multisectoral character of the POSHAN Abhiyaan's attempts to combat malnutrition.

Since MoWCD and MoHFW presently employ distinct methods for monitoring shared beneficiary groups, it will be crucial to evaluate how ICDS-CAS and MCT/RCH might work together to guarantee even greater service delivery convergence.

Making sure that high-quality data is available for ICDS-CAS evaluation and monitoring: The Ministry level should handle reliable data input and routine data analysis. It is intended to use the analysis of the obtained periodic data for course adjustment.

- Investigating novel approaches to facilitate the use of data for decision-making will be crucial, particularly at the state, district, and block levels.

4.2 Jan Andolan

- Maintaining the emphasis on "Jan Aandolan" and SBCC: The effectiveness of convergent outreach for behavior change communication has been shown by POSHAN Maah. To continue the work of POSHAN Abhiyaan, a clear and concise SBCC Action Plan is necessary. The momentum created by the POSHAN Maah must be maintained by the states and UTs.
- It will be crucial to track the reach of messages issued under Jan Andolan. When properly adjusted, the Poshan Maah dashboard—which was created for this purpose—can be a helpful tool for monitoring community involvement initiatives.

To eradicate undernutrition, several sectors must take action. In addition to receiving food that is sufficient in energy, protein, and micronutrients, women and children also need to have access to clean water, hygienic conditions, and high-quality medical care. It might be difficult to make sure that a mother and her infant receive enough food, medical attention, and care at the same time and location. A different sector, agency, or actor is in charge of the acts that must be performed and the services that must be provided. For instance, the health sector often concentrates on clinical treatment rather than at-home care and feeding, whereas the agriculture sector mostly concentrates on food production. Thus, it is essential to bring sectors together.

Following significant government action to address the nation's malnutrition problem in 2017, the POSHAN Abhiyaan was approved with a budget of Rs. 9000 crore. The Government of India's sequence of increased funding, policy initiatives, and recommendations aimed at ending malnutrition in the nation marked a turning point with the introduction of the POSHAN Abhiyaan. This flagship program not only accelerated already-existing initiatives, refocused policy decisions, and brought various sectors together to work toward the nation's common objective of eliminating malnutrition, but it also played a key role in quickly launching a number of policy initiatives under its ambitious umbrella.

4.3 Policies in the Nutrition and Related Fields

The Government of India's sequence of increased funding, policy initiatives, and recommendations aimed at ending malnutrition in the nation marked a turning point with the introduction of the POSHAN Abhiyaan. In a short period of time, the Abhiyaan has not only accelerated already-existing programs, refocused policy decisions, and united various sectors behind the shared objective of eliminating malnutrition in the nation, but it has also played a key role in launching a number of policy initiatives under its ambitious umbrella.

Significant government action to address the nation's malnutrition problem was taken in 2017, which culminated in the allocation of Rs. 9000 crore for the POSHAN Abhiyaan. The following is a chronological summary of the main government efforts in the nutrition and related fields:

4.3.1 Pregnant and nursing women can benefit from the Pradhan Mantri Matru Vandana Yojana (PMMVY): The Pradhan Mantri Matru Vandana Yojana (PMMVY), the largest maternal benefit program in India, was launched on December 31, 2016, and it went into effect on January 1, 2017. As per authorized guidelines, qualified participants of this program get a monetary incentive of Rs 6000/-both throughout pregnancy and following an institutional delivery.

All 36 States and Union Territories were granted a budget of Rs. 16.37 crore under the PMMVY for the 2017–18 fiscal year. This plan has around 59.5 lakh registered participants and 1600 crore was disbursed in total (source: PMMVY-CAS site; updated as of November 28, 2018).

2. The 2017 National Health Policy Update: On March 15, 2017, after a 15-year lapse, the Cabinet adopted the nation's new National Health Policy. The Policy aims to provide a more comprehensive package of guaranteed primary healthcare through the Health and Wellness Centers (HWCs), therefore advancing the goal of universal health coverage through accessible and affordable healthcare for all. Increasing spending on public health is one of the Policy's main commitments.

3. Extension of maternity leave to 26 weeks (~6 months) of age: From 1 April 2017, maternity leave was extended from its previous 12-week duration to 26 weeks (~6 months) as part of a significant push for working women. Ensuring working moms may continue to exclusively breastfeed their infants until the appropriate age of six months is a significant endeavor.

4. Pneumococcal Vaccine (PCV) Launch: In May 2017, the PCV was introduced gradually as part of the Universal Immunization Program (UIP) with the goal of lowering newborn mortality and

morbidity from pneumococcal pneumonia.

5. Revision of supplemental nutrition cost standards: On September 20, 2017, the government authorized raising the supplementary nutrition cost standards for Anganwadi Service recipients and teenage girls (ages 11 to 14) enrolled in the Umbrella ICDS Scheme. Additionally, the government approved annual cost indexation for future rate increases. It is anticipated that the annual change to the supplemental nutrition cost standards will have an effect on the nutritional condition and general health of around 11 crore people.

6. Scheme for Adolescent Girls Universalization: On November 16, 2017, the government authorized the expansion of the Scheme for Adolescent Girls, which offers nutritional assistance and vocational training to out-of-school girls aged 11 to 14. Following that, the Scheme was expanded to 303 more districts nationwide, on top of the 205 districts that were included in 2017–18. 81.97 lakh teenage females are expected to gain from the increased funding, according to reports from the States and UTs.

7. Establishment of Health and Wellness Centers (HWCs): As part of the National Health Policy, the government had intended for HWCs to serve as the cornerstone of India's healthcare system.

The government set aside Rs. 1200 crore in February 2018 to convert 1.5 lakh current sub-health centers into Health and Wellness Centers (HWCs), enabling them to offer complete primary healthcare to satisfy the expanding demands of the populace. For a package of services pertaining to RMCH+A, communicable and non-communicable diseases, ophthalmology, ENT, dental, mental, geriatric care, treatment for acute simple medical conditions, and emergency and trauma services, the HWCs are expected to offer preventive, motivating, rehabilitative, and curative care. By December 2022, it is intended to convert 1.5 lakh SC/PHCs into Health and Wellness Centers.

Check your progress: Exercise 2

Pradhan Mantri Matru Vandana Yojana (PMMVY)

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The 2017 National Health Policy Update

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Revision of supplemental nutrition cost standards

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Scheme for Adolescent Girls Universalization

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4.4. Introduction of the LaQshya (Labour Room Quality Improvement Initiative)

The Labour Room Quality Improvement Initiative (LaQshya) was started by the Ministry of Health and Family Welfare (MoHFW) to enhance the care given to expectant mothers in the maternity operation theatre and labour room. This is done in an effort to ensure respectful maternity care and lower avoidable maternal and newborn mortality, morbidity, and stillbirths related to delivery care. As part of the effort, labor rooms will undergo quality certification, and facilities that meet the specified goals will get incentives. Along with district hospitals, high delivery load sub-district hospitals, and community health centers, the program will also be implemented in government medical colleges.

4.5 The program known as Home-Based Care of Young Children (HBYC)

Launched in September 2018, the HBYC program aims to bridge the gap between family and health system interactions, which terminate at 42 days of life. After that, ASHAs only visit households to mobilize children for vaccinations at ages 9 and 15–18 months. The program suggests that ASHA do home visits with infants as early as two to three months of age, and then again in the second year until the child is fifteen months old.

With a focus on six target beneficiary groups, **the Anemia Mukt Bharat**: Intensified Iron-plus Initiative was also introduced in September 2018 with the goal of bolstering current mechanisms and promoting innovative approaches to treating anemia through six interventions and six institutional mechanisms in order to meet the desired goal under the POSHAN Abhiyaan.

4.6 Important policy measures pertaining to the POSHAN Abhiyaan launch

Since its inception, the POSHAN Abhiyaan has launched a number of policy initiatives to promote better nutrition performance. Among them are the following:

A. A rise in frontline employees' incentives: The government has promised a significant boost in incentives for frontline workers, such as ASHAs, AWWs, and their assistants, in recognition of the critical role they play in providing services at the community level. Different line Ministries issue joint advisory.

B. The fact that several line ministries have released Joint Advisories demonstrates the significant cross-sectoral convergence action that the Abhiyaan started: To establish convergence across the various Departments in accordance with the goals of the Poshan Abhiyaan, the MoWCD, MoHFW, MoPR and RD, MoDWS, and Department of School Education jointly advise the state Chief Secretaries. A Joint Advisory to the Chief Secretary from the Department of Rural Development and the Ministry of Panchayati Raj, which recommends that Gram Panchayats weigh the children and display their weights in the AWC in addition to holding meetings to discuss nutritional issues as well as health and sanitation concerns specific to their Panchayat. The plan was given a portion for FY 2017–18, Rs. 48, 000 crore was allocated, the largest amount ever for MGNREGA. Thus far in 2017–18, 4.35 crore families were given 156 lakh jobs, producing 160 million person-days of work. Of all the jobs, Women have accounted for 54% of the total.

4.7 National Deen Dayal Antyodaya Yojana Mission for Rural Livelihoods (DAY-NRLM)

The DAY-NRLM aims to connect with 8 to 9 Locate impoverished rural families and set up one

women from every home into Women's SHGs and federations based on affinity both at the local and higher levels.

Check your progress: Exercise 3

i. The Labour Room Quality Improvement Initiative (LaQshya)

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ii. Home-Based Care of Young Children (HBYC)

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iii. National Deen Dayal Antyodaya Yojana Mission for Rural Livelihoods (DAY-NRLM)

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4.8 National Guidelines on important nutrition concerns are released or formulated

Government has published Anemia Mukt Bharat, recommendations for home-based early child care, and national guidelines for the establishment of breastfeeding management centers in public health institutions. Guidelines for Infant and Young Child Feeding (IYCF) and Community-Based Management of Severe Acute Malnutrition (C-MAM) are also being developed.

It is important to remember that in addition to the aforementioned accomplishments, POSHAN Abhiyaan has significantly boosted a number of current schemes and programs that fall under its purview. In order to revitalize the current programs and schemes, more coverage and allocations must be made, and new sub-schemes tailored to the beneficiaries' need must be started. Among these, noteworthy are:

i. **Mahatma Gandhi National Rural work Guarantee Act (MGNREGA):** MGNREGA provides at least 100 days of guaranteed wage work within a fiscal year, with the goal of improving the livelihood security of households in the nation's rural areas. NFSA, the National Food Security Act of 2013, is being implemented universally.

ii. Ration cards' intrastate portability

iii. PDS beneficiaries in the states of Andhra Pradesh, Haryana, Jharkhand, Karnataka, Chhattisgarh (750 FPSs), and Telangana (2273 FPSs) now have the option to pick up their allotted food grains from any fair price store in the state where the ePoS device has been placed. launch of a trial program for direct bank transfers of the subsidy amount: In the Nagri Block of Ranchi District, Jharkhand, a pilot program for DBT (in-cash and in-kind) based on the "PAHAL" pattern was introduced with effect from October 2017.

iv. ePoS transactions portal launch: The Annavitran Portal (www.annavitran.nic.in) has been put into place to show electronic transactions completed by ePoS devices for the beneficiary distribution of subsidized food grains.

v. Pradhan Mantri Jan Arogya Yojana (PMJAY), offered by Ayushman Bharat in September 2018. Up to 5 lakh rupees per family per year for secondary and tertiary care hospitalization will be made available to beneficiaries of the scheme through cashless and paperless access to services at the point of service. The initiative will be the largest wholly government-financed health care program in the world when it is fully implemented, with an estimated 50 crore people, or over 10 crore poor and vulnerable households, covered.

vi. Other health initiatives include the Home Based Newborn Care (HBNC) program, which

involves Accredited Social Health Activists (ASHA) visiting mothers and newborns at home for up to 42 days after birth to improve postnatal care for the mother-infant; Rashtriya Kishor SwasthyaKaryakram, which focuses on nutrition, injuries and violence, sexual and reproductive health, non-communicable diseases, mental health, and substance abuse; adolescent-friendly health clinics, which serve as the initial point of contact for primary health care services with adolescents; and Mission Parivar Vikas, which aims to expand access to family planning services and contraceptives in districts with TFR of three and above.

vii. Specialized medical facilities known as Nutrition Rehablitation Centers (NRCs) nationwide provide medical care for children who are severely malnourished (SAM) as part of National Health Mission-Specific initiatives. Throughout the Various Ministries and Line Departments in favor of POSHAN Abhiyaan is a multi-ministerial initiative that aims to address the several factors that contribute to malnutrition by bolstering and coordinating nutrition-supporting initiatives across numerous ministries. The Ministry of Women and Child Development is in charge of the initiatives, although the Ministries of Health and Family Welfare, Rural Development, Drinking Water and Sanitation, and others have also made significant strides.

viii. The Ministry of Women and Child Development (MoWCD) is the designated ministry responsible for carrying out the POSHAN Abhiyaan. Along with a number of Joint Directives and Advisories, particularly from the Ministries of WCD and Health, the MoWCD has taken steps to expedite the Abhiyaan's implementation. These include joint reviews, cross-sectoral convergence, and the integration of SHGs with health and nutrition initiatives, among other topics. The preparations for the Abhiyaan's launch were directed by the Ministry. To address issues, MoWCD has been routinely communicating with the States and UTs via video conferences since inception. At the national level, the Executive Committee and the National Council on India's Nutrition Challenges have convened more than twice to talk about a number of topics.

ix. The Ministry of Health and Family Welfare (MoHFW) has been instrumental in making sure that the POSHAN Abhiyaan has been successful. In order to reduce undernutrition, anemia, and the incidence of low birth weight, the National Health Mission (NHM) under MoHFW is essential. The success of the Abhiyaan depends on a number of health sector initiatives under NHM, such as the encouragement of early breastfeeding beginning, vaccination, children sickness prevention, iron and folic acid supplements, adolescent nutrition, and deworming.

x. The Ministry of Panchayati Raj Institutions (MoPRI): Panchayati Raj institutions are crucial in helping all parties involved accomplish the goals of the POSHAN Abhiyaan. When the Honourable Prime Minister launched the POSHAN Abhiyaan in March 2018, MoPRI organized Gram Sabhas to prepare the communities for nutrition-related events. To make the PRI members more aware of the concerns surrounding nutrition and convergence action, advisories were written and distributed. The People's Plan campaign, Sabki Yojna Sabka Vikas, was introduced by the PRI and went into effect on October 2.

4.9 NATIONAL HEALTH POLICY, 2000

The grand objective of "Health for All" by the year 2000 AD was introduced at the World Health Assembly in Geneva in 1997. Primary Health Care was chosen as the strategy to attain "Health For All" in the 1998 Alma Ata Declaration. It was also recommended that each nation create a health strategy that incorporates a primary health care approach, with specific goals and a plan to reach them. India has had a well-organized public health system since gaining its independence.

Major public health issues prompted the nation to launch national health programs. Equitable distribution, intersectoral coordination, community involvement, and suitable technology were all present in these basic health care components.

The NHP 1983 provided a broad overview of the policies that were necessary given the conditions that existed in the health care industry at the time. While some of the policy efforts described produced the desired effects, others did not. Since the prior policy's creation, there have been significant changes in the elements that influence the health sector, and the need for a new NHP was recognized, leading to the creation of NHP 2002.

After China, India has the second-highest population in the world. The vast majority of people are impoverished or middle class. Only a small number of people are wealthy. From a nutritional perspective, the nation's economic situation was quite bad at the time of independence. Many individuals were remained undernourished or emaciated years after the Bengal famine ended. Most of these individuals were from rural regions. The situation was made worse by the 12% literacy rate and the dearth of basic human comforts. However, India has advanced on the international, social, and economic scene since then. But there is still much to be accomplished.

The 2020 Global Nutrition Report was been issued by the World Health Assembly (WHA). According to their results, India is far from meeting its nutrition goals for 2025. It also mentions how undernutrition and malnutrition are major problems in India.

Over the years, undernutrition has been portrayed as a multifaceted poverty challenge (1975–1997), a health concern (1950–65), a food scarcity issue (1965–75), and a nutrition and food security issue (after 1997). One of the key topics of the numerous five-year plans has always been this.

The National Nutrition Policy of India was enacted by the government in 1993 and was overseen by the Department of Woman and Child Development. Since then, the government has launched a number of initiatives to fight undernutrition, malnutrition, and other chronic disorders linked to poor nutrition. On the other hand, the Global Nutrition Report 2020 presents a different picture.

What is India's position in it?

The World Health Assembly's (WHA) 2020 Global Nutrition Report has been published. By 2025, India is expected to fall short of the global nutrition objectives. Six nutrition objectives for the nutrition of mothers, infants, and young children were established by the World Health Organization in 2012. Countries all across the globe base their nutrition-based strategies and objectives on these targets.

The nations' progress toward meeting the global nutrition objectives for 2025 is highlighted in the 2020 Report. Among other things, these goals include childhood wasting, anemia, low birth weight, exclusive breastfeeding, and childhood overweight. It commemorates the advancement of 194 nations. Of them, 88 nations are not on track to meet their 2025 targets, including India. Put simply, none of the four global nutrition objectives for 2025 are going to be met by India.

India has the greatest prevalence of malnutrition-related household disparities, according to the research. India will fall short of the following four goals:

- stunting among children under five years old,
- Child obesity and overweight, anemia in women of reproductive age
- Nursing only

The number of children that are underweight has been observed to have somewhat declined. In

contrast to the average rates for all of Asia, it is still quite high.

The prevalence of underweight children has been observed to have somewhat declined. However, when compared to the average rates for all of Asia, it remains quite high. According to the research, one in two women of reproductive age suffer from anemia, and the prevalence of overweight and obesity is rising, leading to several serious and long-term health problems. It is evident that women are twice as likely as men to be obese.

The research states that, along with Nigeria and Indonesia, India is one of the top three nations most affected by stunting and malnutrition. Childhood stunting affects one out of every three children under five.

The prevalence of underweight children has been observed to have somewhat declined. However, when compared to the average rates for all of Asia, it remains quite high. According to the research, one in two women of reproductive age suffers from anemia, and the prevalence of overweight and obesity is rising, leading to several serious and long-term health problems. It is evident that women are twice as likely as men to be obese.

With almost 40% stunting, Uttar Pradesh has the highest rates. One in five children under the age of five is wasted, according to the survey. There are nutritional disparities among people, according to statistics from both rural and urban locations.

India's nutrition-related laws and regulations include:

1. National Nutrition Monitoring Bureau, 1972

In 1972, the National Nutrition Monitoring Bureau was founded under the direction of the Indian Council of Medical Research. Its goal was to compile a dynamic, educational database of the dietary habits and nutritional status of different cultures. It also assisted in determining the advantages and disadvantages of the government's intervention strategies. In the Central Nutritional Policies, it suggested remedial actions. However, in 2015, the Union Ministry of Health closed the Bureau.

2. National Nutrition Policy, 1993

This policy was separated into long-term indirect strategies and short-term direct strategies. The following areas were the focus of direct strategies required:

i. Ensuring that the weakest segments of society—children, adolescents, expectant and nursing mothers, etc.—are properly nourished

ii. Extending the children's safety net (i.e., extending the program to both urban and rural slums),

iii. Fortification of food,

iv. Low-cost nutrition food supplies, and

v. Addressing micronutrition deficiencies in susceptible populations

3. POSHAN Abhiyan, also known as the National Nutrition Mission, 2018

This is the Center's main initiative to improve the nutritional status of infants, expectant mothers, and nursing mothers. In March 2018, Prime Minister Narendra Modi introduced it. The goal of this multi-ministerial campaign is to eradicate malnutrition in India. Its primary goal is to address the problem of malnutrition.

4. The 2013 National Food Security Act

This Act was passed by Parliament and became operative in 2013. It seeks to supply about 75% of

the rural population and 50% of the urban population with at least 5 kg of food grains per month at a subsidized price. Additionally, this Act seeks to assist the dietary needs of children ages 6 months to 14 years as well as pregnant and nursing mothers.

Other significant nutrition initiatives include of:

5. National Prophylaxis Program against Nutritional Blindness

The National Prophylaxis Program against Nutritional Blindness was established in 1970. All children between the ages of one and three were covered by this center-sponsored program. The goal of this approach was to provide these kids around 2,000,000 IU of vitamin A every six months.

6. Special Nutrition Program, 1970

This program was introduced in 1970 and gives preschoolers an additional 300 calories and 10 grams of protein per day. Additionally, it provides 500 calories and 25 grams of protein to nursing women. It happens every day of the week.

7. Balwadi Nutrition Programme, 1970

In 1970, the Balwadi Nutrition Programme was also introduced. It is an initiative that prioritizes education and healthcare. The goal of this initiative is to provide the Balwadis with food supplements from the Indian government. Children between the ages of three and six are the target audience. It was introduced under the auspices of the Department of Social Welfare and focuses on children in rural regions.

8. Development Services for Integrated Children (ICDS), 1975

It is a program that the Indian Central Government started. It is more like a collection of interconnected services. For women and children under six, it offers referral services, meals, preschool instruction, primary healthcare, vaccinations, and health examinations.

9. Program for the Control of Iodine Deficiency Disorder, 1992

The National Goiter Control Programme (NGCP) was the original name of this initiative. In August 1992, it changed its name to the National Iodine Deficiency Disorders Control Programme (NIDDCP). This was done in order to increase the range of iodine deficient conditions, such as stillbirths, cretinism, deaf-mutism, and mental and physical retardation.

10. Mid-Day Meal Scheme, 1995

The Indian government started this school lunch program. It was created to guarantee that school-age children were eating healthier. It included every student enrolled in government-run or government-aided primary schools. It made it possible for these kids to get a midday lunch that was properly prepared.

11. Improvement potential

The government uses the antiquated PDS (public distribution system) system, which distributes calorie-dense food to a particular segment of the population. Beyond calories, the government could begin supplying grains like pulses and millets. In this manner, the country can assist the malnourished and undernourished segments of the population. In addition to wheat and rice, the Chhattisgarh government's Food Security Act supplies iodized salt and pulses. This action by Chhattisgarh is a step in the battle against illnesses linked to poor nutrition.

The goal of the agricultural approach should shift to one that is "crop-neutral." It shouldn't provide staple crops an advantage over other harvests. Such a shift in emphasis would also allow farmers to respond, according to the Global Nutrition Report 2020. They will recognize the signal and endeavor

to satisfy the need for non-staple crops such as fruits, vegetables, meat, and fish.

Enhancing smallholders' access to high-value markets for meat, fish, and nutrient-dense non-staple crops can assist the government accomplish a number of goals. Agricultural production diversification will aid in the battle against poverty. The diversity of diets will also benefit from it.

Enough in-kind, financial, and technological resources may be allocated to promote nutritional health. The government should guarantee that sufficient funds are allotted for the execution of essential policies and initiatives.

Encourage public-private collaborations for research and development of healthier goods, successful behavior change, and other related shared goals with the food industry and other significant non-food companies (such as self-insured enterprises and private health and life insurance). In order to detect and reduce conflicts of interest, this must involve the creation of explicit and open policies.

4.10 The NNP, or National Nutrition Policy

The Government of India introduced the National Nutrition Policy (NNP) in 1993 under the auspices of the Department of Women and Child Development, which examines the impact of nutrition on agriculture, food production, food supply, education, information, health care, social justice, rural and urban development, tribal welfare, and women and children Page 25 development. NNP used a multi-sectoral approach to end malnutrition and guarantee that everyone was getting enough nutrition. The primary strategy used under NNP was to address the nutrition issue by means of direct nutrition interventions for vulnerable populations through a variety of development programs. The implementation plan entails.

i) Nutritional measures to strengthen safety nets for teenage females, pregnant and breastfeeding mothers, and children under the age of six.

ii) Enhance the nutritional value of staple foods by fortification, which makes affordable, nutrient-dense diets possible.

iii) Preventing vulnerable groups from experiencing micronutrient deficits.

iv) Land reform initiatives to lessen the vulnerabilities of those who are landless and have poor land.

v) Make the family welfare and health program stronger.

vi) Avoid food adulteration and provide fundamental health and nutrition information.

vii) Improving nutrition surveillance and tracking the results of nutrition programs while examining all facets of nutrition.

viii) Providing individuals with information via conventional media.

ix) The administration of the minimum wage should be kept strictly enforced, revised promptly, linked to price increases through an appropriate nutrition formula, and give pregnant women workers extra assistance.

x) The involvement of the community in raising awareness of different health and nutrition initiatives.

xi) Learning and reading.

xii) The advancement of women's standing and equal pay.

The government prioritized eliminating undernutrition through a multi-sectoral strategy for faster action on the causes of malnutrition in the 1995 National Plan of Action on Nutrition (NPAN). A

complete strategy was recommended in order to achieve the goal, one that encompassed advancements in public health, sanitation, safe drinking water, individual health care, food access, and understanding of proper hygiene and feeding techniques. The XII Plan has been provided, mostly based on a number of issues, including:

- Infant mortality rate (IMR) reduction to 25 by the year 2017.
- 2017 saw the Maternal Mortality Ratio (MMR) drop to 100.
- Total Fertility Rate (TFR) reduction to 2.1: India is on course to meet the TFR goal of 2.1 by 2017.
- Increasing the child sex ratio in the 0–6 age range from 914 to 935 will prevent and reduce underweight children under 3 years old by 23%.
- Preventing and lessening the burden of accidents and diseases, both communicable and non-communicable (including mental illnesses)

ICDS offers the following services under their scheme: Supplementary nutrition; informal education in preschool; health and nutrition education Health screening, immunization, and referral services. These three health-related services—immunization, health examination, and referral services—are offered by the National Health Mission and Public Health Infrastructure. Additionally, several Anganwadi Centers carried out this task at a basic level using Anganwadi Workers (AWWs) and Anganwadi Helpers (AWHS).

4.10.1 Population norms and funding patterns for the establishment of AWCs and MiniAWCs

With the exception of the Supplementary Nutrition Programme (SNP), all ICDS components are funded using 60:40 central: state ratios. Funding was allocated in 50:50 percentages for the Supplementary Nutrition Program component. The ratios in the North-eastern states are 90:10. SNP beneficiaries receive take-home rations and hot meals. The quantity of meals and rations given to children is determined by their level of malnutrition. For 300 days, SNP is given to youngsters for Rs. 8 per day and to pregnant and nursing moms for Rs. 9.50 per day. Children who suffer from severe malnutrition are given Rs 12 per day.

4.11 Mid-Day Meal Program

Tamilnadu was the original location of the Mid-day Meal Scheme. Another name for it is the School Lunch Programme. The Ministry of Education introduced this curriculum in 1961. This program's objectives include giving schoolchildren free meals on all working days, protecting them from hunger in the classroom, increasing school enrollment and attendance, improving socialization among kids from all castes, addressing malnutrition, and empowering women through employment, which will lower school dropout rates and boost attendance.

The program has a lengthy history, particularly in Gujarat and Tamil Nadu, and it has been extended throughout India following a historic ruling by the Indian Supreme Court on November 28, 2001. According to current standards, 30-gram pulses, 75-gram veggies, and 7.5-gram vegetables are given to elementary school students.

4.12 Bhojan Tithi

To promote involvement in the program among the local community, the Modi government added a new project called Tithi-Bhojan to the midday meal program. Gujarat was the first state to adopt this idea, and the Indian government has since adopted it and spread it throughout the nation. It aims to include community people in the endeavor to give the kids wholesome nourishment. The community

members may provide extra food items, like as sweets, namkeen, or sprouts, in addition to the noon meal that is being served. This is entirely voluntary. Additionally, more involvement and participation from philanthropic and religious organizations is being encouraged. The midday meal program also established the Social Audit in an effort to encourage community involvement, whereby individuals jointly oversee the scheme's development and execution. According to the recently announced Mid-Day Meal Rules, 2015, which went into effect in September of that year, schools may temporarily use other monies that they have on hand for the Mid Day Meal program if they run out of money allocated for it for whatever reason.

4.13 Akshaya Patra

Akshaya Patra was established in 2000 to feed 1500 children in five Bangalore schools; the private sector also participated successfully in this program. Its goals were to address malnutrition, lower dropout rates, improve caste socialization, give disadvantaged children a balanced meal, and empower women by providing them with jobs.

4.14 Let Us Sum Up

There has been an increase in lively conversations around nutrition in recent years. The Indian government has achieved a lot of progress, from identifying micronutrient deficiencies in the National Health Policy after 15 challenging years to the recently drafted Food Fortification Regulations, 2018. The National Nutrition Mission (NNM), which was launched in 2018, is the most pertinent. NNM has been praised as a comprehensive strategy for improving the nation's nutrition on a war footing. The fact that nearly Rs 9,000 crore has been budgeted for this mission shows how serious it is. The goal of this multi-ministerial campaign is to eradicate malnutrition in India. Still, alternative nutrient-rich foods are ignored in favor of staple crops. Opposition members have criticized such behavior. One may argue that it is a strategy to preserve the vote bank. However, the findings in the Global Health Report, 2020, indicate that there is a problem with India's model.

NNM and NFSA are now viewed as a chance to further vote-bank politics and as little more than financial mismanagement. Because of the federal system of governance in India, the Center is not solely responsible. The Centre’s instructions must be followed by the State Governments in order to guarantee that no one is left behind and that everyone has access to nourishment. Additionally, it is necessary to co-opt the entire ecosystem, which includes non-governmental organizations (NGOs), corporations, academic institutions, think tanks, and health professionals.

Nutritional policies, like every other government program, experience underutilization of monies allotted to them. Alok Kumar, Advisor, Health, NITI Aayog, stated that we have to work on various issues ranging from sustainability and utilization of funds, and ground-level work before we achieve what we want to." Investment in nutrition and political will be necessary for the initiative to continue. Since the program will be run by the states, accountability becomes an issue.

4.15 Check Your Progress

Explain India's nutrition-related laws and regulations include

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Explain Bhojan Tithi

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Explain Akshay Patra

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Glossary at a glance

LaQshya (Labour Room Quality Improvement Initiative): The Labour Room Quality Improvement Initiative (LaQshya) was started by the Ministry of Health and Family Welfare (MoHFW) to enhance the care given to expectant mothers in the maternity operation theatre and labour room. This is done in an effort to ensure respectful maternity care and lower avoidable maternal and newborn mortality, morbidity, and stillbirths related to delivery care. As part of the effort, labor rooms will undergo quality certification, and facilities that meet the specified goals will get incentives. Along with district hospitals, high delivery load sub-district hospitals, and community health centers, the program will also be implemented in government medical colleges.

POSHAN ABHIYAN: For over 40 years, a number of initiatives from several Ministries and Departments have addressed the problems of anemia and malnutrition. Although these programs have had some impact, they have not been able to meet the intended objectives. In order to accomplish its objectives, POSHAN Abhiyaan plans to use technology to coordinate all of these

initiatives. At the same time, it hopes to turn Nutrition Awareness into a Jan Andolan. Thus, Poshan Abhiyaan is intended to be a "Jan Andolan" and a "Janbhagidaari," which translates to "People's Movement."Instead of being a program, POSHAN Abhiyaan is a Jan Andolan and Bhagidaari that includes open involvement from state government agencies, local government officials, social groups, and the general public and commercial sector.

UNIT- V PROGRAMS AND SCHEMES AVAILABLE IN VARIOUS SECTORS WITH THE AIM OF IMPROVING HEALTH AND NUTRITIONAL STATUS OF THE POPULATION

Structure

5.1 Introduction

India has undertaken a number of nutrition initiatives over the past 50 years in an effort to reduce malnutrition, including as the National Food Security Act of 2013, NIPCCD, ICDS, and the midday meal program. Dietary variety and malnutrition have not decreased despite robust constitutional and legislative policies, plans, program commitments, and institutions, as well as a surge in GDP development. To combat malnutrition, the Indian government must improve its health, nutrition finance, and food systems. In his 2018 speech at the World Economic Forum, Indian Prime Minister Narendra Modi expressed his goal of making India a US$5 trillion economy by 2025. This appears unachievable given that 35.8% of India's children under the age of five are underweight and 38.4% of them are stunted. India has pledged to support the Sustainable Development Goals (SDGs) by achieving End Hunger (Goal 2) by 2030. But according to the Global Hunger Index (2020), India is now ranked 94th out of 107 nations.

Objectives:

Learners will be able to

- Know how to access public health facilities at the subdistrict and district levels for free.
- Know various policies for efficient income transfers that will improve the entitlement package of the poor in both rural and urban areas by reorienting and restructuring programs that reduce poverty
- Understand about the Intensive Agricultural District Programme (IADP)
- Know about the intricate farming systems that are in place and the reasons why resource-poor farmers are not embracing new technology.

The GDP's annual growth rate has increased from less than 6% in the early years of reform to above 8% in the most recent years.

In addition, the Global Nutrition Report (2020) predicts that India would likely fall short of the global nutrition objectives by 2025, which appears to be consistent with the findings from the National Family Health Survey (NFHS)-5's first phase. The NFHS-5 first phase data, which attracted national attention, demonstrate that there has been no improvement in child nutrition indices from 2015–16 to 2019–20. The findings are concerning since markers including childhood stunting, wasting, and the percentage of underweight children have gotten worse in the majority of states. The Government of India (GOI) said that combating child malnutrition is one of its top priority when it announced the POSHAN Abhiyaan to address the problem; In actuality, though, the Ministry of Finance rejected the 15th Finance Commission's proposal on the Supplementary

Nutrition Programme (SNP), demonstrating that malnutrition is not a top priority on India's development agenda. India's policy situation and nutritional status: a clear disparity India has undertaken a number of nutrition initiatives during the past forty-five years in an effort to reduce malnutrition. India has attempted to improve the nutritional status of the nation with the creation of Integrated Child Development Services (ICDS), the implementation of the National Food Security Act (2013), and the statewide implementation of the midday meal program. In addition, the GOI introduced a number of additional programs to promote the health of women and children, such as the Pradhan Mantri Matru Vandana Yojana (PMMVY) under the ICDS, the POSHAN Abhiyaan, and the Anganwadi Service Scheme. Nonetheless, stunting and undernutrition continue to be obstacles for the nation. India is home to half of the world's wasted children and almost one-third of all stunted children. The wealth quintile study, according to the NFHS-4, paints an even more somber picture: half of all children from households in the lowest income quintile are still underweight or stunted. Even while India has achieved significant progress toward becoming an economic giant and has had prolonged rapid economic growth, the country's nutrition situation has so far remained depressingly static, with very modest rates of recovery and a persistently high burden of undernutrition.

Since public health is a state concern, the relevant State/UT Governments are in charge of providing medical aid to patients from all economic brackets. With its two Sub-Missions, the National Rural Health Mission (NRHM) and the National Urban Health Mission (NUHM), the Ministry's flagship program, the National Health Mission (NHM), assists States and UTs in fortifying their healthcare systems to ensure that everyone has access to fair, reasonably priced, and high-quality healthcare services.

5.2 Public Health Facilities

All income levels can thanks to the NHM-launched programs listed below:

Under the National Health Mission, the government administers the following programs and initiatives:

5.2.1 Health of the reproductive system, mother, newborn, child, and adolescent

- Suraksha Karyakaram Janani Shishu (JSSK)
- Bal SwasthyaKaryakram (RBSK) and Rashtriya Kishor SwasthyaKaryakram (RKSK)
- Mission Indradhanush's Universal Immunization Program (MI)
- Yojana Janani Suraksha (JSY)
- PMSMA, or Pradhan Mantri SurakshitMatritva Abhiyan
- Suraksha KaryakramNavjaatShishu (NSSK)
- The Labor Room Quality Improvement Initiative (LaQshya) is a national family planning initiative.

5.2.2 National Dietary Initiatives

- National Iodine Deficiency Disorder Control Programme (NICDDCP)
- Mother's Absolute Affection (MAA) program/Baby friendly Hospital initiative (BFHI)
- The National Fluorosis Prevention and Control Program (NPPCF)
- The National Iron Plus Initiative to Control Anaemia

5.2.3 Communicable Diseases

- The IDSP stands for Integrated Disease Surveillance Program.
- The National Tuberculosis Control Program (RNTCP) was updated.
- NLEP, or the National Leprosy Eradication Program
- Program for the National Vector Borne Disease Control (NVBDCP)
- Program for National AIDS Control (NACP)
- Program for Pulse Polio
- Program for the National Control of Viral Hepatitis (NVHCP)
- National Program to Control Rabies
- Anti-Microbial Resistance (AMR) Containment National Program

5.2.4 Non-communicable diseases

- Program for National Tobacco Control (NTCP)
- The National Program for Diabetes, Heart Disease, Stroke, and Cancer Prevention and Control (NPCDCS)
- The National Occupational Disease Control and Treatment Program
- Deafness Prevention and Control National Program (NPPCD)
- The National Mental Health Program
- The National Program for the Control of Visual Impairment and Blindness (NPCB&VI)
- Mantri Pradhan PMNDP, or the National Dialysis Program
- The National Program for the Elderly's Health Care (NPHCE)
- The National Burn Injury Prevention and Management Program (NPPMBI)
- The National Oral Health Program

5.3 National Nutrition Policy

In April 1993, the Cabinet approved the National Nutrition Policy, which was created by the Government of India's (GOI) Department of Women and Child Development. In August 1993, it was presented to both chambers of parliament. The policy promotes a "comprehensive, integrated, and inter-sectoral strategy for achieving the optimal state of nutrition for the people and alleviating the multifaceted problem of malnutrition." In order to carry out the National Nutrition Policy, which contained tactics especially aimed at preventing and controlling micronutrient deficiencies, the National Plan of Action on Nutrition (NPAN) was published in 1995.

5.3.1 Objectives

The NNP is founded on the belief that improving people's nutritional condition and reducing malnutrition would have a major positive impact on the nation's overall economic and social objectives as well as the development of human resources. Its primary objectives are:

- To highlight the nation's pressing need to combat hunger
- To emphasize that in order to accomplish nutritional goals, inter-sectoral collaboration is

necessary

- To help pertinent sectors understand how their sectoral operations affect nutrition, and
- Finding immediate, intermediate, and long-term plans for reaching nutritional objectives through institutional or structural changes or direct policy changes

5.3.2 Nutrition Policy Instruments

Understanding that nutrition is a multi-sectoral issue that requires attention at multiple levels, the nutrition policy instruments aimed to address the issue of nutrition through various development policy tools that will foster better nutrition as well as nutrition interventions for particularly vulnerable groups. Both an indirect policy tool through long-term institutional and structural changes and a direct intervention (short-term approach) were promoted.

A. Short-Term Direct Intervention

The following tactics are the main emphasis of the short-term measures:

1. Nutrition intervention for specifically vulnerable groups by:

a) broadening the nutrition intervention net through Integrated Child Development Services (ICDS) to include all vulnerable children in the 0–6 age range;

b) enhancing growth monitoring, with a focus on mothers, in the 0–3 age range;

c) reaching the adolescent girls through ICDS to prepare them for safe motherhood, improve their nutritional status, and provide them with some skill-upgradation training in home-based skills and non-formal education, specifically nutrition and health education;

d) Ensuring comprehensive coverage for pregnant women, which should include supplemental nutrition from the first trimester of pregnancy through the first year postpartum.

2. The addition of iodine and/or iron to vital foods, such as salt.

3. Using indigenous and locally accessible raw materials to produce and promote affordable, nutrient-dense meals, with women participating in this process

The management of micronutrient deficiencies in susceptible populations, such as those in children, pregnant women, and nursing mothers, including those in vitamin A, iron, folic acid, and iodine.

B. Long-Term Institutional and Structural Changes: Indirect Policy Tools

The following are some long-term plans for accomplishing the national objectives through indirect institutional or structural changes:

i) Ensuring food security by providing 215 kg of food grains per person annually.

ii) Improving dietary habits by encouraging the production and raising the amount of nutrient-dense foods available per person

iii) 3333333333.479* (such as the Integrated Rural Development Programme) and create jobs (such as Jawahar Rozgar Yojna, etc.). This will significantly reduce the purchasing power of the population's lowest economic segments and ensure an equitable distribution of food through the expansion of the public distribution system (PDS).

iv) Carrying out land reforms.

v) Family protection and health.

vi) Fundamental Knowledge of Nutrition and Health, with an emphasis on healthy newborn

feeding techniques.

vii) Preventing food adulteration by fortifying and bolstering the enforcement apparatus.

viii) Monitoring nutrition.

ix) Nutrition program monitoring.

x) Using existing media to communicate in order to carry out the nutrition strategy effectively.

xi) Making sure that the minimum wage is administered effectively.

xii) Involving the community through panchayats or beneficiary committees, or by encouraging active participation, especially from women, in programs pertaining to food preservation, kitchen gardens, and other initiatives, and creating a strong demand at the local level for all nutrition-related services

xiii) Education and literacy, and xiv) The advancement of women's standing.

The aforementioned measures must be implemented through inter-sectoral cooperation and actions, according to the policy.

5.3.3 Implementation of National Policies

Under the leadership of the Secretary, Department of Women and Child Development, the Ministry of Human Resource Development bears the nodal responsibility for policy execution at the central level. On the Inter-Ministerial Coordination Committee are sectoral ministries and departments that play a key role in ensuring a sustained improvement in the population's nutritional status, such as Agriculture, Food, Civil Supplies, Health and Family Welfare, Rural Development, Education, and Environment.

5.4 Programmes and Schemes in Nutrition and health sector for improving health and nutritional status of the population

5.4.1 Integrated Child Development Services Scheme program (ICDS)

On October 2, 1975, the centrally supported Integrated Child Development Services Scheme program (ICDS) was introduced in two projects, Dharani (Amravati) and Dharavi (Mumbai), with the goal of enhancing children's nutritional status and lowering child mortality and malnutrition. There are 553 Child Development Projects Offices in the ICDS state of Maharashtra, with 364 projects located in rural regions, 85 in tribal areas, and 104 in municipalities. There are 13011 authorized Mini Anganwadi Centers and 97475 authorized Anganwadi Centers in the State of Maharashtra.

Under the general ICDS Scheme, the following services are offered:

- Extra Nutrition
- Health and nutrition education for preschoolers
- Immunization
- Health examination and services for referrals

Objectives:

Reducing the incidence of mortality, morbidity, malnutrition, and school dropouts; improving the nutritional and health status of children in the 0–6 age range; and laying the groundwork for a child's proper psychological, physical, and social development in order to effectively coordinate policy and

implementation across the various departments in order to promote child development.

5.4.1.1 Services

Services	**Beneficiaries**
Supplementary Nutrition	Children under six, as well as expectant and nursing mothers (P&LM)
Immunization	Children under six, as well as expectant and nursing mothers (P&LM)
Health Check-Up	Children under six, as well as expectant and nursing mothers (P&LM)
Referral Services	Children under six, as well as expectant and nursing mothers (P&LM)
Pre-school Education	Children under six, as well as expectant and nursing mothers (P&LM)
Nutrition and health educaton	Women aged 15 to 45

Check your progress: Exercise 1:

I. Enlist the programmes and schemes under the National Health Mission for reproductive system, mother, newborn, child, and adolescents

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ii. Explain six components of ICDS

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iii. Explain salient features of ICDS

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5.4.2Janani Shishu Suraksha Karyakaram (JSSK)

India saw a significant increase in institutional deliveries with the introduction of the Janani Suraksha Yojana (JSY). However, 25% of women are still hesitant to go to a hospital for childbirth because they have to pay for medications, food, tests, blood work, and other expenses while they are there.

Another significant project, Janani Shishu Suraksha Karyakaram (JSSK), was introduced in June 2011 to build on the success of this safe maternity program by removing out-of-pocket costs for both pregnant women and ill infants.

Within 48 hours, the mother and her newborn receive essential care. Identification and treatment of postpartum complications depend heavily on this postnatal phase. In case of institutional delivery. It's a little simpler to get this care. Factors such as expensive out-of-pocket costs for blood, medications, meals, diagnostics, and investigations delivery in an institution. In order to remove the need for out-of-pocket costs for expectant women to give birth in an institution and for unwell babies to get medical care, JSSK was introduced in June 2011.

The program was expanded in 2014 to include all prenatal and postnatal pregnancy difficulties, and comparable benefits were established for all ill newborns and babies (up to one year of age) receiving treatment at public health facilities.

5.4.3Mission Indradhanush

Launched in 1985, India's immunization program is one of the largest of its kind in the world, serving 2.7 crore (27 million) children each year. The program offers vaccination against eight life-threatening diseases: polio, tetanus, Japanese encephalitis (JE), whooping cough, tetanus, polio, tuberculosis, measles, and hepatitis B. Additionally, rotavirus vaccine (RVV) has recently been introduced in the four selected states (Andhra Pradesh, Haryana, Himachal Pradesh, and Odisha).

In spite of all significant advances, there are ongoing challenges and weaknesses in the national immunization programme. Despite being operational for the past more than 30 years, only 65% of children in India receive all immunizations during their first year of life, thus contributing to continued high burden of morbidity and mortality in children from vaccine preventable diseases

(VPDs).

Based on Mission Indradhanush data and full immunization estimates from routine immunization monitoring, it is estimated that each year, more than 70 lakh (7 million) children in the nation do not receive all of the vaccines available under the UIP, which is the highest number compared to any other nation in the world. This is mostly because of inadequate data collection and reporting, in addition to the urgent need to upgrade the disease surveillance system. Finding the districts that will need targeted efforts, a systematic immunization drive, and extra funding to provide all children with the life-saving vaccines is crucial.

Rapidly addressing the disparity in vaccination coverage and combining efforts to build health systems are priorities for the Ministry of Health and Family Welfare, Government of India (MoHFW-GoI). The MoHFW, Government of India, started its flagship initiative "Mission Indradhanush" in December 2014 with the goal of achieving more than 90% full vaccination coverage in the nation by strengthening routine immunization planning and delivery mechanisms. As part of this, the nation carried out eight rounds in high-focus districts in 2015 to implement two phases of Mission Indradhanush. The nation was divided into focus districts with high, medium, and low levels of risk prioritizing. 201 high-priority districts were the focus of Mission Indradhanush's first phase, which ran in four rounds from April to July 2015.

352 districts were the focus of phase II (73 districts were duplicated from phase I), and four rounds of operations were carried out between October 2015 and January 2016.

In addition to the 400,000 high-risk areas identified in the polio program, the mission also targets other underserved areas with inadequate health services (vacant health sub-centers, etc.), migrant populations, recent measles/diphtheria outbreaks, or high dropout rates. This equity-based program builds on polio strategies, tools, techniques, and manpower to focus specific attention on identified high-risk populations with traditionally low coverage, such as slum dwellers, nomadic populations, and migrant families living in brick kilns and construction sites.

Using unique tactics created by the polio teams to reach underserved, high-risk, and difficult-to-reach communities, Mission Indradhanush expanded access to communities that had previously only received polio vaccinations but had little access to routine immunization services. Mission Indradhanush's microplanning was centered on increasing coverage and resolving issues of equity in immunization access.

Based on the achievements and lessons learned from Mission Indradhanush in 2015, which saw over 37 lakh children receive all recommended vaccinations and over 37 lakh pregnant women receive the shots, the Government of India has chosen to carry on with this program. The primary goal is to quicken the pace by aiming to reach 50% of the projected 70 lakh children who are either partially or fully unvaccinated (missed) in the upcoming Mission Indradhanush (Phase III) wave in 2016. Reaching out to the 216 high priority districts spread throughout 27 states and union territories is part of the strategy to obtain 90% coverage before 2020.

5.4.4Janani Suraksha Yojana (JSY)

The National Health Mission oversees the Janani Suraksha Yojana (JSY), a safe motherhood intervention. By encouraging institutional delivery among low-income pregnant women, it aims to lower maternal and newborn mortality. The Hon'ble Prime Minister introduced the program on April 12, 2005, and it is currently being implemented in all states and Union Territories (UTs), with a particular emphasis on Low Performing States (LPS).

JSY is a centrally supported program that combines postpartum care with economic aid. An efficient conduit between the government and expectant mothers is the Accredited Social Health

Activist (ASHA), according to the Yojana.

5.4.5Pradhan Mantri SurakshitMatritva Abhiyan (PMSMA)

The Pradhan Mantri SurakshitMatritva Abhiyan (PMSMA) was established to provide all pregnant women (in the second and third trimesters) a fixed-day, comprehensive, and high-quality prenatal treatment on the ninth of each month.

Although pregnant women are often given prenatal care, OBGY experts, radiologists, and physicians in government health facilities under PMSMA provide particular ANC services.Pregnant women in their second or third trimesters are offered a minimal package of antenatal care services at government health facilities (PHCs/CHCs, DHs/urban health facilities, etc.) in both urban and rural areas as part of the campaign.

It is intended that all pregnant women who visit the PMSMA clinics will receive a minimal package of tests and medications, including IFA and calcium supplements, among other things, using the single window system's tenets.

Finding and monitoring high-risk pregnancies is a crucial part of the Abhiyan, and women with such pregnancies have red stickers placed on their Mother and Child Protection cards.

Interaction with the Voluntary and Private Sectors:

Hon'ble Prime Minister of India underlined the aim and purpose of establishment of the Pradhan Mantri SurakshitMatritva Abhiyan in the July31, 2016 episode of Mann Ki Baat and asked doctors to commit 12 days in a year to this effort.

5.4.6 Navjat Sishu Suraksha Karyakaram (NSSK):

In 2009, the Indian government began adopting Navjat Sishu Suraksha Karyakaram (NSSK). Based on data and critical care advancements, the NSSK training package has been updated with a new algorithm and better training techniques. Two days of classroom and practical instruction make up the updated training program. A resource manual and flip chart are included in the training package. Every doctor and healthcare professional involved in delivery and neonatal care was to receive training from NSSK.

The training package makes sure that all levels receive the same message and highlights the facilitators' methods for transferring skills. As an enabling tool, this updated training program aids healthcare professionals in enhancing their clinical knowledge and procedures, which in turn promotes the nation's newborn health and survival.

The percentage of institutional deliveries in India has doubled, rising from 38.7% in 2005–06 to 78.9% in 2015–16 and then to 88.6% in the 2019–21 survey, according to the National Family Health Survey. The reduction of maternal and infant mortality as well as stillbirths could yet be improved by this rise in institutional delivery. Given the current maternal mortality ratio of 97 per 1 lakh live births (SRS 2018–20) and neonatal mortality rate of 20 per 1000 live births (SRS 2020), it is clear that even though maternal and newborn healthcare indicators have greatly improved, much more can be done to meet the goals set for our nation.

The standard of care given in medical facilities is one of the main obstacles to lowering the number of maternal and neonatal mortality.

5.4.7Labour Room Quality Improvement Initiative (LaQshya)

A person's physical, mental, and social well-being are all considered aspects of their health, not only the lack of illness or disability. This calls for a broader viewpoint in the field of maternal health to take into account the quality of treatment given as well as the psychological and physical

components of wellness. By addressing the issue of universal healthcare, this marks a departure from a narrow perspective that solely considers health data. As a result, it guarantees that women's rights as patients are respected. Institutional births have increased by about 43% as a result of government initiatives like the Janani Surakshya Yojana of 2005, however this has not resulted with women receiving higher-quality care. Disrespect and mistreatment during delivery, including verbal, physical, and even sexual assault, are unpleasant realities in the nation's low-resource urban and rural areas. In India's public health facilities, it is not unusual for women to be physically assaulted, verbally degraded, and forced to undergo needless medical procedures like episiotomies; in these situations, consent is essentially non-existent.

Infrastructure deficiencies include a lack of medical equipment, a lack of staff, inexperienced people, an inadequate number of beds, and unsanitary conditions exacerbate this.
In March 2018, the Indian government announced the LaQshya - Labour Room Quality Improvement Initiative, which will be implemented nationwide with the aim of lowering maternal and newborn mortality and morbidity and improving the satisfaction of women seeking healthcare. This initiative was launched in recognition of the importance of prioritizing safe and respectful childbirth practices.

District hospitals, community health centers, sub-district hospitals, first referral units, and all government-run medical colleges are subject to these rules. According to the Labour Room Standardization Guidelines and the Maternal and Newborn Health Toolkit published by the Ministry of Health and Family Welfare, LaQshya seeks to organize the infrastructure and protocol of maternity rooms and maternity operation theatres. The former focuses on the space, layout, equipment, consumables, human resources, and protocols related to labor rooms, while the latter assists program managers and clinicians in organizing crucial areas of providing services to mothers and newborns, including capacity building, quality assurance, and service planning and organization.

With assistance from the National Health Systems Resource Center (NHSRC) and the Child Health Division, the Maternal Health Division will oversee the LaQshya program. The program's funding will be distributed via the National Health Mission's (NHM) Program Implementation Plan. The "Dos" and "Don'ts" in the labor room are outlined in the LaQshya rules. The "dos" include giving expectant mothers privacy during childbirth, having a birth companion present, letting women choose their preferred delivery position, using labor beds rather than tables, allowing the mother and baby to make skin-to-skin contact as soon as possible, starting breastfeeding within an hour of the baby's birth, and following all clinical labor management protocols.

Inducing or intensifying labor without good clinical indications, verbally or physically abusing the laboring woman, insisting on a specific delivery position, abruptly clamping and cutting the umbilical cord, separating the infant from the mother for routine care, and requiring the woman or her caregivers to pay out-of-pocket are all the "don'ts." Regarding the institutional setup for the effective application of the LaQshya guidelines, directives have been issued for the establishment of organizations at the national, state, district, and health facility levels that will function in various capacities for the guidelines' implementation, staff training and assessment, capacity building, and quality assurance of the care standards provided at health facilities.

In order to improve the quality of care in labor rooms, the coaching team will help the quality circles conduct a baseline assessment to determine the present practices and level of care. The next step will be structural upgrades, which include hiring and training human resource staff as well as upgrading infrastructure.

Ensuring the availability of sufficient medical equipment and human resources, educating healthcare professionals on the importance of providing respectful maternity care and closely monitoring

language, behavior, and conduct in the labor room, supporting a natural birthing process, providing a triage area and a functional newborn care area, utilizing digital technology for record keeping and monitoring, and putting in place efficient systems for feedback, monitoring, and evaluation are all examples of process-related interventions.

The guidelines also provide a way to reward and reinforce the accomplishments of healthcare professionals by branding healthcare facilities based on the labor room care standards attained and offering incentives for them.
A staggered implementation of the activities is suggested. Launching the plan, forming teams at various levels, and providing orientation are all part of the two-month preparatory phase. Action planning, gap analysis, baseline assessments, and resource allocation are all part of the two-month evaluation phase.

Implementing quality improvement initiatives will be the focus of the 12-month improvement phase, while the 12-month evaluation phase will include a nationwide distribution of the findings and an assessment of the LaQshya guidelines' implementation.
For the LaQshya guidelines, which call for a strong implementation that is implemented in phases for effective monitoring and course correction; to be truly effective and guarantee women receive high-quality care, respect, and dignity during childbirth, they must be complemented by sufficient funding and a sound monitoring and evaluation plan that calls for accountability at every stage of implementation.

5.4.8 National iodine deficiency disorder control program

According to surveys by the Directorate General of Health Services, Indian Council of Medical Research, Health Institutions, and the State Health Directorates, 337 districts out of 414 districts surveyed in all 29 States and 7 UTs are endemic, meaning that the prevalence of Iodine Deficiency Disorders (IDDs) is more than 5%. Iodine is an essential micronutrient that is needed daily at 100–150 micrograms for normal human growth and development. Deficiency of iodine can result in physical and mental retardation, cretinism, abortions, stillbirth, deaf mutism, squint, and multiple types of goiter.

In 1962, the Indian government realized the extent of the issue and started the National Goitre Control Programme (NGCP), which was fully centrally sponsored. The National Goitre Control Programme (NGCP) was renamed the National Iodine Deficiency Disorders Control Programme (NIDDCP) in August 1992. This change was made in response to the vast range of iodine deficiency disorders, including mental and physical retardation, deaf mutism, cretinism, stillbirths, abortions, and more. The whole population of all States and UTs is participating in the program.

With the State IDD Cell and IDD Laboratory at DHS Campal, Panaji, the NIDDCP was initiated in the State of Goa under the Directorate of Health Services (DHS). The IDD Laboratory routinely collects salt samples from households through all peripheral health clinics in order to perform qualitative and quantitative tests for estimating the amount of iodine in salt.

Objective:

1. Reduce the nation's IDD prevalence to less than 5%.
2. To guarantee that every household consumes 100% of appropriate iodised salt (15 ppm).

A countrywide survey measuring the coverage of iodized salt found that the state with the lowest iodized salt consumption was Tamil Nadu. All India Institute of Medical Sciences (AIIMS), the Indian Coalition for the Control of Iodine Deficiency Disorders (ICCIDD), and Nutrition International, a Canadian non-profit organization, collaborated to conduct the study. This was the first pan-India survey of its type to measure the amount of iodine in household cooking salt samples.

21,406 families in India were surveyed. According to the survey, 76.3% of Indian families made use of salt that was sufficiently iodized, or had at least 15 parts per million of iodine. Tamil Nadu (61.9%), Andhra Pradesh (63.9%), Rajasthan (65.5%), Odisha (65.8%), and Jharkhand (60.8%) were the five states with the lowest performance. Compared to the rest of India, the North-Eastern states were doing well in terms of iodized salt consumption. The study's main advice was to maintain the momentum in order to prevent the present levels of iodine coverage from declining. Additionally, it is suggested that in order to close the existing gaps and investigate concerns that differ from one state to another, the States and the Center should cooperate.

Uses of Iodine:

For humans to develop mentally and physically to their full potential, iodine is an essential micronutrient. Goitre, hypothyroidism, cretinism, abortion, stillbirths, mental retardation, and psychomotor defects—defects in which a person's brain process slows down and their physical movements decrease—are just a few of the conditions and impairments that can arise from an iodine deficiency. Iodine fortification of salt for direct human consumption was mandated in India in 1992.The Supreme Court also ordered widespread iodization in 2011 in order to prevent iodine deficiency. In this context, a new project called Jeevan Bindi—an iodine patch shaped like a traditional bindi—was launched to assist one lakh tribal women in northwest Maharashtra who were suffering from iodine shortage since they did not use iodized salt.

5.4.9Mother's Absolute Affection (MAA) program/Baby friendly Hospital initiative (BFHI)

- One crucial intervention for a child's survival is breastfeeding. 20% of infant fatalities might be avoided if breastfeeding is started within an hour after birth. Compared to children who are exclusively breastfed, unbreastfed infants had an 11-fold increased risk of dying from diarrhea and a 15-fold increased risk of dying from pneumonia.
- It is essential that efforts be stepped up to encourage optimum breastfeeding habits because of the overwhelming evidence that breastfeeding reduces baby and neonatal mortality.
- To accomplish the aforementioned purpose, the program's objectives are as follows:
- Create a supportive atmosphere for breastfeeding by focusing awareness-raising efforts on expectant and nursing moms, families, and the general public to encourage the best breastfeeding habits. Breastfeeding is positioned as a crucial intervention for the development and survival of children.
- Using qualified medical professionals and community health workers, strengthen lactation support services at all public health institutions.
- In order to reward and acknowledge healthcare institutions that demonstrates good breastfeeding rates and lactation management procedures.

Various elements of the MAA program

There will be three stages to the program's implementation:

- Medium-level at all medical institutions
- Micro-level in communities
- Macro-level through the media

Awards

Well-performing facilities will get awards and recognition at the state level, which will encourage them to keep up the excellent work. "MAA-Mother's Absolute Affection award" would be given to

the accredited and nominated institution. After certification in accordance with the verified criteria, a Team Cash reward of Rs. 10,000 per facility will be given.

Adherence to IMS-ACT and all ten of the BFHI phases would be evaluated. In addition to evaluating the program's execution, the evaluation conducted by an outside assessor would comprise interviews with administrators, medical professionals involved in mother and child care, women, and their families. If the assessor discovers any deficiencies, the facility has time to remedy them, and the institution will have the opportunity to review.

Every one of the 10 BFHI processes, including compliance with IMS-ACT, would be evaluated. In addition to evaluating the program's execution, the external assessor's evaluation would comprise interviews with administrators, medical professionals involved in mother and child care, women, and their families. The facility is given time to remedy any deficiencies discovered by the assessor, and the institution will have the opportunity to reconsider.

5.5 Food and Agriculture programme with the aim of improving health and nutritional status of India

Any nation's economy depends heavily on agriculture, and the growth of this sector is essential to the growth of the whole economy. The first concerted attempt to boost food production in India was the Grow More Food Campaign (GMFC). In 1943, it was launched. India's public extension system has received the attention it deserves since gaining independence. A commission created by the government examined the GMFC in 1952.

One of the committee's suggestions was to establish a rural extension organization that would reach all farmers and support the coordinated growth of rural life. In 1952, India's Community Development Programme (CDP) was launched as a result of this foundation and experience. In 55 project locations, the CDP was first implemented. However, in response to the need to expand CDP, the National Extension Service was formed in 1953.

Due to the widespread food shortages in the late 1950s, the national government was forced to reconsider its overall plan for rural development and focus only on raising food production. This marked the start of the intensive method in 1960 with the Intensive Agricultural District Programme (IADP). A few additional agricultural development programs were then introduced.

5.5.1 Intensive Agricultural District Programme (IADP)

Initiated in 1960 during the kharif season, the IADP was a national initiative. The seven districts that were first included in this were Thanjavur, West Godavari, Sahabad, Raipur, Aligarh, Ludhiana, and Pali. Another common name for this application was "package program."

The goals are:

i. Increasing agricultural productivity quickly was the urgent objective, and this was accomplished by concentrating administrative, technical, financial, and extension resources.

ii. Its long-term goal is to boost the production potential and produce a self-generating "break through" in productivity by promoting the physical and human processes of change.

iii. The initiative also aimed to shed light on how to expand such intensive agricultural production programs to other regions.

5.5.2 High Yielding Varieties Programme (HYVP)

A portion of food production is increased via the Intensive Agricultural District Programme (IADP) and Intensive Agricultural Area Programme (IAAP), which focus on intensive agriculture and the

package approach. The High Yielding Varieties Programme (HYVP) was necessary as a result of the yield's inability to satisfy food production demands after it had stabilized. The HYVP was introduced during Kharif 1966–1967.

HYVP's only goal was to use high-yielding seeds of certain crops to boost overall food output. Paddy, wheat, bajra, jowar, and maize were the crops that were chosen.

HYVP's only goal was to use high-yielding seeds of certain crops to boost overall food output. Paddy, wheat, bajra, jowar, and maize were the crops that were chosen.

5.5.3. Institute Village Linkage Programme (IVLP)

It is evident from field research carried out globally over the past ten years that many contemporary technologies are merely unsuitable for the unique circumstances of small-scale production systems, which are extremely varied and heavily impacted by socioeconomic and biophysical factors.

Nowadays, social and biological scientists are learning about the intricate farming systems that are in place and the reasons why resource-poor farmers are not embracing new technology. For this reason, they have underlined how important it is for farmers to be involved in the technology selection management process in order to provide suitable technologies.

It is necessary to develop relevant technologies by taking a more comprehensive approach to issue diagnosis, identifying technical interventions based on farmers' expertise, and identifying technologies for different production systems. This idea led to the creation of a program called the Technology Assessment and Refinement through Institute Village Linkage Programme (TAR-IVLP), which aims to solve the aforementioned factors and provide suitable technology.

In 1995, the program was started as a test project. It was put into practice in 42 locations of certain SAUs and ICAR institutes. When the program was included into NATP in 1999, it gained a boost and accelerated pace.

5.5.4 RKVY, or Rashtriya Krishi Vikas Yojana

Since 1991, the Indian economy has been on a path of greater expansion thanks to economic reforms. The GDP's annual growth rate has increased from less than 6% in the early years of reform to above 8% in the most recent years. In its strategy paper for the Eleventh Five-Year Plan, the Planning Commission claimed that a GDP growth rate of 9% would be achievable during the Eleventh Plan period. Nevertheless, agriculture, which at the start of the reforms contributed over 30% of the GDP, was unable to sustain its expansion. In contrast, its expansion slowed significantly in the mid-1990s.

This occurred even though there was a significant potential for agricultural expansion and, in a sense, agricultural output was very low in the majority of the states.

Throughout the 1980s, the agricultural sector's GDP grew by more than 3% yearly. India has been aiming for an agricultural growth rate of above 4 percent since the Ninth Five-Year Plan (1996 to 2001-02), but the actual results have fallen far short of the goal. Agriculture continues to be the primary source of income for over half of the nation's workers. Because so many people still rely on agriculture and related industries, slow development in these areas can bring severe economic stress.

5.5.5 Yojana Pradhan Mantri Krishi Sinchayee, 2015

Water conservation and management are top priorities for the Indian government. In light of this, the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was developed with the goal of expanding the irrigation coverage (Har Khet ko Pani) and increasing water use efficiency (More crop per drop) in a targeted way by providing an end-to-end solution for source creation, distribution, management,

field application, and extension activities.

Union Ministers from all relevant Ministries will serve on the PM's Inter-Ministerial National Steering Committee (NSC), which will oversee and keep an eye on it. Under the direction of the Vice Chairman of NITI Aayog, a National Executive Committee (NEC) would be established to supervise the execution of the program.

PMKSY was created to combine three existing programs: the National Mission on Sustainable Agriculture's (NMSA) On-Farm Water Management (OFWM) component, the Integrated Watershed Management Program (IWMP), and the Accelerated Irrigation Benefit Programme (AIBP). Water budgets are created for every family, farm, and business. Farm-level investments will take place, allowing farmers to be informed and offer insightful input.

Farm-level investments will take place, allowing farmers to be informed and offer insightful input. Recently, NABARD established the Long-term Irrigation Fund under PMKSY to finance and expedite the completion of unfinished big and medium irrigation projects.

5.5.6 Rashtriya Krishi Vikas Yojana-Raftaar (RKVY-Raftaar), 2007

- To guarantee the comprehensive development of agriculture and related industries, the RKVY Scheme was launched in 2007 as an umbrella program.
- As per the district/state agriculture plan, it gives states the freedom to select their own agricultural and related sector development initiatives.
- Rashtriya Krishi Vikas Yojana (RKVY) was extended for three years in 2017 as Rashtriya Krishi Vikas Yojana-Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR) by the government.
- In addition to encouraging agri-entrepreneurship and innovations, RKVY-RAFTAAR places a strong emphasis on pre- and post-harvest infrastructure.

Key Elements of the Rashtriya Krishi Vikas Yojana

- The District and State Agriculture Plans, which are based on agroclimatic conditions, the availability of suitable technology, and natural priorities, are the first steps in the decentralized planning process. States now have a great deal more freedom and flexibility to design and carry out programs.
- It would assist build post-harvest infrastructure, encourage private investment in the nation's farm sector, and provide incentives for governments to boost funding for agriculture and related industries.
- Fund Allocation: Through the following streams infrastructure &assets and Production Growth, RKVY-RAFTAAR special sub-schemesof National Priorities of Innovation, and Agri-entrepreneur development, grants are distributed 60:40 between the Center and States in states and 90:10 for North Eastern States and Himalayan States.

Check your progress: Exercise 2

I. Objectives of Janani Shishu Suraksha Karyakaram (JSSK)

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II. Explain salient features of Mission Indradhanush

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III. Explain goals of Janani Suraksha Yojana (JSY)

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IV. Various elements of the MAA program

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V. Key Elements of the Rashtriya Krishi Vikas Yojana

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5.5.7 National Food Security Mission 2007

- In October 2007, the Indian government began the "National Food Security Mission," a centrally sponsored program, in response to the country's stagnant food grain output and the mounting demands of its expanding population.
- By spreading better technology and farm management techniques, the program aims to close the production gap for these crops, concentrating on regions with significant potential but currently low levels of output.
- The National Food Security Mission for Rice, Wheat, Pulses, Coarse Cereals, and Commercial Crops are the main elements of the program.
- National Horticulture Mission, 2005: Established in 2005–06 as a Centrally Sponsored Scheme, the National Horticulture Mission aims to promote the horticulture sector's overall development via the use of regionally and area-specific initiatives.

5.5.8 National Horticulture Mission 2005

- Implementing region-specific methods that increase productivity, improve nutritional security, and support farm household incomes would help the horticulture industry flourish comprehensively.
- Integrate and coordinate a range of current and planned horticultural development initiatives.
- Encourage the development and spread of innovations by fusing contemporary scientific methods with ancient wisdom.
- Create job possibilities for both skilled and unskilled workers, with a focus on young people without jobs.

5.5.9 PM Fasal Bima Yojana, 2016

- The government-sponsored crop insurance program known as PM Fasal Bima Yojana (PMFBY) unites several stakeholders on one platform.
- With the exception of the Restructured Weather-Based Crop Insurance Scheme, which compensates growers for estimated crop losses by using weather factors as a stand-in for crop production, it superseded all prior insurance programs.
- Only 2% of all Kharif crops, 1.5% of all Rabi crops, and 5% of horticulture crops are required of farmers.

- Farmers can make claims against the entire insured amount without any reduction because government subsidies have no maximum limit.
- The federal and state governments took equal responsibility for half of the difference between the actuarial premium levied and the premium farmers paid.
- The program is optional for both non-loanee farmers and loanee farmers looking for crop financing for certain crops in designated locations.
- It includes yield losses from uncontrollable hazards such hurricanes, tornadoes, cyclones, typhoons, tempests, natural fires, lightning, storms, hailstorms, and cyclones.
- It also covers the hazards of post-harvest losses, pests and diseases, landslides, droughts, floods, and inundation.
- Drones and cellphones will be utilized to collect and upload data, and remote sensing will reduce the need for large crop-cutting tests in order to speed claims.

The PM Fasal Bima Yojana's 2016 goals are:

- The program's objective is to provide farmers impacted by pests, illnesses, and natural catastrophes with financial support and insurance coverage.
- In order to sustain farmers' continued engagement in agriculture and promote the use of creative and contemporary agricultural methods, it aims to stabilize farmers' income.
- It also guarantees that finance is available for the agriculture industry.
- All farmers who cultivate notified crops in defined regions during the season and have a vested interest in the crop, including tenant farmers and sharecroppers, are intended beneficiaries.

5.5.10 Sustainable Agriculture National Mission, 2014

- The National Mission for Sustainable Agriculture (NMSA) was created with the goal of increasing agricultural output, particularly in regions that get rainfall.
- Integrated farming, efficient water usage, managing soil health, and cooperative resource conservation are its main objectives.
- The objective is to improve agriculture via the promotion of location-specific Integrated and Composite Farming Systems that are more climate change resilient, productive, sustainable, and profitable.
- This involves optimizing fertilizer use, putting complete soil health practices based on fertility maps into practice, and preserving natural resources via efficient soil and moisture management.
- The goal of effective water management is to increase coverage and produce "more crop per drop."
- By working with other ongoing missions, including the National Mission on Agriculture Extension & Technology, National Food Security Mission, and National Initiative for Climate Resilient Agriculture (NICRA), which focuses on climate change adaptation and mitigation, the initiative also seeks to increase the capacity of farmers and stakeholders.
- The purpose of testing pilot models in certain blocks is to increase the productivity of rainfed farming by utilizing resources from programs such as MGNREGS, IWMP, and RKVY.

- The goals of the National Mission for Sustainable Agriculture under the National Action Plan on Climate Change (NAPCC) will be accomplished via the establishment of efficient interdepartmental collaboration.

5.5.11 Paramparagat Krishi Vikas Yojana, 2015:

- A vital part of the National Mission for Sustainable Agriculture's (NMSA) Soil Health Management (SHM) program is the Paramparagat Krishi Vikas Yojana (PKVY). By adopting organic communities and using Participatory Guarantee Systems (PGS) to give certification, PKVY encourages organic cultivation using a cluster-based strategy.
- The Paramparagat Krishi Vikas Yojana (PKVY) will encourage groups of farmers to switch to organic farming.
- Under the program, a group of at least fifty farmers will establish a cluster with fifty acres of land to engage in organic farming.
- In this manner, 10,000 clusters encompassing 5.0 lakh acres of organic farming would be established over the course of three years.
- The farmers will not be held responsible for the costs associated with certification.
- In three years, each farmer would get Rs. 20,000 per acre to help with agricultural seeding, harvesting, and market transportation.
- Traditional resources will be used to encourage organic farming, and the market will be connected to organic products.
- By enlisting farmers, it will boost domestic output and organic produce certification.

Goals

- Using certified organic farming to promote commercial organic produce.
- Product free of pesticide residues and better consumer health.
- Increase the revenue of farmers and open up new marketplaces for businesses.
- Encourage farmers to mobilize natural resources for the production of inputs.
- Involve farmers to boost domestic output and organic produce certification.

5.5.12 National Agriculture Market, or e-Nam, 2016

In order to establish a single national market for agricultural products, the e-National Agriculture Market (e-NAM) is an electronic trade system that connects the current APMC Mandis throughout India. A single window service for all APMC-related data and services is offered via the e-NAM Portal. Among other services, this covers commodity arrivals and prices, buy and sell trade offers, and the ability to react to trade offers.

The states receive the software at no cost from the federal government. Whether for private or market mandis, a grant of up to Rs. 30 lakhs per mandi would also be provided for necessary infrastructure and equipment.

The e-NAM Mobile App, BHIM Payment facility, MIS dashboard for improved analysis and insights, grievance redressal mechanism for Mandi Secretaries, and integration with Farmer Database to streamline the registration and identification process are just a few of the new features that will further strengthen e-NAM**.**The Agrotech Infrastructure Fund (AITF) provides funding for the scheme.

Key characteristics of e-Nam (National Agriculture Market)

- The Small Farmers Agribusiness Consortium (SFAC) has been chosen to serve as the primary implementation organization.
- The software is freely available to the states from the federal government. For market or private mandis, a grant of up to Rs. 30 lakhs will also be provided for the necessary infrastructure and equipment.
- Further strengthening e-NAM will be new features like the e-NAM Mobile App, BHIM Payment facility, MIS dashboard for improved analysis and insights, grievance redressal mechanism for Mandi Secretaries, and integration with Farmer Database to streamline the registration and identification process.

5.5.13 Krishi Vigyan Kendras, 1974

KVK is a crucial component of the National Agricultural Research System (NARS), which uses technology evaluation, improvement, and demonstration to evaluate location-specific technology modules in agriculture and related industries.

KVKs have been serving as agricultural technology knowledge and resource centres, assisting governmental, commercial, and nonprofits organizations in their efforts to boost the district's agriculture economy and connect the NARS with farmers and the extension system.

Key Characteristics

- The Government of India provides all funding for the KVK program, and KVKs are approved for use by agricultural universities, ICAR institutions, relevant government departments, and non-governmental organizations involved in agriculture.
- The Indian Council of Agricultural Research (ICAR) has created a network of 645 Krishi Vigyan Kendras (KVKs) in the country, and 106 more KVKs will be established.
- KVKs lay strong emphasis on skill development training of rural youth, farm women and farmers
- Provide the latest technological inputs like seeds, planting materials and bio-products.
- Advise farmers on timely crop/enterprise-related recommendations, including climate-resilient technologies.
- Diagnose and solve problems emerging from district agro ecosystems and lead in adoption of innovations.

5.6 Let Us Sum Up

The Government of India (GOI) said that combating child malnutrition is one of its top priority when it announced the POSHAN Abhiyaan to address the problem; In actuality, though, the Ministry of Finance rejected the 15th Finance Commission's proposal on the Supplementary Nutrition Programme (SNP), demonstrating that malnutrition is not a top priority on India's development agenda. India's policy situation and nutritional status: a clear disparity. India has undertaken a number of nutrition initiatives during the past forty-five years in an effort to reduce malnutrition. India has attempted to improve the nutritional status of the nation with the creation of Integrated Child Development Services (ICDS), the implementation of the National Food Security Act (2013), and the state-wide implementation of the midday meal program. Due to the widespread

food shortages in the late 1950s, the national government was forced to reconsider its overall plan for rural development and focus only on raising food production. This marked the start of the intensive method in 1960 with the Intensive Agricultural District Programme (IADP). A few additional agricultural development programs were then introduced. Since 1991, the Indian economy has been on a path of greater expansion thanks to economic reforms. The GDP's annual growth rate has increased from less than 6% in the early years of reform to above 8% in the most recent years. In its strategy paper for the Eleventh Five-Year Plan, the Planning Commission claimed that a GDP growth rate of 9% would be achievable during the Eleventh Plan period. Nevertheless, agriculture, which at the start of the reforms contributed over 30% of the GDP, was unable to sustain its expansion. In contrast, its expansion slowed significantly in the mid-1990s.

5.7 Check Your Progress

I. National Food Security Mission 2007

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II. Sustainable Agriculture National Mission, 2014

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III. National Agriculture Market, or e-Nam, 2016

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IV. Key Characteristics of Krishi Vigyan Kendras 1974

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Glossary at a glance

1. Mother's Absolute Affection (MAA) program/Baby friendly Hospital initiative (BFHI)

One crucial intervention for a child's survival is breastfeeding. 20% of infant fatalities might be avoided if breastfeeding is started within an hour after birth. Compared to children who are exclusively breastfed, un breastfed infants had an 11-fold increased risk of dying from diarrhea and a 15-fold increased risk of dying from pneumonia.

2. High Yielding Varieties Programme (HYVP)

A portion of food production is increased via the Intensive Agricultural District Programme (IADP) and Intensive Agricultural Area Programme (IAAP), which focus on intensive agriculture and the package approach. The High Yielding Varieties Programme (HYVP) was necessary as a result of the yield's inability to satisfy food production demands after it had stabilized.

3. **Integrated Child Development Services Scheme program (ICDS)**

On October 2, 1975, the centrally supported Integrated Child Development Services Scheme program (ICDS) was introduced in two projects, Dharani (Amravati) and Dharavi (Mumbai), with the goal of enhancing children's nutritional status and lowering child mortality and malnutrition. There are 553 Child Development Projects Offices in the ICDS state of Maharashtra, with 364 projects located in rural regions, 85 in tribal areas, and 104 in municipalities. There are 13011 authorized Mini Anganwadi Centers and 97475 authorized Anganwadi Centers in the State of Maharashtra

UNIT- VI OBJECTIVES OF EACH PROGRAMS/ SCHEME, FOCUS AND TARGET GROUPS

Structure

6.1 Introduction

The National Family Health Survey 2021 estimates that 33 lakh Indian children suffer from malnutrition. Additionally, India does worse than any other South Asian nation, with the exception of war-torn Afghanistan, ranking 107th out of 121 on the Global Hunger Index 2022. With a GHI score of 29.1, India is classified under "serious." Because of these concerning numbers, research is being done to examine and investigate the inherent causes of these differences in the socioeconomic backgrounds of caregivers. Through nutritional policies and initiatives, these surveys have prompted the government to implement corrective actions to address the nation's problem of malnutrition over the time.

Objectives

After reading this unit learners will be able to

- Know about the micronutrient deficiencies
- Discuss about the dosage and limitations of micronutrient required daily
- Enquire about national food security Act
- Discuss and implement home gardening techniques for reducing malnutrition

6.2 Effect of Malnutrition on National Development

Malnutrition is a serious issue that has an impact on the country's social welfare, economics, education, and health. Among the consequences like delayed mental and physical development of children's, this lowers their learning, productivity, and income. The cycle of poverty and underdevelopment is strengthened by malnutrition, which raises the risk of diseases and leads to high death rates and medical expenses. It diminishes the labor force, human capital, and prospects for economic progress.

The issue of malnutrition is complicated and calls for comprehensive nutrition policies that address every aspect of it. These policies should improve population food security and quality, increase nutrition education and awareness to help people make healthy dietary choices, strengthen healthcare services to prevent, diagnose, and treat malnutrition and related diseases, and coordinate with various sectors and stakeholders, including the private sector, education, environment, social protection, and agriculture, to create an environment that supports nutrition.

6.2.1 Protein Energy Malnutrition

PEM, or protein energy malnutrition, is a disorder that occurs when there is a "food gap" between an infant's intake and needs. It primarily affects children under five who live in deprived, impoverished areas. PEM is most dangerous during the post-weaning phase and is frequently linked to infections.

From severe types like Kwashiorkor and Marasmus to milder ones where growth retardation is the primary observable symptom, PEM encompasses a broad range of clinical phases.

aetiology:

PEM has numerous contributing factors, including:

A. Diet: PEM is caused by a diet that is low in calories and protein. Poor Indian mothers secrete less breast milk when they breastfeed their children for an extended period of time.

B. Social and economic factors: One of the main causes of PEM is poverty, which results in unhealthy living conditions and limited access to food, which are the main sources of infections and

other illnesses. Distributing meals among family members improperly. Neglect, improper child care, etc., can also result in PEM. PEM can result from a variety of factors, including false beliefs about food and nutrition, inadequate child rearing techniques, ignorance, and inadequate feeding during illness.

C. Environmental Factors: Unsanitary living conditions and overcrowding result in a higher risk of diseases like diarrhea. The common illnesses that cause severe PEM and mortality are respiratory infections and diarrhea. The child may already be at risk for undernutrition due to maternal malnutrition before and throughout pregnancy, and PEM may result from inadequate postpartum care and nutrition. Infectious illnesses are important contributing cause of PEM. Diarrhoeal diseases, measles, respiratory and other infections reduce the body's immunity. Insufficient dietary intake exacerbates the nutritional status. When the child's needs are not met, they experience a lack of energy and protein, among many other micronutrient deficiencies.

Check your progress: Exercise 1

1. Explain PEM

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2. Explain aetiological factor of PEM

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6.2.1.1 Role of free radicals and aflatoxins

Free oxygen radicals are created in the body during infections and have the potential to be harmful to all cell membranes. Micronutrient deficiencies in children's diets, such as those in Vitamins A, C, and E, make it difficult to combat these free radicals. The body consequently accumulates aflatoxins and harmful free radicals, which damage liver cells and can result in kwashiorkor.

Host age: The most crucial requirement for growth is adequate nutrition. Although it is significant throughout childhood, it is especially vital in the first five years of a child's life, particularly in the first three years when growth is most rapid.

6.2.1.2 Categories of PEM

The National Rural Health Mission (NRHM) and the Integrated Child Development Services (ICDS) are currently using the new Growth Standards to track and support the growth and development of young children nationwide.

Acute malnutrition (According to WHO / UNICEF)

Type of Acute Malnutrition	Weight-for-Height(Z Score)	MUAC
Moderate Acute Malnutrition (MAM)	<-2 but >-3	
Severe Acute Malnutrition (SAM)	<-3	<11.5cm

Weight for age is also used in the IAP's (Indian Academy of Paediatrics) classification system, although 80% of the standard is the cutoff point for identifying malnourished children. Children who suffer from severe malnutrition fall into one of two categories: grade III or grade IV.

Malnutrition	Body Weight*
Grade I	71-80
Grade II	61-70
Grade III	50-60
Grade IV	<50

* (% of standard)50th centile of Harvard standard

Source: Textbook of Human Nutrition, Bamji, Rao and Reddy

6.2.1.3 Marasmus

Protein energy deficiency is caused by recurrent illnesses and insufficient dietary intake. A type of PEM called marasmus causes growth to be significantly slowed down. Usually, marasmus happens during the first two years of life.

Symptoms

- There is no oedema, yet the youngster has very little subcutaneous muscle and fat.
- The child's head appears larger than her body and has very little hair
- She weighs less than 60% of her age-appropriate weight; her height is also affected;
- Her ribs are visible due to the lack of tissue beneath her skin and the protruding rib cage, which gives the appearance of rickety rosary, a sign of a calcium deficiency.
- Because there is no tissue beneath the skin, the child's ribs are apparent, and the rib cage is protruding, giving the impression of rickety rosary, a sign of a calcium deficit.
- The child's wasting and weak abdominal walls provide the appearance of a stretched and protruding abdomen.
- In addition to suffering, the youngster is more vulnerable to diseases.
- The kid complains a lot and is irritable.
- The youngster becomes passive and loses interest in their surroundings.
- The youngster also has a moderate level of anemia and other deficits.
- When a youngster is fed enough, their appetite decreases significantly and they show signs of

growth.

6.2.1.4 Kwashiorkor

Another type of PEM that is rare in children under one year old is kwashiorkor.

Symptoms:

- Oedema, mental abnormalities, and growth failure are the three main characteristics of kwashiorkor.
- The child's weight, which is typically less than 60% of their predicted weight for their age, is determined by the degree of oedema in their body.
- Compared to marasmus, the child's height is more impacted and the retardation is more noticeable.
- Initially affecting the legs and feet, pitting oedema eventually extends to the entire body.
- With sagging cheeks and swelling eyelids, the face seems puffy.
- Ascites is uncommon, however the abdomen is enlarged.
- Fatty infiltration causes the liver to expand.
- Apathy (laziness), a moon face appearance from oedema, and reduced hair and luster are some of the symptoms.
- Patchy alopecia is the outcome of hair loss. The hair has a lackluster texture and is readily pulled out.
- The skin also exhibits various alterations, such as pigmented or depigmented patches, peeling that can result in ulcers and crazy pavement dermatosis.
- Anorexia is prevalent.
- Defective digestion and absorption as a result of a secondary illness might cause diarrhea.

6.2.1.5 Marasmic Kwashiorkor

Marasmic Kwashiorkor is the third type of PEM in which the child exhibits the symptoms of both Kwashiorkor and Marasmus. Since both conditions are characterized by a lack of sufficient energy, the term PEM is more appropriate than either Kwashiorkor or Marasmus. The condition is characterized by varying degrees of muscle wasting, oedema, along with changes in the skin and hair. Moderate anemia is also present, and multiple vitamin deficiencies are also discovered. A deficiency is linked to severe malnutrition and can result in blindness.

Check your Progress: Exercise 2

1. explain difference between Marasmus and khwashiorkar

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2. What is Marasmic kwashiorkor

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6.3 Micronutrient Deficiencies

6.3.1 Vitamin A Deficiency

National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency

In India, vitamin A deficiency has been identified as a serious nutritional public health issue. Over seven billion children in India suffer from nutritional blindness each year, primarily because of protein energy insufficiency and vitamin A deficiency. When it becomes really bad, it causes total blindness.

The National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency was started by Health and Family Welfare in 1970 and is run by PHCs and subcentres with the goal of protecting children aged six months to five years.

It began with serious issues in seven states at first. It was later expanded to the whole nation. Due to sufficient vitamin A supply, the target group has been updated since 2007 to include children aged 9 months to 5 years. Both preventing and treating vitamin deficiencies are the main goals of the program. Preventive measures include long-term tactics that emphasize the promotion and consumption of foods high in vitamin A, as well as short-term measures like giving every preschooler older than one year old a single, large dose of an oily preparation of vitamin A (200,000 IU, or retinol palmitate 110 mg) orally every six months, which is half the amount given to children younger than.

The approach focuses on both preventing and treating vitamin deficiencies. Prevention involves long-term tactics that emphasize the promotion and consumption of foods high in vitamin A, as well as short-term interventions such as giving every preschooler older than one year old a single, large dose of an oily preparation of vitamin A (200,000 IU, or retinol palmitate 110 mg) orally every six months, half as much as younger children. When vitamin A deficiency is diagnosed, a single dose of 200,000 IU of vitamin A is administered, followed by another dose of 200,000 IU one to four weeks later. It is required that all children with xerophthalmia receive treatment at medical facilities.

Vitamin A should be administered one extra dose in all cases of severe malnutrition. Children under two years old are administered vitamin A, and this is tracked and recorded using the mother-child immunization card. Likewise, growth monitoring cards or registers, which are used to track children's development under the ICDS Program, are used to document and track vitamin A solution administration up until age five.

No studies have been conducted to assess every aspect of the program. The research' main objectives were to determine the prevalence of vitamin A deficiency, the extent to which vitamin A supplements are used, and the effects of supplementing on childhood mortality and morbidity.

According to studies, vitamin A supplementation coverage is considerably below satisfactory levels, and VAD is still a public health concern in several regions of India.

The program should be strengthened by a number of initiatives, such as bettering community outreach, providing sufficient training for staff, and supplying enough and consistent supplies of

vitamin A supplements, nutrition education, and communication.

Objective

The National Prophylaxis Programme for the Prevention of Nutritional Blindness due to Vitamin A Deficiency's goal is to protect children aged 6 months to 5 years who are at danger of vitamin A deficiency. Let's examine the program's target demographic.

Target Group

The program benefits all children aged six months to five years, especially those who reside in urban slums, rural communities, and tribal areas.

Program Strategy: Two strategies are the main emphasis of the program. First, preventing vitamin A insufficiency; second, treating vitamin A deficiency.

Both a short-term and long-term intervention are part of the program's preventative strategy. The long-term cure to vitamin A insufficiency is dietary improvement, but the short-term intervention concentrates on administering megadoses of vitamin A on a periodic basis. First, we'll examine the long-term strategy, which is encouraging people to eat foods high in vitamin A.

i) Long-term intervention: Promoting consumption of foods high in vitamin A: This intervention's action items include: Promoting regular dietary intake of foods high in vitamin A for children under five and for pregnant and nursing mothers. It is imperative that women and children enrolled in the ICDS Program, as well as those attending prenatal clinics and immunization sessions, understand the significance of preventing vitamin A deficiency. Colostrum feeding and breastfeeding must be promoted.

Weaning children should be fed locally sourced foods high in p-carotene (a precursor to vitamin A), such as green leafy vegetables, yellow and orange fruits and vegetables, and papaya, papaya, oranges, pumpkin, and carrots, along with grains and pulses. Additionally, it is important to encourage the consumption of milk, cheese, paneel, yoghurt, ghee, eggs, liver, and other foods whenever it is financially possible. Growing vitamin A-rich plants in home gardens and encouraging their consumption are two ways to increase the availability of these foods.

ii. Short intervention: Giving preschoolers large doses of vitamin A at regular intervals is an easy, efficient, and most straightforward way to intervene. This is a short-term approach.

Since vitamin A is kept in the body for a longer amount of time than the majority of other micronutrients, regular administration of large doses guarantees appropriate vitamin A nutrition. Vitamin A must be given to children aged 1 to 5 years and infants aged 6 to 11 months every 6 months under the huge dose program. Children aged six months to three years should receive priority coverage because they are known to have the highest prevalence of clinical symptoms of vitamin A insufficiency.

The following is the suggested schedule:

Six to one month—one dose of 100,000 IU.

1–5 Year–200,000 IU

By the time they are five, a child has to have received nine oral doses of vitamin A. It is thought to be feasible to administer the vitamin A supplement to an infant between the ages of 9 and 12 months when they are receiving the measles vaccine.

For children aged 1-3 and 3-5, vitamin A can be administered using a camp method. Nonetheless, the DPT/PV booster given to a kid in the middle of their second year is a good time for the second dosage of vitamin A (200000 IU). The 9th and 10th plans advise giving vitamin A drops to children

aged 9 to 36 months via the RCH/ICDS system.

Treating vitamin A deficiency is the second approach.

b) Deficiency deficient in vitamin A

As soon as feasible, all children who exhibit clinical symptoms of vitamin A insufficiency need to receive treatment. Schedule of treatment consists of:

- 200 000 IU of vitamin A taken orally as soon as possible and after diagnosis - 200000 IU taken one to four weeks later.

Measles, acute respiratory infections, or diarrhea in infants and young children require special observation and encouragement to eat foods high in vitamin A.

Following the above treatment plan is necessary if early symptoms of vitamin A insufficiency are noticed. Next, we'll examine the vitamin A program's implementation approach.

Implementation Strategy: The Primary Health Centers and their subcenters carry out the nationwide prophylactic program for the prevention of nutritional blindness brought on by vitamin A deficiency. Children under five years old must get vitamin A concentrates, and nutrition instruction must be given by the multipurpose worker (F) and other paramedical staff at the Primaly Health Centers. Vitamin A is given to children in the ICDS Blocks and mothers are educated on how to prevent vitamin A deficiency through the services of ICDS, which is part of the Ministry of Welfare's Department of Women and Child Development.

Check your progress: Exercise 3

1. Explain objectives of National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency

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6.3.2 Iron Deficiency Anaemia

Reducing the incidence and prevalence of anemia in women of reproductive age is the program's main goal, and it is carried out through Primary Health Centers and their sub-centers. It focuses on three key strategies: identifying and treating cases of severe anemia, providing at-risk groups with tablets containing iron and folate supplements, and encouraging frequent consumption of foods high in iron. The initiative asks different departments to help implement the supplementing and food modification methods. For 100 days following the first trimester of pregnancy, pregnant women are advised to take one large tablet daily; similar dosages are advised for nursing mothers and IUD users. One small tablet should be taken daily for 100 days a year by preschoolers (ages 1 to 5). Children's tablets have 20 mg of iron and 100 mg of folic acid, while adult tablets have 100 mg of iron and 500 mg of folic acid. Women in the reproductive age range should take three adult tablets daily for at least 100 days to treat severe anemia. Tea consumption should be avoided since it may prevent the stomach from absorbing iron. Initiatives to enhance the Ninth Plan period's NNACP's coverage, effectiveness, and quality have been proposed. A National Consultation on Control of Nutritional Anemia was held in October 1997 by the Indian Ministry of Health and Family Welfare to examine the current policy on nutritional anemia control as well as the epidemiology of nutritional

anemia. In India, anemia is a major public health issue. Anaemia caused by iron shortage impairs children's cognitive and motor development and reduces adults' ability to work. The consequences are most noticeable during the early years of life. Low birth weight (LBW) newborns, preterm birth, and perinatal loss are all consequences of iron deficiency anemia during pregnancy. Anaemia Mukt Bharat strategy uses a life cycle approach to reduce anemia in six beneficiary age groups: children aged 6-59 months, children aged 5-9 years, adolescents aged 10-19 years, pregnant and lactating women, and women in the reproductive age group aged 15-49 years. This is accomplished by implementing six interventions through strong institutional mechanisms.

Anemia Mukt Bharat strategy comprises the following six interventions:

Age	Dosage and IFA Supplementation
(Six to 59) months	1 milliliter of iron and folic acid syrup every two weeks According to MoHFW requirements, each 50ml bottle of Iron and Folic Acid syrup, should contains 20 mg of elemental Iron and 100 mcg of Folic Acid, should include a "auto-dispenser" and an information sheet in the mono-carton.
(5–10) year old	One iron and folic acid tablet each week Each sugar-coated, pink tablet contains 45 mg of elemental iron and 400 mcg of folic acid
Adolescent girls and boys aged 10 to 19 who are enrolled in school and those who are not	Every week, one sugar-coated, blue iron and folic acid tablet with 60 mg of elemental iron and 500 mcg of folic acid
Women aged 20 to 49 who are of reproductive age (non-pregnant, non-lactating)	One iron and folic acid tablet per week. Each red, sugar-coated tablet has 60 mg of elemental iron and 500 mcg of folic acid. It is recommended that all women in the reproductive age range take 400 mcg of folic acid pills daily during the preconception phase and the first trimester of pregnancy.
Expectant mothers and nursing mothers with children ages 0–6 months:	Starting in the fourth month of pregnancy (the second trimester), take one iron and folic acid tablet every day throughout the pregnancy (at least 180 days), and for 180 days after giving birth. 60 mg of elemental iron and 500 mcg of folic acid are included in each sugar-coated, red tablet.

ii) Regularly deworming:

Every year on February 10 and August 10, MoHFW conducts a biennial mass deworming program for children and adolescents aged 1 to 19 as part of the National Deworming Day (NDD) initiative.

Antenatal care contacts (ANC clinics/VHND) offer deworming services to expectant mothers throughout the second trimester of pregnancy as part of the approach.

iii) Increased intake of foods high in iron, protein, and vitamin C; dietary diversification; food fortification; b) Appropriate Infant and Young Child Feeding (IYCF), with a focus on adequate and age-appropriate complementary foods for children 6 months and older; c) Promoting the practice of delayed cord clamping; d) Enhanced year-round behavior Change Communication Campaign for a0 compliance with IFA and deworming.

iv) Digital techniques of testing and treating anemia (Digital Invasive Haemoglobinometer) in field settings, Sub Health Centers, and Health and Wellness Centers; semi-auto analyzers at PHC and higher healthcare facilities; and point-of-care treatment. Protocols for managing anemia are outlined in Operational Guidelines for Anemia Mukt Bharat.

v) Foods fortified with iron and folic acid must be offered in government-funded health programs.

vi) Raising awareness, identifying, and treating non-nutritional causes of anemia in areas where it is endemic, with a focus on fluorosis, hemoglobinopathies, and malaria.

B) **Prophylactic Iron Folic Acid Supplementation**:

In order to address the issue of the high incidence and prevalence of anemia among teenage girls and boys, the Ministry of Health and Family Welfare started the Weekly Iron and Folic Acid Supplementation (WIFS) Program. Through supervised weekly IFA supplementation and biennial helminthic management, WIFS is an evidence-based programmatic approach to the prevalent anemia problem among teenage girls and boys. Breaking the intergenerational cycle of anemia is the long-term objective; improving human capital's nutrition is the short-term gain. The initiative is being carried out in both rural and urban sections of the nation.

The goal of weekly iron folic acid supplementation (WIFS) is to lower the incidence and severity of anemia in the adolescent population (10–19 years old). This is one of the program's key aspects.

II. Objectives

- School-age boys and girls in grades 6 through 12 who attend public, government-aided, or municipal schools.
- Adolescents girls who are not enrolled.

III. Action

- Weekly supervised iron-folic acid supplements containing 500 ug of folic acid and 100 mg of elemental iron are administered using a set day method.
- Identifying moderate-to-severe anemia in target populations and sending these patients to the proper medical facility.
- Albendazole 400 mg biannual deworming is used to control helminthic infestations six months apart.
- Details and advice on how to increase nutritional intake and take steps to avoid intestinal worm infestation.

IV. Implementation

Implementation of the WIFS program requires convergence with important stakeholder ministries,

such as the Ministry of Human Resource Development and the Ministry of Women and Child Development. A thorough communication component, monitoring, coordinated program planning, and the development of nodal service providers' ability, including as medical officers, Anganwadi Worker (AWW) staff nurses, and school instructors, are important areas of convergence.

V. Present Situation

All States and UTs have implemented the program. The program serves 11.2 crore people, of whom 8.4 crore are enrolled in school and 2.8 crore are not.

6.3.3 Iodine Deficiency Disorders

The National Iodine Deficiency Disorders Control Program (NIDDCP)

For normal human growth and mental development, iodine, an essential vitamin, must be consumed daily in extremely small amounts (100–150 micrograms). Iodine Deficiency Disorders (IDD) are conditions brought by a lack of nutritional iodine in the diet and food. The Goitre is merely the beginning. A lack of iodine causes both mental and physical disability. Regardless of sex or financial background, it impacts individuals of all ages. Additionally, it has been found that school children in iodine-deficient areas lose an average of 13 IQ points in comparison to those in iodine-sufficient areas.

More than 70 million Indians suffer from goitre and other iodine deficient illnesses, and over 200 million are thought to be at risk of developing IDD. Not a single State or Union territory is immune to the issue of IDD, as the Central and State Health Directorates, the Indian Council of Medical Research (ICMR), and medical institutes have all shown in their surveys. Sample surveys have been carried out in 28 states and 7 Union territories, and the results have shown that 263 of the 324 districts surveyed thus far have IDD endemic, meaning that the prevalence of IDD is more than 10%.

Iodine supplementation in the form of iodized salt has been shown to be an economical method of managing and curing IDD. The supply of iodized salt will guarantee the availability of iodine for regular bodily functions because salt is consumed by everyone on a daily basis.

Iodine Deficiency Disorder Spectrum

Age group	Deficiency Disorder
Foetus	Abortions, still births, congenital defects , Infant Mortality Rate , Cretinism in Neurology Deaf mutism Diplegia spasmodica Myxedematous, squint Cretinism The dwarfism Psychomotor abnormalities and mental deficiencies
Neonates	Neonates goitre and hyperthyroidism
Young children’s and adolescents	Goitre, juvenile hyperthyroidism and retarded physical growth
Adult	Goitre and hyperthyroidism and impaired mental dysfunction

6.4 Vitamin Deficiencies

6.4.1 Beriberi (Vitamin B1)

The earliest known vitamin was thiamine, also known as vitamin B1. In the form of thiamine pyrophosphate, it serves as a coenzyme for transketolase processes and a catalyst in the production of energy by decarboxylating alpha-ketoacids and branched-chain amino acids. Thiamine also participates in the maintenance of the myelin sheath and has an unknown function in the transmission of nerve impulses. In addition to reviewing the pathophysiology, etiology, and typical patient presentation of thiamine deficiency, this activity emphasizes the need of the inter professional team in managing this condition.

Although milled rice and grains contain trace amounts of thiamine due to the processing that eliminates thiamine, this water-soluble vitamin is found in meat, beef, pig, legumes, whole grains, and nuts. Furthermore, some foodstuffs, such tea, coffee, uncooked fish, and shellfish, contain thiaminases, which are enzymes that break down thiamine.

Lack of thiamine

As frequently observed in Wernicke-Korsakoff syndrome, dry beriberi, and wet beriberi, thiamine deficiency can impact the immunological, neurological, and cardiovascular systems. It is most commonly documented in people with chronic alcohol use disorder and in populations where milled cereals and polished rice are the main food sources. Whereas wet beriberi manifests as high-output heart failure, dry beriberi manifests as symmetrical peripheral neuropathy. Neurological symptoms such altered mental status, abnormalities of the eyes, and changes in gait can be signs of Wernicke-Korsakoff syndrome (WKS).

The signs, causes, and treatment of Beriberi disease

Vitamin B1 (thiamine) insufficiency is the cause of the uncommon but dangerous illness known as Beriberi Disease. In order for the heart, brain, and other key organs to operate properly, the body needs this vitamin to help turn food into energy. Beriberi disease develops when the body's cells are unable to generate the energy they require to function properly due to a lack of thiamine.

Although anyone can get the illness, people who are alcoholics or have poor diets are more likely to have thiamine deficiency. Preventing Beriberi Disease and preserving general health depend on an understanding of the significance of a balanced diet full of vital nutrients like vitamin B1.

Cardiac beriberi is the wet kind, and the symptoms of ventricular failure include palpitations, cyanosis, oedema, and trouble breathing, especially while exerting oneself. Recall that oedema is the key characteristic of wet beriberi. The legs, face, trunk, and serous cavities may all be affected, and it may progress quickly.

Dry beriberi: A milder type of the disease with polyneuropathy, dry beriberi is marked by clinical indicators such as numbness, a burning feeling in the limbs that is often called "pins and needles," muscle pain, cramping, and weakening. Walking becomes challenging when the muscles weaken and become increasingly wasted.

Infantile beriberi: Low thiamine in mother's milk may be the cause of infantile beriberi, which is observed in breastfed infants. There are two kinds of infantile beriberi. The two types are (i) cardiovascular and (ii) neuritic. Let's learn more about them.

i) The wet cardiovascular type: This type appears in infants between the ages of two and four months. Acute onset is accompanied by the typical symptoms of congestive heart failure, including dependant oedema, oliguria (frequent urine), tachycardia (fast heartbeat), dyspnea (difficulty

breathing), heart enlargement, increased venous pressure, and enlarged painful liver. Some babies may develop cyanosis and pulmonary oedema quickly, which could result in mortality within a few hours.

ii**) The dry neuritic** type: It is uncommon in children but tends to occur in older infants between 8 and 10 months of age in a pseudo-meningeal form (cerebral or Wernicke's syndrome). Typical symptoms include peripheral neuropathy, hyperaesthesia, tenderness of the calf muscles, and diminished tendon jerks. The focus is mostly on the central nervous system, which is characterized by sensory abnormalities (irritability, apathy, drowsiness, and coma), elevated intracranial tension, gazing, and varied degrees of neurologic deficiency.

Causes: Eating extremely polished rice and using incorrect cooking techniques, such as discarding extra water after cooking the rice, are two major causes of beriberi. A person's thiamine needs are correlated with their daily caloric intake, specifically 0.5 mg per 1000 calories. The vitamin-energy ratio decreases when higher-energy foods with lower thiamine content are consumed. The elderly, athletes, teenagers, and children are among the at-risk demographics. Chronic alcohol abusers also frequently have thiamine deficiencies.

Prevention: There exist multiple strategies for preventing beriberi in the community. Logical strategies include promoting the use of parboiled or undermilled rice, which avoids excessive milling and the ensuing high polishing of rice, or diversifying the diet. In the same way, using appropriate cooking techniques, like not using too much water when cooking rice, would aid in thiamine retention. Parboiling and hand-pounded rice are good sources of vitamin B1.The general public should be taught to abstain from excessive alcohol use and to regularly eat foods high in thiamine, such as whole grain cereals, raw and hand-pounded or parboiled rice, pulses, wheat germ, etc.

6.4.2 Ariboflavinosis (Riboflavin Deficiency)

According to surveys conducted across the nation, riboflavin is a crucial B-complex vitamin that is frequently deficient in our communities. It is most common in the elderly population and among the poorer segments of the population of all ages, especially children and pregnant and lactating women.

Causes:

Riboflavin insufficiency is typically caused by inadequate diet. Widespread riboflavin insufficiency in the nation is mostly caused by consumption of milk products, lentils, and nuts, which households in lower socioeconomic classes cannot afford. Ariboflavinosis is also linked to persistent infections, alcoholism, malabsorption, TB, and hyperthyroidism. It can also be brought on by certain medicines.

Intervention

Treatment for riboflavin deficiency usually involves taking 5–10 mg of riboflavin orally every day. Parenteral riboflavin administration is an option for patients with malabsorption.

Prevention

The most sensible way to avoid riboflavin insufficiency is to enhance meals to guarantee daily intake of sufficient riboflavin. Foods high in riboflavin, such as milk products, almonds, and lentils, are costly for the underprivileged. Pregnant women and other vulnerable groups are frequently advised to take riboflavin supplements.

6.4.3 Pellagra

A condition caused by a lack of niacin and/or tryptophan in the diet, which shows up as a distinctive dermatitis on sun-exposed skin areas. It starts as erythema and pruritus, which can cause

vesticulation, but it usually develops into a chronic, rough, scaly, and hard condition with crusts forming from bleeding; a wide band of this dermatitis usually surrounds the neck. With symptoms including glossitis, stomatitis, gastroenteritis, diarrhea with copious watery and occasionally bloody feces, anxiety, depression, tremor, and diminished or absent tendon reflexes, the neurological system and digestive tract may be affected. In extreme situations, encephalopathy may develop. A diet consisting of non-alkali-treated maize is traditionally linked to the condition.

Pellagra is a disease that affects many parts of the body and is often caused by low levels of niacin, also known as vitamin B-3. The three "D's" that are associated with the disease are diarrhea, dementia, and acute dermatitis; if the patient does not receive medical attention, the disease can be fatal. It may not be as common as the other diseases, but it is more common in developing countries because of significant advancements in the food industry. In addition, Pellagra can also affect people who do not absorb Niacin in their bodies.

Symptoms

Diarrhea, dementia, and dermatitis are among the most common symptoms of pellagra, which may be caused by a niacin deficiency in the body, which leads to cell turnover and, consequently, problems in the gastrointestinal tract and skin. As for the definition of pellagra, it can be said that lower levels of vitamin B-3 can cause this disease. When dermatitis occurs in relation to pellagra, the patient may have multiple rashes on their lips, face, hands, and feet. In addition, dermatitis may occur in the patient's neck, a condition known as Casal Necklace.

Treatment

The various forms of pellagra disease can be treated in different ways. For instance, if the primary pellagra case is treated early, recovery doesn't take long. The treatment will include a number of dietary changes as well as an intravenous nicotinamide or niacin supplement, the dosage of which must be intravenous. Nicotinamide is a great supplement that is full of Vitamin B-3.

6.4.4 Scurvy

Scurvy is a condition caused by a lack of ascorbic acid, or vitamin C. It is characterized by brawny induration of the calf and leg muscles, spongy gums, anemia, and a propensity for mucocutaneous hemorrhages. Breast milk, unless the mother has subclinical vitamin C deficiency, and the majority of proprietary infant formulas provide sufficient levels of vitamin C for infants. The following foods contain insufficient levels of vitamin C: cow's milk and any boiling, dried, or evaporated milks

In addition to older adults and those with existing physical or mental health disorders, smokers and those with low incomes are among the groups most at risk for deficiencies. Since the human body cannot synthesize vitamin C, it must be obtained through diet or supplements. Scurvy is a nutritional disease caused by a diet deficient in vitamin C [ascorbic acid], which is characterized by general weakness, anemia, gum disease, and skin hemorrhages. The disease was first identified in sailors as early as 1550 B.C., when they began to experience bleeding gums, teeth problems, swelling in the body, skin rash, joint pain, and anemia due to a lack of fresh fruits and vegetables, which are rich sources of vitamin C.

Symptoms

There are four phases of scurvy symptoms, which start to appear after two to three months of dietary deficiency:

Perifollicular hemorrhages and easy bruising due to capillary fragility are observed; these appear as reddish or bluish spots surrounding the hair follicles.

In **the first stage**, people start to feel abnormally lethargic and are prone to sudden fatigue. In the

second stage, gums start to swell and bleed with slight pressure, teeth become loose at the roots, and there is severe pain in the joints and muscles due to bleeding in the joints, which causes areas of swelling over the bones of the arms and legs.

Second Stage, Gums expand and bleed when lightly compressed. At the roots, teeth fall loose. Joint bleeding results in areas of swelling over the arms and legs' bones, causing excruciating discomfort in the muscles and joints. There are perifollicular hemorrhages and quick bruising because of the capillaries' vulnerability. They show up as bluish or reddish patches around the hair follicles. The hairs are extremely dry, twisted like corkscrews, and break off near the skin.

Third stage, the gums bleed a lot, turn rotten, and start to smell like rotten meat. The skin is going to bleed on its own. Ulcers that progress to gangrene form on the skin, particularly in the legs and feet. Every muscle, joint, and bone is in searing anguish. Blood loss into tissue, gastrointestinal bleeding, and intravascular haemolysis cause anemia in 75% of individuals.

Fourth stage, which is the last stage and is typically brought on by bleeding in the heart and brain, is characterized by a high temperature, black spots on the skin, shaking, and fainting that ends in death. High vitamin C levels, however, can reverse the effects of scurvy and help the patient regain excellent health even in stage four.

Functions:

- For collagen to develop, vitamin C is necessary. The protein collagen is present in a wide variety of tissues, including skin, blood vessels, bones, and cartilage. Tissues begin to degrade if the body does not manufacture enough collagen. One common vitamin included to skin care products nowadays is vitamin C. Many people use topical vitamin C solutions to protect against sunburns, encourage wound healing, and improve the appearance of their skin by minimizing fine lines and wrinkles.
- Additionally, it is necessary for the body's iron control. Fatigue and lethargy may worsen due to anemia caused by low vitamin C levels in the body.
- It aids in the immune system's appropriate operation.
- Dopamine, serotonin, and other neurotransmitters needed for energy generation are produced and metabolized in part by vitamin C.
- According to certain research, vitamin C can help prevent and treat heart disease, stroke, and possibly even cancer.

Treatment

The first step is to identify the underlying cause of scurvy. Eating foods high in vitamin C is recommended if the cause is a lack of vitamin C. In cases of severe shortage, vitamin C injections or supplements taken orally are also recommended.

To treat and stop more scurvy episodes, a mental health expert, dietician, or social worker may be needed if the sickness is caused by a mental illness such depression, bulimia, or anorexia nervosa.

- One to two grams daily for two to three days is the suggested dosage.
- 500 mg during the following seven days
- For one to three months, 100 mg
- For a month, children should take 150–300 mg daily.

Patients can anticipate improvements in their anorexia, bewilderment, discomfort, exhaustion, and

lethargy within a day. Within a week or two, the weakness, bleeding, and bruises begin to go away. With the exception of cases of significant oral trauma, full healing might be anticipated in roughly three months.

6.4.5Rickets and Osteomalacia

Rickets typically affects growing children who are not exposed to enough sunlight. The symptoms of the deficiency are primarily caused by inadequate mineralization, and while it is known as rickets in children, it is known as osteomalacia in adults. Growing children have swollen and painful growing ends of long bones, which are especially noticeable and palpable at the ribs, wrists, and ankles. The bones are unable to withstand even normal mechanical stress, which causes bowlegs and knock-knees when they begin to walk. In the ribs, at the costochondral junction, swellings that resemble rosary are found in the ribs, which are known as rachitic rosary.

Undermineralization and excessive bone loss are the symptoms of osteomalacia in adults, which can lead to fractures in the worst situations. In women of childbearing age, osteomalacia is caused by calcium depletion from repeated pregnancies, especially in those who observe purdah, as in Muslim communities. The women may report back pain, trouble walking, and pain in the lower extremity bones. Bony deformities result from the bones becoming pliable and prone to bending due to their softness. Muscular hypotonia (low muscle tone), tetany and convulsions due to hypocalcemia occur.

Causes

Vitamin D, which is regarded as a prohormone, is inadequate. It produces 1, 25-dihydroxy D3, a hormone whose main job is to control serum calcium levels. Insufficient exposure to sunlight is one of the primary causes. Premature babies and those who are exclusively breastfed and do not receive enough sunshine are at higher risk of developing rickets. Osteomalacia may result from chronic renal illnesses and certain gastrointestinal disorders that limit calcium absorption and vitamin D production**.**

Treatment

Vitamin D medication and making sure that a person consumes enough calcium are necessary for the treatment of both osteomalacia and rickets. Inform us of the preventative measures.

Prevent:

For the prevention of osteomalacia and rickets, enough sun exposure is crucial. It should also be made sure that the diets contain sufficient amounts of calcium each day. It is important to raise community knowledge so that foods high in calcium are included in diets. Milk is the best food out of all of them.

6.5 Fluorosis

Dental, skeletal, and non-skeletal fluorosis are the most common forms of fluorosis. Children of both sexes who are exposed to excessive fluoride consumption before their teeth have fully mineralized develop dental fluorosis. It is distinguished by tooth mottling, which manifests as brown or yellowish flecks or streaks seen on the incisors in particular. Pitting, or deeper depressions, can occasionally happen to these teeth. Only permanent teeth can have dental mottling, which is irreversible.

Overconsumption of fluoride can lead to skeletal fluorosis, a disease of the bones. Dental fluorosis is more clinically evident than this slowly developing disorder. Joint discomfort, musculoskeletal dysfunction, limited spinal motion, and flexion-type abnormalities are among the clinical characteristics. The condition begins with vague, nonspecific symptoms like joint discomfort, which

are followed by stiffness and a reduction in the spine's range of motion. Later on, there can be spinal abnormalities, including a hard vertebral column that makes it impossible to bend at all.

In endemic fluorotic locations, severe malformations called genu valgum—an adult form of accentuated knockknees—have been seen recently. It's not that concerning, according to experts, that those who have used 10–20 mg of fluoride daily for 10–20 years may develop debilitating skeletal fluorosis.

An earlier form of fluorosis known as non-skeletal fluorosis is sometimes misdiagnosed as a gastrointestinal ailment or othercondition.

Causes

The high fluoride concentration of drinking water is the primary cause. Foods also have a big impact on how much fluoride is in the diet. Fluoride levels are higher in cereals and vegetables cultivated in regions where fluorosis is endemic. Food is said to contribute up to 85% of the total amount of fluoride consumed.

Fluorosis may be linked to both poor socioeconomic position and inadequate diet. It is important to keep in mind that fluoride can enter the body through food, drink, toothpaste, mouthwash, and other dental products; medications; and fluoride dust and fumes from industries that use fluoride that contains hydrofluoric acid together with salt.

Prevention

The best way to control endemic fluorosis is to make sure that the drinking water contains safe levels of fluoride (below 1 ppm). Defluoridation, or the removal of fluoride from water, is another method that is widely used in areas that are highly endemic. Several domestic methods are suggested, of which the "Nalgonda technique" and the "Prashanti Technique" are perhaps the most straightforward and acceptable; in the former, lime and alum are added to the water, while in the latter, activated alumina is used to pass water. Commercial defluoridation is very costly and rarely used. It is crucial to educate communities to refrain from using fluoride-rich toothpastes, fertilizers, and pesticides.

6.6 Lathyrism

Toxic amino acids present in some Leguminaceae foods can cause major health issues for people. Given the severe, incapacitating effects of prolonged pulse ingestion, Lathyrus sativus (Kesari dhal) may be deemed to be of public health importance among them. Lathyrism is the term for the illness linked to this food's ingestion. Paralysis results from lathyrism, a degenerative condition of the higher motor neurons. Let's get into more detail about lathyrism symptoms**.**

Causes for Lathyrism

Beta-N-oxalyl-L-alpha, diamino propionic acid (ODAP), a neurotoxic amino acid present in Lathyrus legumes, is the main cause of lathyrism. It is well known that ODAP is neurotoxic, especially to motor neurons in the spinal cord. The toxin damages neurons by interfering with the body's absorption of vital amino acids.

Types

1: Neurolathyrism: This condition is brought on by consuming significant amounts of Lathyrus grain, particularly those grains that contain the glutamate analogue neurotoxic ODAP (also called β-N-oxalyl-amino-L-alanine, or BOAA). Additionally, Lathyrus sativus—also called grass pea, chickling pea, kesari dal, or almorta—and, to a lesser extent, Lathyrus cicera, Lathyrus ochrus, and Lathyrus clymenum

2. Osteolathyrism: It affects the bones and tissues that connect them rather than the nervous system. It is a condition of the skeleton. It is brought on by the toxicity of BAPN, which prevents the copper-containing enzyme lysyl oxidase from doing its job of cross-linking proelastin and tropocollagen. Moreover, BAPN is a byproduct of a substance found in sprouted lentil, pea, and grasspea seeds.

3. Angiolthyrism: Blood capillary collagen is impacted by angiolythyrism. It is also brought on by beta-aminopropionitrile, a toxin.

Prevention:

If available, eating grass peas with legumes that contain high levels of sulfur-based amino acids lowers the incidence of lathyrism. In order to discourage its intake and so reduce the likelihood of lathyrism in the general population, certain Indian governments have outlawed the selling of lathyrus seeds**.**

6.7 National Food Security Act (NFSA)

India's citizens are guaranteed food and nutrition security by the National Food Security Act (NFSA), 2013. The Targeted Public Distribution System (TPDS) provides subsidized food grains to approximately two-thirds of the population. Additionally, children up to the age of 14, expectant and nursing mothers receive nutritional support from the NFSA. It also includes mechanisms for accountability and transparency as well as a grievance redressal process.

The high financial burden and subsidy burden, the imprecise beneficiary identification and targeting, the low quality and quantity of food grains, and the agencies' insufficient infrastructure and capacity are some of the implementation's difficulties. Information technology use, a decentralized procurement system, social audits and the grievance redressal process, and food basket diversification are some of the ways to close these gaps.

Benefits

Provisions for qualifying households to receive food grain subsidies:

Up to 75% of the rural and 50% of the urban population, or roughly two-thirds of the nation's total population, will be covered by the Act's provisions for the highly subsidized prices of foodgrains .

Beneficiaries of the Act fall into two groups: Antyodaya Anna Yojana (AAY) Households and Priority Households. Priority homes are entitled to five kilograms of foodgrains per person per month, while AAY households that make up the lowest of the poor are legally entitled to thirty-five kilograms per family.

Providing women and children with nutritional support

Pregnant women, nursing mothers, and children aged 6 months to 14 years are eligible to receive meals that meet recommended nutritional standards under the PM-POSHAN and Integrated Child Development Services (ICDS) programs. Children who are malnourished up to age six have been prescribed higher nutritional standards.

Benefit of Maternity

The Central Government will develop a system that will provide maternity benefits of at least Rs. 6,000 to expectant mothers and nursing moms.

6.8 PM Poshan Shakti Nirman (PM-POSHAN) and Child Nutrition

The PM Poshan initiative offers children in Indian government schools and other facilities

free, wholesome cooked meals. It seeks to enhance children's health, attendance, enrolment, and retention. The PM Poshan program has increased primary school completion rates, particularly for girls, improved child attendance, and improved children's micronutrient intake and nutritional status. Additionally, the program has improved children's social behaviour, academic achievement, and cognitive development. The plan might be improved by increasing funding and enhancing its precision, Caliber, and ability to reach the hungry and impoverished without the use of middlemen. Additionally, it requires improved technology, administrative accountability, and diversity. The meal should be healthy in order to fulfil the dual goals of nutrition and education.

An initiative of the Indian government, Poshan Abhiyaan aims to enhance the nutritional status of women, adolescents, and children. Utilizing information and communication technology, it combines different nutrition plans and initiatives, offers incentives to states and districts, and encourages behaviour change communication and community mobilization.

- ICDS-CAS (Integrated Child Development Services-Common Application Software) is a mobile application for data collection and analysis.
- ILA (Incremental Learning Approach) is a frontline worker training program.
- CAP (Convergence Action Plan) is a framework for stakeholder coordination.
- Jan Andolan is a nutrition awareness social campaign.

These are the four main program pillars. The difficulties in executing other projects, such as the PM Poshan scheme, are comparable to those encountered by Poshan Abhiyaan.

6.9 Maternal Programmes

Proper nutrition lowers the risk of chronic diseases, promotes fetal and newborn growth, prevents malnutrition, and improves cognitive and socioemotional development. Before and throughout pregnancy and lactation, women should eat healthily, take supplements, exercise, and get enough sleep. For six months, infants should only be breastfed; after that, they should be given supplemental foods. Nutrition programs should be available to women and children.

Three government initiatives are in place to enhance the nutrition of mothers and children:

i. **Integrated Child Development Services (ICDS):** The largest community-based program in the world, the Integrated Child Development Services (ICDS) system was introduced on October 2, 1975. The program is intended for women aged 16 to 44, pregnant and breastfeeding moms, and children under the age of six. The goal of the program is to enhance the target community's KAP (health, nutrition, and education).

ii. **The Newborn Action Plan of India (INAP):** It was started in September 2014 with the goal of preventing stillbirths and neonatal deaths by 2030. The INAP has established targets for stillbirths and newborn death. By 2030, single-digit neonatal mortality and stillbirth rates are the target.

iii. **The Reproductive and Child Health (RCH) Program**: In accordance with the GOI's National Population Policy-2000, the National Health Policy-2001, and the Millennium Development Goals, was launched in April 2005 in collaboration with the State governments. It is a comprehensive sector-wide flagship program that falls under the purview of the GOI's NHM and aims to reduce maternal and infant mortality as well as total fertility rates. Additionally, the program aims to reduce social and geographic disparities in access to and utilization of quality reproductive, maternal, newborn, child, and adolescent health services.

In order to solve the issues of maternal and child nutrition, the programs require further monitoring,

evaluation, budget, expenditure, convergence, and coordination.

6.10 Disparities in Nutritional Access between Rural and Urban Areas

These differences pose serious problems for India since they have a significant impact on the health and welfare of millions of people. According to the findings of a widely used survey to examine patterns and differences between rural and urban areas, the rate of stunted growth and malnutrition is higher among the poorer segments of society than in the wealthier socioeconomic groups. While rural and slum communities continue to lag behind in this area, metropolitan residential areas have more access to better healthcare and nutritional services.According to these findings, further studies and policies are required to address the various impacts of malnutrition, particularly in rural and urban slum households, and to guarantee that everyone has fair access to wholesome food.

6.11 Nutritional Support and the Public Distribution System (PDS)

The Ministry of Consumer Affairs, Food, and Public Distribution runs the Public Distribution System (PDS), a program designed to give discounted food grains to those in need. In addition to commodities like wheat, rice, sugar, and kerosene, some states also use the PDS outlets to distribute edible oils, legumes, iodized salt, spices, and other items. The federal and state governments run the PDS in a decentralized manner.

Implementing PDS presents a number of difficulties, including food grain diversion and leakage from the supply chain, corruption and inefficiencies in the procurement, storage, transportation, and distribution processes, poor quality and adulteration of food grains and other commodities, unequal access to subsidized food, lack of awareness and access among the poor and marginalized segments of society, regional disparities and variations, and insufficient monitoring and evaluation mechanisms to track PDS's effectiveness and impact on nutrition outcomes and food security.

Increasing PDS's accountability and transparency, as well as fortifying its distribution, storage, transportation, and procurement processes, are some potential ways to improve PDS. Enhancing census data, self-declaration, community involvement, etc.

6.12 Promotion of Indigenous Foods High in Nutrients

Indigenous foods offer vital nutrients that conventional foods might not have. Additionally, they can improve the local cuisine's flavor and diversity while strengthening the indigenous tribes' sense of cultural identity and food sovereignty. Additionally, agroecological farming methods that conserve ecosystems and natural resources can be supported by local foods. In light of this, local and nutrient-dense foods ought to be appreciated and promoted as part of international initiatives to enhance environmental and human health.

At the local level, raising awareness and enhancing accessibility can promote the consumption of nutrient-dense foods. The cost-effectiveness of such resources can also be improved, enabling people from various backgrounds to access the food and preserve their health.

6.13 Behaviour Change and Nutrition Education

In India, where misunderstandings and false information are common, nutrition education is essential to discovering the secrets of health and wellbeing. It teaches us how to eat in accordance with our needs and tastes in order to prevent illnesses and dispel myths and misconceptions that impede our eating routines and habits.

Nutrition education equips us with the knowledge and skills to make wise decisions. It's a tool that helps create a healthy country. These nutrition programs can be integrated into educational initiatives that enhance a person's immunity, cognitive function, and social skills while also encouraging participation in and inclination toward education.

6.14 Urbanization and Modifying Dietary Habits

India is a diverse country with a wide range of cuisines. Due to the blending of Western cuisines, urbanization causes greater dietary variations and modifications. These foods have comparatively fewer grains, legumes, and greens and more sugar, fats, and processed foods. Millions of people's health is impacted by these indicators of the nutrition change. The issues that raise the likelihood of conditions like obesity, diabetes, and hypertension are gaps like unfair distribution, pollution, and bad lifestyles.

Improving the availability, accessibility, and affordability of nutrient-dense and varied foods in urban food environments, such as supermarkets, food vendors, and restaurants, as well as encouraging nutrition education and awareness among urban dwellers are some potential tactics to address the nutritional implications of changing dietary patterns in urban areas. Reducing food waste and promoting sustainable consumption habits are excellent ways to safeguard our bodies, immune systems, and the environment.

6.15 Public Private partnerships for nutrition programmes

In order to enhance nutrition and health, the public and private sectors can collaborate through public-private partnerships, or PPPs. PPPs can help increase funding and awareness for health and nutrition, improve food and delivery systems to make healthy foods more accessible, affordable, and available, and share knowledge and technology to make food products safer, healthier, and more varied.

Risks associated with PPPs include finding a balance between private profits and public health, maintaining accountability and openness, avoiding conflicts of interest and undue influence, adhering to ethical rules, and protecting the environment and human rights. For PPPs to be effective, efficient, egalitarian, and sustainable, they require rigorous planning, execution, monitoring, and assessment. National and international nutrition goals and strategies should also be adhered to by PPPs.

Check your progress: Exercise 5

1. Highlight important features of The National Iodine Deficiency Disorders Control Program (NIDDCP)

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6.16 Let Us Sum Up

Some of the most recent advancements in nutrition policies and programs include the International Grains Council (IGC), which analyzes nutrition policies and makes recommendations to combat malnutrition; the Food and Agriculture Organization (FAO), which provides e-learning

courses, a toolkit, and agriculture and food systems that are sensitive to nutrition; and UNICEF, which collaborates with numerous nutrition partners to expand nutrition policies, strategies, and programs that support the Sustainable Development Goals (SDGs). As a result, nutrition policies are essential to the advancement of a country.

In accordance with the GOI's National Population Policy-2000, the National Health Policy-2001, and the Millennium Development Goals, was launched in April 2005 in collaboration with the State governments. It is a comprehensive sector-wide flagship program that falls under the purview of the GOI's NHM and aims to reduce maternal and infant mortality as well as total fertility rates. Additionally, the program aims to reduce social and geographic disparities in access to and utilization of quality reproductive, maternal, newborn, child, and adolescent health services.

6.17 Check Your Progress

Short Answer Questions (2–3 lines each)

1. What is the main impact of **malnutrition** on a country's national development?
2. Define **Kwashiorkor** and mention one of its major causes.
3. What is the primary focus of the **PM Poshan Shakti Nirman (PM-POSHAN)** programme?
4. Name any two **micronutrient deficiencies** that are of major public health concern in India.

Long Answer Questions (in detail)

1. Explain the different types of **Protein Energy Malnutrition (PEM)** and discuss the role of **free radicals and aflatoxins** in aggravating the condition.
2. Describe the major **micronutrient and vitamin deficiencies** prevalent in India, highlighting their symptoms, prevention strategies, and government programmes addressing them.
3. Discuss the objectives, focus, and target groups of important nutrition-related schemes such as the **National Food Security Act (NFSA)**, **PM-POSHAN**, and **maternal nutrition programmes**.
4. Analyze how **nutritional disparities between rural and urban populations**, along with factors like **urbanization, dietary changes, and public–private partnerships**, affect the overall nutritional security of the country.

Glossary

Marasmic Kwashiorkor

Marasmic Kwashiorkor is the third type of PEM in which the child exhibits the symptoms of both Kwashiorkor and Marasmus. Since both conditions are characterized by a lack of sufficient energy,

the term PEM is more appropriate than either Kwashiorkor or Marasmus. The condition is characterized by varying degrees of muscle wasting, oedema, along with changes in the skin and hair. Moderate anemia is also present, and multiple vitamin deficiencies are also discovered. A deficiency is linked to severe malnutrition and can result in blindness.

Marasmus

Protein energy deficiency is caused by recurrent illnesses and insufficient dietary intake. A type of PEM called marasmus causes growth to be significantly slowed down. Usually, marasmus happens during the first two years of life.

Regularly deworming

Every year on February 10 and August 10, MoHFW conducts a biennial mass deworming program for children and adolescents aged 1 to 19 as part of the National Deworming Day (NDD) initiative.

Antenatal care contacts (ANC clinics/VHND) offer deworming services to expectant mothers throughout the second trimester of pregnancy as part of the approach.

Scurvy

Scurvy is a condition caused by a lack of ascorbic acid, or vitamin C. It is characterized by brawny induration of the calf and leg muscles, spongy gums, anemia, and a propensity for mucocutaneous hemorrhages. Breast milk, unless the mother has subclinical vitamin C deficiency, and the majority of proprietary infant formulas provide sufficient levels of vitamin C for infants. The following foods contain insufficient levels of vitamin C: cow's milk and any boiling, dried, or evaporated milks

Block III: Nutritional Plan of Action and Case Studies of Intervention

Introduction

This block focuses on the strategic frameworks, policies, and legislative measures that guide India's efforts toward improving the nutritional status and overall health of its population. It provides an integrated understanding of how laws, policies, and action plans work together to address malnutrition, ensure food safety, and promote community well-being. The block begins with an overview of key legislations related to nutrition and public health that establish the legal foundation for implementing effective interventions and safeguarding citizens' right to adequate nutrition. It then discusses the **National Nutrition Plan of Action**, which outlines the government's multi-sectoral approach, emphasizing convergence between health, agriculture, education, and social welfare sectors to combat under-nutrition and micronutrient deficiencies. The subsequent unit examines various **hazards affecting community health and nutritional status**, including food adulteration, environmental pollution, lifestyle-related diseases, and inadequate access to safe food and water. The final unit explores the **National Nutrition Policy**, highlighting its objectives, strategies, and implementation mechanisms aimed at achieving sustainable nutritional security for all, especially women and children. Through case studies and examples of successful interventions, this block enables learners to understand practical applications of nutrition-related policies and actions, analyze their outcomes, and appreciate the significance of coordinated policy measures in achieving national and global nutrition goals.

Unit-VII Legislations: Role of Improving Health and Nutritional Status

Structure

7.1 Introduction

The three main pillars of food security are access, availability, and production of food. In the 1996 Rome Declaration on World Food Security, the Food and Agriculture Organization of the United Nations (FAO) established a definition of food security that is widely recognized and supported. Improved in the 2001 FAO report, State the Food Insecurity in the World. "When everyone, everywhere, has physical, social, and financial access to enough safe, nourishing food that satisfies their dietary needs and food preferences for an active and healthy life, then there is food security" (FAO, 2009).

As stated by Swaminathan (1986), "physical, economic, and social access to balanced diet, clean drinking water, environmental hygiene, primary health care, and nutritional literacy" is the definition of "nutrition security" in India. It was noted that availability encompasses the following: access to entitlements, which are connected to people's original endowments; acquire (physical and financial access to food); and absorption (capacity to biologically utilize the food consumed). India faces a significant challenge in producing more food grains from dwindling per capita arable land and irrigation water resources, as well as growing abiotic and biotic stressors, if it hopes to ensure food and nutritional security for 1.5 billion people by 2030.

In order to feed its approximately 1.25 billion people, India now produces 252 million tonnes of cereals. Nearly 80% of farm households fall into the marginal and small farmer groups, and livestock ownership is becoming more egalitarian. The average farm size is also decreasing. The reduction of hunger, poverty, and rural unemployment as well as the achievement of food production targets depend on improving small farm productivity, raising small farm income through crop livestock integrated production systems, and creating multiple livelihood opportunities through agro-processing and biomass utilization.

Objectives

The learners will be able to

- Know the nutritional status and food security status of India.
- Understand Indian Constitution and legislations
- Discuss about Articles related to health and welfare of humans

7.2 Nutritional and Food Security Status

India is home to nearly a third of the world's food insecure people, over a third of the world's underweight children, and one quarter of the world's undernourished population (194.6 million, or 15% of India's total population during 2014-16).

Food insecurity is linked to malnourishment. Using data from 1957 to 2012, which spans nearly 60 years, our findings demonstrate India's long-term progress against absolute poverty. Our upper line's national incidence of poverty trended downward by 0.65% points annually, which added up to a significant drop in the poverty rate of over 35% points. India's poverty incidence decreased at a rate of 1.3% annually in proportion.

People should empower themselves through education, immunizations, and behavior modification with the assistance of professionals; nevertheless, in certain cases, the state and laws are necessary to protect the populace, such as when alcohol and tobacco are sold close to schools. One of the biggest democracies in the world, India uses a multifaceted yet all-encompassing approach to improve the health of its citizens. There may not be much scope in its framework, but it will take a lot of labor to implement.

People constantly aspire to be independent, to use as many resources as possible to enjoy life, and to have control over their own lives—all of which are impossible without jeopardizing the resources or freedom intended for others as well.

Regretfully, even after realizing how others suffer as a result of his or her actions, his or her greed and desires never go away. Inequality and imbalance between those with and without resources are always the results of such a circumstance. In a civilized society, the state's authority is crucial in striking a balance between communal safety and individual liberty.

It is true that public health and modern civilization would not exist without the state's coercive authority, and we may argue that the fundamentals of public health are based on science and law. People who put others in a difficult situation must be prohibited by law.

In a democracy, it would be unacceptable to use prohibitive authority over personal freedom. Therefore, maintaining a balance between community protection and individual freedoms is essential for public health. In most nations, the state's police powers are used to address general public health and safety concerns rather than prosecuting offenders. Public health police powers are exercised by judges, health officers, fire officers, and municipal commissioners.

The goal of public health initiatives is to monitor and enhance community health rather than to punish. Twelve main categories of activities that can entail health and nutritional activities include:

1. Preventive services, such as cancer screening and vaccinations.
2. Preventive health education, which includes initiatives to change lifestyle choices and promote the use of preventive treatments.
3. Health prevention measures (such as iodizing salt or fluoridating water).
4. Health education for the protection of preventative health (e.g., advocating for laws against seat-beats and relocating polluting industries from residential neighborhoods).
5. Positive health education, which includes teaching individuals life skills connected to health and motivating them to make the most of their free time.
6. Implementing anti-smoking and anti-sexual harassment rules in the workplace is an example of positive health protection.

7. Positive health protection through health education (e.g., securing support for anti-smoking laws and other proactive health promotion initiatives).

Advocating health and nutritional status of India encompasses a wide range of initiatives, including extensive health teaching programs in schools, and media campaigns raising awareness of the risks of malnutrition. Developing multilayer (national, regional, and community) action and multifaceted strategies to guarantee sustainability is the current intervention strategy. To put it another way, public health laws are becoming more complicated along with health promotion programs.

Check Your Progress: Exercise 1

1. 'In a democracy, it would be unacceptable to use prohibitive authority over personal freedom'. Elaborate the statement

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2. Write down twelve main categories of activities that can entail health and nutritional activities include

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7.3 Indian Constitution and Legislations

The government of India has long been instrumental in re-establishing public health and safety. The Buddhist monarch Asoka the Great is renowned for his decrees outlining the state's obligation to provide clean water, shelter, roadside tree planting, medical attention for ill people and animals, a suitable location for the public to receive moral and spiritual education free from discrimination, and humane treatment of slaves and servants (Kishore & Ray 2001).

In terms of nutrition and health, the framers of the modern Indian constitution had already included enough provisions for the protection, advancement, and development of every individual, worker, group, and vulnerable population before the causal relationship between some of the unfavorable factors—such as inequality, discrimination, gender bias, socioeconomic, and cultural factors—and the health and disease of individuals, families, and communities was established. Several instances are provided below:

Right to Equality

Article 15: Prohibition of discrimination in the performance of any activity or in participation on the basis of religion, race, caste, sex, or place of birth. The state is going to try to eliminate these kinds of discriminations.

Article 17: Abolition of Untouchability- Untouchability has been outlawed and is punishable under

Right to Freedom

Article 21: States that no one may be deprived of their life or personal freedom until a legally mandated process does so.

Right against exploitation

Article 23: Prohibition of forced labor and human trafficking

Article 24: Prohibition of the employment of minors (less than 14 years old) in factories, etc.

Rights to education and culture: No one should be denied the opportunity to advance their knowledge and abilities because of their caste, religion, culture, geography, etc. The state is in charge of making sure there is sufficient infrastructure accessible so that people can exercise their right to an education.

State Policy Directive Principles

Article 38: The state will endeavor to ensure and safeguard a social order in which social, economic, and political justice inform all national institutions in order to advance the welfare of the people.

Article 39: Ensuring that men and women receive equal compensation for equal labor; and protecting the health and strength of workers, both men and women, as well as the young age of children.

Article 42: Provides for maternity leave and fair and compassionate working conditions.

Article 43: Living wages, etc. for workers: the state must provide a good quality of life, as well as the opportunity to fully enjoy leisure activities and social and cultural events.

Article 45: Children must receive free and obligatory education.

Article 46: Promoting the economic and educational interests of scheduled tribes, scheduled castes, and other marginalized groups is covered under this article.

Article 47: The state's obligation to enhance public health by raising living standards and dietary levels.

Article 48 A: Preserving and enhancing the environment, as well as protecting forests and wildlife.

Article 51: Encouraging global peace and security.

Numerous responsibilities pertaining to the advancement of public health are listed in the Union List, State List, and Concurrent List. These include port quarantine, war and peace, labor and safety regulations in mines and oilfields, opium cultivation control, sanitation, hospitals, and dispensaries, stock preservation and protection, animal disease prevention, food and other product adulteration, protection of wild animals and birds, social security, social insurance, population control, and family planning. The Indian constitution contains numerous sections that focus on people's rights, but only Article 51A lists essential obligations.

Check your progress: Exercise 2

1. Right down the article related to 'Right to Equality'

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2. Right about the directive principles of state policy

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7.4 Legislations Related to Health in India

The Indian government is obligated to provide social security, health care, safety, environmental protection, equal opportunity, and justice to its citizens in accordance with the Constitution. The government uses policy formulation, legislative action, and program implementation as means of providing these services. Program execution is the ideal course of action. It is imperative, therefore, that certain services be made necessary and fall under the guidelines. The people and the government must fulfill their responsibilities in order to accomplish the goals of the Constitution. Additionally, the Constitution grants authority to draft laws for this purpose. Rules and regulations go into greater detail to explain an Act's provisions. To enable the identification of any violators, these laws need to be precise and well-written.

Many laws and policies are passed in order to accomplish these core national objectives. The following categories comprise important laws in this direction for easier comprehension, but these classifications are purely subjective:

A. To raise and uphold the bar for medical education and services: In any society, medical professionals and those in related fields are seen as an essential part of the health care delivery system. The caliber of their training dictates the caliber of services they will offer, especially in the areas of health protection and promotion. The following laws are aimed at improving the standard of health workers education and training: The Indian Nursing Council Act of 1947; the Indian Medical Council Act of 1956 and Regulations of 2002; The Rehabilitation Council of India Act of 1992, the Indian Medicine Central Council Act of 1970, the Homeopathy Central Council Act of 1973, the Dentists Act of 1948, the Pharmacy Act of 1948, and the Clinical Establishment Act of 2010 are all examples. In addition to these laws, other laws, such as the Indian Penal Court's (IPC) provisions and the Consumer Protection Act (CPA), 1986, require the safety and quality of medical services. Less attention has been paid to health promotion in these acts, which specify the medical negligence and duties and responsibilities of healthcare professionals.

B. Protection of Human Rights and Dignity: a) The Human Rights Act: It is well known that social divisions based on political party, religion, caste, race, color, and other factors lead to health disparities. Human rights violations frequently result in negative health outcomes, while regaining these rights guarantees improved health. According to the Act's Section 2, "human rights" are those

that pertain to an individual's life, liberty, equality, and dignity and are protected by the Constitution or enshrined in international covenants that are upheld by Indian courts.

This law establishes the framework for a national human rights commission, state human rights commissions in each state, and human rights courts to improve the defense of human rights.

b) The 1989 Scheduled Tribes and Scheduled Castes (Prevention of Atrocities) Act: High rates of sickness and mortality are caused by the widespread practice of physical and psychological torture of Scheduled Castes (SCs) and Scheduled Tribes (STs) in Indian society. The purpose of this act is to stop atrocities from being committed against members of the Scheduled Caste and Scheduled Tribes, to establish Special Courts for the trial of such crimes, and to provide victims with redress and rehabilitation.

C. To Prevent Public Health Issues: These laws, like the Epidemic Diseases Act of 1897, are primarily concerned with safeguarding individuals against illnesses. In order to prevent diseases from spreading to uninfected people, this Act regulates how diseased or contaminated deceased bodies should be handled during epidemics. Information about preventive strategies and elements of health education are also covered.

The 1987 Mental Health Act: The necessity of treating mentally ill individuals humanely has been highlighted by this Act. Simultaneously, there is a push to raise people's awareness of the causes and other facts of mental illnesses.

D. To Stop Tobacco Use and Other Substance Use: The Cigarette and Other Tobacco (Prohibition of Advertising and Regulation of Trade and Commerce, Production, Supply, and Distribution) Act of 2003: It is widely acknowledged that tobacco use is one of the biggest threats to public health and that it both directly and indirectly causes high rates of morbidity and mortality. The Parliamentary Committee of Subordinate Legislation (10th Lok Sabha) suggested the necessity for comprehensive legislation to curb advertising and regulate the manufacture, distribution, and supply of cigarettes and tobacco products. This was confirmed by the Indian Parliament, which enacted the Smoking Act on May 18, 2003. Smoking is not permitted in public areas, and no kind of smoking promotion is permitted.

The 1985 Act on Narcotic Drugs and Psychotropic Substances: Many young people in their prime put their lives at jeopardy when they become addicted to drugs. Since drug trafficking is linked to numerous crimes, such as theft and sexual offenses, legal regulation is intended to reduce the threat of drug abuse. In addition to implementing the provisions of the International Conventions on Narcotic Drugs and Psychotropic Substances, this Act addresses narcotic drugs, psychotropic substances, and property obtained from or utilized in the illegal trafficking of these substances.

E. Safe nutrition for health promotion

The Prevention of Food Adulteration Act of 1954: Although food is a basic human and animal need, eating tainted food can also be fatal. Food that is safe and of high quality must be available in order to sustain vitality and excellent health. Under this Act, provisions can be made to iodize salt, fortify with vitamin vanaspati oil, add vitamin "C" to specific meals, and enrich wheat, bread, or other cereals with vitamins or minerals.

F. To Promote Women's Empowerment and Maternal Health

a) The Maternity Benefit Act of 1961: This law protects and empowers women in the workforce. It is crucial to offer working women maternity protection in order to stop discriminatory hiring practices and the exploitation of women in the workforce, as well as to preserve the health and welfare of the mother and child. India as a whole is covered under the Act. It is applicable to any business where ten or more people are employed, including mines, factories, manufacturing

facilities, retail stores, etc.

b) The Family Court Act of 1984: it allows state governments to create family courts in order to foster reconciliation and provide prompt resolutions of conflicts pertaining to marriage and family matters. Family conflicts and violence must be addressed at the family level because they are linked to both physical and mental disorders. The purpose of this legislation is to provide the state government and administrations of Union territories more authority to create Family Courts.

c) The 1961 Dowry Prohibition Act: Dowry has been linked to physical, emotional, and social disorders. Another contributing element to a certain kind of mortality is dower. The dowry prohibition Act was passed in 1961 in order to stop this social ill, which has implications for health. According to this Act, "dowry" refers to any property or valuable security that is given or agreed to be given, directly or indirectly, by one party to the other party to a marriage, by either party's parents, or by any other individual, at any point before or after the marriage; however, it excludes dower or mahr in the case of individuals to whom the Muslim Personal Law applies.

d) The Immoral Traffic (Prevention) Act, 1956: This law was passed in order to implement the international convention for the prevention of immoral traffic that was signed in New York on May 9, 1950. Prostitution is a social ill that is a sign of poverty and unequal resource allocation. It is an indirect sign of drug use, women's decreased status, alcoholism, and a weakened social fabric that contributes to female feticide. The recent rise in HIV and AIDS has once again made society reevaluate the necessity of altering the way that sexuality is conceptualized. The government must take legal action in addition to health measures because of the high rate of sexually transmitted diseases among commercial sex workers and the mortality from HIV and AIDS among them.

G. To protect and safeguard children and young people

a) The Prenatal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994 To protect and safeguard children and young people in order to prevent female feticide, this Act was passed in order to outlaw sex selection, both before and after conception, and to regulate prenatal diagnostic procedures used to identify genetic abnormalities, metabolic disorders, chromosomal abnormalities, certain congenital malformations, or sex-linked disorders.

b) Infant Milk Substitutes, Feeding Bottlers, and Infant Foods (Regulation of Production, Supply & Distribution) Act, 1992: This Act aims to protect and promote breastfeeding, ensure the appropriate use of infant foods, and regulate the production, supply, and distribution of infant milk substitutes, feeding bottles, and infant foods.

C) The 1986 Juvenile Justice Act: This Act complies with India's human rights commitments under the November 1989 United Nations Convention on the Rights of the Child. A number of constitutional provisions, such as clause (3) of article 15, clauses (e) and (f) of articles 39, 45, and 47, also place a major burden of ensuring that children's basic human rights are properly protected and that all of their needs are satisfied on the state. To the greatest extent feasible, the treaty promotes the social reintegration of child victims without resuming legal actions.

The United Nations Convention on the Rights of the Child, the United Nations Standard Minimum Rules for the Administration of Juvenile Justice, 1985 (The Beijing Rules), the United Nations Rules for the protection of Juveniles Deprived for their liberty (1990), and all other pertinent international instruments have been taken into consideration by the Indian government, which has corrected the convention and decided it is necessary to re-enact the current juvenile law. The Act was passed in order to fulfill this purpose.

d) Prohibition and Regulation of Child Labor Act of 1986: When working, a child experiences poor mental, physical, and social development. A child may begin to emulate adult-associated

behaviors such as smoking and visiting commercial sex workers. Poor and dangerous working conditions have a more negative impact on these kids than on adults. Repetitive strains on the sensitive muscles might result from prolonged physical exertion and create irreversible impairment. Children's employment in some occupations is prohibited under the Child Labor (Prohibition and Regulation) Act, which also regulates the working conditions for children in some other occupations. It covers the entirety of India.

e) Child Marriage Prohibition Act of 1929: This measure is practical in preventing juvenile marriages from being formally consummated. Civilized culture considers child marriage to be a societal evil. In Rajasthan and Madhya Pradesh, however, these kinds of unions are still typical and are typically accepted by the social, religious, and governmental structures. It must be recognized that merely prohibiting such atrocities by law won't stop them from occurring unless society recognizes their detrimental effects on human development.

G. To Protect Workers and Provide Social Security: The Minimum Wages Act of 1948, the Dangerous Machine (Regulation) Act of 1983, the Plantation Labor Act of 1951, the Factories Act of 1948, the Mines Act of 1952, the Employees State Insurance (ESI) Act of 1948, the Workmen's Compensation Act of 1923, the Bonded Labor System (Abolition) Act, the Trade Union Act of 1926, the Dock Workers (Safety, Health, and Welfare) Act of 1986, the Mines Labor Welfare Fund Act of 1972, the Bidi Workers Welfare Fund Act of 1972, the Cigar Workers (Conditions of Employment) Act of 1966, and the Contract Labor (regulation & Abolition) Act of 1970 are among the laws that are enforced in India to protect workers and provide social security to workers and their families.

The Contract Labor (Regulation & Abolition) Act of 1970 and the Cigar Workers (Conditions of Employment) Act of 1966. These laws aim to safeguard employees from risks so they don't get illnesses or injuries at work, but they also aim to improve their health by enhancing their skills and diet.

Law pertaining to women workers: The percentage of economically active women is higher now than it has ever been in history. Nontraditional "female-intensive" occupations, such as teaching, secretarial nursing, clerical work, etc., employed the majority. These occupations have health risks as well, but their pay is only somewhat lower than that of their male counterparts. Because they are not organized and their rights are not asserted in the workplace, women are more susceptible to sexual, emotional, and physical abuse. The 1948 Factories Act forbids women from working in dangerous jobs and grants a 12-week maternity leave. Male and female employees have separate restrooms and laundry rooms.

There are also crèches available when fifty or more women work. Women and children are similarly protected by the ESI (General) Regulation, 1950, the Plantation Act, the Mines Act, the Equal Remuneration Act, the Bidi and Cigar Workers (Conditions of Employment) Act, 1966, and the Control Labor (regulation and Abortion) Act.

H. Laws Concerning the Environment: Any undesired alteration to the physical, chemical, or biological properties of our surroundings—that is, the air, water, and soil—that could or will have a negative direct or indirect impact on people, other species, and the life support systems of our biosphere is referred to as pollution. When discussing environmental pollution, we typically attempt to ignore the social and psychological context. Environmental influences could include things like diet, alcohol consumption, risky conduct, criminal activity, and many more. For a fundamental understanding, the main sources of pollution are modern agriculture, industry, motor transportation, and the use of fossil fuels. The preservation of the environment directly benefits human health.

The government has periodically passed a number of laws in this regard, including the Destructive Insect & Pest Act of 1914, the Wild Life (Protection) Act of 1942, the Atomic Energy Act of 1962,

the Water (Prevention and Control of Pollution) Act of 1974, the Air (Prevention and Control of Pollution) Act of 1981, the Environment (Protection) Act of 1986, and the Motor Vehicles Act of 1988.

I. To Encourage Voluntary function: To promote and safeguard people, the Indian government has allowed voluntary organizations to function in the fields of social work, education, the environment, and health. Among the well-known laws are the Societies Registration Act of 1860 and the Red Cross Society (Allocation of Property) Act of 1936.

7.5 Let Us Sum Up

India lacks a comprehensive National Public Health Act that would address environmental sanitation, including safe water supply, waste disposal, monitoring of communicable and non-communicable diseases, epidemic and disaster preparedness, and preventive and curative health care services. Public health professionals are given enormous power by numerous laws, which must be utilized. Permits, licenses, and registrations; administrative orders; civil penalties; and injunctions are some of the main enforcement measures available to public health officials, including inspectors and health officers with different designations. However, corruption has the biggest impact on these tools.

Every public health law uses these methods to enforce its provisions, and laws are ineffectual when they lack them. But there are a lot of other reasons why laws don't work, like ignorance or a lack of infrastructure. Through legal education and engaging with the public, our social activists, with the aid of the media, have a significant role to play in the achievement of the fundamental rights outlined in the Indian constitution. These laws offer a broad framework for enhancing public health, and anyone who attempts to jeopardize public health or life may face consequences.

Sadly, there are a number of reasons why these health laws are not actually being implemented, and social, psychological, and physical risk factors continue to jeopardize public health.

7.6 Check Your Progress

Short Answer Questions (2–3 lines each)

1. What is the primary role of **legislations** in improving the health and nutritional status of people?
2. Mention any two **constitutional provisions** in India that relate to health and nutrition.
3. What is meant by **food security** in the context of public health?
4. Name any two important **health-related legislations** implemented in India.

Long Answer Questions (in detail)

1. Explain how the **Indian Constitution** supports the promotion of health and nutritional security through various provisions and directives.
2. Discuss the **relationship between legislation and nutritional improvement**, highlighting how laws ensure food safety, quality, and accessibility.
3. Describe the major **health-related legislations in India** and their role in safeguarding public health (e.g., Food Safety and Standards Act, National Food Security Act, etc.).
4. Analyze the **nutritional and food security status** in India and explain how effective legal frameworks can address the existing challenges in ensuring adequate nutrition for all.

Glossary

Child Marriage Prohibition Act of 1929: This measure is practical in preventing juvenile marriages from being formally consummated. Civilized culture considers child marriage to be a societal evil. In Rajasthan and Madhya Pradesh, however, these kinds of unions are still typical and are typically accepted by the social, religious, and governmental structures.

Dowry: Dowry" refers to any property or valuable security that is given or agreed to be given, directly or indirectly, by one party to the other party to a marriage, by either party's parents, or by any other individual, at any point before or after the marriage; however, it excludes dower or mahr in the case of individuals to whom the Muslim Personal Law applies**.**

The 1961 Dowry Prohibition Act: Dowry has been linked to physical, emotional, and social disorders. Another contributing element to a certain kind of mortality is dower. The dowry prohibition Act was passed in 1961 in order to stop this social ill, which has implications for health. According to this Act, "dowry" refers to any property or valuable security that is given or agreed to be given, directly or indirectly, by one party to the other party to a marriage, by either party's parents, or by any other individual, at any point before or after the marriage; however, it excludes dower or mahr in the case of individuals to whom the Muslim Personal Law applies.

Prohibition and Regulation of Child Labor Act of 1986: When working, a child experiences poor mental, physical, and social development. A child may begin to emulate adult-associated behaviors such as smoking and visiting commercial sex workers. Poor and dangerous working conditions have a more negative impact on these kids than on adults. Repetitive strains on the sensitive muscles might result from prolonged physical exertion and create irreversible impairment.

Unit VIII : NUTRITION PLAN OF ACTION

STRUCTURE

8.1 INTRODUCTION

The National Nutrition Strategy (NNS) was released by NITI Aayog in 2017. The National Nutrition Strategy's key features are as follows: "**Kuposhan Mukt Bharat"** is the 2022 Vision.

Objectives and goals

By 2022, the underweight prevalence in children (0-3 years) will be reduced by 3 points per year from NFHS-4 levels.

Reduced anaemia by one-third in children, adolescents, and women of reproductive age.

Key critical areas for action include:

1. Reforming the governance
2. Setting an example
3. Convergence
4. Prioritise actions
5. Increasing Counselling to Reach the Critical Age Group
6. Care Continuum
7. New service delivery models.
8. Monitoring conducted in the community
9. Activating actions

Interventions focused on nutrition:

- Care and nutrition for infants and young children
- Infant and Young Child Health.
- Maternal care, Nutrition, and Health
- Adolescent care, nutrition, and health.
- Addressing micronutrient deficits, including anemia.
- Community nutrition (interventions that address the community)

Funding (leveraging):

- National Rural Health Mission
- National Nutrition Mission
- The Integrated Child Development Scheme

- The Swachh Bharat Mission
- Increased availability of 25% flexi funding for states in centrally supported initiatives.
- The Government of India is conducting numerous policies and programs to reduce malnutrition, which include:
- MoHFW, under the aegis of National Health Mission (NHM), has established the following schemes and programs to address the issue of malnutrition:
- Promotion of proper Infant and Young Child Feeding (IYCF) practices, such as early breastfeeding initiation and exclusive breastfeeding until 6 months of age, by ASHA workers and health care providers at health facilities. To encourage and support breastfeeding, the government established the "MAA- Mothers' Absolute Affection" campaign to increase breastfeeding coverage and acceptable breastfeeding habits in the country.
    - A stronger emphasis is being placed on improving the capacity of health professionals in lactation management at both the community and facility levels, as well as a 360-degree IEC campaign to raise breastfeeding awareness.
    - Vitamin A supplementation (VAS) for youngsters under the age of five years.
    - The 'National Iron Plus Initiative' has been created as an effective method for supplementing and treatment of anemia in children, adolescents, pregnant and breastfeeding mothers, using a life cycle approach. Specific programs for preventing and treating micronutrient deficiencies with Iron and Folic Acid (IFA) supplementation across life stages include:
    - Bi-weekly IFA syrup supplementation for children aged 6–59 months.
    - Weekly IFA pill supplementation for children aged 5–10 and teenagers aged 10–19 years.
    - IFA supplements to pregnant and nursing women.
- National Deworming Day is a set day plan for administering Albendazole pills to all children aged 1 to 19 years old via the platforms of AWCs and schools. Since 2014, more than 75 crore doses have been delivered.
- An Intensified diarrhea Control Fortnight (IDCF) is being held in July-August to raise awareness about the use of ORS and Zinc in diarrhea, with the ultimate goal of 'zero child fatalities due to childhood diarrhoea'.
- ASHA receives incentives for tracking low-birth-weight newborns.
- Encourage the consumption of iodised salt and monitor salt quality through testing as part of the National Iodine Deficiency Disorders Control Programme.
- The Rashtriya Bal Swasthya Karyakram (RBSK) makes systematic attempts to discover nutritional deficiencies in children and adolescents.
- Mission Indradhanush: Launched on December 25, 2014, with the purpose of ensuring high coverage of children with all vaccinations in specified areas, with the ultimate goal of achieving 90% complete immunization coverage across India.
- Rashtriya Bal Swasthya Karyakram (RBSK) expands the reach of mobile health teams at the block level and establishes District Early Intervention Centres (DEICs) in districts to provide early intervention services to children.

- The Ministry of Health & Family Welfare and the Ministry of Woman and Child Development have collaborated to address nutrition issues in children, pregnant women, and breastfeeding mothers through Village Health and Nutrition Days and the Mother and Child Protection Card programs. Village Health and Nutrition Days (VHNDs) are monthly events organized at the village level at Anganwadi centres to raise awareness and effect desired changes in dietary practices, including the encouragement of breastfeeding.
- MWCD has implemented several malnutrition-related schemes, including the Umbrella ICDS scheme, which addresses undernutrition in pregnant and lactating women, under-6 children, and out-of-school adolescent girls through Anganwadi Centers (AWCs). Additionally, the National Nutrition Mission has been approved by MWCD to address malnutrition in the country holistically.

8.2 A) Core strategies of National Rural Health Mission

- To improve public health services, Panchayati Raj Institutions (PRIs) will be trained to own, control, and manage them.
- Female health activists (ASHAs) will promote access to healthcare at the household level. The Village Health Committee of the Panchayat will create a health plan for each village.
- An untied fund will be established to strengthen sub-centres and increase the number of multi-Purpose Workers (MPWs). Existing PHCs and CHCs will be strengthened.
- The District Health Mission created and implemented an inter-sectoral District Health Plan, including drinking water, sanitation, hygiene, and nutrition.
- Integrating vertical health and family welfare programs at the national, state, block, and district level.
- Provide technical support to National, State, and District Health Missions for Public Health Management.
- Improving data collection, evaluation, and review to enable evidence-based planning, monitoring, and supervision.
- Developed open policies for deploying and developing human resources in healthcare.
- Developing preventive health care at all levels to promote healthy lifestyles and reduce tobacco and alcohol usage.
- Promoting the non-profit sector, especially in underserved regions.

B) Supplementary Strategies

- Regulating the private sector, including informal rural practitioners, to ensure quality services at reasonable costs.
- Promoting public-private partnerships to achieve public health goals.
- Mainstreaming AYUSH to revitalize local health traditions.
- Reorienting medical education to support rural health issues, including regulation of medical care and ethics.
- Implementing effective risk-management strategies.

Check your progress: Exercise 1

1. What are the core strategies of National Rural Health Mission

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2. Explain supplementary strategies of National Rural Health Mission

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8.2.1 Plan of Action

Component (A): Accredited Social Health Activists

- Every community and major environment will have a female. Accredited social health Activist. The panchayat appoints an activist (ASHA) to serve as a liaison between the community and the public health system. States can select State-specific models. The ASHA serves as a liaison between the ANM and the village, answerable to the Panchayat.
- As an honorary volunteer, she will get performance-based income for promoting universal vaccination, referral and escort services for RCH, home toilet building, and other healthcare delivery programs.
- She will get training in public health pedagogy from a national Standing Mentoring Group, which will include best practices and engage community health resource groups.
- As part of the Panchayat's Village Health Committee, she will lead the design and execution of the Village Health Plan in collaboration with Anganwadi workers, ANMs, departmental officials, and Self-Help Group members. She will be promoted across the country, with a concentration on the top 18 states. The Indian government will provide training, incentives, and medical kits. The other components will be supported by the Financial Envelope provided to the states under the program.
- A drug kit with allopathic and generic AYUSH formulations for common illnesses will be delivered to her. Periodically, the medication kit would be restocked.
- ASHA induction training will take place over a 12-month period, totaling 23 days.on-the-job training would continue.
- Training material prototypes will be created at the federal level, with state-level adjustments

possible.

- The Training of Trainers presented a cascade model of training that incorporates both contract and distant learning.
- Collaboration with NGOs/ICDS Training Centers and State Health Institutes would be necessary for training.

Component (B): Strengthening sub-centres

- Every sub-center will have a Rs. 10,000 annual Untied Fund for local action. The Village Health Committee will be consulted before the ANM operates the fund, which will be deposited in a joint bank account of the ANM and Sarpanch.
- Provision of AYUSH and allopathic vital medications to the sub-centers.
- Where necessary, Multipurpose Workers (Male) and Additional ANMs will be taken into consideration, together with the approval of new Sub-centers in accordance with the 2001 population norm and the renovation of existing Sub-centers, including buildings for Sub-centers operating in rented space.

Component (C): Primary health centers are strengthened.

Our mission is to strengthen PHC's capacity to provide high-quality preventative, promotional, curative, supervisory, and outreach services by:

- Providing PHCs with a sufficient and consistent supply of necessary, high-quality medications and equipment, such as auto-disabled syringes for immunizations
- By addressing the physician shortage, particularly in high-focus states, by mainstreaming AYUSH personnel, 50% of PHCs will offer 24-hour service.
- Enhanced ongoing communicable disease control programs, new noncommunicable disease control programs, upgrading 100% PHCs for 24-hour referral services, and providing a second doctor at the PHC level (one male, one female) would all be implemented based on perceived need if additional expenditures were necessary.

Component (D): Improving CHCs For Original Care

Objectives

- Converting 3222 current community health centers (30–50 beds) into 24-hour first referral units, complete with anesthetist postings.
- New Indian Public Health Standards are codified, establishing guidelines for CHC management, personnel, equipment, and infrastructure.
- Rogi Kalyan Samitis, or stakeholder committees, are being promoted for hospital administration.
- The establishment of service and pricing criteria for hospital care.
- Create, exhibit, and make sure that the Citizen's Charter is followed at the CHC/PHC level.
- If more expenditures are required, the establishment of new community health centers with 30–50 beds to accommodate the population norm as determined by the 2001 Census and cover their ongoing expenses over the mission period may be taken into consideration.

Component (E): The district health plan is

- State and national priorities for health, water supply, sanitation, and nutrition, as well as field responses from Village Health Plans, would be combined into the District Health Plan.
- The main unit of action suggested in areas such as nutrition, sanitation, water supply, and hygiene would be health plans. For monitoring purposes, implementing departments would integrate with the District Health Mission.
- The district is now the main organizing, budgeting, and implementation entity.
- After consulting with the states, centrally sponsored schemes could be redesigned or rationalized.
- The idea of "funneling" cash to the district for efficient program integration
- Every vertical health and family welfare program at the state and district levels is combined into a single "State Health Mission" at the state level and a single "District Health Mission" at the district level.

For better program management, a Project Management Unit is provided for each district through the contractual employment of an MBA, Inter Charter/Inter Cost, and Data Entry Operator.

Component (F): convergence of sanitation and hygiene

- The Total Sanitation Campaign (TSC) is already being carried out in 350 districts, and the 10th Plan calls for its expansion to all districts.
- IEC programs, rural sanitary marts, individual family toilets, women's sanitary complex, and the school sanitation program are all parts of TSC. Like the DHM, Panchayati Raj Institutions (PRIs) are used to execute the TSC.

Thus, the District Health Mission would direct sanitation efforts at the district level, support the Village Health & Sanitation Committee, a combined IEC for public health, sanitation, and hygiene, and encourage the use of family toilets and the School Sanitation Program. The Mission would provide incentives to ASHA for developing household toilets.

Component (G): Improved disease control programs

- To optimize program delivery, the Mission will incorporate the National Disease Control Programs for Malaria, TB, Kala Azar, Filaria, Blindness & Iodine Deficiency, and Integrated Disease Surveillance Program.
- New initiatives to manage non-communicable diseases would be introduced.
- The village-level disease surveillance system would be reinforced.
- Provision of generic medications (AYUSH and allopathic) for common conditions at the village, SC, PHC, and CHC levels.
- The district-level provision of a mobile medical unit for enhanced outreach services.

Component (H): FINANCIAL MECHANISMS FOR HEALTH

A task group will look at innovative ways to pay for healthcare, such as risk pooling for hospital care.

- Using the tenet that "money follows the patient," the District Health Missions are gradually shifting to reward hospitals for services rendered.

he pay component of all current CHCs should be paid on a monthly basis, and a National Expert

Group will oversee these standards and provide pertinent advice and information on procedures and cost comparisons. Service providers may receive reimbursement from the District Health Fund for additional ongoing expenses. During the Mission term, the CHC may cover all expenses, including pay paid for labor performed.

A system of district health accounting and the establishment of an ombudsman

- Sufficient technical management and accounting assistance must be given to oversee the District Health Fund Management and implement remedial measures.
- The mission will support the establishment of viable Community Based Health Insurance Schemes (CBHI) wherever they already exist or are being introduced.
- To promote such CBHIs, the IRDA will be contacted; these will be periodically assessed for effective delivery; the central government will oversee the programs and provide subsidies to pay a portion of the premiums for the needy.

Component (I): CHANGING MEDICAL AND HEALTH EDUCATION TO SUPPORT RURAL HEALTH ISSUES

- Despite having to be situated in urban areas, district and tertiary hospitals are essential to the referral care chain that meets the needs of rural residents.
- States must build facilities for medical and paramedical education based on needs assessments.

The Commission for Excellence in Health Care (Medical Grants Commission), the National Institution for Public Health Management, and other organizations are suggested.

The task group will enhance the guidelines and information.

Component J: Institutional mechanisms

- Rogi Kalyan Samiti (or equivalent) for community administration of public hospitals; Village Health & Sanitation Samiti (at the village level) made up of Panchayat Representatives, ANM/MPW, Anganwadi workers, teachers, ASHA, and community health volunteers
- Zila Parishad leads the District Health Mission, which is chaired by the Chief Minister and co-chaired by the Health Minister. The State Health Secretary serves as the Convener, representing all relevant departments, NGOs, private professionals, etc. at the State Health Mission.
- Integration of the National and State Departments of Health and Family Welfare; An Empowered Programme Committee, led by Secretary HFW, to serve as the Mission's Executive Body; A Standing Mentoring Group to direct and supervise the execution of the ASHA initiative; and a National Mission Steering Group, chaired by the Union Minister for Health & Family Welfare with the Deputy Chairman Planning Commission, Ministers of Panchayat Raj, Rural Development, and Human Resource Development, as members, to provide policy support and guidance to the Mission
- Task Groups for Certain Time-Bound Tasks

Component K: Technical support

A) The mission requires a significant amount of technical support in order to be effective. This support would include reorienting toward public health management, repositioning existing

health resource institutions such as the State Institute of Health & Family Welfare (SIHFW), Population Research Center (PRC), and Regional Resource Center (RRC), involving non-governmental organizations as resource organizations, improving the health information system, and providing support at all levels, including the national, state, district, and sub-district levels. The Program Management Support Center and the Health Trust of India are two separate support mechanisms that the mission would need.

B) India's Health Trust

- Designed as a knowledge-based organization, it will serve as a repository for health information systems, planning, monitoring, and evaluation, research, and documentation, among other innovations.
- To create Public Accountability Systems, such as community-based feedback channels, external assessments, and PRI and NGO engagement, among others.
- To create an innovation framework that supports the impoverished
- To examine health-related laws.
- An area to support action research and experimentation.
- For networking inside and between sectors with both domestic and foreign organizations.
- A think tank for creating a sector-wide long-term vision and strengthening PRIs', districts', and other planning capacities.

Component L: Under NRHM, the function of state governments

- The entire nation is served by the Mission. Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Orissa, Uttaranchal, Jharkhand, Chhattisgarh, Assam, Sikkim, Arunachal Pradesh, Manipur, Meghalaya, Tripura, Nagaland, Mizoram Himachal Pradesh, and Jammu & Kashmir are the 18 states with the highest priority. These 18 states with a high priority would get funds from the GoI for essential components. Interventions like ASHA, Program Management Units (PMU), and SC/PHC/CHC upgrades would be funded by other states using the Integrated Financial Envelope. NRHM offers a comprehensive conceptual foundation. In their State Action Plans, states would include operational modalities that would be determined after consulting the Mission Steering Group.

Funding for resolving intra-district and interstate gaps in health infrastructure and indicators would be given priority by NRHM.

- In accordance with the 73rd Constitution (Amendment) Act, states would sign Memorandums of Understanding with the Government of India committing to raising their contributions to the Public Health Budget (ideally by 10% annually), giving Panchayati Raj Institutions more authority, and setting performance standards for the distribution of funds.

Component M: Mission: North Eastern States.

- The Mission has chosen the eight North East States—Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura—for particular attention.
- Greater flexibility for the Ministry of Health & Family Welfare's 10% pledged expenditure for North East States would result from empowerment of the mission.
- Under the Mission, states will receive assistance with the development and enhancement of health infrastructure, greater mobility, contractual engagement, and technical support.

- The North Eastern States' Regional Resource Center is supported by NRHM.
- Funding would be provided through state-specific programs and efforts to address local health challenges holistically.

Component N: Role Of Panchayati Raj Institution

The Mission envisions PRIs doing the following roles:

- States should state in their Memorandums of Understanding that they will delegate health-related finances, personnel, and programs to PRIs.
- The Zila Parishad will be in charge of the District Health Mission. ASHAs will be chosen by and answerable to the Village Panchayat, while the DHM will oversee, direct, and manage all public health facilities in the district, including Sub-centers, PHCs, and CHCs.
- The Panchayat's Village Health Committee would create the Village Health Plan and encourage intersectional integration.
- A 10,000-rupee annual Untied Fund for local action will be established in each sub-center.

Component O: The role of NGOs in the mission

- Participating in task groups, ASHA's Standing Mentoring Group, and other institutional arrangements at the national, state, and district levels;
- Offering ASHAs and DHM training, BCC, and technical support; · Health Resource Organizations;
- Providing services to specific population groups on specific themes; · For monitoring, evaluation, and social audit

Component P: MAINSTREAMING AYUSH

- To improve the public health system at all levels, the Mission aims to revive regional medical customs and mainstream AYUSH resources, such as personnel and medications.
- The Drug Kit given to ASHA at the village level must contain AYUSH medications.
- The Mission's supplementary supply of generic medications for common illnesses at the Subcenter, PHC, and CHC levels must also contain AYUSH formulations.
- Under the Indian Public Health System (IPHS) paradigm, two rooms would be available for AYUSH practitioners and pharmacists at the CHC level. · PHCs with one doctor will be converted to two

Component Q: Funding Arrangements

- The Mission is designed to be an umbrella program that encompasses the current health and family welfare initiatives, such as the Integrated Disease Surveillance Program, the RCHII, the National Disease Control Programs for Malaria, TB, Kala Azar, and Filaria, as well as the Blindness & Iodine Deficiency Program. In B.E. 2006–07, the national and state budget heads for NRHM will be established. In the beginning, the NRHM will continue to serve as the Sub-Budget Head for the vertical health and family welfare programs.

In 2005–06, the NRHM spent approximately Rs. 6700 crores.

- To meet the National Common Minimum Program's mandate to increase public health spending from 0.9% of GDP to 2-3% of GDP, the Mission plans to increase annual

budgetary expenditures by 30%. · The NRHM expenditure will be decided in accordance with this allocation. It is anticipated that the States will increase their Public Health Budget contributions by at least 10% annually in order to finance the Mission's operations. With a focus on 18 high-priority states, funds will be disbursed to states via SCOVA, primarily in the form of financial envelopes.

Component R: RESULTS

(a) At the national level, the infant mortality rate decreased to 30 per 1000 live births, the maternal mortality ratio decreased to 100 per 100,000, the total fertility rate decreased to 2.1, the malaria mortality rate decreased by 50% until 2010, then by 10% by 2012, and the Kala Azar mortality rate decreased by 100% by 2010 and continued to be eliminated until 2012. Reduction rate of Filaria/Microfilaria: 70% by 2010, 80% by 2012, and eradication by 2015, 50% reduction in dengue mortality by 2010 and maintenance of that level till 2012, By 2010, the Japanese encephalitis fatality rate was reduced by 50%, and it remained there until 2012. Up till 2012, cataract operations will increase to 46 lakhs annually.

The prevalence rate of leprosy decreased from 1.8/10,000 in 2005 to less than 1/10,000 after that. Throughout the duration of the mission, maintain an 85% cure rate for tuberculosis DOTS services.

(b) Raising First Referral Unit Utilization from less than 20% to 75% ß Bringing Community Health Centers up to Indian Public Health Standards ß Activating 250,000 female Accredited Social Health Activists (ASHAs) across 10 States.

At the village level, there is a certified community worker available, along with a medication package for common illnesses.

Anganwadi-level health days are held on a designated day or month to provide immunizations, prenatal and postnatal exams, and services pertaining to mother and child health, including nutrition.

Generic medications for common illnesses are available at the sub-center and hospital levels; good hospital care is ensured by the availability of physicians, medications, and high-quality services at the PHC/CHC level; and universal immunization is made easier through the use of auto-disabled syringes, alternative vaccine delivery methods, and enhanced program mobilization services.

At the village level, there is a certified community worker available, along with a medication package for common illnesses.

On a designated day or month, Anganwadi-level health days are held to provide immunizations, prenatal and postnatal exams, and services pertaining to mother and child health, including nutrition.

Generic medications are available for common illnesses at the sub-center and hospital levels. Good hospital care is ensured by the availability of physicians, medications, and high-quality services at the PHC/CHC level. Better access to universal immunization is made possible by the introduction of auto-disabled syringes, alternative vaccine delivery methods, and enhanced program mobilization services.

Component S: Observation and assessment

- Health management information systems should be created up to the CHC level and made accessible online for public review
- Sub-centers must report performance to Zila Parishad's District Health Mission, Rogi Kalyana Samitis' hospitals, and Panchayats
- The District Health Mission will keep an eye on CHC-level adherence to the Citizen's Charter. The government will work with non-governmental organizations to create the

annual district reports on people's health. Health reports from states and the federal government will be presented to parliament and assemblies. Social audit and external appraisal via NGOs or professional associations

- Midterm evaluations and necessary adjustments.

8.3 INTEGRATED CHILD DEVELOPMENT SERVICES

Since children are a country's most precious resource, it is the nation's only duty to invest in their education and general well-being.

A foundation for the protection and care of women and children is provided by the Indian constitution itself. "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 one of its primary duties and, in particular, the state shall endeavour to bring about prohibition of the consumption of intoxicating drinks and of drugs which are injurious to health except for medicinal purposes," according to Article 47 of the Directive Principles of State Policy.

Introduced on October 2, 1975, as an experimental program in 33 ICDS blocks, the Integrated Child Development Services scheme (ICDS) was progressively expanded to 6284 until 2008. India has responded to the problem of ending the cycle of malnutrition, stunted growth, illness, and death in early children by implementing ICDS. It provides comprehensive responses to the interconnected requirements of teenage girls, pregnant women, nursing mothers, and children under the age of six.

8.3.1 Services

In order to meet the multifaceted and interconnected needs of children, a comprehensive and economical package of integrated services is offered, including Supplementary Nutrition, Immunization, Health Check-up, Referral Services, Nutrition and Health Education, and Non-formal Pre-school Education. The main location for service delivery is the Anganwadi Center. Through the network of health services in the project area, the Anganwadi offers immunizations and health examinations.

8.3.2 Pattern

With 100% financial support for all inputs except supplemental nutrition, where the States were to provide, ICDS is a centrally supported program run by the State Government/UT Administration. Supply with their own funds. However, due to budget limitations, many states were not allocating enough money for supplemental nutrition. Therefore, starting in 2005–06, it was determined to provide States with up to 50% of the financial standards or 50% of the money they spend on supplemental nutrition, whichever is lower. According to established guidelines, the recipients must receive supplemental nourishment for 300 days out of the year.

8.3.3 Norms for Supplementary Nutrition

Generally speaking, an attempt should be made to offer daily nutritional supplements to the degree mentioned below:

Beneficiaries	Calories (Cal)	Calories (Cal) Revised*	Protein (g)	Protein (g) Revised*
Children (6 to72 months)	300	500	8-10	12-15
Severe malnourished children (twice the quantity above) on doctor	600	800	16-20	20-25

recommendation after a health examination				
Adolescent girls and mothers who are pregnant or nursing (P & L) (under KSY)	500	600	20-25	18-20

8.3.4Cost-Based Guidelines for Supplementary Nutrition

The updated financial guidelines are listed below in an effort to raise the standard of supplemental nutrition.

Beneficiaries	Existing (per beneficiary per day w.e.f. 19.10.04);	Revised (per beneficiary per day)
Children (6 to72 months)	Rs 2.00	Rs 4.00
Severe malnourished children (twice the quantity above) on doctor recommendation after a health examination	Rs 2.70	Rs 6.00
Adolescent girls and mothers who are pregnant or nursing (P & L) (under KSY)	Rs 2.30	Rs 5.00

8.3.5 Coverage

Up until September 2008, the ICDS program has grown to 6284 projects, 6120 of which were now active. There are 10, 23,307 operating AWCs in total.

8.3.6 Beneficiaries

Approximately 830.90 lakh people are now receiving services under the program, including 14.75 million expectant and nursing women and 89.84 million children.

The ICDS team is made up of Child Development Project Officers (CDPOs), Supervisors, Anganwadi Workers (AWW), and Anganwadi Helpers. Additional Child Development Project Officers (ACDPOs) are a component of the ICDS Team in larger tribal and rural projects. The Anganwadi Worker and Helper are the grassroots level officials responsible for delivery of services at the Anganwadi level.

They receive monthly honoraria and are considered honorary employees of the community. Project-level Scheme implementation is the responsibility of the CDPOs and ACDPOs.

8.3.7 Personnel Training

The most important aspect of the ICDS Program is the training of ICDS functionaries. The efficacy of frontline workers in empowering the community for better child care practices and efficient inter-sectoral service delivery is critical to the program's success. The program includes training for

bureaucrats at all levels. An elite institution for ICDS functionary training is the National Institute of Public Cooperation and Child Development (NIPCCD).

NIPCCD and its Regional Centers provide training for Child Development Project Officers. Selected organizations and State Training Institutes known as the Middle Level Training Centers and the Anganwadi Workers Training Centers created in the States are responsible for organizing training for supervisors and Anganwadi workers.

8.3.8 Connectivity with Other Programs

The ICDS program relies on an intersectoral approach to child development, which necessitates cooperation across all levels of departments and programs.

A strong central collaboration between the Ministry of Women and Child Development, Ministry of Health & Family Welfare, Rural Development, Agriculture, and Department of Drinking Water Supply is necessary for ICDS to accomplish its goals and meet the needs of drinking water, sanitation, and health, among other areas. Likewise, coordination across many departments within the United States is also required.

A Coordination and Advisory Committee has been established at the national level to guarantee coordination between all relevant Ministries and Departments and to occasionally offer suggestions on how to improve service delivery.

Additionally, all State/UTs have been reminded to activate the Coordination Committees at the State, District, Block, and Village levels and to schedule regular meetings.

8.3.9 Impact of ICDS

Several assessment studies on the program's implementation have shown that it has had a major impact, as seen by a decline in school dropout rates, morbidity and mortality rates, and malnutrition levels.

8.4 National Nutrition Mission (NNM)/POSHAN Abhiyaan

The establishment of the National Nutrition Mission (NNM), also known as the POSHAN Abhiyaan, with a three-year budget of Rs. 9046.17 Crore, starting in 2017–18, was authorized by the Union Cabinet, which is led by the Prime Minister, in December 2017. The Prime Minister inaugurated the POSHAN Abhiyaan on March 8, 2018, International Women's Day. In addition to reducing low birth weight infants and other issues impacting the nutritional condition of pregnant women, nursing mothers, and children in our nation, the Mission seeks to lower the prevalence of stunting, anemia, and undernutrition among young children, women, and teenage girls. By 2022, the goal would be to reduce stunting among children aged 0–6 from 38.4% to 25%.

The Government of India's Ministry of Women and Child Development intends to use NNM through convergence, technology use, and a focused strategy. This scheme is expected to help around 10 crore individuals. In stages, every state and district will be covered. The Convergence Action Plan and close monitoring at the local level would form the foundation of the implementation plan. As the highest authority, the NNM will oversee, monitor, set goals, and direct the nutrition-related initiatives throughout the Ministries. Additionally, it seeks to establish Nutrition Resource Centers and engage the public through Jan Andolan in a variety of nutrition-related activities.

It intends to coordinate frontline staff and volunteers, such as Auxiliary Nurse Midwives (ANMs), Self Help Groups (SHGs), Cooperatives, Swasth Bharat Preraks, and Anganwadi Workers (AWWs), in order to provide more extensive and effective outreach.

WASH (Water, Sanitation and Hygiene), De-worming, ORS-Zinc, Food Fortification, Dietary

Diversification, IYCF (Infant and Young Child Feeding), Immunization, ECD (Early Childhood Development) / ECCE (Early Childhood Care and Education), Adolescent Nutrition, Maternal Health and Nutrition, ICT-RTM (Information and Communication, Technology enabled Real-Time Monitoring), and others are some of the main components of nutrition strategies and interventions.

8.4.1 Objectives

The objectives are:

- To decrease low birth weight, stunting, undernutrition, and anemia in early children, women, and teenage girls by 2%, 2%, 3%, and 2% year, respectively.
- To tackle the issue of malnutrition in a mission-oriented manner.
- The World Bank or other multilateral development banks provide half of the overall budget, with the remaining 50% coming from the Center's financial assistance.
- The Union Territories (UTs) without legislature receive 100% of the Center's fiscal assistance, while the northeastern area and the Himalayan States receive 90:10, and the Center and the States split the funding 60:40.

8.4.2 Prevalence

40% of children aged one to four are anemic, and over one-third of children under five experiences stunting and wasting. In 2016, the National Family Health Survey-4 revealed that more over half of women, both pregnant and non-pregnant, were anemic.

8.4.3 Regarding the Report

The third progress report (October 2019–April 2020) uses large-scale datasets to assess the implementation problems faced at different levels and the roll-out status on the ground. These datasets are the Comprehensive National Nutrition Survey (CNNS) and the NFHS-4.States' and UTs' readiness and execution of the mission were the primary topics of the first two Reports, I and II. Drafted in March 2020, the review report does not account for rising rates of poverty and hunger, which are anticipated to have decreased further as a result of COVID-19.

8.4.4 Issues Raised

- When it comes to stunting, India's goals are more cautious than the World Health Assembly's (WHA) worldwide aim, which is a prevalence rate of 5%. India wants to reduce stunting to 13.3% by 2022.
- In comparison to the WHA's goal of halving prevalence levels, the objective of lowering prevalence levels among pregnant women from 50.3% in 2016 to 34.4% in 2022 and among teenage girls from 52.9% in 2016 to 39.66% is likewise regarded as cautious.
- Experts caution that increasing levels of hunger and poverty in the wake of the epidemic might postpone accomplishing the objectives outlined in the Mission.

On Stunting

- To enhance complementary feeding in the Integrated Child Development Services (ICDS) by utilizing complementary food supplements in addition to behavior modification strategies.
- In addition to other socioeconomic variables, to strive for investments in women and girls (education throughout childhood, lowering early marriage and pregnancy, and enhancing care during and after pregnancy).
- To enhance handwashing with soap, water quality, sanitation, and the safe disposal of

children's waste, among other successful measures.

On Wasting

- There is a chance that addressing moderate wasting in addition to severe acute malnutrition (SAM) would result in greater reductions in wasting.
- To expand in order to provide facility-based SAM therapy to everyone who requires inpatient care.
- That a comprehensive national strategy for waste prevention and integrated management be released immediately.

On anemia

To scale up a scenario that only concentrates on health sector initiatives that will result in some degree of improvement in anemia in women who are of reproductive age.

8.5 Let Us Sum Up

India must now step up efforts on several fronts as the National Nutrition Mission continues to play a significant role in the country's fight against malnutrition. The estimates are optimistic and will need to be modified to account for the interruptions in feeding and health services caused by COVID-19.

Rapid transition to a POSHAN-plus strategy is necessary, which calls for a renewed emphasis on other social determinants in addition to resolving the governance issues with the National Health Mission (NHM) and ICDS delivery mechanisms, in addition to further bolstering the mission's four pillars (technology, convergence, behavioral change, and capacity building).

8.6 Check Your Progress

Short Answer Questions (2–3 lines each)

1. What is the main objective of the **National Rural Health Mission (NRHM)**?
2. Who are **Accredited Social Health Activists (ASHAs)** and what is their role in community health?
3. Name any two key services provided under the **Integrated Child Development Services (ICDS)** scheme.
4. What is the primary focus of the **National Nutrition Mission (POSHAN Abhiyaan)**?

Long Answer Questions (in detail)

1. Discuss the **core strategies and components** of the **National Rural Health Mission (NRHM)** that aim to strengthen rural health infrastructure and improve nutrition outcomes.

2. Explain the structure and functioning of the **Integrated Child Development Services (ICDS)** programme, highlighting its services, target beneficiaries, and impact on child and maternal nutrition.
3. Describe the objectives, strategies, and implementation mechanisms of the **National Nutrition Mission (NNM)/POSHAN Abhiyaan**, and how it ensures convergence among various ministries and departments.
4. Analyze the role of **community participation**—including **Panchayati Raj Institutions, NGOs, and AYUSH systems**—in the effective execution of the Nutrition Plan of Action under NRHM.

Glossary

1. National Nutrition Mission (NNM)/POSHAN Abhiyaan: The establishment of the National Nutrition Mission (NNM), also known as the POSHAN Abhiyaan, with a three-year budget of Rs. 9046.17 Crore, starting in 2017–18, was authorized by the Union Cabinet, which is led by the Prime Minister, in December 2017. The Prime Minister inaugurated the POSHAN Abhiyaan on March 8, 2018, International Women's Day. In addition to reducing low birth weight infants and other issues impacting the nutritional condition of pregnant women, nursing mothers, and children in our nation, the Mission seeks to lower the prevalence of stunting, anemia, and undernutrition among young children, women, and teenage girls. By 2022, the goal would be to reduce stunting among children aged 0–6 from 38.4% to 25%.

2. Severe Acute Malnutrition (SAM): A silent killer, malnutrition goes unreported, untreated, and hence unprioritized. The primary reason of this persistently high rate of illness and death in children, particularly those aged 6 months to 5 years, is an imbalance or deficit in the consumption of macronutrients (fat, protein, and carbohydrates) or micronutrients (vitamins, minerals, and trace elements). The range includes moderately acute malnutrition, severe acute malnutrition (SAM), stunting, and underweight. 6.4% of children under 60 months suffer from severe acute malnutrition, making it a medical and social issue. With an estimated 1,390 million people living in India as of right now, just 8.1 million of them are thought to have SAM.

Unit –IX Hazards to Community Health and Nutritional Status

Structure

9.0 INTRODUCTION

Health and nutritional status of an individual can be explained as “condition of the body as influenced by the diet, the level of nutrient in the body and the ability of those levels to maintain normal metabolic integrity.”

Apart from diet and nutrition there are many other factors in the environment that effects the nutritional status of people. In present times some non-nutritional factors pose great hazards and threat to human health. The most important of these factors are as follows –

1- Pollution of water

2- Industrial offense sewage

3- Pesticides residues in foods

4- Adulteration in food items

It is very important for us to make sure that every person tries to stay away from these hazards as much as possible. In the following unit we shall discuss in detail about the types of hazards which the community is facing these days, there causes and possible prevention.

9.1 OBJECTIVES

The objectives of this following unit are as follow –

- To know the various sources of water and the causes of water pollution.
- To know the various types of pesticides and the possible ways by which the mixing of these pesticides in human food can be avoided.
- To know the harms which the industrial sewage does when it is mixed in food items.
- To find out possible ways to minimize the effect of industrial sewage.
- To understand the types of adulterants and also the various tests by which adulteration can be identified.
- To understand the functions and roles of FSSAI.

9.2 POLLUTION OF WATER

Water is important for a person's life. It is required by all human beings without water they would be no life and so clean water from reliable sources is important for growth, development and well-being for people. If safe drinking water is not available for consumption it results in ill health.

Water is required directly for drinking, cooking, washing etc and indirectly for irrigation, construction work, power generation and waste disposal etc.

Water used for human consumption should be fresh, clean, safe and wholesome. Such water is called **potable water**. It can be defined as water which is free form pathogenic agents, harmful chemical substances, odour and unpleasant taste and suspended particles.

Water is called non - potable when it contains the following harmful things –

- Industrial waste
- Domestic waste
- Infective or parasitic agents
- Harmful and poisonous chemical substances
- Suspended particles
- Unpleasant odours and taste

Non potable water should be treated and bacteriologically and chemically tested before consumption.

9.2.1 SOURCES OF WATER

We get water from rain, land surface or from underground source. This water is recycled by nature and in the process of recycling it comes in contact with the various contaminants from the atmosphere, soil and industrial waste etc. This shows that the water from nature is generally unsterile and should be checked and treated before consuming it. We get water from the following sources –

1- **Ground water** – Ground water is cheapest and most easily available source of water. The soil acts as a filter and remove many contaminants from surface water. As water goes deeper, it becomes cleaner.

Advantages of Ground water –

- This water is mostly free from pathogenic microorganism and so usually requires no treatment.
- Even in the dry season we can get water from deep wells.

Disadvantages of Ground water –

- The ground water usually has high mineral content specially the presence of calcium and magnesium makes it hard.
- Pumping is required to get the water form water source.

Types of ground water sources – Types of ground water include the following –

- **Springs** – ground water that finds its way from the surface is called Spring.
- **Wells** – wells are of two types –
  - **Shallow wells** – shallow wells are not very deep and so they can get contaminated from drains and manure etc.
  - **Deep wells** – Deep wells are not easily contaminated but they should not be left open.
- **Tube wells** – they wield water which is bacteriologically safe. They are made up of a galvanized iron pipe which is sunk into the water bearing area and fitted with the strainer at the bottom and a hand pump at the top.

2- **Rain –** rain water is generally clean, bright, sparkling and chemically very soft. However it can get impurities which could enter through the atmosphere like dust, soot and gases like carbon dioxide and ammonia.

3- **Water from Land Surface –**Most of the water that we consume comes from the land surface which originates from land water. The sources of land surface water are as follows –

- **Impounded Reservoirs –** they are also called artificial lakes. They are used to store large quantities of surface water. For example dams are built across rivers and streams to create such reservoirs.
- **Rivers and streams –** In modern times water from rivers and steamers is mostly polluted and it unfit for human consumption. It should be treated before use. Specially during monsoons river water may contain dissolved or suspended purities and may have high bacterial count. Impurities from sewage water, industrial waste and drainage from agricultural areas are generally present.
- **Sea water –** sea water contains large amount of dissolve salts mainly 2.9% sodium chloride.

It cannot be used for drinking unless it is demineralized.

9.2.2 CONTAMINATION OF WATER

Water bodies can be polluted from the following sources –

1- **Domestic Sewage** – It is the primary source of pathogens and putrescible organic substances. Discharge of untreated raw sewage from households and can contaminate water.

2- **Toxic Waste** – waste is considered toxic if it is –

- Poisonous
- Radio active
- Explosive
- Carcinogenic
- Mutagenic (causing damage to chromosomes)
- Teritogenic (causing birth defects)

Sources of toxic chemicals include improperly disposed waste water from industrial plants and chemical process facilities (lead, mercury and chromium).

3- **Pesticides** – when pesticides are used on agricultural area and suburban lawns and water is run of from that area the pesticides gets mix up in water. Pesticides like Chlordane, Dieldrin and Heptachlor are highly toxic to humans.

4- **Solid waste** – If solid waste like garbage, rubbish, electronic waste, trash, construction and demolition waste are improperly disposed, they become a major source of water pollution. Many solid waste such as plastic and electronic waste breakdown and leach harmful chemicals into water making them a source of toxic water pollution.

5- **Sediments** – sediment or silt resulting from soil erosion of construction activity can be carried into water bodies by surface run off.

6- **Thermal pollution** – Heat is also a water pollutant because it decreases the capacity of water to hold dissolved oxygen in solution. This situation is harmful for fish and water eco system. The rise in water temperature is mainly because of global warming.

7- **Petroleum oil Pollution** – It occurs when oil form roads and parking slots is carried in surface run off into water bodies. Oil slicks eventually move towards shore harming equatic life and damaging recreation areas.

8- **Microbiological contaminant** - Microbiological contamination of drinking water is very rampant. The WHO clean water standards require that 98% of the water samples from any one area to be completely free from coliform bacteria. By this measure most (70%) of India's surface water is polluted. In 1990, Government of India survey report showed coliform level to be serious problem at many urban location on the Ganges and on section of other rivers.

Water borne infections prevalent in India are: cholera, gastroenteritis, diarrheal disease, enteric fever, viral hepatitis and guinea worm infestation.

9- **Chemical contaminants -** The possibility of chemical contaminations is tremendous in areas where drinking water is drawn from varied sources like rivers, lakes, ponds, streams, open well, tube well and hand pump, etc. the chemical contaminants so far indentified in the country are : fluoride, arsenic, iron, nitrates and phenols. Out of these, arsenic and fluorides are causing health

problems in the population. These ill-health effects are irreversible in nature and prevention seems to be the only solution.

10- **Arsenic in Drinking water** – Large amounts of arsenic in the geological crust can result in water that has a very high amount of this mineral. At present, this problem has been reported from West Bengal, The source of arsenic in the geological crust is iron pyrites.

11- **Iron** – The problem of excess iron in drinking water is prevalent in 15 states and the Union Territory of Pondicherry. Excess iron in water causes corrosion of water pipes and other installations, specially tube wells. From the health point of view it encourages the growth of bacteria and impairs the digestive process. It also creates an aesthetic problem because of its taste and odour. One can control this problem either by supplying water from alternative sources within the permissible limit of 1.00 ppm or by treatment of water.

12- **Fluoride** – Fluoride poisoning can cause health problems affecting teeth, bones, muscles, the gastrointestinal system and variety of soft tissues in the body. The disease caused by high intake of fluorine, mainly through drinking water is called **fluorosis** which is non reversible in nature. The disease occurs both in young children and older people. In young children the disease affects only the teeth, which is called **dental fluorosis**. In older people the situation is most serious where bones, muscles and soft tissues get affected and the condition is called **skeletal fluorosis**. In the advance stage of clinical manifestations, there is **acute crippling**which adds to social problems.

Dental Fluorosis

Skeletol Fluorosis

Acute Crippling

9.2.3 HAZARDS OF WATER POLLUTION

- Phosphorus and nitrate from fertilizers and detergents contaminates surface waters where they act as nutrient. They promote the growth of oxygen consuming algae which reduces the dissolved oxygen level of water killing fish and other aquatic organism.
- Organic pollutants that get mixed in water through domestic commercial and industrial practices like petroleum refineries, paper mills, breweris, tanneries and slaughter houses etc contaminate the water. This provides nutrition for microorganism there by reducing the dissolved oxygen level of the aquatic system and killing the aquatic organisms.
- The pesticides travel through food chains. When they reach humans they accumulate in the fatty tissues and affect the nervous system.
- The thermal pollution of the water reduces the dissolved oxygen level of the aquatic system making it incapable of supporting life.
- Radioactive pollutants from mining and nuclear power plants enter humans through food and water and get accumulated in the blood, thyroid gland, liver, bones and muscles.
- Fluoride containing pollutants cause fluorosis, which results in neuromuscular, respiratory, gastro intestinal and dental problems.
- Industrial wastes result in the addition of poisonous chemicals such as are arsenic, mercury, cadmium and led etc. which kill aquatic organism and may reach human body through contaminated foods.

Water borne diseases – they can be caused by infective agents that are present in water. For example –

- **Bacteria** – Cholera, typhoid, paratyphoid, bacillary dysentery, infantile diarrhea and gastro enteritis.
- **Viruses** – viral hepatitis and poliomyelitis
- **Protozoa** – amoebiasis, giardiasis
- **Helminthic infective organisms** – for example Ova off roundworm, whipworm and threadworm.

9.2.4 WATER QUALITIES STANDARDS AS PER WHO (1971)

The WHO following five water qualities standards –

1- Microbial pollutants – Standards for bacterial quality of treated water are –

- No sample should contain more than 10 coliform organisms in 100ml of water.
- No sample should contain E. coli in 100 ml of water.
- Coliform organism should not be detectable in 100ml of any two consecutive samples of water.
- Throughout any year 95% of the samples should not contain any coliform organisms in 100 ml of water.

2- Toxic substances –

- Arsenic not more than 0.05 mg per litre.
- Cadmium not more than 0.005 mg per litre.
- Led not more than 0.05mg per litre.
- Mercury not more than 0.001mg per litre.
- Selenium is not more than 0.01 mg per litre.

3- Radio active substances – Pollution of water by radio active substances is on the rise and WHO has set standards for acceptable limits.

4- Other characteristics affecting acceptability – there should be no discoloration, unacceptable odour and taste or dissolve salts affecting pH in water. All these should be within desirable limits set by the WHO.

5- Fluoride levels – it should vary between 0.5 to 0.8 mg per litre.

Classification of water

Sl no.	Coliform count /100 ml of water	Grade / Class	Remarks
1	0-1	Class 1	Highly satisfactory
2	1-2	Class 2	Satisfactory
3	3-10	Class 3	Doubtful
4	More than 10	Class 4	Unsatisfactory

Health Hazards of water pollution

- Radioactive pollutants (from mining and refining of uranium thorium and nuclear power plants) enter humans through food and water and get accumulated in the blood, thyroid gland, liver, bones and muscles.
- Poisonous chemicals such as arsenic, mercury, cadmium, lead etc. gets added in water through industrial wastage causing killing of aquatic organisms and they may also reach human body through contaminated food.
- Non – bio degradable pesticide specially organs chlorines travel through food chains. When they reach humans they accumulate in the fatty tissues and affect the nervous system.
- Fluoride causes fluorosis which results in neuromuscular, respiratory, gastro intestinal and dental problems.
- Domestic commercial and industrial effluents (Petroleum refineries, Paper mills, breweries and slaughter houses. Contaminate the water with organic pollutants. They reduce the dissolve oxygen level of the aquatic system there by killing the aquatic organisms.

9.2.5 PURIFICATION OF WATER

Basic steps in purification of water –

- **Storage and sedimentation** – water is stored in large reservoirs for about two weeks. In this time suspended impurities settle down.

- **Filteration**– it is carried out by either of two methods –

a. Slow sand or biological filters – In this process water slowly passes over sand grains and gravel covered with a slime layer of algae and bacteria. These microorganisms purify the water.

b. Rapid sand or mechanical filters – In these types of filters alum or aluminium sulphate is added to haston flocculation. This precipitated out the impurities which are filtered of through a bed of sand.

- **Chlorination –** Chlorine kills the remaining pathogenic organisms and makes the water pure. A minimum level of 0.2 ppm to 0.5 ppm residual chlorine is recommended for drinking water.

Chemicals found in drinking water and their harmful effects on human health.

Sl no.	Chemical	Harmful effects
1	Led	Led can accumulate in the body effecting central nervous system. Children and pregnant women are most at risk.
2	Fluoride	Access fluoride can cause fluorosis.
3	Nitrates	Sometimes drinking water may get contaminated with nitrates. If It reaches to infants through formula milk it restricts the amount of oxygen that reaches the brain causing blue baby syndrome. It can also cause digestive tracts cancers.
4	Petrochemicals	Petrochemicals like benzene can cause cancers even at low exposer levels.
5	Chlorinated solvants	Can cause reproductive disorders and some cancers.
6	Arsenic	Can cause lever and nervous system damage, vascular diseases and skin cancer.
7	Pesticides	Sometimes organophosphates and carbonates present in pesticides affect and damage the central nervous system and can cause cancer. The chlorides present in them can cause reproductive and endocrinal damage.

9.3 INDUSTRIAL OFFENSE SEWAGE

Industrial sewage primarily affects human health and it comes through industrial effluent and debries. Although the development of industries and development revolution has given employment to a large number of people and it has also cause many positive changes in every aspects of human life but at the same time because of industries there have been many negative changes in the environment which have affected human health in many ways.

Industrial sewage is the waste produced by industrial activity which includes any material that is rendered useless during a manufacturing process. For examples – chemicals, solvents, paints, sludge,

sand paper, traces of metals, industrial by products or even radio-active waste constitutes the industrial offense sewage.

The sewage is a complex mixture of chemicals which may include high concentration of ammonium, nitrate, phosphorus and due to high dissolved solids may be of high alkalinity.

The negative effects of industrial revolution –

1- It has caused depletion of natural resources.

2- It causes carbon emissions which negatively effects the respiratory system.

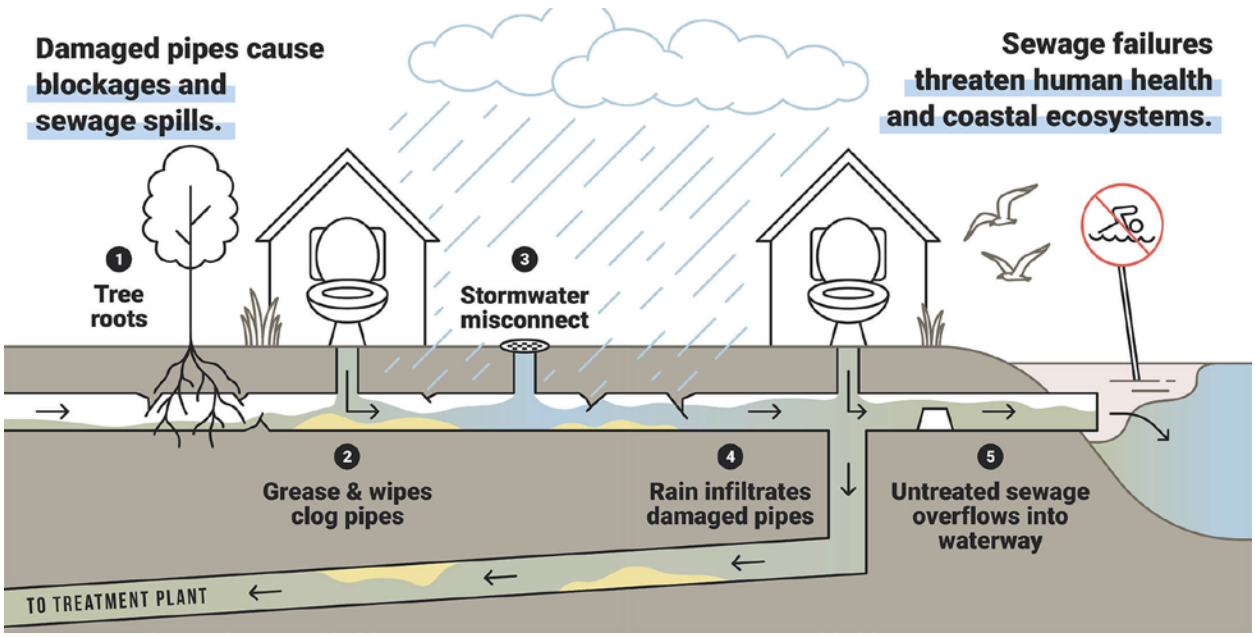
3- It causes lot of environmental pollution.

The humans can get exposed to industrial sewage contamination through the following routes

1- Oral – Humans can gets exposed by drinking contaminated water of eating contaminated sea food. The shell fish eat the bacteria and when eaten raw and partially cooked these shell fish can make people sick. Different types of chemical solvants used in industry can cause lever damage.

2- Dermal – it is through getting in touch with contaminated water directly (as in bathing) or indirectly (open cut or skin rashes). Gastro intestinal disorder have been linked to sewage pollution with virus implicated as the cause.

3- Aerosol – Sometimes if air has high concentration of sewage contamination it can reach inside human body through inhaling water droplets and breathing.



9.3.1 HEALTH HAZARDS OF INDUSTRIAL OFFENSE SEWAGE

All types of industrial waste be it toxic waste, chemical waste or municipal waste all are extremely harmful for our health. All types of sewage carry pathogenic organisms that can transit disease to humans and animals. The following health hazards can be due to industrial waste –

1- Organic matter and nutrients causes an increase in aerobics algae and deplects oxygen from the water. This suffocates the fish and other aquatic organism.

2- Industrial waste contains many toxic compounds that damage the health of aquatic animals and

those who eat them. It causes immune suppression reproductive failure or acute poisoning.

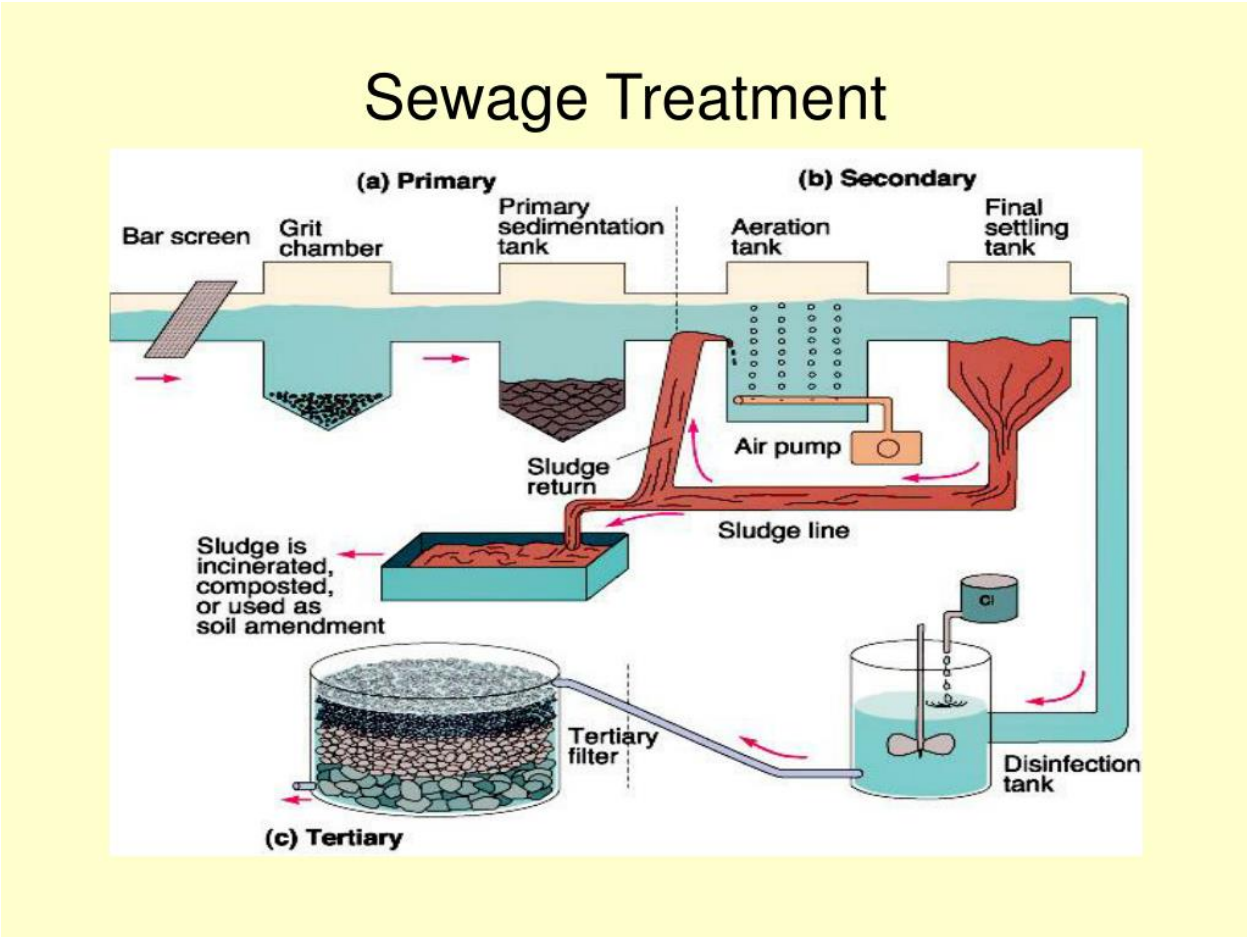
3- Heavy metals can accumulate in lakes and river they are toxic to marine and such as fish and shell fish and to the humans who eat them. Heavy metals can also slow development, result in birth defects and some are even carcinogenic.

4- Microbial pollutants from sewage often result in infectious diseases that affect aquatic life and human beings through drinking water. Microbial water pollution is a major problem in a developing world diseases such as – cholera and typhoid fever are the primary cause of infant mortality.

5- Suspended particles in fresh water reduces the quality if drinking water for humans and the aquatic environment for marine life. These particles can often reduce the amount of sun light penetrating the water thus disrupting the growth of photosynthetic plant and micro organism.

9.3.2 TREATMENT OF SEWAGE

The process of removing the contaminant from sewage to produce liquid and solid (sludge) suitable for discharge to the environment or for reuse is called sewage treatment. Aseptic tank or other waste water treatment system such as bio filters can be used to treat sewage close to where it is created. In some cases the treated sewage sludge is called **bio solids** and can be used as a fertilizer.



9.4 PESTICIDES RESIDUES IN FOOD

Pesticides are chemicals used in agriculture to protect crops against insects, fungi, weeds and others pests. Farmer used pesticides to protect their crops from harmful insects, bugs and pests that eat and

damage crop. Pesticides may be of the following types –

- Fungicides
- Herbicides
- Insecticides
- Some chemicals pesticides are – Glyphosate, Asiphate, Deet, Metal dehyde, boric acid, diazinon, DDT and melathion etc.

Some pesticides are used to protect public health in controlling the vectors of tropical diseases such as mosquitoes but pesticide are harmful and toxic to human beings. Animals and birds, whether pets or stray, should not be allowed to enter an area where food is prepared, stored or served. Cats, Dogs, crows, sparrows and pigeons may present problem for the catering establishment.

Domestic animals are carries of ticks and mites and enteric pathogens like staphylococcus aureus and salmonellae. Like humans staphylococci are found the skin and nose of dogs and cats. Their presence is indicated by their droppings and sign of rubbish strewn around garbage bins.

Birds carry mites and many harmful microorganisms. They peck at food and damage packages. The presence of birds droppings and loose feathers in or near food is obnoxious.

They can be controlled by

- Installing screens on window, doors and ventilations.
- Discouraging the entry of animals in the premises
- Discouraging the practise of feeding leftover to animals in the premises
- Proper storage and disposal of garbage.

PESTICIDES

These include insecticides and rodenticides. They are substances which have certain pharmacological effects on insects and rodents either as poison or as repellents. Pesticides that are reliable, easily available, have a prolonged residual effect and are not highly toxic to human and preferred. Pesticides can be categorized on the basis of the nature of the substances, their effect on pests, and methods of applications.

9.4.1 TYPES AND NATURE OF PESTICIDES

1- Inorganic pesticides – they are natural chemical substances, for example, sulphur dust, arsenic, hydrogen cynanide and paris greens.

2- Organic Pesticides – These are mainly plant extracts. They are least harmful to humans and are also least effective against insects, for example, pyrethroids. They have a quick “knock down” action but little residual effect, hence repeated applications are necessary.

3- Synthetic pesticides – as the name implies, these are man made chemicals, are highly dangerous and should be stored away from food preparation areas. they include chlorinated hydrocarbons like lindane, DichloroDiethylTrichloroethane (DDT) and chloropyriphos, organo-phosphates like malathion, phosphine and diazinon and carbamates like carbandazim, aldicarb and carbaryl.

THEIR EFFECT ON PESTS

1- Stomach Poison – these are applied to plants and ingested by insects while they feed on these plants, for example, arsenic, fluorides.

2- Contact Poison – these are applied directly to pests. They penetrate and damage the insects body wall, for example, DDT, BHC (benzone hexachloride) and Indiara.

3- Residual poison – these are applied to surfaces. Insects touching them pickup a lethal dose, for example, DDT and BHC.

4- Synthentic poisons – these are applied to plants and animals. These poisons are absorbed and translocated to all parts of the organism, so that insects feeding on them acquire a lethal dose.

5- Repellents – These keep insects and other pests away from a given area, due to the odour they emanate, for example Dimenthyl phthalate (DMP), Dibutyl Phthalate (DBP) and Tulsi leaves.

6- Fumigants – These poisons are inhaled by pests and cause death, for example, hydrocyanic acid gas and sulphur dioxide.

METHODS OF APPLICATION

1- Sprays, for example, lindane, pyrethrum

2- Pellets, for example, boric acid and naphthalene balls.

3- Chalk coated or impregnated with insecticidal powder or dust.

4- Dusts, for example, BHC, DDT.

5- Meals, for example, zinc phosphide, warfarin.

6- Vapours, for example, lindane, DDVP (dichlorvos) hydrocyanic acid.

7- Lacquers, for example, insecticides mixed with lacquers, paints varnishes, these are effective for at least one year.

8- Liquids, for example, kerosene, minerals and tar oils.

9- Aerosols – they contain liquefied gas, for example freon, under pressure, which when released after the valve of the dispenser is opened, lets off the insecticidal solutions mixed with it, for example, pyrethrins, DDT.

HEALTH EFFECTS OF PESTICIDES RESIDUES ON HUMAN HEALTH

Pesticides are potentially toxic to humans. They may induce adverse health effects including cancer, effects on reproduction, immune or nervous systems. Before they can be authorize for used pesticides should be tested for all possible health effects and the results should be analyze by experts to assess any risk to humans.

Pesticides can cause short term adverse health effects called acute effects or they can cause chronic adverse effects which occurs months or years after exposure.

1- Acute (immediate health effects) – the immediate health effects from pesticides are as follows _

- Irritation of the nose and throat
- Burning, stinging and itching on the skin
- Rashes and blisters on the skin
- Nausea
- Dizziness
- Diarrhea
- People with asthama may have very severe reactions to some pesticides particularly

pyrithrin, pyrethroid, organophosphate and carbamate pesticides.

2- Chronic (Long term health effects) – the long term health can be as follows –

- Cancer and tumers of various organs
- Brain and nervous system damage
- Birth defects
- Infertility and other reproductive problems
- Damage to the liver, kidneys, lungs and other body organs.
- Serious effects of pesticides include blood cancers, lymphoma and cancers of the brain,breasts, prostate, testis and ovaries.
- Birth defects, still birth, spontaneous abortion, sterility and infertility.
- Endocrine disturbances

HEALTH EFFECTS OF CERTAIN CLASSES OF PESTICIDES

Types of Pesticides	Organs effected	Symptoms
Organophosphates and carbamates	Brain and nervous system and gastrointestinal system	Headache, nausea, dizziness, vomiting, chest pain, diarrhea and muscle pain and confusion. In severe cases patient can have convulgens, difficulty breathing, involuntary urination. Koma and death.
Soil fumigants	Skin, eyes and lungs	Extreme irritation in eyes and lungs. In severe cases pre mature birth in pregnant ladies take place prolonged use can cause cancer.
Pyrethroids	All organs specially reproductive organs	They can cause cancer and reproductive harm. Some pesticides also cause gastric damage. According to central disease control and prevention pyrethroid exposure is linked to heart disease.

PRECAUTIONS TO BE TAKEN WHILE HANDLING PESTICIDES

All pesticides are toxic to humans. Food service workers need to be adequately instructed regarding the hazards involved and should be trained to avoid them.

There are some of the precautions needed:

1- Using gloves and masks while handling these chemicals is essential.

2- Wash hands thoroughly after use.

3- Never use sprays when food is openly displayed

4- Storage of insecticides away from food articles. Holding these poisons in a separate area with their proper labels is important to avoid accidental poisoning. Also they are to be kept away from heat and open flames.

5- Knowledge of the type of pesticides banned and the specific residual limits permissible in food commodities as laid down by the Government of India is essential.

6- First hand knowledge of antidotes to various poisons is necessary for food service workers.

PESTICIDES BANNED BY THE GOVERNMENT OF INDIA

1- Aldrin

2- Chlordane

3- Heptachlor

4- Dibromo – chloropropane

5- Toxaphene

6- PCP

7- PMA

8- Pentachlorone – nitrobenzene

9- Methyl parathion

10- Nitrofen

11- Paraqualdementhyle – sulfate

12- Nicotine sulphate

13- Tetradifon

Use of DDT in agriculture and BHC on vegetables, fruits and oilseed crops and in preservation of grains have also been banned because their safety is doubtful.

9.4.2 GREEN PEST MANAGEMENT

GPM is a pest control strategy using organic or plant based material or material of natural origin. it is an extension of integrated pest management and is looked upon as an eco-friendly pest management system. Sometimes non organic substances are also used in GPM if they are non toxic and do not have a polluting effect on the environment, for example, insects bait stations that have synthetic active ingredients may be termed green. This is because the process of applying the product is also important in GPM.

GPM is a proactive mode of controlling pests unlike conventional pests control that focuses on use of pesticides. Exclusion of pests, environmental changes and physical trapping are some of the non- pesticides measures used. GPM is considered to be the most advanced form of IMP and includes continuous training of technician on common pests, inspection or identification of pests, latest development in pests control measures, understanding its habit and biology, diagnosing and correcting pest friendly conditions, effective use of new products and sealants, paper inspections of the building and rectifying inlets.

GPM strategies work with a long term visions and finding more permanent solutions to pest control while minimizing the use of toxic pesticides and educating the public that green products are not necessarily very costly, but are beneficial in the long run.

9.5 FOOD ADULTERATION

Food is a basic need of life. The food we eat is absorbed by our body and helps carry out metabolic processes and sustain life. Food is essential for growth and various life activities. Our daily diet includes many vegetables, fruits, legumes and grains, all of which we enjoy raw or processed into delicacies. However, nowadays, we sometimes see very thin milk mixed with water, white, yellow and black pebbles in raw legumes, and small white pebbles in rice. Mixing such elements with food is adulteration.

As we struggle with overpopulation, environmental hazards, and depletion of natural resources, one of the man-made hazards is food adulteration. Food is adulterated when it is contaminated by outside influences or its natural composition or quality is altered. Food contamination has a serious impact on our health. Despite various government actions, raising awareness about the dangers of food adulteration is common practice in many countries. The food industry employs a variety of methods to contaminate food using various chemicals and synthetics. This article contains the following descriptions of food adulteration, its types and methods:

9.5.1 WHAT IS FOOD ADULTERATION?

Adulteration is a criminal offense. Food is considered adulterated when food does not meet legal standards set by the government. Food adulteration occurs when substances that compromised quality are intentionally or unintentionally added to food. Therefore, food adulteration can be defined as the contamination or adulteration of food or food ingredients by the addition of harmful substances.

WHAT IS AN ADULTERANT?

Substances that deteriorate the quality of food when added to it are called foreign substances. It is a

substance found in other foods that affects the natural quality of the food. Contaminants may be of any form and amount. Foreign material contamination is usually harmful and can reduce product effectiveness. Adulteration may not be very harmful, but it greatly reduces the nutritional value of food. Some contaminants are classified as carcinogenic or lethal with long-term exposure. Different types of adulterants are used to mix into different foods.

When is food considered to contain foreign matter?

There are several conditions to determine whether food has been adulterated. These points are summarized below.

- Substances are added that impair the quality of the food or make it unsafe.
- Cheap or inferior substances are used as substitutes for all or some of the ingredients. Food ingredients are partially or completely removed, affecting food quality.
- The food is mixed with contaminants. Or the colors are changed to look better.
- Anything that reduces food quality is added or removed.

Examples of food contamination

Below are some examples of food contamination.

- Mixing of legumes with sand and pebble particles.
- Mixing of milk and water.
- Mixing of oils with chemical derivatives or cheap oils.
- Packing of low-quality food with fresh, superior-quality food products.

These are examples of food contamination.

Why is food adulteration done?

You may have noticed that the practice of adding water to milk has been practiced for many years in order to increase milk yield and get more benefit from less milk. Food contamination by food manufacturers and industry also occurs for a variety of reasons.

- Food adulteration is part of a business strategy to make more money through cheaper means.
- This is done to make the food attractive and also to imitate another, more popular food.
- Sometimes food adulteration is done unintentionally due to lack of awareness and knowledge.
- Contamination increases the weight of your food, which in a cheaper way increases the profit and sales.
- Population growth is also having a major impact on food contamination.
- Inefficiency of government management efforts also is a major reason for food adulteration.

9.5.2 TYPES OF FOOD CONTAMINATION

There are four different types of food adulteration.

- Intentional contamination: - When adding substances similar to the ingredients of food to food in order to gain more weight and gain more benefit. Examples: Mixture of pebbles, stones, marble, sand, mud, earth, chalk dust, polluted water, etc.

- Unintentional or incidental contamination - Poor food handling can lead to contamination. Pesticide residues on crops, larva development and presence of rodent droppings, etc. can make the food contaminated.

Raw foods can also be contaminated with harmful microorganisms. For example meat, fish, milk and vegetables.

Pathogenic organisms	Food commonly involved	Effect and diseases
BACTERIAL		
Bacillus Cereus	Cereal Products	Nausea, vomiting and abdominal pain.
Clostridium botulinum toxins	Defectively processed meat and fish	Botulism (muscular paralysis, death due to respiratory failure)
Clostridium perfringens	Defectively processed and pre cooked meat	Nausea, vomiting abdominal pain and diarrhoea.
Salmonela	Defectively processed meat fish and egg products, raw vegetables grown on sewage	Salmonellosis (vomiting abdominal pain, diarrhea and fever)
Shigella Sonnei	Foods kept exposed or sold in unhygienic surroundings.	Bacillary dysentery
Staphylococcus Aureus	Foods kept exposed or sold in unhygienic surroundings.	Increased salaivation vomiting abdominal pain, diarrhea
Staphylococcus Pyrogenes	Foods kept exposed or sold in unhygienic surroundings.	Scarlet fever, septic sore throat
FUNGAL		
Aspergillus Flavus	Corn and ground nut	Liver damage and cancer
Claviceps purpurea (ergot)	Rye and pearl millet infested with ergot	Ergotism (burning sensation in extremities) peripheral gangrene
Fusarium Sporotrichiodies	Cereals and millets infected with fusarium	Liver damage
Penicillium islandicium	Rice	Liver damage
PARASITIC		
Trichinella spiralis	Pork and Pork products	Nausea, vomiting, diarrhea,

		colic and muscular pain (trichionosis)
Ascaris Lumbricoidis	Raw vegetables grown on sewage farms	Ascariasis
Entamoeba histolytica	Raw vegetables grown on sewage farms	Amoebic Dysentery
Ancylostoma Duodenale (hookworm)	Raw vegetables grown on sewage farms	Epigastric pain, loss of blood anaemia.

(Source: Swaminathan M, 1987, Food Science Chemistry and Experimental Foods, the Banglore printing and publishing company limited)

- Metal contamination: - Metal contamination occurs when metallic substances such as lead or mercury are added to food, either accidentally or intentionally.

TOXIC EFFECTS OF SOME CHEMICALS

Name	Food Commonly involved	Toxic effects
Arsenic	Fruits sprayed by led arsenate, drinking water	Dizziness, chills, cramps and paralysis leading to death.
Barium	Food contaminated by rat poison (barium carbonate)	Violent peristalsis, muscular twitching and convulsions
Cadmium	Fruit juices and soft drinks that come in contact with cadmium plated vessels, crabs, oysters and kidneys	Excessive Salivation, liver, kidney damage, prostrate cancer, multiple fractures
Cobalt	Water, beer	Cardiac failure
Copper	Acid foods in contact with tarnished copper ware	Vomiting, diarrhea and abdominal pain
Led	Some processed food, led water pipes	Paralysis, brain damage, incurable anemia
Mercury	Mercury fungicide treated seed grains or mercury contaminated fish	Paralysis, brain damage and blindness
Tin	Canned Foods	Colic, vomiting, photophobia
Zinc	Food stored in galvanized iron ware	Dizziness and vomiting

Pesticides	All types of Foods	Acute or chronic poisoning causing damage to liver, kidney, brain and nerves leading to death.
Antibiotics	Meat from animals fed with antibiotics	Drug resistance, hardening of arteries and heart disease.

(Source: Swaminathan M, 1987, Food Science Chemistry and Experimental Foods, the Banglore printing and publishing company limited)

- Packaging hazards: - Also, the packaging material that packs the food can mix with the ingredients of the food, which can lead to packaging risks.

Methods of Food Adulteration

There are several methods of food contamination as follows -

- Mixing - A mixture of sand, dust, clay, mud, pebbles and food debris.
- Alternative: - Some of the healthy ingredients are replaced with cheap and inferior ingredients, which can change the nutritional value of food and cause health problems.
- Use of spoiled food: - In this method, decomposed food is mixed into healthy food. Food that conceals any kind of damage or inferiority is also considered adulterated. Intentional mixing of healthy foods with foods of questionable quality results in contamination of the final product.
- Toxic Additives: - Food adulteration also includes adding harmful substances to food in order to generate higher profits and increase sales. For example, the addition of dyes, colorings, or harmful and prohibited preservatives.
- Wrong branding: - Changes in information given to consumers such as production dates, expiry dates, ingredient lists or misleading ingredient derivatives.
- Artificial aging: - Adding chemicals to fruits and vegetables to hasten the ripening process is also considered food adulteration. For example, mangoes are ripened with carbide to meet commercial supply and demand.

Effects of food Adulteration

Food contamination has a great impact on our health. Long-term consumption of this type of food, adulterated or not, is very harmful to the body. Consuming such foods increases toxicity in the body. If the nutritional value of food contaminated with foreign substances is reduced, the food has no nutritional value for the body. Addition of chemical contaminants or dyes often proves fatal. Because they are harmful to health and carcinogenic. Some adulterated foods can directly affect internal organs, causing heart, kidney, liver, and many other organ damage or malfunction.

How to detect food Adulteration

Food contamination has many negative effects on our health. Long-term consumption of contaminated food can be fatal. Using organic foods is becoming more and more trendy these days as they provide us with the complete nutrition that certain foods are supposed to provide. It contains no harmful chemicals and is not polished with wax or other toxins. However, due to lower productivity, organic food is not always available and is more expensive than conventional products. Therefore, it is important to recognize if food is adulterated.

How to prevent food Adulteration

There are some ways to prevent food contamination are as below –

- At the industry level, stopping food adulteration requires strict and stringent legislation as well as government intervention and controls.
- Always be careful not to buy black or dark colored foods to avoid consuming food with foreign substances.
- Stop eating processed foods.
- Wash or soak fruits and vegetables well before eating. Canned foods should be checked for leaks and swelling before purchase.
- In the Indian market, FSSAI is the Government License Number for Food Safety. Therefore, always check the FSSAI food packaging, ingredient list, production date and expiration date.

9.5.3 DETECTION OF ADULTERATION IN FOOD PRODUCTS

Intentional adulterant and methods of detection

Name of the food article	Adulterant	Methods for detection of adulterants
Cereals and pulses		
Food grains	Hidden insect infestation	Take a filter paper impregnated with ninhydrin (1% in alcohol). Put some grains on it and then fold the filter paper and crush the grains with hammer. Spots of bluish purple color indicate the presence of hidden insects infestation.
Bajra	Infested with ergot	Long irregular black grain indicates ergot in 2% salt solution ergot floats.
Bengal gram flour	Yellow maize flour	When rubbed with fingers roughness indicates presence of maze flour.
Rava	Iron fillings	By moving a magnet through it iron filling can be separated
Rice	Marble or other stone	Place of small quantity of rice on the palm of the hand and gradually immersed the same in water. The stone chips will sink.
Wheat flour	Maida	When dough is prepared from adulterated wheat flour more water has to be used and chapattis made up

		of this flour will taste different.
Dals	Kesari dal	At 50ml of dilute hydrochloric acid to dal and keep on simmering water for about 15 min. development of pink color indicates the presence of kesari dal. On visual examination the wedge like shape can be seen in kesari dal.
	Clay, stones, gravels, led chromade, metanil yellow	Shake 5grm of dal with 5ml water and add a few drops of hydrochloric acid. A pink color shows presence of color.
Milk and Milk Products		
Milk	Water	The lactometer reading should not be 1.0 to 8
	Starch	Add tincture of iodine. Development of blue color shows the presence of starch.
Milk, Curd	Cane sugar	Add 0.1 gm of resorcinol and 1ml of concentrated HCL to 10ml of the sample and boil. A rose red color indicates the presence of cane sugar.
Khoya	Starch	Add tincture of iodine indication of blue color shows the presence of starch.
Spices (Whole and Powdered)		
Black pepper	Dried seeds of papaya fruit	Papaya seeds are shrunken, oval in shape and greenish brown or brownish black in color. They also have a different flavor.
Chilly powder	Brick powder, soap stone	Any grittiness that may be felt or settling of the sediment at the bottom of glass confirms the presence of brick powder or sand. Smooth white residue at the bottom indicates the presence of soap stone.
	Artificial color	Water soluble artificial dye can be detected by sprinkling a small

		quantity of chilly or turmeric powder on the surface of water contained in a glass tumbler. The soluble dye will immediately start descending in color streaks.
Cloves	Volatile oil extracted cloves	Exhausted cloves can be identified by their small size and shrunken appearance.
Common Salt	White powdered stone, Chalk	Stir a spoonful of simple salt in a glass of water. The presence of chalk will make the solution white and other insoluble impurities settle down.
Coriander powder	Common Salt	To 5ml of sample add a few drops of silver nitrate. White precipitate indicates adulteration.
Turmeric Powder	Metanil yellow	Take a teaspoon full of turmeric powder in a test tube. Add a few drops of concentrated hydrochloric acid. Instant appearance of violet color which disappears on dilution of water. If the color persist presence of metanil yellow is indicated.
Cumin Seeds	Grass seeds colored with charcoal dust	Rub the cumin seeds on palm. If palm turn black adulteration is indicated.
Beverages		
Tea leaves	Exhausted tea or black or Bengal Gram dal husk with color or any artificial color	Tea leaves sprinkled on wet filter paper would immediately release added color. Spread a little slaked lime on white porcelain tile or glass plate. Sprinkle a little tea dust on the lime will show the presence of coal tar dye. In the case of genuine tea, there will be only a slight greenish yellow color due to chlorophyll which appears after sometime.
Coffee	Chicory	Gently sprinkle the coffee powder sample on the surface of water in a glass. The coffee floats over the water but chicory begins to sink down

		within a few seconds. The falling chicory powder particles leave behind them a trail of color due to large amount of caramel they contain.
Soft Drinks	Mineral acid other than phosphoric acid	Soak a strip of filter paper in a 0.1% solution of metanil yellow and then dry. Dip one end paper into the soft drink. Wetted portion turn violet if mineral acid is present.
Fats and Oils		
Ghee or Butter	Vanaspati	Take about one teaspoon of melted ghee or butter with equal quantity concentrated hydrochloric acid in a test tube and add to it a pinch of cane sugar. Shake well for one minute and test it after 5 minutes. Appearance of crimson color in lower (acidic) layer shows the presence of vanaspati. The test is specific for seasame oil which is compulsorily added to vanaspati. Some of coal tar dyes also gives a positive test.
Mustard Seeds	Argemone seeds	Examine under magnifying glass. The argemone seeds are more blacken and rough. There surfaces are irregular and rough whereas mustard seeds have a smooth surface.
Sugar	Chalk powder	Dissolve in a glass of water chalk will settle down at the bottom.

FOOD LAWS TO ENFORCE ADULTERATION, FSSAI

FSSAI has been created for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption. The FSSAI was established in 2008 under the aegis of the ministry of health and family welfare.

The food authority guides and regulates all persons engaged in manufacturing, processing, import, transportation, storage, distribution and retail of food, on issues of food safety and nutrition. The chair person and chief executive officer of FSSAI are appointed by the central government. The head office of the authority is located at FDA Bhawan, Kotla road , New delhi.

9.6 INTRODUCTION AND ROLE OF FSSAI

The main role of authority is to regulate and monitor the manufacture processing, distributions, sale

and import of food to ensure safe and wholesome food to the consumers. The act lays down the following main functions for discharge by the authority –

1- FSSAI prescribes the standards and guidelines with respect to food. It also prescribes specified appropriate systems for enforcement.

2- FSSAI specifies limits for the following –

- Additives
- Contaminants
- Pesticides
- Veterinary drug residues
- Heavy metals
- Processing aids
- Mycotoxins
- Antibiotics
- Pharmacological active substances
- Irradiated foods

3- FSSAI lays down food labeling standards including claims on health and nutrition.

4- FSSAI directs the methods of sampling and analysis.

5- FSSAI lays down the procedure and the enforcement of quality control In relation to nay imported article of food into India.

6- It creates an information network across the country to spread rapid, reliable and objective information about food safety.

7- It trains the person who are involved in food business.

8- FSSAI promotes general awareness about food safety and food standards.

9-

9.7 LET US SUM UP

In the above unit we have understood all about the various hazards that pose a great problem for the people of community on one hand pollution of water effects every population group and on the other hand food adulteration and effect of pesticides can cause serious and sometime fatal health problems. It is very important for the community to prevent the admixture and effects of these hazards as much as possible.

9.8 CHECK YOUR PROGRESS

1. Write down various types of hazards for community health and nutritional status?

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2. Write a detailed note on pollution of water? ----------

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3. Write short note on the following –

A. sources of water ----------

B. Contamination of water ----------

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4. Throw light on steps of water purification? ----------

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5. What do understand by Industrial offense sewage? How it can be prevented? ----------
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6. State the various types of pesticides and their harmful effect on human health? ----------
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7. What do you mean by food adulteration? Write down various types of adulterants? ----------
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8. Write down test for detection of adulteration in the following food items –

- Turmeric----------

- Chilly powder ----------

- Coffee powder ----------

- Desi ghee----------

- Various types of dals ----------

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Unit –X NATIONAL NUTRITION POLICY

Structure

10.0 INTRODUCTION

Pervasive poverty leading to chronic and persistent hunger is the greatest scourge of today's developing countries. About 50% of people in India live below the poverty line, and even if they spend 80% of their income on food, they cannot eat a balanced diet. The physical manifestation of these recurring tragedies is the state of malnutrition, which manifests itself in large segments of the poor, especially women and children. Malnutrition is a condition resulting from inadequate intake of food and other essential nutrients, resulting in impaired growth and health of the body. Proper nutrition is important for staying healthy disease free and achieving an adequate level of physical activity. Malnutrition reduces adult employability and productivity and increases child mortality and morbidity. Such productivity declines lead to decreased earning power, leading to further poverty. The vicious cycle of increasing poverty and hunger as a result of malnutrition continues.

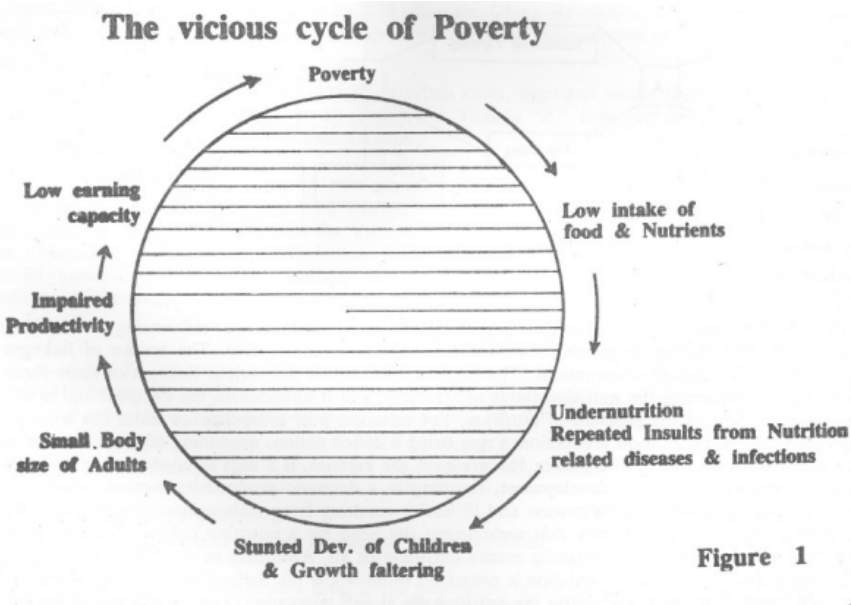


Figure 1

Malnutrition and infections are interlinked Malnourished people often get various infections. Infectious diseases increase the need for food that people cannot afford due to poverty. This leads to increased weakness, decreased immunity, and increased susceptibility to infections. Malnutrition and infectious diseases are also linked, leading to a vicious cycle of disease and poverty. Good nutrition of the population is therefore very important for the development and well-being of the country.

10.1 Objectives

In the earlier units we have seen that mal nutrition is a grave and endless problem of our country especially the vulnerable groups of the society face these problems even more. After going through this unit the students shall be able to address the following key points –

1- The nutrition Status of India

2- The major nutritional Problems of our country

3- The interlinked between poverty and malnutrition

4- The need for a national nutrition policy

5- The nutrition policy instruments

6- The Administration and monitoring of the National Nutrition Policy programmes at central and state level.

10.2 INDIA'SNUTRITIONALSTATUS

A. Overall position regarding intake:-

1. Calorie and protein intake:

There is research showing that total calorie consumption at the household level is increasing. From 1957 to 1979, total protein intake in urban areas exceeded ICMR recommendations for all income groups. Even in rural areas, total consumption by all population groups was above recommended levels between 1975 and 1989. In fact, trends over time show that the average caloric intake of the

lowest-income group trended significantly higher during 1970.

But as far as consumption of protein and protective foods like fats and oils are concerned there has not been a steady increase. Dietary patterns have also not changed much despite increase calorie consumption. The large calorie intake is mainly because of high intake of cereals. When there are natural disasters like famine and draught the landless agricultural labor families are worst affected.

2- Micro nutrients intake

In urban areas the mean intake levels of iron are according to ICMR recommended levels for all groups but in some areas adolescent girls and pregnant women are affected by Iron deficiency anemia.

B. The Disaggregated Picture

Although the National Nutrition Monitoring Service's report on average household food consumption levels does not show a significant reduction in intake of foods other than vitamin "A," these averages are in fact true. According to a study by the National Nutrition Monitoring Service, about 34% of households are well below average on food, even in terms of monthly household income. Although the population has fallen below the poverty line since 1960 (from 56.8% in 1987-88 to 29.2% for him), India's staggering 250 million people are malnourished to varying degrees. Suffering from The Green Revolution and other effective government programs in national food security have eradicated famine, extreme hunger and hunger. What remains is varying degrees of chronic and endemic famine, combined with the prevailing pattern of food distribution within households, which has led to serious nutritional problems for women and children, especially in rural households poses a serious threat.

So the final picture is that the nutrition situation in India is not good as a large section of people still suffers from hunger, starvation and malnutrition.

10.3 THE MAJOR NUTRITIONAL PROBLEMS OF INDIA

The Major Nutritional Problems of India can be classified as follows:

1. Problems due to under nutrition –

a. Protein Energy Malnutrition (PEM): Protein-energy malnutrition is the most common malnutrition among preschool children in India. The majority of them suffer from varying degrees of malnutrition. About 43.8% of children suffer from moderate her PEM and 8.7% suffer from severe extreme malnutrition. As reported in various research reports, the prevalence of child malnutrition increased from 5.9% to 9.9% between 1975 and 1990, while the proportion of normal children (both boys and girls) increased from 5.9% to 9.9%. , indicating that moderately malnourished children decreased from 47.5% to 43.8%. .The proportion of severely malnourished children decreased from 15% to 8.7%. The urban slum child population had the lowest proportion of normal weight children and the highest proportion of severely malnourished children. The increase in the proportion of normal children was notable in all states except Orissa.

TABLE—4

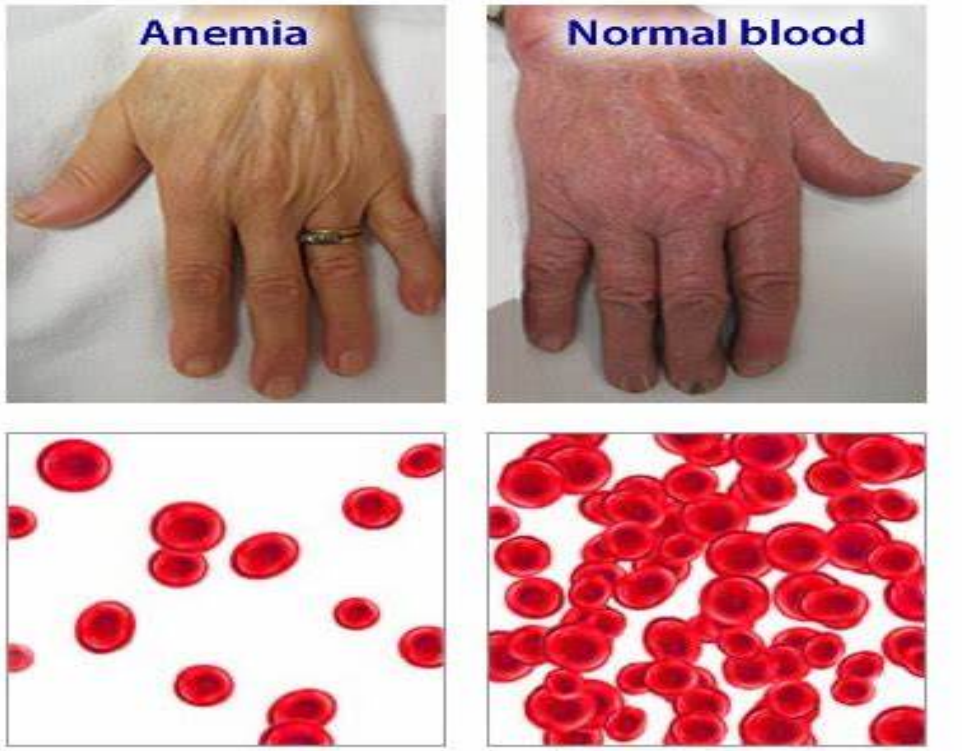
PERCENT DISTRIBUTION OF CHILDREN (1-5 YEARS) ACCORDING TO NUTRITIONAL GRADES*

State	Period	n	Normal	Mild	Moderate	Severe
Kerala	1975—79	737	7.5	35.7	46.5	10.3
	1988—90	882	17.7	47.4	32.9	2.0
Tamil Nadu	1975—79	1183	6.2	34.2	47.0	12.6
	1988—90	3337	8.0	42.0	45.8	4.2
Karnataka	1975—79	1065	4.6	31.1	50.0	14.3
	1988—90	2035	4.8	38.1	48.8	8.3
Andhra Pradesh	1975—79	809	6.1	32.4	46.1	15.4
	1988—90	2838	8.7	39.5	44.3	7.5
Maharashtra	1975—79	760	3.2	25.4	49.5	21.9
	1988—90	1666	6.7	38.0	47.5	7.8
Gujarat	1975—79	718	3.8	28.1	54.3	13.8
	1988—90	1262	7.3	33.9	45.8	13.0
Madhya Pradesh	1975—79	585	8.4	30.3	45.1	16.2
	1988—90	237	17.7	27.4	38.9	16.0
Orissa	1970—79	571	7.5	35.9	41.7	14.9
	1988—90	1175	8.1	34.6	46.6	10.7
Pooled	1975—79	6428	5.9	31.6	47.5	15.0
	1988—90	13432	9.9	37.6	43.8	8.7

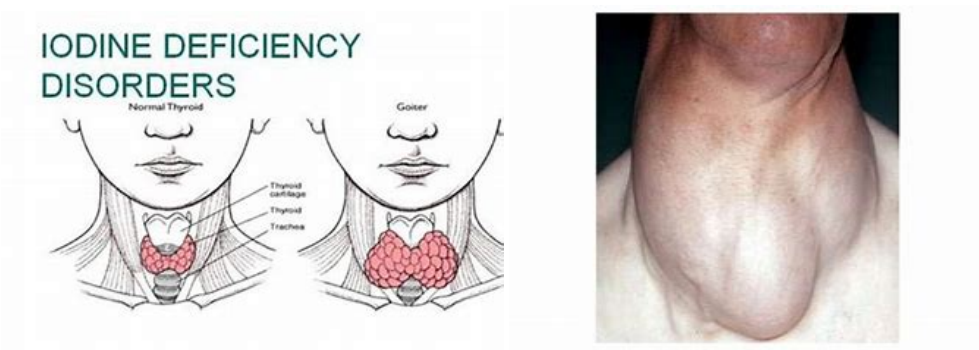
*Based on NCHS standards

Source : National Nutrition Monitoring Bureau Report of Repeat Surveys (1988—90) published by National Institute of Nutrition. Indian Council of Medical research, Hyderabad.

b. Iron Deficiency and Nutritional Anemia: Nutritional anemia in preschool children, adolescent girls and pregnant and lactating mothers is one of the biggest preventable health problems in India. Various studies by the National Institute of Nutrition estimate that about 56% of preschool children in the third trimester and almost 50% of pregnant mothers suffer from iron deficiency. A grain-based diet that is primarily an iron source. Low iron intake, combined with hookworm infestations and infections, exacerbates the problem. A NMMB report (1989-90) found that the slight decline in mean total iron intake between 1979 and 1990 was offset. Karnataka, Maharashtra, Gujarat and Madhya Pradesh were the only states whose intake exceeded his RDI in 1989 and 1990.



c. Iodine Deficiency Disorder: In India, about 40 million people suffer from goiter, and an estimated 145 million live in goiter-endemic areas. The prevalence of goiter in these endemic areas ranges from 1.5% in Assam to 68.6% in Mizoram. It is also estimated that 2.2 million children are affected by cretinism and approximately 6.6 million suffer from mild intellectual disability and varying degrees of motor impairment. Iodine deficiency is also estimated to be responsible for about 90,000 bird stagnation and neonatal deaths each year.



d. Vitamin ‘A’ Deficiency: More than 7 million children in India are affected by malnutrition each year. This is primarily due to a deficiency of vitamin "A" combined with protein-energy malnutrition. The most severe vitamin A deficiency leads to decreased vision, and it is estimated that about 60,000 children go blind each year. Vitamin A deficiency is assessed by xeroconjunctiva and Vito's spots. An NNMB study showed no signs of vitamin A deficiency in infants, but the prevalence increased with age. In addition, higher prevalence was observed among school-age children of all income groups. In urban areas, it was highest among slum children (7.8%), followed by industrial workers (6.3%), middle-income groups (4.7%) and low-income groups (4.1%). According to NNMB, average intakes did not match recommended levels in any state.

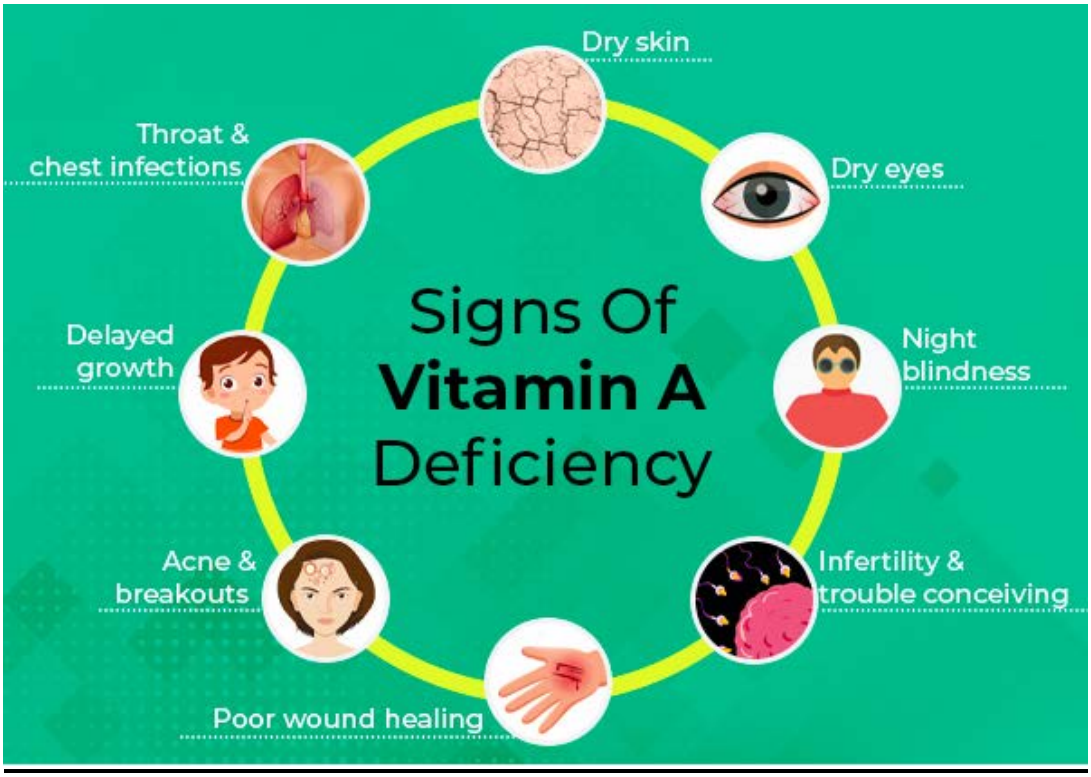


Table 5 : **Incidence of Bitot's spot among children in rural Areas (percentage)**

Year	pre-school children (1—5 years)	School going children (5—14 years)
1975	0.6	1.7
1976	1.4	4.1
1977-78	1.4	4.2
1979	0.9	1.3
1980	1.5	3.1
1981	2.7	5.1
1982	1.8	3.1

Figures indicated are the median values of the prevalence levels in the surveyed states.

Sources : Rao, N. Pralahad and Gowrinath, S.J. Diet and Nutrition Profile in Ten States of India over a Decade in the implementation of a National Nutrition Policy in India, October 28—30, 1985, Srinagar.

e. Prevalence of Low Birth Weight Children: India has a very high proportion of low birth weight babies. Infant nutritional status is closely related to maternal nutritional status during pregnancy and infancy. In India, 30% of babies born are underweight (weighing less than 2500g). According to ICMR studies, mean birth weight range from 2 to 2.5 kg. The prevalence of low birth weight infants ranged from 26% to 57% in urban slums and 35% to 41% in rural areas. Low birth weight has been found to be associated with several factors, including maternal age, maternal weight, weight gain during pregnancy, gestational interval, hemoglobin <8%, and maternal illiteracy. Keeping in view the fact that birth weight is the most important determinant of child survival and that the maternal nutritional status is the most decisive factor in preventing low birth weight. The National Health Policy has set a goal of bringing down the incidence of low birth weight by 10 per cent and the present maternal mortality rate from existing rate of 4 per

1000 to 2 per 1000 live births.

Women are in all three critical stages. H. During infancy, childhood, adolescence and reproductive life, the risk of malnutrition and disease is increased. Child mortality figures show that female children are more likely to die than male children. This may indicate social prejudices that lead to ignoring female babies.

Table—6: Child Mortality rate (0—4 yrs.) by sex and rural urban residence

Years	Rural			Urban			Combined		
	Male	Female	Pers.	Male	Female	pers.	Male	Female	Pers.
1971	53.2	59.3	56.2	31.1	33.3	32.2	53.2	59.3	51.9
1981	43.1	48.0	45.5	20.0	20.9	20.4	39.2	43.3	41.2
1982	42.2	45.7	43.9	21.2	20.5	20.9	31.9	40.5	39.1
1983	40.5	43.1	41.8	21.1	21.7	21.4	36.5	38.7	37.6
1984	44.2	48.2	46.2	22.6	23.8	23.2	39.5	43.0	41.2
1985	41.4	45.3	43.3	19.4	22.1	20.7	36.6	40.4	38.4
1986	36.6	43.3	40.8	20.3	21.5	20.9	34.7	38.6	36.6

Source:- India, Office of the Registrar General, Vital Statistics Division, Sample Registration System, 1971, 1981—1986.

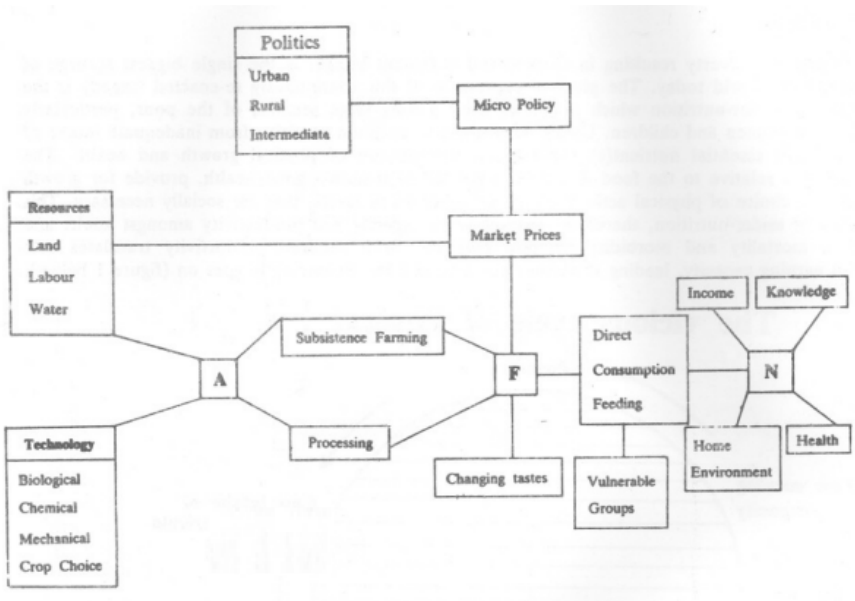
2. Seasonal Dimensions of Nutrition – In the Indian context, high-yield modern agriculture coexists with rain-fed subsistence agriculture. In most of India, the rainy season is the worst month for landless rural residents. Then weeding, plowing, and other tasks demand the most energy from them. For the poor, household goods are a dreaded threat, and market prices are skyrocketing. Water-borne illnesses are very common during several months of the year. These conditions will resolve or worsen by the end of October or even November. These are months of rural debt and forced market participation by small landless farmers. All these issues make eating very difficult during this time. The seasonality of employment in subsistence farming is influenced by the difficulty of high energy demands during peak working hours and household-level variability, through food availability showing differences in food intake between men, women and children. affect nutrition. Fall below the survival limit during the deposit period.
3. Natural Calamities and the landless – The rural landless poor are the most vulnerable to drought, floods and famine. In pandemics and famines, the most affected groups are landless agricultural workers, followed by artisans, artisans and non-farm workers.
4. Market distortion and disinformation – One feature not mentioned is that famine does not cost much when food availability actually decreases. They are caused by the sudden loss of purchasing power of these marginal groups (such as landless workers) who are inevitably dependent on the market. Lessons from around the world prove that it is not acute food shortages that are at stake, but the widespread beliefs about food shortage psychosis and crop failures. This causes price increases leading to severe malnutrition situations.
5. Urbanization – Malnutrition in urban areas is a big problem. A study by NNMB shows that urban slum dwellers in India are almost as poorly nourished as the rural poor. The diet lacks food and nutrients. Urban slum dwellers and children in the urban informal sector are the most nutritionally vulnerable of all groups. Income insecurity and the lack of informal food systems within society push many of these families to the brink of survival. A result of a growing urban culture that encourages the diversion of a large portion of family spending to luxury goods and entertainment. Poor sanitary conditions, acute respiratory infections and epidemics characterize

these urban settlements.

6. Special Nutritional Problems of People living in hill, Industrial Workers, Migrant Workers and other special categories – There are a number of regional and occupational nutritional issues that are unique to particular social groups. Nutritional imbalances among hill tribes engaged in very strenuous work, specific nutritional problems for some categories of industrial workers and migrant workers are such specific groups.
7. Problems of over nutrition, over weight and Obesity for a small section of urban population – The growing size of India's middle class over diet, obesity, diabetes, hypertension, cardiovascular disease and other health risks is a concern for many, especially in urban areas.

10.4 NEED FOR A NUTRITION POLICY

The need for a national food policy is implied both for good nutrition in the country and for eliminating various difficulties caused by malnutrition. The general problem of under nutrition has to be seen as a part of larger set of processes that produces and consumes agricultural commodities on farms, transforms them into food in the marketing sector and sells the food to customers to satisfy additional nutritional aesthetic and social needs.



A common problem of malnutrition is the larger set of processes that produce and consume agricultural products on farms, transform them into food products in marketing departments, and sell food products to customers to meet nutritional, aesthetic and social needs. Within this set there are three sub sets of issues within the brought sectors of agriculture, food and nutrition. The third sub sets of nutrition are the result of the other two sub sets.

Policy interventions are necessary and paramount to affect the functioning of these subsets and thereby improve the nutritional status of societies. The nature of connectivity will determine the fate of such interventions. . The diagram above shows the various connections between these three subsystems that determine the nutritional status of a society, highlighting the complex and multifaceted nature of nutrition problems.

The National Nutrition Policy is formulated and implemented by the Ministry of Women and Child Development, Government of India. It was approved by the Government of India in April 1993 and introduced into both Houses of Parliament in August 1993. The policy aims to eradicate malnutrition. The policy also advocates a "comprehensive, integrated, multi-sectoral strategy to

address the multifaceted problem of under nutrition and achieve optimal nutritional status for people."

The National Nutrition Action Plan (NPAN) was issued in 1995 to implement national nutrition policy containing specific strategies for the prevention and management of micronutrient deficiencies.

10.5 AIMS AND OBJECTIVES OF NATIONAL NUTRITION POLICY AIMS

The policy is based on the belief that reducing malnutrition and improving the nutritional status of people will contribute significantly to human resource development and the country's overall economic and social development. The main purposes of NNP are:

- Raise awareness of the urgent need to reduce malnutrition in the country.
- Emphasize the need for cross-sectoral coordination to achieve nutrition goals.
- Coordinate relevant departments to recognize nutrition as a result of sectoral activities.
- Identify short-, medium-, and long-term strategies for achieving nutrition goals through direct policy change or direct institutional or structural change.

OBJECTIVES

Objectives of National Nutritional Policy are given below -

1- To reduce the incidence of severe (8.7%) and moderate (43.8%) malnutrition by half

2- All adolescent girls from poor families to be covered through the ICDS in all CD blocks of the country and 50% of urban slums

3- To increase per capita availability of 215 kg. for that to achieve production target of 230 MT.

4- The NNP serves as a legally binding document to substantially reduce level of malnutrition especially of vulnerable groups and to main stream nutrition in national socio economic development plans.

5- To connect with the implementation of the national growth and poverty eradication strategy.

6- At least 100 days of employment created for each rural landless family, employment opportunities in urban slums dwellers and urban poor.

7- Distribution of iodized salt to cover all endemic areas.

8- Nutritional blindness to be completely eradicated.

9- To expand the nutrition intervention net through ICDS, so as to cover all vulnerable children in the age group of 0 to 6 years.

10.6 NATIONAL POLICY INSTRUMENTS

Recognizing the fact that nutrition is a multi-sectoral problem and needs to be addressed at many levels, nutrition policy tools should focus on nutrition interventions specifically targeted at vulnerable groups in society and through various development policy tools.

Direct interventions (short-term strategies) and indirect policy instruments through long-term institutional and structural changes were advocated.

NNP aims to address this problem by utilizing direct (short term) and Indirect (long term) interventions.

Direct Short term intervention: The short term majors focused on the following strategies:

i. Ensuring proper nutrition of target groups (vulnerable groups) -

Nutrition interventions for vulnerable groups in society focus on nutrition and health of vulnerable groups and implemented many nutrition programme to improve the health status of these target group like children, adolescent, pregnant and nursing mothers.

ii. Expanding the safety net for children -

Expanding the nutrition intervention network through Integrated Child Development Services (ICDS) to cover all at-risk children in the age group 0-6.

Proper implementation of universal immunization, oral rehydration and ICDS services has been expended to cover all vulnerable children in the age group 0-6 years. 46 nutritionally at risk children by extending ICDS blocks of the country.

iii. Growth monitoring in 0.3 years age groups –

NNP aims at improving growth monitoring with closer maternal involvement, especially in 0 to 3 year old group. Growth monitoring aims identification of malnourished and provision of nutritional management for the children. This includes the provision of adequate nutrition for the children, health education of mothers, empowerment of the mother to manage nutritional needs of her children effectively.

iv. Nutrition of adolescent girls to enable them to attain safe motherhood -

NNP Reaches out to adolescent girls and prepares them to be safe mothers through ICDS. Their nutritional status is guaranteed to improve and they receive continuing education in home skills and are covered by non-formal education, especially nutrition and health education.

v. Nutrition of pregnant women to decrease incidence of low birth weight –

NNP ensure better coverage for expectant mothers. This coverage includes nutritional support from the first trimester through the first year of pregnancy. Fortification of essential foods for example salt with iodine and / or iron.

vi. Food Fortification –

NNP does fortification of essential food items with appropriate nutrients to avoid deficiency disorders like iodine deficiency, iron deficiency etc.

vii. Provision of low cost nutritious food –

Majority of the Indian population belongs to low socioeconomic groups and they cannot afford the expensive food products. There is a need to provide low cost nutritious food product for the people to maintain and improve the health of the individual family and the community by developing indigenous systems with locally available foods.

viii. Management of micronutrient deficiencies in vulnerable groups – vitamin A, iron, folic acid and iodine deficiencies in children, pregnant women and nursing mothers.

a. Indirect Policy interventions (long term) : The long term strategies for achieving the national goals through indirect institutional and structural changes include :

i. Ensuring food security – 215 kg of food grains should be available per person per year. This requires production of 250 MT of food grains.

ii. Improving dietary habits – The dietary pattern of the people should be improved by

promoting the production and increasing the per capita availability of nutritionally rich foods at affordable cost. Production of pulses, oil seeds and other foods crops should be increase. The production of protective food crops such as vegetable, fruits, milk, meat, fish and poultry should also be increased. Should encourage the production of nutritious foods and increase his per capita availability of these foods.

iii. Effective Income Transfer Policy – This will help the rural and urban poor by refocusing and restructuring anti-poverty programs such as the Integrated Rural Development Programme, and job creation programs such as Jawahar Rojgar Yojna. It is intended to improve the qualification package. By ensuring a fair food distribution through the purchasing power of the lowest economic class of the population and the expansion of the public distribution system (PDS).

iv. Improving the purchasing power –

One of the main causes of under nutrition is low purchasing power of the poor. So to increase the purchasing power government should generate jobs for the poor.

v. Poverty alleviation programmes –

Like integrated rural development programs and employment generation schemes should be encouraged.

vi. Informal sectors job –

90% of India's labor force remains trapped in low productivity jobs in the informal centers. So promising job opportunities should be offers skilled and non skilled workers.

vii. Prevention of food adulteration –

Government responsibility is to ensure that food will not cause harm to the consumers when it is prepared or eaten according to its intended use.

viii. Implementation of Land Reform –

Implementing land reform measures so that the vulnerability of the landless poor can be reduce. NNP works for increasing agricultural productivity and infusing an element of equality of local institutions.

ix. Health and family wellfare –

Women poor reproductive health in India is affected by a variety of socio cultural and biological factors. Thus efforts to improve women's education, raise enrollment and attendance rates of girls in school and reduce the dropout rate on one hand and enhance women's income on the other hand are fundamental in the long run for improvement in women and family health.

x. Nutritional surveillance –

It should include the following –

- Anthropometric assessment to identify target groups
- Assessment to monitor progress
- To assess overall program effects.
- Nutritional surveillance is necessary to understand the nutritional status of the people.

xi. Communication –

The department food and nutrition should take measures to communicate the public regarding the nutritional deficiency disorders, its preventions and information regarding the nutritional programs through affective majors of information, education and communication.

xii. Community Participation –

For the effectiveness of the services provided for the public the government should create awareness among the public so as to gain their participation.

xiii. Equal remuneration for women –

The government of India should take measures to empower women by providing equal remuneration with that of men.

xiv. Provides basic nutrition and health knowledge with a specific focus on healthy eating practices for infants

xv. Strengthen and upgrade enforcement mechanisms to prevent food tampering.

xvi. Nutritional monitoring

xvii. Communication through established media for effective implementation of nutrition policies

xviii. Ensuring effective minimum wage administration

xix. Increase community participation – by involving the community through panchayat and other beneficiary committees, or by actually involving women, especially women, to share the knowledge and awareness of society about nutrition and health in gardens and healthy eating can be enhanced through nutrition education programs that practice. This will also create effective demand for all nutrition-related services at the community level.

xx. Nutrition Education Programme –

NNP ensures the education and literacy improvement

xxi. Improving the status of women –

Women should be empowered by providing basic education, employment opportunities and providing good health care services.

The policy states that the above measures should be managed through cross-sectoral coordination and activities.

10.7 ADMINISTRATION AND MONITORING

1- NATIONAL NUTRITIONAL POLICY IMPLEMENTATION

The implementation strategy involves the following –

- Setting up inter sectoral coordination mechanism at centre, state and district levels.
- Advocacy and sensitization of policy makers and programme managers.
- Intensifying micro nutrient malnutrition control activities
- Reaching nutrition information to people
- Establishing nutrition monitoring and mapping at State, District and community level.
- Developing district wise disaggregated data on nutrition.

The national nutritional policy has to be implemented at various levels. The following are the key points for its implementation –

a) At the central level the measures return above have to be administered by several ministries / department of the government of India.

b) The various government and non-governmental organization also have to follow the instructions.

c) There should a close collaboration between the food policy, the agricultural policy, the health policy, the education policy, the rural development Programme and the nutrition policy as they all help each other to achieve the target.

d) Special working groups shall be constituted in the departments of agriculture, rural development, health education, food and women and child development to implement nutrition policy wherever necessary.

e) An Inter-ministerial Coordination Committee will function in the ministry of human resource development under department of women and child development to see the proper implementation of National Nutritional Policy.

f) The National Nutrition Council will be formed in the Planning Commission, with Prime Minister as the president. Members will include concerned union ministers, a few state ministers and representatives of non-governmental organization and whose members include relevant Union Ministers, several rotating Ministers of State, experts, representatives of non-governmental organizations and grassroots leaders, especially women. Furthermore, the effective implementation of the NNP is highly dependent on the formation of Union National/Territorial Governments and National Food Councils.

2- MONITORING OF NUTRITION SITUATION

A nutritional surveillance set up will be constituted to analyze the nutrition situation of countries population specially children and mothers. The following bodies will be responsible for this –

- National Institute of Nutrition
- National Nutrition Monitoring Bureau
- National Institute of Health and Family welfare
- Central Health Education Bureau
- Home Science Colleges
- Medical Colleges
- Non-Government Organizations

A mechanism will be made to utilize the services of medical graduates and graduates of food and nutrition science to manage the national nutrition programmes. They will be trained every year.

A nationwide monitoring system will be made to get reliable and comparable data from all parts of the country. The national nutrition monitoring bureau and national institute of nutrition will be accountable to the department of women and child development for the nutrition surveillance report. This will ensure a reliable data base in the country not only to assess the impact of ongoing nutrition and development programs but also to ensure prompt and proper action wherever necessary.

3- ROLE OF STATE GOVERNMENT

To achieve the goals said by the government of India regarding National Nutritional Policy the effective role of state government is very important. The central government has given the following set of instructions for the state government –

- There should be an apex state level nutrition council which will be chaired by the chief minister the other members will be the concerned minister of the state government, representatives of the leading NGO's working in the state and experts and representatives of related professional bodies.
- For the effective implementation of the National Nutrition Policy in the state there should be an inter-departmental coordinating committee to function under the chief secretary, which will coordinate, oversee and monitor the nutrition situation.
- Special working groups will be set in the departments of agriculture, rural development, health, education, women and child development and this group will responsible for the overall implementation and setting of the schemes.

4- MOBILIZING THE RESOURCES

To bear the cost of various nutrition interventions it is important to mobilize resources within the community for sustainability of these interventions. The following bodies have to take up this challenge –

- State government
- Local Bodies including municipal and Panchayat bodies
- Non-government Organizations
- Cooperatives
- Professional Organizations and Pressure groups

It is important to build community support and participation for the effective implementation and success of these schemes.

The state government may consider constituting similar bodies that is state coordination committees and state nutrition councils at the district level also.

10.8 LET US SUM UP

The **National Nutrition Policy (NNP)** of India serves as a comprehensive framework aimed at improving the nutritional status of the population, particularly among vulnerable groups such as children, women, and the poor. Introduced to address the country's persistent problem of malnutrition, the policy outlines both direct and indirect strategies for ensuring adequate nutrition for all citizens. The **objectives** of the NNP emphasize reducing the prevalence of undernutrition, micronutrient deficiencies, and related health issues while promoting food security and nutrition education. India's **nutritional status** has long been challenged by widespread poverty, food insecurity, gender inequality, and regional disparities, leading to major nutritional problems such as protein-energy malnutrition, anemia, iodine deficiency disorders, and vitamin A deficiency. Recognizing the multidimensional nature of these challenges, the **need for a National Nutrition Policy** arose to provide coordinated action among different sectors like health, agriculture,

education, and rural development. The **aims and objectives** of the policy focus on improving dietary intake, enhancing food production and distribution, fortifying foods with essential micronutrients, promoting breastfeeding and child care practices, and integrating nutrition goals with national development plans. The **policy instruments** include programmatic interventions such as the Integrated Child Development Services (ICDS), Mid-Day Meal Scheme, and nutrition education campaigns, alongside indirect measures like poverty alleviation, food grain availability, women's empowerment, and sanitation improvement. The **administration and monitoring** of the policy are carried out through coordinated efforts between central and state governments, with dedicated bodies ensuring effective implementation, periodic evaluation, and adaptation of strategies to emerging nutritional needs, thereby making the NNP a vital component of India's public health and development agenda.

10.9 CHECK YOUR PROGRESS

1- Give a detailed account of National Nutrition Policy of India? ----------

2- What are the various nutritional problems faced by the Indian Communities?----------

3- In your opinion why the National Nutrition Policy should be implemented in India? ----------

4- Throw light on the National Nutrition Policy Instruments? ----------

5- Write a detailed note on Administration and Monitoring of National Nutrition Policy? ----------

6- Write short note on the following –

- Long term interventions of the NNP?----------
- Importance of NNP in combating malnutrition? ----------

REFERENCES

- National Nutrition Policy document by Government of India department of Women and child development, ministry of Human resource development, New Delhi.

Community Nutrition in India, by Dr. Prabha Bisht, Star Publications Agra.

Notes