Review Article

Malnutrition and poverty alleviation*

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The aim of the present paper is to understand the relationship between malnutrition and poverty, and how to generate ideas and concepts for developing studies leading to policy and programme implementation in the context of establishing collaborating networks among South-East Asian Ministers of Education Organization (SEAMEO) centres. Malnutrition is found at all stages of life, from the fetus to older people, in what is considered to be 'nutrition throughout the life cycle'. Low birthweight could become an important indicator of fetal/intrauterine nutrition. The consequences of being born undernourished extend into adulthood. Stunting is an indicator for poverty, it demonstrates early poor nutrition. Malnourished children face terrifying long-term results when they grow to adults, deprived of their full mental and intellectual capacity. The way to break the poverty cycle is to focus on children. Seventy per cent of the world's poor are women, which is considered as a feminization of poverty. Women play an important role in giving birth to the next generation, in food security, and as caregivers for the family. It is therefore important to increase the physical, mental, and intellectual well-being of every woman as a good investment for the well-being of future society and a human right. However, the gender issues are rarely openly acknowledged in national antipoverty strategies. Adequate nutrition, healthy ageing, and the ability to function independently are thus essential components of a good quality of life. Food security refers to access at all times to sufficient, nutritionally adequate, and safe food. It is important for healthy and peaceful development. Nutrition policy must be an integral part of health policy, from the national to the grass-roots level. The strategy is to focus government, NGOs and community activities on the reduction of poverty, hunger, and malnutrition in developing countries; determine who the poor people are, where they live, why they are poor and how our research could contribute and reduce both poverty and malnutrition.

Key words: malnutrition, poverty, women, Association of South-East Asian Nations, South-East Asian Ministers of Education Organization.

Introduction

The objective of the present paper is to understand the relationship between malnutrition and poverty, how to generate ideas and concepts for developing studies leading to policy and programme implementation in the context of establishing collaborating networks among South-East Asian Ministers of Education Organization (SEAMEO) centres.

The present paper describes concepts and indicators used for poverty. It discusses malnutrition, both undernutrition and overnutrition. But the problem of undernutrition is still the biggest issue in developing countries. Micronutrient deficiencies still exist. Malnutrition can be found at all stages of life, from the fetus to older people, in what is considered to be 'nutrition throughout the life cycle'. The present paper examines how women suffer from malnutrition and poverty and how women could be the key factor to combat poverty and malnutrition. It also proposes our Centre's vision, mission and goals as follows.

Vision: healthy life and food security for all.

Goal: to reduce poverty, hunger, and malnutrition by carrying out research and interdisciplinary education in nutrition, health, agriculture, and fisheries in an environmentally friendly approach.

Mission: to achieve a healthy nutritious lifestyle, sustainable food security and reduction of poverty in South-east Asian countries through scientific research and research-related collaboration activities in the fields of nutrition, health, agriculture, fisheries and education in a policy-driven and environmentally friendly approach.

Poverty

Currently 1.2 billion people live in absolute poverty. Seventy per cent of the poor are located in rural areas. By 2020 the world population will increase by one-third to 7.5 billion people, with nearly 85% living in developing countries. The number of absolute poor is not expected to decline sufficiently by 2010. Most possibly the majority are those in South Asia and Sub-Saharan Africa.

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Concepts of poverty

There are many different concepts of poverty and they include the following. Poverty is multidimensional. Poverty exists where basic needs are not fulfilled, and there is little power, little choice and lack of control of resources. Poverty is more strongly related to human rights than to welfare.[1] Poverty can be defined in different ways and linked to many factors: race, gender, language, and place of residence etc. Income levels alone cannot measure poverty.[2] Table 1 details the internationally comparable poverty line of the purchasing power of $1 per day in 1987 and 1998. Income poverty excludes other elements of deprivation such as a lack of access to basic resources such as housing, clothing, education and health care. Human poverty has been proposed wherein poverty is seen as primarily relating to people's capabilities and opportunities.[3] Some households have incomes above an established welfare poverty line; that is, they have enough to eat, but are still too poor to invest in maintaining or enhancing their natural resource.[4] Ninety per cent of the 1.2 billion people trapped in absolute poverty live in South Asia, Sub-Saharan Africa and China. For countries in those regions, policies that succeed in improving poor peoples' health are also likely to result in reducing overall inequities in health status. Non-communicable disease is related to life expectancy and life quality of people who live in parts of the former Soviet Union and Central Asia. It is related to relative poverty.[2] Poverty is related to disempowerment. It consists of social disempowerment (lack of access to resources essential for the self-production of their livelihood), political disempowerment (relating to poor people's lack of a clear political agenda and voice) and psychological disempowerment (relating to poor people's internalized sense of worthlessness and passive submission to authority). In short, poverty exists where there is little power, little choice and where there are serious deficiencies in the amount and control of resources.[5] Poverty is perceived to be a lack of basic needs (i.e. food, social and cultural life, primary education, health and clothing, housing, water and air).[6] The relationship is best understood when poverty is defined in a broader sense, in relation to human capabilities. Poor people who are sick will become poorer. Privatization of health services could neglect the poor people in that their small income could be used for ineffective treatment. Some cultures do not support women in seeking health care, they prefer traditional healers or medicine. Some men, because of their perception of what it is to be male, do not want to go to health services.[7] Human poverty is related to people's capabilities and opportunities.[3]

Feminization of poverty

Statistics show that 70% of the world's poor are women. This is often called the feminization of poverty.[8] Women face income deficiency, as well as having a lower level of education, skills, employment opportunities, mobility, poor political representation, and pressures on their available time and energy linked to role responsibilities as compared to men. These factors reduce their human development capacity and affect their health status both directly and indirectly. This means that in the same household and social group, women are often poorer than men.[7]

Women as the head of households

Poor families are usually larger than the non-poor families. It creates a reproductive and caring burden on poor women. There is a higher pregnancy rate in adolescent girls from poor families. Studies show that improvements in household welfare depend on the level of household income and who earns it. Women's incomes are more strongly associated with improvements in children's health and nutritional status than men's incomes. Men lose their jobs because of socioeconomic change in many countries. Women become the breadwinners with a lower wage that affects the caring time for their children and all its consequences. The growing percentage of female-headed households around the world is a cause for concern because past studies suggest an association between women being head of the family and poverty. This too causes a vicious circle of poverty, health and nutritional status for the family. These women require improved access to education and other resources, which will raise income levels.[7]

Food security

Food security refers to access at all times to sufficient, nutritionally adequate, and safe food. Food insecurity refers

Table 1. Population living below US$1 per day in developing and transitional economics, 1987–1998

Region	No. poor (millions)	
	1987	1998 (est.)
South Asia	474.4	522.0
East Asia and the Pacific (with China)	415.1	278.3
Sub-Saharan Africa	217.2	290.9
East Asia and the Pacific (without China)	109.2	55.6
Latin America and the Caribbean	63.7	78.2
West Asia and North Africa	25.0	20.9
Eastern Europe and Central Asia	1.1	24.0
Total	1196.5	1214.2

to insufficient access to food and also insufficient food production. Food-insecure people are those who do not grow and/or purchase the needed food or gain access to the services needed. This could be related to poor urban community. Andersen *et al.* suggest that food insecurity and malnutrition will persist beyond 2020.[9] There were 160 million malnourished children under 5 years of age in 1995, and it will decline to 135 million in 2020. Seventy-seven per cent of them live in developing countries, including Association of South-East Asian Nations (ASEAN) countries. Food security is important for healthy and peaceful development (Gross R, unpubl. data 2001).

Malnutrition

The status of world nutrition is as follows: there are 800 million chronically hungry people, 160 million malnourished under-5s, and 12 million under-5s die per year (50% of the deaths are related to malnutrition). Fifty per cent of women and girls suffer from anaemia. Fifty to 60% of children in South Asia are stunted. Malnutrition is usually the result of a number of factors that interact in a way that leaves people vulnerable. Some of the factors include inadequate food supply, limited purchasing power, poor health conditions, and incomplete knowledge of nutrition. Those factors are related to poverty. Poverty creates an environment in which all of these factors produce, and are a product of, each other.[10] Figure 1 shows the conceptual framework developed by UNICEF.[11] It shows that the immediate causes of malnutrition are poor diet and disease. Poor diet and diseases result from the underlying causes of food insecurity, inadequate maternal and child care, and poor health services. The basic causes are social structures and institutions, political systems and ideology, economic distribution, and potential resources.[12] Nutrition policy must be an integral part of health policy at the national to the grass-roots level.

Life cycle

Undernourished adolescent girls and women give birth to underweight and often stunted babies. These infants are less able to learn as young children and are more likely to become parents to infants with intrauterine growth retardation and low birthweight, and who face the risk of having chronic disease in later life. Thus, the consequences of being born undernourished extend into adulthood. Figure 2 shows the simplified 'nutrition throughout the life cycle' prepared by Seres.[13]

Fetus and newborn babies

Low birthweight could become an important indicator of fetal/intrauterine nutrition. Low birthweight in industrialized countries is 6–8%. In South Asia it is 33% and in Sub-Saharan Africa it is 16%.[12] Proper breast-feeding and timely complementary feeding are important. The baby-friendly hospital program has been adopted by many countries. Care for children affects nutrition security in two broad ways: first, through feeding practices such as breast-feeding and the preparation of nutritious foods; and second, through health and hygiene practices such as the bathing of children and the washing of hands before food preparation. These caring behaviours are time-intensive and are usually done by women. The link between child nutrition and income is particularly weak in this age group; first, because young children do not need much food; and second, because their growth is particularly vulnerable to infection and disease.[14]

Preschool children

Stunting. In 2000 it was estimated that 182 million preschool children or 33% in developing countries are stunted. The proportion of stunted children in any country should be less than 20% by the year 2020.[15] Stunting is a better indicator for quantifying the number of children who suffer the consequences of poor conditions for young children than is being underweight (cut off: 20%). Stunting indicates early poor nutrition (Sudiman 1999).[12,16] Stunting is an indicator of poverty.[17] The percentage of children under 5 years who are stunted should be less than 20% in all countries by the year 2020.[15] South-East Asia had the sharpest improvement in the prevalence of stunting among the six regions (Sub-Saharan Africa, Near East/North Africa, South Asia, South-East Asia, Middle America/Caribbean and South America).[12]

Underweight. In children under 5 years this is as follows: 10–19% in China, Mongolia and Thailand; 20–29% in Malaysia; 30–39% in Myanmar, Cambodia, Bhutan, Sri

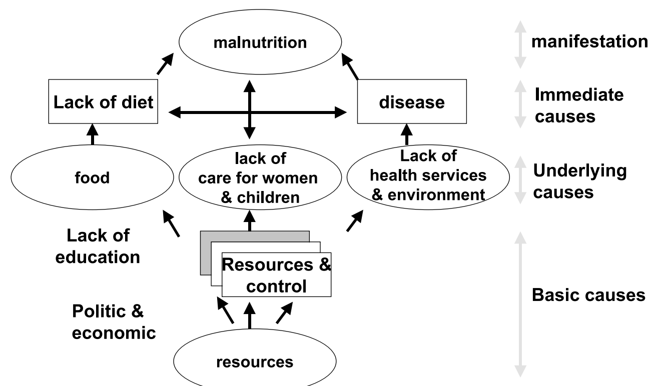

Figure 1. Conceptual framework causes of malnutrition.

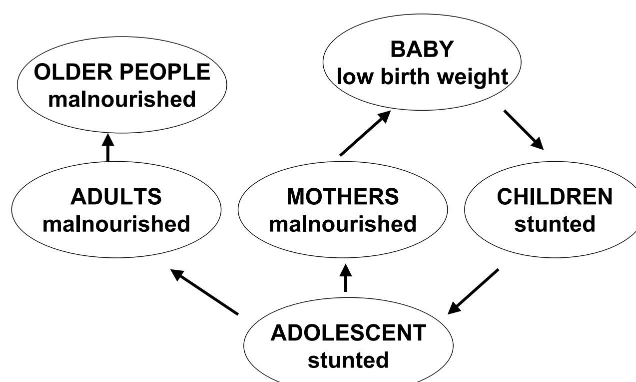

Figure 2. Nutrition throughout the life cycle.

Lanka, Maldives and the Philippines; more than 40% in South Asia, Vietnam, Laos and Indonesia. In 2000 it is estimated that 27% of preschool children in developing countries are underweight.[13] In the year 2020 150 million children will still be underweight.

Stunting is a better cumulative indicator of well-being for children than underweight because underweight is affected by weight recovery in some children between 2 and 5 years of age and because some children are overweight.[12]

In 20 developing countries, under-5 mortality was found to be greatest among women with no education, and in rural agricultural communities.[7] In poor countries the five major childhood conditions (diarrhoea, acute respiratory disease, malaria, measles and perinatal conditions) account for up to 40% of all healthy life lost due to premature mortality and disability. All of these conditions can be prevented or cured at very low cost.[2]

Investing in health is a well-documented strategy for lifting populations out of poverty. Investing in early childhood is cost-effective and a sound example of preventive public health policies. The figures from 1995 on the leading causes of mortality or disabilities show the traditional three on top: respiratory infections, diarrhoea, and birth-related conditions.[2] The leading risk factors are malnutrition, poor water and sanitation. There was still a high mortality rate among children although the know-how is present. The causes are social inequality and inequitable health systems. Clearly vast improvements in child health have not been shared by all. However, child mortality rates and life expectancies have greatly improved.[2]

Adolescents

A study in Jakarta shows that children were underweight while adults and elderly were underweight and overweight. This was found in all socioeconomic strata. In adolescents there is a trend toward becoming overweight. Therefore overweight prevention among adults should be carried out earlier in life.[18] Interventions that target women as young girls or during the early teenage years prior to first conception have a potentially high pay off for the nutritional status of the newborn. Interventions that target a woman when she is pregnant are often too late. Education for girls as 'mothers to be' is strategically very important.

Women

A total of 45–60% of women were underweight in South-East and South Asia; they had poor weight gain during pregnancy. They had anaemia during pregnancy (80% in India and Bhutan) and poor antenatal care. They faced a high maternal morbidity and mortality. A disproportionate share of the burden of poverty rests on women's shoulders and undermines their health. For example, 70% of the 1.2 billion people living in poverty are female. Estimates over a 20-year period found the increase in the number of poor rural women in 41 developing countries to be 17% higher than the increase in poor men. There are twice as many women as men among the world's 900 million illiterates. Iron deficiency anaemia affects twice as many women as men. Protein–energy malnutrition is significantly higher in women in South Asia, wherein almost half the world undernourished reside. Half a million women die unnecessarily from pregnancy-related complications each year, the causes of which are exacerbated by issues of poverty and remoteness. On average, women are paid 30–40% less than men for comparable work. Only a tiny fraction of women hold real economic or political power in developing countries.[7] A study in Jakarta shows that mothers face being underweight and overweight in all socioeconomic strata. Those overweight mothers continued to snack through the day and have a sedentary life, most of them are housewives.[18,19]

Adults and older people

Stunting in childhood leads to stunting in adults and suboptimal working capacity.[10] Stunted women usually have a smaller pelvic size, which causes difficulty during labour and a higher possibility of having low birthweight infants. Low birthweight infants usually become stunted adults.[12] A study in Jakarta showed that adults and older people face both the underweight or overweight problem, while children faced being underweight.[18] Adequate nutrition, healthy ageing, and the ability to function independently are thus essential components of a good quality of life.

Micronutrients

There is a significant reduction in iodine deficiency disorders in all regions. Iodinated salt protects millions of newborns from mental impairment. Vitamin A distribution reduces blindness. The distribution of iron supplements in many countries prevented iron deficiency anaemia. Anaemia among pregnant women in Asia ranged from 20% in the Maldives to 88% in India.[20]

Refugees and displaced people

Worldwide there were more than 26 million refugees, internally displaced people or returnees. This represents 1 in 220 people in the world.[21] The causes are due more to civil war and political upheaval than natural disaster. Besides a lack of calories, refugees also face micronutrient deficiencies (anaemia, scurvy, angular stomatitis) caused by the poor quality of general rations.[12]

Relevance of education and human development (functional implication)

Malnourished children grow to become adults deprived of their full mental and intellectual capacity.[8]

Iron deficiency anaemia affects more than 3.5 billion people in the developing world (more than two persons out of every three). It impairs the cognitive development of children, causes productivity and educational losses, and increases morbidity and maternal mortality. Iodine deficiency is the most common cause of preventable mental impairment worldwide. It can be prevented by using iodinated salt. Vitamin A deficiency still affects 250 million preschool children.[13]

Cognitive stimulation and psychosocial factors are important to childhood development. But the underlying foundation for normal mental development is the absence of serious disease. Nutrition is important for growth, physical, cognitive and social development, especially during the first 3 years of life.[2] Stunting in poor communities is usually associated with poor mental development. Sociocultural and economic problems that coexist with stunting may also detrimentally affect mental development. Stimulation and supplementation are needed to improve the development of stunted children to cultural appropriate levels.[12]

Malnutrition prevents children from growing to their full genetic potential, reduces resistance to disease and causes a longer recovery time from illness. Malnutrition may impair mental capacity by affecting cognitive ability, delaying the development of motor skills, increasing the number of days children are absent from school and making it more difficult for these children to be alert and interactive. It can result in a reduced physical capacity, alertness and job ability for an adult workforce. It results in increased mortality rates.[13] The effects of malnutrition are wide ranging and long reaching. The consequences of malnutrition can be felt from the individual level up to the national level because of the losses in human potential. As this list points out, malnutrition determines more than just a child's physical growth. For countries that are in the process of strengthening their economic and social institutions, malnutrition is usually seen as a problem that will be eliminated by development. But because malnutrition can have such a detrimental effect on growth and mental and physical capacity, it also stands in the way of successful development.

Improvements in health status have an impact on wages and productivity, particularly among the poor. Improvements in health increase the learning capacity of poor children. But there is a potentially devastating economic consequence of failing to contain the HIV/AIDS epidemic and to reduce the burden of disease resulting from malaria and tuberculosis (TB), particularly TB, of which the highest prevalence is found in China, India and Indonesia. More information about the poor and the factors that influence their health are needed.

There is a double challenge: to counter both the consequences of dietary deficiencies, poverty and undernutrition, and the consequences of unbalanced overnutrition that often occur side by side in the same countries. It poses a double disease burden. Nutrition should be put into the context of health and education. Without nutrition there will be a lack of ability to learn and to become productive and active human beings.[8]

The improvements in science and public health allow many children to survive their first years. Those children should have a healthy and stimulating childhood. This will prepare them for challenges later in life and enable them to make contributions to the social and economic development of their countries and communities. Investing in early childhood means investing in poverty prevention. Poverty causes poor health and poor health causes poverty. This is the root of the poverty cycle. To break the poverty cycle is to focus on child well-being.[2]

Intervention for malnutrition and poverty in South-East Asia

Efforts to reduce malnutrition must be based on a clear understanding of the role of poverty as a cause and a consequence of malnutrition.[14] Poverty alleviation is essential because poverty ruins lives and undermines development, the environment, and political stability. However, natural resource use must be preserved, while food production should keep up with rapidly increasing populations.[4] Poverty affects men and women differently. To combat it, a different approach is needed. However, the gender issues are rarely openly acknowledged in national antipoverty strategies.[7] Acting to reduce malnutrition is not a question of political will; it is a question of political choice in a democratic world.[14] In order to carry out malnutrition and poverty intervention, proper epidemiological and sociological tools are needed.

Women as a key factor

Women play an important role in giving birth to the next generation, in food security, and as caregivers for the family. It is therefore important to increase her physical, mental, and intellectual well-being for her benefit and her family benefit. The well-being of the women is also their human right.

Women's ability to produce food can be enhanced by improving their access to resources, technology, and information. Literacy training for women and increased education for girls will increase productivity both today and in the future. Strategies should aim to increase women's productivity both in paid work and in domestic production, so women can increase their incomes without sacrificing additional time, their children's welfare, or their own health and nutritional status. Women need a good health and nutritional status for healthy productive and reproductive roles. The education and care of women should begin before they reach adulthood.[8]

Strategy to overcome poverty

Short-term strategy. The following is needed: immediate improvement of the food situation in acute crises, basic needs preparation, stabilization of consumption needs for poor people, especially foodstuffs, while price fluctuates caused by macro economy or season. Food price protection, food subsidy, and food for work for those who are in transient poverty.

Long-term strategy. Sustainable food and nutrition security can be obtained by improving the productive and social factors, which are multisectors.

Prioritization. Poor fishermen, poor farmers, low-income workers, and female-headed households. In the case of Indonesia, social safety net projects targeting poor families were carried out to overcome poverty.

Factors affecting growth–environment and poverty–environment links

Policies, technologies, institutions, population, agroecology, and climate change can affect the links between sustainability, growth, and poverty alleviation by affecting the choices of rural households and communities, and the context in which these choices are made. Relating specific policies to precise environmental, growth, or poverty alleviation outcomes is a complex task. The broader the policy instrument (e.g. trade or macroeconomic policy), the broader and hence less predictable the effect on the environment or its links with growth or poverty alleviation. For example, trade policies affect overall economic behaviour of large groups of producers and consumers, which in turn affects the environment. Policies that directly affect access to and use of natural resources are generally more effective and efficient tools for such purposes.[4]

Indicators for poor households at the national, community and household level

National level

Food and non-food expenditure indicators are used to show poverty pockets at the provincial and district level. The poverty line is based on minimum standard food and non-food expenditure.

Community level

Economic and social indicators are used that relate to public facilities and government services. It shows poverty areas from the village level to the neighbourhood level.

Economic indicators. Access for income (access for paid work especially in urban areas, access for farming especially in rural areas), access for public facilities (transportation, electricity, market, and banking.

Social indicators. Access for education, access for health (primary health facility, clean water), access for communication and information (radio, TV, post and phone).

Household level

Following are the suggested indicators to define poor households for intervention programmes.

Household characteristic demography. Number of household members; dependency ratio (proportion of family members aged under 15 years or over 65 years to those who are productive, aged 15–64 years); gender of head of household.

Economic indicators (source of income). Fixed household income source; number of household members with fixed job; land ownership, cattle ownership and fishery catchment facilities.

Social indicators. Educational level of the head of the household, number of illiterate adults, health condition and type of medicine used, daily food frequency, source of drinking water, physical condition of housing, household ownership, type of cooking fuel, type of household lighting, amount of clothing for family members (at home, school/work and recreation), participation in the community.

Others. Number of undernourished under-5s, number of elementary school age children who do not go to school, number of household member with more than one job to do to fulfill their income needs, number of working hours of the head of household.

These aforementioned indicators could be used for targeting programmes at the national to household levels.[22]

Capability poverty measure

This consists of the prevalence of underweight under-5-year-olds, the proportion of birth deliveries unattended by trained personnel, and the female illiteracy rate.[23]

Strategies to combat poverty and malnutrition through research

Strategy

This is to focus ASEAN countries' activities on the reduction of poverty, hunger, and malnutrition in developing countries and to determine who the poor people are, where they live, why they are poor and how research could contribute to their well-being. Traditionally rural poor have consisted of smallhold farmers and landless farm workers and their families. The urban poor consist of migrants who live in slum areas. Both urban and rural poor should be the targets of poverty alleviation research and programmes. Technological breakthroughs need to be made in productivity and in ensuring the sustainability of natural resources. Partnership needs to occur at the regional level to ensure that modern science is brought to bear on the problems of the poor efficiently and effectively. Malnutrition needs to be tackled throughout the life cycle by ensuring adequate food, health and care.

Because gender plays a role in poverty and malnutrition, following are the strategies for health–gender-poor.

(1) Look at broad determinants of health affecting the poor, rather than being restricted to a health services/health systems approach.

(2) Stress the need for a strong gender and pro-poor perspective in the health sector reform process, with emphasis on preventive public health.

(3) Examine the capacity of men's and women's gender roles to protect or prevent good health for themselves and others.

(4) Emphasize the view of health as a capital asset for the poor.

(5) Underscore the contribution to health and sustainable livelihoods for the poor of both sexes made by voice, effective participation, and control.

Some topics for research

Children. Topics include (i) health and nutrition care during pregnancy and lactation; (ii) exclusive breastfeeding; (iii) complementary solid foods (6–24 months); (iv) empowerment of women in production, distribution and reproductive decision-making; (v) education and skill of girls (formal and informal); (vi) nutrition services for

teenage girls; (vii) the link between infant undernutrition and cognitive development; and (viii) the link between fetal undernutrition and adult chronic diseases.

Mothers. Topics in this category include (i) quality of primary and maternal health care and family planning services; (ii) illiteracy, education and skill; (iii) health and nutrition knowledge; (iv) source of income; and (v) gender-orientated policy, related to 'feminization of poverty'.

Households. Topics include (i) how to define poor households; (ii) primary health-care services available and how health is produced and maintained at a household level; (iii) potable drinking water for all households; (iv) type of intervention programme required in the short, medium and long term; (v) identification of potential 'coping mechanisms' of household members in acute and chronic poverty; (vi) existing health policy for the poor; and (vii) impact of the policy of other sectors on poor people's health.

Country and the community. These topics include (i) human rights, democracy, law and order, advocacy and commitment at the highest level; (ii) malnutrition situation in South-East Asian countires (SEA); (iii) causes of malnutrition in SEA; (iv) poorest section of the population; (v) world trade system, efforts to provide effective debt relief, and appropriate macroeconomic reforms; (vi) donor coordination, international assistance (should cover 0.7% gross national product of industrialized countries); (vii) decentralization and the empowerment of communities; (viii) urban and rural malnutrition problems; (ix) community participation; (x) income generation schemes, especially for poor people, employment; and (xi) construction of organizational models of efficient and fair human relations, property rights and governance fostering rural development applying advanced communications and participatory approaches.

Food security. Topics in this area include (i) agriculture research and extension system; (ii) genetically engineered food; (iii) rural and urban income generation schemes (especially poor people); (iv) mapping of prevalence of malnutrition; (v) legal and policy research on food, agriculture and resource use; (vi) improvement of poor people's food productivity, and not just by emphasizing consumption; and (vii) research and development in using sustainable natural resources (e.g. the management of irrigation water, forests and aquatic resources).

Refugees and displaced people. Topics include (i) rapid assessment of wasting; (ii) food security, caring practices, adequate health care; (iii) preparation of 2100 Kcal per day for every person, plus needed micronutrients; (iv) proper health services; and (v) voluntary repatriation.

ASEAN countries

Research is required on networking among the ASEAN countries, and the countries are helping each other.

What South-East Asian Ministries of Education Organization can do

Priorities for specific research in malnutrition and poverty alleviation should be made by the SEAMEO Centres in the context of the needs of their priority programmes related to improving nutrition conditions, sustainable food security and sustainable food productivity that is environment friendly. Other priorities are observing global trends, to anticipate future needs for research and development, and to forecast new threats to human health.

Each unit should be a centre of excellence, politically neutral, with a problem-solving approach, a multidisciplinary research perspective, the capacity to catalyse and coordinate research on well-focused themes, and the ability to maintain continuity of effort over the long-term periods. Each country should have proper health policies.

Recommendation for TROPMED Network collaboration

(1) Integration of research/policy studies between Nutrition and Health.

(2) Integration between Health/Nutrition and other Educational SEAMEO Centres.

(3) Integration of research policy between Agricultural/ Biological SEAMEO Centres.

A holistic approach is required between 1, 2 and 3.

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