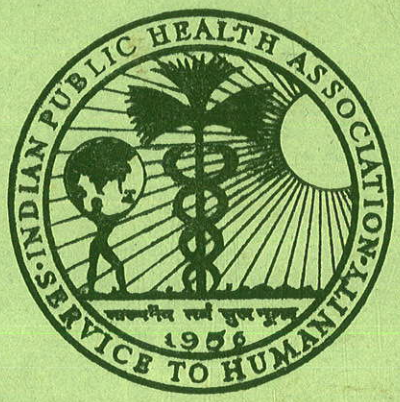
Indian Journal

OF

PUBLIC HEALTH

Quarterly Journal of the Indian Public Health Association

CONFERENCE NUMBER



On

PUBLIC HEALTH-FACTOR IN SOCIO-ECONOMIC DEVELOPMENT

VOLUME XI JANUARY 1967 NUMBER 1

EDITOR :

DR. MUKTHA SEN

ANNUAL SUBSCRIPTION Rs. 10/- (INLAND) SINGLE COPY Rs. 3.00 (INLAND)

INDIAN JOURNAL OF PUBLIC HEALTH

Quarterly Journal of the Indian Public Health Association

VOLUME XI JANUARY 1967 NUMBER 1

CONTENTS

INDIAN JOURNAL OF PUBLIC HEALTH

Quarterly Journal of the Indian Public Health Association

VOLUME XI JANUARY, 1967 NUMBER 1

THE ELEVENTH ANNUAL CONFERENCE OF THE INDIAN PUBLIC HEALTH ASSOCIATION

The Eleventh Annual Conference of the Indian Public Health Association was held from 26-11-66 to 28-11-66 at the Delhi Medical Association Auditorium, Darya Ganj, Delhi.

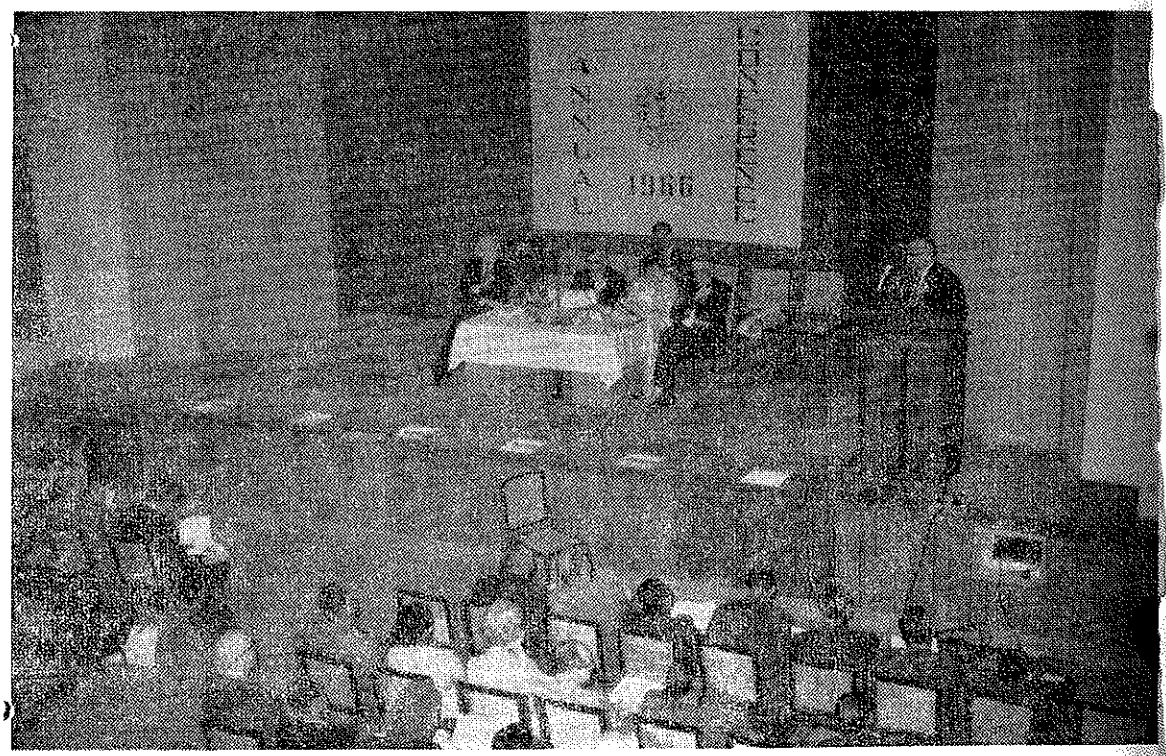
Col. Barkat Narain, on behalf of the Delhi State Branch welcomed the guests and members. Prof. M. S. Thacker, Member, Planning Commission was the chief guest, and inaugurated the function. Dr. K. N. Rao, Director General of Health Services gave the Presidential Address and Dr. K. C. Patnaik proposed the vote of thanks.

On behalf of the American Public Health Association Dr. Stebbins conferred upon Dr. K. N. Rao the fellowship of the American Public Health Association.

The conference organised a scientific symposium on 'Public Health—Factor in Socio-Economic Development'. The subject was presented in five sessions from the following view-points—Public health & training; Patterns of health services in a developing economy; Health Economics; Economic aspects of communicable disease control programme and Developing indices for evaluation of health services. The sessions were richly benefitted by the contributions made by several medical educationists from many parts of the world, who were in the city in connection with the preceeded 'Third World Medical Education Conference.'

Dr. K. N. Rao receiving from Dr. Stebbins the scroll conferring upon him the fellowship of the American Public Health Association.

Prof. M. S. Thacker inaugurating the function.



INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

PRESIDENTIAL ADDRESS

By

DR. K. N. RAO,*

M.D., F.C.C.P., F.I.C.S., F.A.M.S., HON. F.A.P.H.A,

Ladies and Gentlemen,

I am indeed grateful to you all for the honour you have bestowed upon me by electing me as the President of your Association. I am well aware of the struggles this Association has passed through and of the things yet to be accomplished. But in response to the trust you have placed in me, I can assure you of my fullest co-operation in furthering the cause of Public Health in general and the Public Health Association in particular. In this important task, I am confident that I have your support.

It was on 28th September, 1956, the parent Association was inaugurated by late Rajkumari Amrit Kaur, the then Union Health Minister at Calcutta. The Association is thus 10 years' old. Ever-since, eight State branches have been organised viz, West Bengal, Bihar, Maharashtra, Gujerat, Andhra Pradesh, Mysore, Delhi and Banaras. Allow me to congratulate the workers and organisers of these State Branches. I hope other States will follow the lead and establish their own branches for the benefit of the workers and the people and add stature to this parent organisation.

This is the third time, Delhi has played host to the Annual Conference—1st in 1962 wherein Dr. Sushila Nayar, our Union Health Minister inaugurated the Delhi Branch of Public Health Association—again in 1964 the Eighth Annual Conference which was inaugurated by Dr. Zakir Hussain, Vice-President of India. On both these occasions, the Association was fortunate in having the co-operation and participation of our Union Health Minister, Dr. Sushila Nayar. Due to other pressing engagements, this Conference could not have the benefit of the presence of Dr. Sushila Nayar whose participation would have been valuable in discussing a subject like "Public Health Factor in Socio-Economic Development." In the successful implementation of Health programmes for Nation's health development three agencies are involved. The government, the voluntary agencies and the independent medical profession. Without the co-operation of the voluntary agencies which represent the people and the medical practitioners and public health workers who represent the enlightened profession, we cannot successfully implement any programme in the stipulated time. It is with that in view the World Federation of Public Health Association is being established to serve as a non-governmental organisation to be in official relationship with the World Health Organisation to express unfettered views of the Public Health profession and support the great work of the WHO for the betterment of the health and happiness of mankind. I am grateful to the Central Council of our Association for nominating me to represent the Indian Public Health Association at the meetings of the Interim Committee for the formation of the World Federation. As the Chairman of the Interim Committee I feel privileged to report to you that at the meeting on 28th October 1966 at San Francisco, the Constitution had been finalized, the annual fees of the National Association has been fixed at $50 a year with $10 for 100 members as additional dues. Voluntary donations from foundations institutions, associations and governments are also

* Director General of Health Services, New Delhi.

solicited. It is hoped that a large number of National Associations will join the World Federation of Public Health Associations and the Inaugural meeting will be held in May, 1967 in Geneva. The Royal Society of Health of U.K. has not only donated £5,000 but also offered secretarial assistance. The American Public Health Association was the host to the Interim Committee at its recent meeting in San Francisco and it is expected to give substantial support. The great role this World Federation of Public Health Associations has to play may be determined and out lined by our Association along with others.

This Conference is a momentous one because this is following the deliberations of the Third World Medical Education Conference which discussed major topics like :

1. Social change and Scientific advance—their relation to Medical Education.
2. Medical Education and National structure,
3. Organisation of Medical Education to meet the changing needs of society and ;
4. Planning new programmes in Medical Education.

It is hoped that discussion on the above topics followed by a discussion on an interrelated topic like "Public-Health-Factor in Socio-Economic Development" through the participation of national and international experts, will ensure a comprehensive appreciation of the relationship of health and economic development in developing countries. Secondly, the deliberations of this conference will greatly assist in focussing public attention to the need for investment in Health for speedier economic development.

2. World Health Situation :

The objective of the WHO is 'The attainment by all peoples of the highest possible level of Health which is' one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.' 'All governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures.' The need for World Health and World Unity and the movement towards World Health need no emphasis. I may however, review the World Health situation today and India's health status for a perspective view :

Population : The importance of populatic to Health is vital. Health in any social gro depends upon the dynamic relationship bet ween numbers and the space they occupy and the skills they have acquired to provide for their needs. Public Health is vitally concerned with population, their numbers, distribution, age, structure, movements, birth and death rates in specific age groups. Over-population affects the health of the community physically and mentally. Population, food and nutrition are inter-related and nearly all the problems of the world are related to population pressures. World Health has to take into consideration the effect of population presure o health. With 'annihilation' of distance, ne one can live in isolation and the entire world gets involved whatever happens in the rest of the world. Today the population of the world is about three billion, and it is increas ing at the rate of 2.1 per cent annually. Th rate of growth varies with each country Developing countries show 2.5 per cent in crease which means that the population in these countries will double within 25 years. If the population increase is 3 per cent it will double in 20 years. The hope of finding a solution to the world population rests on the development of social movements whicl enthrone the ideal of smaller planned family Consequently, the means of fertility contro shoud be made available to the people. The most natural vehicle for new teaching is public health which not only regards the family as one of its mainstays but also see in over-population the seeds of so many of its disorders. It is most gratifying to note that the WHO has taken up the question of health aspects of population and by its resolution in 1965 or 1966 would give technical assistance, not operational on request to member countries besides encourging Research in Fertility Control.

Climate and disease have a close relationship and climatic and geographic factors have to be kept in view when the Health Map is drawn. With increase of scientific knowledge and the use of science and technology, life can

be made safe in any adverse climate but the way is long. Environmental factors such as housing, water supplies, sewage system have an influence on the health of the area. The relation of better health to improved environmental factors are complicated by the phenomenal growth of population.

There are other general influences that affect health such as social, educational and cultural background of the people. Social conditions should be judged whether there is an agricultural or industrial background, rural or urban conditions. The great hindrances to social progress are disease, ignorance and poverty. Cultural effects based on traditions, beliefs, customs, manners, also retard considerably the health of the people. Adjustment to the machine and atomic age is a long process of social education. The rural and industrial communities have different standards of living. There is a direct relationship between health and standard of living. The effect of social change and the rapidity with which it is effected on the mind and the incidence of mental ill-health have to be appreciated.

Mental Disease : Disease and ill-health fall into six categories-congenital, traumatic, nutritional, infectious, degenerative and mental. The first two causes are, however, excluded from further discussion here though preventive measures could be extended in a small way.

Nutritional Disorders : It is estimated that more than two-thirds of the world population are suffering from under-nourishment with less than a 2000 calorie diet per person per day. The areas of great deficiency are Central America, most of Asia and some parts of South America, Africa and Middle East. A diet of 2,700 calories appears to be limited to the Western world, the new world, U.S.S.R. and some countries of South America. According to social class, the dietetic pattern varies and the nutritional standards also vary. Among the most serious deficiency states now prevailing in many areas in the world is Kwashiorkor. Among the rice-consuming populations in the world—in China, Malaya, Java, Japan and India—there is widespread disease due to tack of vitamin 'B' and epidemiologically this affects half of the world's total population. Poor nutrition predisposes to infections, particularly tuberculosis. Malnutrition is perhaps the chief cause of high death rates from preventable disease, low expectation of life, high mortality in infancy and childhood and disorders in child birth, which afflicts the majority of those living in the mediterranean and tropical zones.

In the prevention of protein malnutrition in infants and children, which is the world's most important nutritional problem, the joint programme of FAO, UNICEF and WHO has been most effective and acceptable to Governments. Its chief purpose is the production of cheap and suitable protein-rich food. The practical results of the programme are perhaps most advanced in Guatemala, where the Institute of Nutrition of Central America and Panama (INCAP) has developed its own particular mixture of vegetable protein, called Incaparina and in Nigeria and Uganda, the mixtures of vegetable protein and skim milk have become well-established. The multipurpose food developed at the Mysore Institute of Food Technology and the research work done at the Nutrition Research Laboratories, Hyderabad are noteworthy.

Infectious Diseases : Common infectious diseases—parasitic, bacterial and viral—have been categorized by country and by region and so their distribution and epidemiology is reasonably well-known. Specific infections are on the whole more frequent and more severe as we progress from temperate through mediterranean to tropical zone, though disease like smallpox or typhoid, if not prevented, would occur everywhere. Tuberculosis thrives whereever there is over-crowding but the developed countries have almost controlled it.

Degenerative Diseases : Cardio-Vascular diseases and cancer occur along with the ageing process and are universal. Where there is greater exceptation of life, the prevalence of those diseases occurs. The control and prevention of these diseases are of universal importance.

In the Western world, with the increase in expectation of life consequent on conquest of infectious diseases and nutritional disorders, and rise in the standard of living, diabetes and degenerative diseases of the vascular system are on the increase.

Mental ill-health : The extent of mental diseases occurring in different zones is still under study. The figures of temperate zone are noteworthy. In U.S.A., 550,000 persons are in hospitals for mental diseases, 130,000 mental defectives are in institutions and one million more are under supervision or 5.2 per 1,000 population are mentally ill. In U.K. the figures are 5.6 per thousand. If senile psychosis, psychoneurosis are added, the prevalence is arresting and requires further attention for the prevention and control. The mental ill-health would be on the increase with social development and rapid social change due to industrialisation and urbanisation. Epidemiological research in the field appears to be very necessary.

Developing countries : Development affects health and disease both favourably and unfavourably. Favourably by changes in living standards, in diet, habits, housing, communication, literacy, social development and improvement of public health and unfavourably by changes in age structure, adverse aspects of industrialisation and urbanisation.

Developing countries have three characteristics. First, production, income and consumption per capita are low in comparison with the more highly advanced countries. Second, while production income, and consumption may increase in all countries, the process of growth is combined with a profound charge of political, social and economic structure. Third, the concept of economically less developed suggests that the countries have an economic potential which is not fully realised. The application of science and technology has been slow. The people of these countries are subject to poverty and privation, disease and malnutrition, high birth rates and high death rates, high infant and child mortality with low expectation of life. The standard of medical care is low. In the developed countries, in contrast the standard of living is high, birth rate is low, general mortality rates low the effects of industrialisation and urbanisation where high standards of medical and public health are seen.

3. Trends in World Health During The Decade :

Great advances have taken place in the field of virology, in cardiovascular surgery and chemotherapy. The decade also saw the launching of mass compaigns against malaria, yaws, smallpox and tuberculosis and the reinforcement of efforts to reduce maternal and child mortality. Many of the most recent advances in medical technique are not yet available to all and it is only limited to a few countries. High costs, shortages in personnel and the limitations of the administration have determined the patchiness of their distribution. There is a great gap between knowledge that is available and its application.

The General State of Health : Among the statistical data commonly used to designate the state of health of population it has been found that general mortality, expectation of life and infant mortality are better indicators of health than any other information. The crude annual death rate is the most widely available indicator of the level of health Together with the crude death rate, the infant mortality (deaths under one year of age per 1,000 live births) is also falling which is another indicator of the level of health, though not available with any degree of accuracy in many parts of the world. Reduced mortality in this age range is becoming more and more evident in the less developed countries. In countries which have reduced infant mortality rate to between 20 and 24, the main target for further reduction lies in the first four weeks of life in the neo-natal period itself, where the causes of death which have to be dealt with tend to be less tractable. It is generally accepted that the indices of development are percentage of literacy, availability of potable water, amount of animal proteins in diet, per capita income and the stage of organisation of the health services.

Communicable Diseases :

Malaria : The World Health Organisation has emphasized that the malaria eradication programme should be taken up as a priority. The specific results of malaria eradication operations, can be seen in increased work output, improved agricultural achievement, lengthened expectation of life and higher rates of population increase. There is one noteworthy outcome of these activities. Very often the administrative machinery which has been devised, and the manpower recruited for the purpose are available for other public health purposes, such as smallpox vaccination, local census and health education.

These can thus become the precursers of a very comprehensive public health service.

Tuberculosis : Tuberculosis, which so recently was numbered as the captain of the men of death, has shown a declining trend in mortality throughout the past decade. The average death rate from tuberculosis from all countries whose records are available to the World Health Organization was about 58 per 100,000 in 1950 and had fallen to 19 in 1958 which is due to advances in the general standard of nutrition, housing, sanitation and economic status as well as the beneficial results of the earlier diagonosis of cases and their organised institutional treatment. The Madras Chemotherapy Centre has shown the value of the domiciliary treatment. More than 90 per cent of advanced cases of the disease living under Socio-economic conditions which are far from favourable, are being treated at a small fraction of the cost of maintaining them in hospitals.

In developing countries, however, it continues to be a major cause of death. The morbidity data indicated a declining trend, which may be attributable to the efficiency of case-finding, the success of chemotherapy and protective value of vaccination with BCG. Under these circumstances, it is necessary to obtain information about the prevalence of tuberculosis in the community by local epidemiological studies. On the basis of these data, control policies will have to be formulated. The triumphs of modern medicine appear likely to facilitate the treatment of certain conditions in the patient's home. Tuberculosis is one of the conditions which can be dealt with in this way. The eradication of tuberculosis, in contradistinction to control, has recently been advocated in certain quarters. Nevertheless, tuberculosis in a community can be highly pervasive persistent infection, and therefore, not easy to track down and eliminate. But a progressive reduction of the disease can be expected over the next decade.

Leprosy : The number of persons suffering from Leprosy throughout the world was placed at between 10 to 12 million. Leprosy it still a universal disease and perhaps only 20 per cent of its victims are receiving treatment, despite the fact that treatment with sulphones has been available since 1945. The new policy advocated by WHO Expert Committee in 1963 involves a more intensive programme of case-finding, leading to early diagnosis, the registration of cases and mass treatment with sulphones. Selective and temporary segregation is only required for infectious cases. The control of leprosy will continue to require the expenditure of much time and money, and the date of its eradication as a disease is still remote.

Certain potentially useful administrative tendencies are to be seen in the integration of leprosy campaigns in the general health health services, and in the special interest in the protection of child contacts with chemoprophylaxis. Eradication of the incidence of deformities characteristic of the disease are being attended to and rehabilitation of patients is also being taken on a wide scale. These efforts, however, should not take precedence over intensive case finding and early treatment, which are ultimately the most effective means of obtaining both clinical and social improvement.

These three diseases-malaria, tuberculosis and leprosy—have all been and are the object of mass campaigns directed at their control or eradication. The social benefits of the control or eradication of the diseases are beginning to accrue. In the field of public health practice, the campaigns are promoting an association, if not integration, of preventive and curative medicine. Other Communicable Diseases :

Yaws : This is a disease highly amenable to organised mass compaigns. In the world some 200 million people are exposed to the risk of infection with endemic treponematoses, particularly yaws, and there are about 50 million active cases in the world at the time and many more domiciliary and other contacts susceptible to infection The dis appearance of yaws in such communities has not only improved the health of the people, but also added to their well-being, increased their productive potential and has often established their faith in the efficacy of the health services and led to enthusiatic participition in the extension of these services.

Venereal Diseases : The incidence of syphilitic and gonococcal infections reached a post war peak in most of the wolrd in 1946-48. Since then the disease is on the decline. Again there is a great rise in recent years

due to its high incidence and use of oral contraceptives

Trachoma : Trachoma is one of the most universal diseases and no continent is exempt from its ravages. 1/6th of the world population or approximately 500 million persons are its victims, and the socio-economic consequences of its prevalence are enormous. In some countries, 1 per cent of the total adult population are totally blind, more than 10 per cent so blind that they are incapable of any work for which sight is required and another 10 per cent have serious impairment of vision. Many countries have taken up trachoma control programme. Control programme must therefore take into account not only ascertainment and treatment, but also the general sanitary situation, which is often reflected in the size and vigor of the infant population, the socio-economic and educational level of the community and the availability of good maternal and child health services. A concentration of effort upon the pre-school child is probably the most rewarding approach to the solution of the problem. Trachoma is one of the diseases in which child care, education and insistence on the elementary principles of hygiene can yield most gratifying results.

Bilharziasis : It is widely distributed throughout Africa the Caribbean, parts of Central and South America, China, the Philippines and Japan. It is also to be found in Iraq, Iran and the Arabian Peninsula and a small area in India has shown its incidence.

Filariasis : This is a disease of great importance because of the disablement and disfigurement and blindness it causes. This is associated clinically with the elephantiasis and is conveyed to human beings by mosquitoes. Secondly, in Africa there is the blinding filariasis onchocerciasis, in which several varieties of simulium flies act as vectors. The methods of control are closely related to those used for malaria, but complementary measures, which include chemotherapy, may be necessary.

Trypanosomiasis : Most of Africa South of Sahara except South Africa is affected by the disease. The incidence has declined with chemo-prophylaxis and the use of insecticides.

Virus Diseases : Amongst the acute diseases common to both the developed and less developed areas are some of the virus infections, of which influenza and poliomyelitis may be selected as examples. The use of cultures made of live tissues has changed the face of virology in little more than a decade. Many viruses have been cultivated and harvested, and making of effective prophylactic vaccines against such diseases as inflenza and poliomyelitis has become possible on a large scale.

Influenza : In 1957, the epidemic occured at a time when the mass manufacture of influenza vaccine had become a practical proposition, although ultimately its use was restricted by the rapid march of events. The epidemic also gave the WHO influenza programme an opportunity, through its worldwide network of laboratories and observers, to keep up with the spread of the epidemics, and to make available the first strains of the virus from which the vaccine has been derived.

Poliomyelitis : The virus of poliomyelitis was widespread throughout the world. The maximum rates of the paralytic forms of the disease were recorded in the 0-4 age group. Epidemics were rare events in all but the most isolated communitities because of the prevalence of the early acquired immunity. But with improved sanitation and higher standards of living, the age of the first exposure to virus gradually rose, and epidemics of the disease began to appear in the age that were previously protected. In advanced countries, with the improvement of sanitation etc., there is an apparent increase of incidence, but with the production of the polio vaccine and immunization of large population, the incidence of the disease is low. Nevertheless, the achievements of the decade are great and without parallel. The disease, which in previous decades had become a formidable and treacherous destroyer of human life, happiness, physical capacity and economic security is now under control. Live oral polio vaccine is used all over the world. In India, the polio vaccine will be manufactured in Coonoor and it will be in the public health workers hand in a year's time. Recent outbreak of Haemorrhagic fever in the Far East and South Asia points to new dangers.

Chronic and degenerative diseases like cancer and cardio-vascular diseases : In general terms these two diseases are respon-

sible for from one-quarter to even more than one-third of the total mortality. Malignant neoplasms are most significant and most common causes of death and their frequency ranges from 14 to 22 per cent of all deaths. Vascular lesions affecting the central nervous system rank third, and their share of the total mortality is between 11 and 16 per cent (Accidents are the next most frequent cause, that are responsible for from 4 to 7 per cent). There is a rising trend over the past decade. For the developed countries, they represent the major fields of mortality which hinder the further extension of the life span.

Cardio-vascular Diseases : The diseases that have achieved the greatest notoriety are hypertension and arteriosclerosis which includes coronary thrombosis. The disease is said to be less frequent among Bantus, Nigerians and Japanese. It is in the field that, under WHO sponsorship, national research organisations are collaborating to obtain the fundamental research. Medical science has been active in providing appropriate remedies for these conditions, but what is needed is a more positive approach to their prevention, not necessarily by any continuing prophylatic meditation, but by more rational modes of living.

Cancer : Cancer causes some two million deaths annually in the world and at any one time, five million persons are suffering from the disease or have suffered from their manifestations. The machanisms which transform an innocent cell into a malignant one and thus set on foot the cancerous processes are still, in the main, hidden from us. There are certain physical, chemical and biological factors which affect the location of cancers in the body and their characteristic distribution amongst populations in various parts of the world. There is a rising incidence of lung cancer and it has become a major health hazard in many countries, Skin cancers are common in areas of intense sunshine. Cancers of cervix and cancers of the cheek etc., are common in India. There are certain potent carcinogenic factors at work. One of these is excessive smoking of cigarettes, which has been statistically associated with the disease in a number of studies. Atmospheric pollution has also been accused as a causal factor. Epidemiological studies of the incidence of the disease are required. In the broad field of cancer prevention, reliance is placed on the removal of carcinogenic hazards in industry ; on the control of ionizing radiations ; on constant vigilance about the presence of noxious carcinogenic substances in food additives, pharmaceutical and cosmetic preparations and on efforts to limit the general pollution of the atmosphere, and also on the reduction of cigarette smoking.

Mental Health : The mental disorders do not figure largely in death returns, but affect the national health statistics. Changes in the field of mental health have gathered momentum in the last decade. The mental hospital has always had two purposes, one the custodial and the second therapeutic and over the years a balance has been struck between them. But recent advances in psychiatry itself and in the use of physical and chemotherapeutic methods of treatment have disturbed the equilibrium and, in consequence, the therapeutic functions and achievements of the institutions have begun to yield some what unexpected results. The effect of these measures has enabled mental hospital to open its doors both literally and figuratively. The open door has become a revolving door through which patients go and return voluntarily, if necessary, for short-term treatment. The domiciliary treatment and surveillance of patients and their integration with the life that surrounds them will require acceptance and understanding on the part of the community as a whole. The existence of this modern approach has been perhaps most marked in the United Kingdom, where it is envisaged that the logic of the present therapeutic policies should lead, say in 15 years, to a reduction of some 40 per cent of the existing mental hospital accommodation. The same new concept of community mental care has also found acceptance in many developed and developing countries. Mental ill health is not limited in its includence to the developed countries. It occurs universally, although information regarding both its frequency and the types of its manifestations in the less developed countries is only now being ascertained with any degree of accuracy by the use of epidemiological methods.

Accidents : In the list of chief causes of death, accidents are having a high place. The auto-mobile traffic is largely to blame. For every fatal accident, there are many non-fatal ones which cause prolonged or even perma-

nent disability. Statistical information on the age distribution and causation of accidents is more readily available and more reliable for the economically developed countries. In the first year of life accidents are the outstanding cause of death. Between 1 year and 4 years, they are, on an average. the cause of 30 per cent of all deaths and between 5 and 14 they are responsible for 38 per cent of the deaths. Accidents remain the most frequent cause of death between the ages of 15-44 in many countries. Except at the extremes of life-in infancy and in old age—the male is always more accident-prone than the female. Accidents are universal in their indidence as they are diverse in their causation.

Falls are the second most common cause of accidental deaths in the same countries and the famale rates generally exceed those for male. Accidental drowning appears to be third in accidental deaths, as might be expected, the death rate for males is much higher than for females.

Radiation : The problems arising from the effect of ionizing radiations and the industrial use of atomic energy required immediate attention. The problems included the effects of radiation on heredity and the obvious desirability of reducing radiation hazard wherever possible, before they become a direct danger to man's health. Medical radiation is one of the principal sources of man's radiation exposure, particular attention was given to the risks inherent in various medical radiological procedures, and to advice on their mitigation.

Under the auspices of the several specialised agencies like the International Atomic Energy Commission, an intensive activity in research is noticed in the exchange of information and in the training of personnel. A co-ordinated planned approach to the solution has yet to be widely practised.

Health Protection and Promotion : Man is able to improve the environment in which he is placed, if there are enough financial resources. This renewal of interest in physical surroundings comes not only from a desire for improved amenities, but it is also a rediscovery of the importance of the environment to health. Many countries suffer heavy burden of illness due to the bowel diseases and the common infections of the respiratory tract. With rising standards of sanitation, many countries find themselves faced with new hazards to health arising from industrialization and urbanization.

Environmental Sanitation : A good sanitary environment should include good water supply, sewage and refuse disposal, clean air, radiation protection, housing and town planning, control of overcrowding, noise prevention, vector control and food hygiene. The adequacy of the water supply, both in quantity and quality and its protection from pollution by excremental fouling or industrial wastes, remain the paramount desiderate. International Bank for reconstruction and Development has given assistance to several countries (for example Jodan). The United Nations Special Fund has also provided funds for engineering studies. The Special Fund has also provided funds for engineering studies of long-term construction plans for water supply and sewage in the Calcutta Metropolitan district. In Kenya also such assistance is being given. The Calcutta Metropolitan Organisation is getting international assistance for a composite scheme of water supply, sewage, town planning, etc.

When a water supply adequate for consumption and trade purpose is made available, there remains the question of sewage disposal. This is a matter which many communities tend to shelve, because of the capital outlay involved with consequant danger of filariasis, but it is likely to become more and more urgent under the pressure of urbanization.

Atmospheric pollution : The positive approach to the control of Air pollution includes site selection for factories and zoning of industry ; introduction of equipment which will within limits, deny undesirable substances access to the air ; selection of appropriate feul and its utilisation and legislation directed to ensure clean air. Great work has been done in other countries. In India attempts are being made but still there is great necessity for preventive measure in the big cities.

Urbanization and Health : Many countries of the world today are faced with problems created by rapid concentration of people, production and services in towns, cities and metropolitan areas. Some causes of ill-health are more characteristic of the countryside than of the cities. They can be brought to the cities by immigrants. A more detailed study of the social etiology of these conditions reveals that

they are essentially the problems which arise from or are associated with inadequate water supplies, unhygienic housing conditions, poor selection of residential and industrial sites and of atmospheric pollution, lack of educational facilities, recreational facilities, etc. Technological and psychological preparation is necessary, for the health staff will be working very often in fields traditionally foreign to them, and will have professional and administrative associations with men and women trained in other disciplines. The problems of urbanization are great and will inevitably be greater but they can only be solved by a combined operation of this kind.

Housing : Implicit in the problem-complex created by urbanization is the question of the housing conditions in which people live—though bad housing is not limited in its incidence to the towns. Most of the inhabited dwellings fail to satisfy the requirements for a residential environment. There is still much haphazard planning of housing facilities, and a tendency to lower both building and accommodation standards in order to increase the volume of construction and to stretch the limited investment resources. Housing problems differ in their health aspects as in other aspects in the various parts of the world.

Provision of comprehensive Health Care : The changing attitude towards disease and increasing recognition given to community responsibility for its care and prevention, is largely responsible for the expansion of medical care facilities. But the increasing cost of medical care influenced the organisational trends which are now becoming discernible. In the more developed countries, the official health departments, with their established interest in environmental satnitation and communicable dieases control, are now entering the field of medical care. The government are assuming greater responsibility. The governments are taking care of the indigent, war veterans, the aged or the mentally ill. The governments are assuming responsibility for the provision of medical care as an integral part of social services and security. In some countries the responcibility assumed by the Government is the full operation of the medical care services like sickness insurance, etc. In others it is restricted to paying subsidies to voluntary or charitable institutions, or to making statutory contributions to sickness insurance schemes, which have been organized on either compulsory or a voluntary basis. Whatever the from of Governmental intervention, the obvious trend is for more of the taxpayers' money to be used directly in the financing of medical care programmes and the introduction of comprehensive Health Care.

There is increasing interest in pre-paid medical care programmes and voluntary sickness insurance, as exemplified by countries like the United States of America, where it has been becoming increasingly popular. 75 per cent of the population of the United States is covered by some form of sickness insurance in 1950. Of these 75, 72 included maternity benefits amongst the benefits provided under the social security schemes.

Provision of health services and regionalization : In the application of both medical care and public health policies increasing use is being made of regionalization. This concept is put into practice in the early thirties of the present century, has gained wider acceptance. The provision of comprehensive system of health services on a regional basis, with the central authority exercising a supervisory, co-ordinating and financial function rather than playing an executive role, is coming into vogue. United kingdom is a typical example and others are : Czechoslovakia and the USSR. The concept of integration of curative and preventive health services is also gaining ground. Preventive and curative medicine are not easily integrated in the strictest sense of the term, but their co-operative association is inescapable since they are complementary parts of a whole.

Basic Health Services : The creation of Rural Health Centre which serves as a focal point of all health services and medical care activities appears to be gaining ground. The community development movement with an integrated health development has assisted greatly in the social, economic, agricultural and industrial progress of the rural areas. The utility of these health centres in providing some of the launching sites for Malaria, Smallpox Eradication Programmes, Tuberculosis Control and Maternal & Child Health, Family limitation services and Health Education are generally being appreciated.

Hospital Services : In certain countries, this association of preventive and curative

medicine is finding a focal point in the hospital. The ivory tower of the hospital is beginning to crumble and a better co-ordination of the institution with ambulatory and domiciliary medical care is being established. The specialized hospital for the treatment of a disease entity or group is losing ground and many of the services that are provided including those for mental illness, chronic diseases, tuberculosis and the infectious diseases are coming under the wing of the general hospital. In particular, beds for infectious diseases and tuberculosis have become redundant on a very large scale and have been redeployed advantageously.

Even in the field of mental health, there has been a trend to substitute community care for institutional treatment. Hospitals are being concentrated in large towns and remain relatively inaccessible to the inhabitants of the rural areas. The needs of these areas are being met by the development of health centres, usually with a small number of beds. Many developed countries are also beginning to organise hospital services in echelon from the periphery to the centre, thereby facilitating economical concentration, in terms of equipment and personnel, of the more specialised form of treatment.

Health Man-Power and Availability of Health Personnel: The health manpower estimations requires certain norms and the norms vary with the stage of development of the country. The physician-population ratio that is applicable to the highly advanced countries may not apply to the less developed countries. In Europe and the Eastern Mediterranean areas, the ratio is 1 : 410 in Israel, and 1 : 3, 500 in Turkey. The model ratio is, however, about 1 : 900. In Argentina and the United States it is 1 : 730 and 1 : 800 respectively. India and Ceylon have ratios of 1 : 4, 900 and 1 : 5, 700 which are below European standards. Nepal has a ratio of 1 : 72,000 and Indonesia 1 : 40,000 Africa 1 : 13,000, Ghana 1 : 21,000 and Nigeria 1 : 38,000. The nursing and para-medical personnel are equally deficient in developing countries. In the past 10 years, the world has seen not only an increase in the number of medical schools, but have been characterized by new ideas and procedures in medical education. Many experiments now in progress have been motivated by the realisation that some steps had to be taken to organise medical curricula in the light of the future needs of the community with regard to medical care. Educational adaptation to the needs of the Society has become imperative. Both the medical educators and public health administrators are becoming aware of the need for close and frequent consultations between teaching institution and health authorities in order to secure coordination and supply of health personnel. In most countries, the general practitioners must continue to be the backbone of the medical care services and much thought is being given to the place of general medical practice in the health programmes. A new type of general practitioner is needed to deal with the problems of preventive and social medicine, mental health and family pathology. His relationship to the hospital and its specialists and his place in the health team still requires to be worked out. The teaching of social medicine or comprehensive medicine to the undergraduates has become a common practice. Early introduction of the students to the patient in his family environment is also being provided in many medical centres.

Planning for the Health Services: Professional education in the health field is fundamental for the development of health and medical care services, but long-term planning is equally important for the phased evolution. It has as its objective, the social economic and technical development of a country and health gets into this grand design precisely because of the social and economic implications.

This was the case with USSR, where planning was initiated in 1921 and assumed the form of five year plans in 1929. Similarly, in India the development of the health services has been regarded as part of the national and development plans. The Bhore Committee, the Health Survey & Planning Committee, the WHO Expert Committees on Public Health Administration and Planning for Health Services and National Health Planning have been of great use.

At the national level, the statement of health expenditure does not necessarily give an idea of the extent of the planning or the amount of programming which is in hand.

World Medical Research: In 1958, the WHO began to participate in research fields. The WHO Medical Research Programme has

advanced so much that it is now interested in the establishment of a Special Institute for International Medical Research. Recently, the World Health Assembly has taken up research in epidemiology and communication science.

4. **Health Situation in India :**

Major, Social, Cultural and Economic developments : According to 1961 Census India's population is 43, 90, 72, 582. India is seventh largest and second populous country in the world. 82 per cent of this live in villages and 18 per cent in cities and towns. The 1961 Census shows that 24.0 per cent of India's population is literate. It appears that educational facilities have expanded considerably as the corresponding figures for 1951, was 16.6 per cent. The literacy among males is 34.4 per cent and among females is 12.9 per cent according to 1961 census.

In common with other underdeveloped countries the levels of national income and per capita income in India are very low and for several decades the Indian economy was almost stagnant developing at a rate barely exceeding the growth of population. Over the past decade, however, India's net national income has advanced at an average rate of 3.35 per cent per annum—the increase in aggregate national income being about 3.35 per cent. At constant prices, national income in 1963-64 is estimated at Rs. 17,200 crores and per capita income at Rs. 317. The corresponding figures at constant prices (1948-49) are Rs. 13,910 and Rs. 300. Population has been increasing during the last decade at about 2 per cent per annum, the increase in income to per capita has been 1.23 per cent per annum. The low rate of economic development would have to be substantially stepped up and special efforts made to reduce the rate at which the population is increasing if the level of living of the bulk of the countrys' population has to be significantly raised.

It may be seen that per capita availability of food grains increased from 15.1 ozs. per day in 1955 to 17.5 ozs. in 1964.

A number of social security measures for the welfare of workers have been in operation in the country during the last decade or so. Two major schemes under this head the Employees State Insurance Scheme and Employees' Provident Fund Scheme. The former provides for medical care and treatment, sickness and maternity benefits and compensation for employment injury, etc. While the latter provides for old age compensation for dependents in the event of death of worker while in service. At the end of 1964 the coverage of the E. S. I. scheme was 29.35 lakhs workers and that of E.P.F. scheme was 40.12 lakhs workers. The Occupational Health Institute at Ahmedabad would greatly help in the study of ill health and its prevention, amongst industrial workers.

Data collected through National Sample Survey shows that in rural areas about 73 per cent of the households live in 'Kucha' and about 2 per cent in 'Pucca' houses ; in urban areas such houses are about 25 per cent and 8 per cent respectively, the remaining ones both in rural and urban areas being of the mixed type, i.e., partly 'Kucha and partly Pucca' : Density per room in rural areas comes to the 2.4 persons and in urban areas 2.2 persons ; average floor area per person in the rural and the urban areas 77.8 and 69.5 square feet respectively. The condition in metropolitan and industrial cities and capital towns is much worse. House facilities such as 'tap water' are largely unknown in rural areas ; people mostly depend on wells, ponds and tanks for drinking water. In urban areas 47 per cent of the households do not have tap facilities and 30 per cent depend on wells, tanks and ponds.

National Health Planning : In 1950 Government of India set up a well organised body known as Planning Commission to formulate national plans for the development of the country. These plans are executed both by State and Central Government. India has successfully completed three Five Year Plans (1951-66) and is actively working through the fourth (1966-71).

The broad objectives laid down for the Third Five Year Plan on Health were the progressive improvement in the health of the people through the development of public health services and controlling the rate of population growth through Family Planning. The plan outlays for health programme during the First, Second and Third Plans are respectively Rs. 140 crores, Rs. 225 crores and Rs. 342 crores. The percentages of the out-

lays to the total plan provision during the three plans were 5.9, 5.0 and 4.3 respectively. The Fourth Five Year Plan envisages Rs. 960 crores and the percentage outlay to the total plan provision is 6.00. The National Malaria Eradication Programme, the Smallpox Eradication Programme, Control Programmes in respect of other communicable diseases notable T.B., Leprosy and Trachoma, the establishment of Primary Health Centres all over the country together with the setting up of 85 medical colleges, bringing the total admission capacity to over 11,000, stepping up of training facilities for nurses and other para-medical personnel, the increase in hospital beds to about 2,40,000, a vigorous drive for improving rural and urban water supplies, are the main features of the implementation of the Third Plan. Simultaneously the Family Planning Programme has been intensified and extended. An overall assessment of the health plan has shown that while the targets in respect of medical care (beds, hospital, primary health centres, etc.) are expected to be fulfilled and the targets in respect of several categories of technical manpower like doctors nurses health visitors, pharmacists, etc., are fulfilled or exceeded, there will be some shortfalls under auxiliary nurse-midwives and dais. The number of hospital beds have come upto nearly 0.5 per 1000 population and the number of doctors improved from 1 : 6000 to 1 : 5800. The water supply and sanitation programme has been affected by several difficulties including the absence of advance action for the procurement of material required for the implementation of these schemes. By February, 1965, there were 10,239 Family Welfare Planning Centres in the country which includes 8,869 in the rural areas. In addition to these clinics 1743 sterilization units have been established. Apart from establishing Family Planning Institute at Delhi, other training research avtivities were intensified. Over a million I. U. C. D. insertions and a million and a half sterilizations were performed upto-date. The family welfare planning programme has yet to become a mass movement but the present trends point towards rapid acceptance of the concept.

Control of Communicable Diseases : Despite some of the big achievements in the health field, communicable diseases still constitute the major health problems in India. From the records available upto 1962, 54 per cent of the deaths are caused by communicable diseases. Recognising the need of control of communicable diseases, a beginning was made in 1953, when a nation-wide Malaria Eradication Programme was launched. Under this programme at present 393.25 units each covering a population on an average of 1.2 million, are functioning. Out of these, 203.31 units have already entered the maintenance phase and the rest are either in consolidation or attack phase. The mortality rate due to malaria per 1,000 population has come down from 8.79 in 1944 to 0.28 in 1962. There has also been an overall reduction of more than 95 per cent in spleen and parasite indices throughout the country during 1960-61 as compared to 1953-54. The proportionate case rate has also come down from 10.8 in 1953-54 to 0.23 in 1963-67. There has been considerable progress in eradication of Malaria and about 80 per cent population are free from Malaria.

Tuberculosis : There are about 60 lakhs patients suffering from tuberculosis in India, 5 lakh deaths resulting annually. Altogether 182 B.C.G. teams were working during 1964. By the end of the 1964, 216 million persons have been tuberculin tested and 78 million have been vaccinated. Nearly 49 per cent of the population has been covered so far. By the end of 1964, 414 T. B. Clinics and 150 T. B. Hospitals and Sanatoria were functioning in the country with a total bed strength of 34,517.

Smallpox : Under the National Smallpox Eradication Programme, which was launched in 1962, 154 units were working in the entire country during 1965 and nearly 86 per cent of the population was covered. Smallpox eradication made good progress. The maintenance phase is engaging the attention of the Government.

Filariasis : Filariasis is yet another major public health problem in India. Recent surveys have revealed that a population of about 122 million lives in areas with varying degree of filarial endemicity. Under the National Filaria Control Programme 47 control units were operating during 1964.

Venereal disease control has, however, made progress.

Trachoma : Trachoma is one of the commonest causes of blindness in the country. It is responsible for 60-80 per cent of preven-

tible blindness. National Trachoma Control Programme was launched in March 1963. At present 56 field units are operating in 7 States.

Leprosy : The emtimated number of leprosy cases in India is 2.5 million, of whom about 20 per cent are infectious. In connection with the Leprosy Control Programme, 166 Leprosy Control Units and 487 Survey Education & Training Centres have been established by the end of 1964. The total poplition covered by all types of centres under this programme was 28.5 million at the end of 1964.

Basic Health Services : In the 5500 community development blocks primary health centres are established in 5007 blocks and the sub-centres are being established for every ten thousand population staffed with a Basic Health Worker and an Auxiliary Nurse Midwife. The integrated preventive, curative and family planning services would be available at the smallest level of the sub-centre. These services point to the dawn of community medicine with great possibilities.

Education & Training of Medical and Allied Personnel : There has been a considerable expansion of educational facilities in the field of medicine. At the end of 1964 there were 81 medical colleges, 13 dental colleges and 11 other institutions for training in the modern system of medicine. At present there are 89 medical colleges. The admission capacity for medical colleges has risen to 11,000 in 1965. 21 postgraduate departments have so far been established during the Third Plan, Five Institutes of Postgraduate Medical Education and Research are already functioning in the country. Training in the specialised subjects is imparted by various institutions like All India Institute of Hygiene and Public Health, Calcutta, National Institute of Communicable Diseases. Central Health Education Bureau, Central Family Planning Institute, National Institute of Health Administration and Education, Central Leprosy Teaching & Research Institute, etc. However, it should be pointed out that Public Health training for physicians requires greater attention and the Social & Preventive Medicine Departments should integrate with the working of all clinical departments.

Facilities for the training of nurses exist in practically all major hospitals in the country and in the nursing colleges at Bombay, Hyderabad, New Delhi, Indore and Vellore. State Governments and non-official organisations have organised short-term auxiliary nurse midwives courses with the help of grants from the Central Government. At the end of 1964 there were about 480 nursing schemes and colleges in the country for training nurses, midwives, health visitors and auxiliary midwives. The expansion and further development of Nursing Schools is expected in the Fourth Five Year Plan.

The organisation of the National Institute of Health, Administration and Education at Delhi has greatly contributed to the training of Administrators in Health, Planning and Health Administration. It has attracted the attention of the World and has stimulated the organisation of similar Institutes else-where in the world.

Medical and Public Health Research : The Indian Council of Medical Research has been engaged in the promotion and co-ordination of research in India ever-since its establishment in 1912. It maintains the Nutrition Research Laboratories at Hyderabad, the Virus Research Centre at Poona and Blood Group Reference Centre at Bombay. It provides grants in aid, disseminates information on medical research and publishes two journals. In recent times operational Research and evaluation of programmes is being given greater emphasis and is carried out in several centres.

Major Public Health Problems : Still the environmental sanitation with particular emphasis on water supplies and sewage disposal remains one of the big public health problems.

Environmental Sanitation : A Central Public health Engineering Organisation has been entrusted with the task of tackling this sanitary situation in the entire country. The organisation has formulated the programme of National Water Supply and Sanitation Programme with the purpose of giving technical scrutiny and advice on all urban and rural water supply & sanitation schemes.

Welfare of Children : In view of the high morbidity and mortality rates among children there is an urgent necessity for increasing child care programmes. The population under the age of 14 is about 41 per cent ; 50% of the total deaths occur in this age group and 50% of the deaths occur below the age of one. The

rural population is about 82 per cent and the lowest economic groups are in the rural areas. Child nutrition, school health, immunization against preventible diseases like smallpox, poliomyelitis, diphtheria, pertussis and tetanus require immediate consideration. Unless these are pursued simultaneously, family planning programmes are unlikely to be adequately motivated. Child survival becomes imperative with fertility control.

5. Economics of Health & Investment in Human Capital :

Economics as a science has a strong materialistic bias. By 'capital', economists have meant material capital. Some economists with a philosophic bent have been eager to recog nise the existence of Human Capital. 'Consumption' has been in juxtaposition to 'Production and the concept of 'productive consumption' has not been seriously studied. The scientific study of the economics of sickness and health has been made by a new type of public health physician, social welfare expert, and it has only gradually been brought into the focus of the social scientists. The economics of health can be illustrated by the Malaria Eradication Programme in India. The cost of illness of 100 million people in a year for varying periods and the cost of premature death of two million people at the most productive period of their life may be calclated. The cost of the Programme itself would be only one-tenth of the cost of sickness besides the permanent value of increasing economic production and raising the expectation of life reducing the infant mortality and increasing the vigour of life of the population. Similarly, in every disease, whether of nutritional or infectious nature, if the cost of illness and premature death is measured, it would indicate the enormous waste of human life and loss in production which contribute to social stagnation. The dynamic theory of social change, therefore, shows the economic value of health. If things continue to remain relatively static, this means that the forces balance each other, so that a persistent condition of ill health in a country constitutes both the cause and the effect of a low earning capacity, widespread illiteracy, and a minimum level of nutrition and housing. If the health conditions of the population are induced to change, this will cause a change in all the other factors too, and will start a process of interactions where the change in one factor will continuously be supported by the reactions of all the other factors, and so forth. The vicious circle of cumulative causation should be appreciated in as much as the effects of an improvement are also cumulative. There is one important difference from the effect of social change in the under-developed countries; whereas in a world setting knowledge of techniques in all fields in medicine as well as agriculture and industry is now available, it did not exist when the present-developed countries became developed. In a general way, this will ensure that the changes could be carried out more cheaply, more effectively and much more quickly. Further, the success of a health programme is entirely dependent upon whether it is integrated into a social process of general economic development or applied to a status of economic stagnation. It is true that an improved health standard will imply both a more favourable age structure of the population with a large part of it in the production ages and, in every age-group, a people more able and even more willing to work and to work well. This by itself tends to raise productivity. The economic value of preventing premature death, to take the simplest case, depends entirely upon whether such an economic development is under way which ensures productive work for the greater number of people we thus keep alive. If the economic situation is stagnant and remains substantially as it was, the public health revolution serves, as it has done in our case, from an economic point of view, only to speed up a process towards increased relative over-population and aggravated pauperization. If, on the other hand, an economic development rapid enough, can be engendered at the same time, the more favourable age composition of the more rapidly growing population will work itself out as an additional cause of higher economic well-being. In both cases, the process downwards or upwards will be pushed further ahead by cumulative causation. Preventible or curable diseases, disability, and premature death represent a social waste which should be demonstrated and spelled out in millions and crores of rupees. Only when a public health programme can be presented as the profitable investment it really is, can we hope that it will be accepted readily and given its due scope in competition with all other demands on the public purse. Hence the need for studies in health economics.

The feeling that low health standards represents an economic waste is supported by everything we know about society. The health programme when rationally integrated into a whole system of social, economic, and educational reform will show the maximum results. Hence in a developing economy, investment in health and family planning becomes productive and helps in the socio-economic development by raising the standards of living.

Investment in human capital is probably the major explanation for this difference from the developed and the developing countries. National economy is based on human economy. The health of the people represents Nation's capital. In this formidable task of building human capital, the primary role is assigned to the social physician. Let us take the challange. It is in the above context that medical education and health development should be viewed as a factor in socio-economic development. There will be no health and socio-economic development of the society without medical education as then there will not be enoubh medical manpower to man health facilities. In order to discharge ones functions effectively, public health physicians should study economics, sociology and anthropology in relation to social medicine. Medical education including public health is a life-long study and new developments in technology and social sciences should be integrated in the educational content of a social physician. I am happy the scientific session is discussing health as a factor of socio-economic development.

Health Administration :

"Those who carry on great public health schemes must be proof against the most fatiguing delays, the most mortifying disappointments, the most shocking insults and what is worst of all, the presumptuous judgements of the ignorant." Edmund Burke

The Public Health administration of the country is passing through a great crisis. Community development with an integrated concept of health progress is greatly handicapped by the unenlightened in supreme charge of the health field at the local levels There is need for rethinking of the organisational aspects of the local, district, state and the centre. Without good health administration the great efforts in other fields suffer. Programmes for planned families, occupational health, pure food, conquest of communicable diseases could not be achieved and sustained without proper basic health services and efficient health administration. There are many challenges to health administration in a young democracy but it is for the administrators of today to meet the challenges with vigour, integrity and courage. This is a period of crisis of the adaptation of science and technology to the problems of rising expectations of the peoples every where. As participants in one of the most successful and significant human adventures, we must keep our minds open and contribute a share of practical idealism to the solution of the fascinating challenges of our country remembering always that India has a great future.

'Jai Hind'

INDIAN JOURNAL OF PUBLIC HEALTH

Quarterly Journal of the Indian Public Health Association

VOLUME XI JANUARY 1967 NUMBER 1

Editorial

PUBLIC HEALTH—FACTOR IN SOCIO-ECONOMIC DEVELOPMENT

Rostow regards economic development as having five stages : the traditional society, the development of preconditions for the take off, the take off into self-sustained economic growth, the drive to maturity and the stage of high mass consumption. Countries like United States of America and United Kingdom are in stage five whereas Indian is in stage two.

Improvement in health conditions are not only desirable in themselves, but they are essential pre-requisite for economic growth. Indian economy is dependent upon productivity in the agricultural and industrial sectors. Improvement of health status of workers in these two sectors is essential for the development of National economy.

Comprehensive Care is the desired goal of present day health services ; but it is nowhere near achievement even in developed countries. The gap between available knowledge and its systematic application has widened in developing countries. Shortages in resource personnel and mounting cost of services stand in the way of programme execution. As an alternative, 'Graded Comprehensive Care' has been evolved.

The challenging situation can be not only by opitmum use of scarce resources through application of finer techniques in the methodology of planning, organisation, direction, coordination and evaluation. The need for operational research in various phases of health administration is evident.

Levels of health tends to follow levels of economic development. The average life expentancy at birth in India was 37.6 years in 1951-56 and it rose to 46.5 years in 1961-1966 at the end of third plan period. Economists are however interested in the cost benefit analysis of health services and the economic gains from these services. The benefits accrued to the individual by way of physical well-being is considered as a matter of consumption. Financial gains by way of health services are regarded as a matter of investment.

The direct humanitarian benefits of health work is better health, longer life

and fewer and shorter illness. The economic benefit arises from the things which healthy 'human capital' can produce. This could be computed only by tracing the contribution of health to productivity. The methods are (i) including the expected economic return 'output' besides economic costs 'Input', in planning and evaluating procedures (ii) conducting small scale case studies in order to compute in monetary terms the direct benefits to the community from health programmes.

The cost benefits of malaria eradition and nutrition programmes, immunisation procedures, and environmental sanitation measures are examples of these, where direct benefits to the community could be computed in terms of rupees and paise. The information thus obtained could be of immense value in getting both financial and public support for health programmes.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

PUBLIC HEALTH EDUCATION AND TRAINING

Chairman : Prof. M. S. Thacker,
Member, Planning Commission, Government
of India
Rapporteur : Dr. Harcharan Singh,
Medical College, Rohtak

Dr. N. Jungalwalla, Additional Director General of Health Services speaking on "The Impact of Developing Economy on the Patterns of Training of Health Workers." said the impact of civilisation in undeveloped areas, in the past, has often had adverse results. Moorehead has indicated that when a "social capsule" breaks, and "strews its contents", the results are unpredictable. He quoted the impact of civilisation on areas like Tahiti and the aboriginal inhabitants of Australia. He quoted some of the problems of developed areas "wrecked country-side, wrecked automobiles and wrecked homes". However, one realized that these were not the only factors and that the present trend of migration from rural to urban areas is indicative of the search for better social economic conditions on the part of people long isolated. The other trends were for industrialization with concomitant automation, increasing economic affluence with decreasing hours of work but without social improvements such as literacy, housing etc.

As regards training, medical educationists all over the world are now interesting themselves in the community. The trend is to look outside the hospital wards which has for long been the base of training of doctors. Increasingly, members of other disciplines such as social scientists, physicsts are finding their place in the health teams. However, as far as public health training is concerned, the "community" has for long been the main focus of attention both for service and for training of public health workers. It is, therefore, for Public Health Specialists to give of their extensive experience of "community oriented" training and work to those now entering the field. He compared this change of orienting the student to the community as of special significance and quoted Leob who compared this present trend to the revolution in medical education when the student was taken from the lecture room to the hospital wards. He also referred to the special need of developing countries for a "managerial physician" (Walshe Macdermott). He indicated the need for upgrading public health training from a vocational to an educational process, and advocated the more extensive use of operational research in the fields of public health. This would be a new development which would coordinate the needs of public health services and of the educational institutions.

Dr. Grezegorzewaski of W.H.O., Geneva emphasised that "Integrated Health Services" required training which balanced imparting of knowledge as well as providing skills to do things. He felt that areas of deficiencies in the training could be considered under the Technical Component, the Arministrative Component and the Social Component.

He said every health worker could achieve satisfactory balance between these three through education, to change, to enlarge and to adapt through work and experience. He said Administration and Social Sciences are developing fast and providing help to technical people to deliver the services in a much better manner. At the same time he warned

that the magic of these new things may not be useful in all situations.

He emphasised that the stumbling block was the lack of precision in execution and not the lack in knowledge. He recommended the use of epidomiological methods for social, economic and eventually health diagnosis, and pointed out the need of teaching the operational methods of administration through practice. He warned of the danger of divorcing administrators from the people, as behind every act of public health administration there are human beings.

He appealed to health administrators not to become soul-less beaurecrats. He concluded by stressing the need for looking forward to gain hope and looking backward to gain confidence.

The theme of Dr. Merril's talk was "Economic Aspects of Health". His opening contention was that we are enamoured with our own field of activity, forgetting that there are many other aspects as important as ours. He said Public Health aspires to health promotion, health preservation and health protection. The basic question was what proportion of the total resources should be spend on these and how best to go about the promotion of Health. What should be the allocation in the field of Health, keeping in view of the rising expectations of people and the advance in modern science? He said this allocation varies in different countries, the range being 2% to 7% of the gross national income which in the U.S.A. is about 6%.

The next question considered by him was the personal and material resources and their utilisation. He said in the U.S.A. 75% of those are chanalised through private agencies while only 25% is provided through Government services mainly for Armed Forces and indigent population. In other countries the government provided resources of 95% to even 100% depending on socio-economic and political factors. He concluded that a dollar invested for the general development would fetch more dividends than if it were spent only in the field of health. Health workers he said are competing with the workers in other fields for resources, each one setting up his needs as having top priority.

Prof. Robertson, Milbank Memorial Fund, New York referred to the useful experiences he gathered in the proceeded Third World Medical Education Conference and the extra mural contacts. He lucidly brought forth what Public Health has to offer to the field of medical education and called on the public health workers to take pride in their knowledge which has a background basically of bio-statistics, epidemiology and social sciences. These he said equips a public health worker to understand and appreciate group needs as against the medical colleges. This he said is the significant contribution Public Health can make to medical education. The second area of utility he cited included the Team Concept, Team Approach and Team Dynamics—the problems of inter-communication. The third important contribution mentioned was the concept of Planning, which Public Health Workers can offer to medical education which it needs abundantly. The fourth area involves re-assurance to the colleagues in government and an effort to clear the presumptuous judgement of the ignorant to which the public health worker is so much exposed to.

He concluded that health is far too important to be left to the physician alone and education must match social needs. Hence the study of needs and demands of the society are of paramount importance and Public Health offers the epidemiological tools to dig these needs and mend these demands.

Professor Spencer, Medical College of Viginia, Richmond elaborated on the theme of "Teaching Community Health". He stressed that teaching of Community Health should not form a separate curriculum in the course of medical education—rather it should be the object of all medical education. He informed that the Department of Preventive Medicine at Richmond has been dissolved and is now being integrated with other disciplines. He stressed the need to change the methodology of teaching from lectures to more discussions though this requires more time, more space and more teachers. He emphasised that the concept of field work should change from field trips to the student working actively in the community. This responsibility should pass on to the para-medical personnel, who in their turn should be kept up-to-date in their knowledge by academic institutions. He pointed out three traits of a good teacher as being—know your subject, like your subject and like the people you teach.

The contents in community health, he said will vary from country to country depending on their needs and the modes of services offered.

The next speaker Prof. Rosinski, Professor of Medical Education, Virginia highlighted five basic Education Principles which should be borne in mind for the development of a Training Programme: The first principle enunciated was, proper objective is the backbone of a Training programme. This he said should stem from—needs of people, needs of profession and needs of Scientific development.

The second principle was, formulation of realistic content which should be continuously modified, added and weeded. The third principle stated was, know your student as much as you can, their prior experience, prior education, prior training etc. The fourth principle was, use teaching methods and material which has been properly thought out and try out new ideas and approaches. The fifth principle covered systematic evaluation to shape and reshape the total training programme, to make it efficient and economical.

Prof. Krishnaswamy Rao, NIHAE, New Delhi elaborated on the 'Training Requirement of the Basic Health Worker'. He referred to the Five-Year Plans of India which envisaged the Rural Health Centres as the unit around which the basic health services are to be organised, constituting the output of administrative and supervisory work.

He clarified the two terms—Paramedical and Auxiliaries. Para-medicals refer to various professional groups while 'auxiliary' are groups having lesser professional qualification, who assist and are supervised by the professional worker. The basic health worker is an auxiliary in this sense and fills in the insufficiency of medical and paramedical stall in these centres. He pointed out the limitation of these workers in terms of their educational standards and other refinments, compelled to work with limited equipment, supplies, finances and other facilities thereby rendering services which cannot go beyond a certain level. The training of 40,000 to 50,000 basic health workers and about 10,000 supervisors he maintained was a colossal task. He emphasised that the training of this category of workers as being difficult and trying than that of high level, health administrator.

The problem of short-term training, to deal with the present situation was brought out by him with the need for clarification as to its course, content, duration, location, qualification of teacher and taught and other areas. On the question of long-term training of the Basic Health Worker, educational prerequisites and other similar questions on his training needed to be laid down. He referred to the Seminar on Basic Health Services organised by the N.I.H.A.E. and highlighted the recommendations thereof.

Prof. Stebbins enunciated his views on 'Problems of Public Health Education and Training'. He drew attention to the broad range of training for public health personnel. Contant and fast change in the social structure of the country and rapid technical advancement were bringing in new areas of work. He referred to the tremendous demand of personnel all over the world especially in the field of Administration, Family Planning and Population Dynamics. He said in the U.S.A. there is a trend for comprehensive, integrated curative and preventive services. He concluded with the hope that the conceived World Federation of Public Health Associations may take up the solutions of standardization of the multifarious aspects of Public Health education and training.

Dr. K. N. Rao deputing for Prof. M. S. Thacker as Chairman concluded the Session by referring to the first World Medical Education Conference which emphasised the important role of the discipline of Preventive and Social Medicine in training a social physician. He appealed to the public health physician to become the crusader in his country even though the applause for dramatic services were directed to the clinician. He referred to the new thinking which envisaged Universities undertaking the training of a graduates in public health and the current thinking of the utilisation of non-medical personnel in the field of public health engineering, administration, nutrution, public health nursing etc.

He concluded by saying that all the good principles of education shall have to be exploited to build up an army of workers to man the health services in our country with a deep sense of duty, devotion and dedication.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

PATTERN OF HEALTH SERVICE IN A DEVELOPING ECONOMY

Chairman LT. GEN. D. N. CHAKRAVARTI
Rapporteur DR. B. N. BHATTACHARJEE
Central Health Education Bureau
New Delhi.

The discussion was opened by Dr. Le Roy Allen of Rockfeller Foundatoin. He dealt with 'Comprehensive Health Care'. He said it had not been achieved in any country, except in some limited cases. Comprehensive health care can only be taught by demonstrating how it can be practised. To do this, the major clinical departments should join with the department of social and preventive medicine in providing all the levels of personal health care for the citizens, living in specified urban or rural area. Public Health services in this area,—be it in a community development block or in a section of a city should be directed by the department of social and preventive medicine. He raised a doubt that unless and until it is a coordinated activity with the community development personnel the results might not be achieved to the desired level. Health care services, he observed, deserves the same systematic study and evaluation as do other physiological and bio-chemical studies that receive attention in the medical college laboratories. Comprehensive health care means total health care. He said that it required knowledge and understanding on the part of the patient, be it an individual or a community. He brought out another important point that sacial and preventive medicine should be taught by all departments in a medical college. He suggested that changing the name to Department of Community Health, as has been done by the Medical College at Vellore might help other departments to assume their responsibility to teach the social and preventive aspects of their speciality. Community health is a speciality practised by a group of physicians whereas social and preventive medicine is a way of practising medicine, that should be followed by all physicians. He concluded by emphasising that in a developing economy where the disease pattern is changing due to industrial development serious thought must be given for planning comprehensive health services. Integration of all medical disciplines is needed to teach comprehensive health care and comprehensive approach is needed to properly teach and demonstrate what is meant by Integrated Health Services.

Dr. A. K. Banerjee, Professor of Social & Preventive Medicine, Maulana Azad Medical College, New Delhi, spoke on "Organisation of Health Services in Developing Economy'. For understanding the meaning of developing economy he said it was necessary to rely upon certain data, i.e. gross national product, per capita income, investment ratio, capital output ratio etc. These are very low in a developing economy and to change them, the economy must be diversified, the country industrialized, savings movement stepped up and productivity and national income raised. Investment must be balanced between human material and machines and as there is very little available, he suggested the need for efficient house-keeping, that is better health services with less money. He cautioned that at this juncture it may not be possible to plan for positive health for the people or start comprehensive health service. He said that when even developed countries could not give all the components of comprehensive health services, how it was possible for developing countries to advocate it at this stage. He suggested we start health services on a strict determination of the priority covering provision for control

of communicable diseases, safe water, control of population and medical care for the people. He further added that instead of top heavy administration, health services should aim at integrated and regionalized infra-structure at the periphery. He analysed the man-power situation and resource position of the country and argued that it would perhaps be justified to have more personnel in the public sector for the health services. He felt training of man-power on mere population ratio was unrealistic when the crux of the problem was distribution and utilisation of man-power. Emphasis on the training of para-medical personnel in comparison to training of higher technical personnel was desirous, he felt. Lastly, he suggested that at this stage of economic development in the under-developed countries careful thought should be given to research expenditure. About disease research, he said that where enough knowledge is available for control, we should be satisfied at this moment. More emphasis, he maintained, should be on organisational research and evolution of programme and not on fundamental research.

Prof. Richard K. C. Lee of the University of Hawaii (USA) said that the health practices are changing very fastly at the national and international levels. Malaria eradication programme and yaws control programme have changed the concept of health practices. He said that in the developing economy elements of health practices should be according to the priority of the disease. In the United States, he described, health legislation and health organisational activity by the Government are given high importance. For planning the health services, he advocated that apart from resources, proper logistics in relation to the man-power and other technical aspects for health practices should be assessed very thoroughly. He then emphasized the need for better communication between the producers of the health workers and those consuming the health worker. He advocated health services, more in the private sector and cited the example of the American Public Health Association for their high order of service. In conclusion, he said that the health services should aim at proper distribution of health personnel in rural areas.

Prof. Carl Taylor of John Hopkins, Baltimore (USA) at the beginning of his deliberation on 'National Health Service', mentioned that at present there are plenty of intellectuals for health planning in many countries specially in India. He pointed out that planning of health services should be done after careful consideration of the country's position on the basis of epidemiological studies, people's need, priority, implementation feasibility and resources.

He made a graphic representation on the black-board and demonstrated how the planning for health services might be done on the basis of four factors; Biological demands. People's demands, Resource and Technical capacity and Economic structure of the country.

For training of man-power for the health services, he stressed that there should be short-term and long-term programmes. Next he laid much emphasis on the matter of supervision, for attaining the health service objectives.

He explained that studies on comprehensive health services are being carried out through some medical colleges, only to ascertain what types of job the doctors should do in the rural areas. Lastly he pleaded that the department of social and preventive medicine should now intensively preach the concept of comprehensive health care to all the disciplines of medical institutions, otherwise the general physicians will always remain sceptic about the new form of health service planned for the total health of the people.

Lt. Gen. Chakravarti summarised the deliberations of the speakers and concluded by narrating an interesting experience where villagers preferred modern medicine to the indigenous system. In this context he referred to a study carried out in India in 200 villages where people showed their eagerness to contribute a small sum for health services on condition that the money realised goes to the institution serving their locality. He further stated that in West Bengal, specialist's service are now being demanded in the rural areas. He invited planners to evolve a pattern of health service on the basis of people's demand under the existing resources available in the country.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

HEALTH ECONOMICS

Chairman : Maj. Gen. N. D. P. Karani,
Commandant, Armed Forces Medical College,
Poona
Rapporteur : Dr. Prabha Malhotra,
Maulana Azad Medical College
New Delhi

Dr. Patnaik, Directorate General of Health Services in his discussion on the 'Inter-relationship between Health and Economics' pointed out that in the recent decade countries have been classified as developed, developing and under-developed. Their economies may also be said to be developed, developing and under-developed and this gap was growing wider with time. The national per capita income is as low as Rs. 350 and is as high as 20 to 25 times, this figure in another country. Similarly medical expenditure, ranges from a meagre Rs. 3 to 4 per capita per annum to as high as five times this amount. This great disparity in health expenditure bring about a further disparity in the socio-economic condition. While health problems of the developed countries are related to the ageing age-groups, those of the developing and under-developed countries are to the growing age-groups together with the added problems of the aging group.

He drew attention to the fact that it is but natural that in countries with under-developed economies the problems are poor environment, high birth rate bordering on population explosion. The cause of specific death rates point to communicable diseases as the main cause of death. Shortage of personnel and funds are added stings to the national structure, planning and execution. In these societies, folk lore, taboos, witchcraft all exist side by side with the latest and most modern type of medicine. Consequently, there is a social imbalance between the rich and the poor.

He said the recent achievements in the control and eradication of various diseases indicate the strong ties that exist between health and economics. Through the successful achievements under the Malaria Eradication Programme in this country we have been able to save on the treatment costs of malaria alone as much finances as would feed and purchase food for Assam, Punjab and Orissa. Again, control of hookworm has indicated a 25 per cent increase in production in the area. Dr. Patnaik maintained that these are but estimates as there is no machinery to find out what actually the service costs. He pointed out that the time has come to give this some thought and to consider the establishment of a unit such as 'health economics unit' at the national and state levels to get a better insight into the cost of planning, execution and evluation.

In concluding he said that it is in the common interest for the co-existence of all countries, that we think of the socio-economic conditions of all people and the levelling up of health services both in quantity and quality throughout the world.

Dr. N. R. Ramakrishnan. All India Institute of Hygiene and Public Health, Calcutta, highlighted the importance of public health in the socio-economic development of a country. He reiterated that a community with an optimum level of health is a dynamic moving force for socio-economic and cultural development. He cited the history of civilisations as examples. Ignorance, poverty and disease constitute the three facets of our problem,

undermining of any one of them facilitates the displacement and ultimate exit of the other two.

Public Health workers, he said have to tackle both public and health problems. Involvement and participation of the public is essential for the success of health programmes. The extent of involvement is proportionate to the Educational and Economic status of the community. The health status of a community could be gauged by the expectation of life at birth, the percentage of deaths to total deaths for different age groups under causes and social class and the general morbidity pattern of the community. The above, he said, are conditioned to a very large extent by the distribution of population under various age and sex groups.

A predominantly agricultural country like India wanting to industrialise need to guard against wastage of man power in age groups 0-14 and 40-54. At present 40% of the total deaths in India take place in the age group 0-14. Only 17% of the population group survive to reach the age of 45 years and above. Out of these only 8% live beyond 55 years.

Gastro intestinal diseases constitute the predominent causes of mortality among both young and older age groups. The economic loss by way of man power wastage at both ends of life is heavy. Further the average cost of drugs per case that attend the Primary Health Centre works out at Rs. 2.50 per year or a total of Rs. 1,50,000 per annum per block. To solve water borne enteric infections, he advocated a coordinated approach between agriculture and health sectors in the provision of safe water supply in the rural areas.

He mentioned that sound capital investment generates and sustains economic growth whereas Revenue expenditure in excess result in inflation and economic distress. He advocated capital investment to improve environmental sanitation and nutrition status of the population in order to save and provide healthy man power that are needed in agriculture and industrial sector.

He warned that reduction in birth rate without corresponding reduction in death rate in age group 0-14 may strain the population potential in the agriculture sector, at the existing level of efficiency of man power and agricultural technology. Action Research is warranted, he said, to study the relationship if any.

Dr. A chandrashekar, Office of the Registrar General of India emphasised the lacunae in the existing data available in India. All human beings are born, live and die. Rightly, birth, marraige and death are termed as vital events in a man's life and these are also registrable events. The data available of these events is extremely poor, the only authentic source is the decinial census. Specially in the present tempo of our development, he pointed out information which becomes available at such long intervals is not enough. All projections based on one population census are shown to be worthless when the next census is carried out. For example, the 1951 census showed a population growth as 1.5% whereas the 1961 census showed the same as 2.15%.

Population expansion in the country, he stated, is so great that yearly we add the population of Australia to our population and Assam is a most rapidly growing State in the country. Of the three factors, birth, death and migration which have a role to play in the population growth of any country, migration in our country is very small affecting only the border states. The major role, therefore, in population increase is the excess of births over deaths. This excess has been brought by control of the main population killers, i.e. Malaria, Cholera, Smallpox etc.

As the registered data on births and deaths is incomplete and, therefore, unreliable it becomes very difficult for the planners to work with them. He cited the example of Assam where in 1963 registered birth rate was 8.3 and in Rajasthan 7.4. He raised the question as to how long we can continue planning with this sort of incomplete data. Efforts are necesssary to improve and work towards more complete registration and recommendations made time and again by the Bhore Committee and by the Mudliar Committee have rightly stressed the need for a legal bias for registration of births and deaths and trained personnel for registration.

He drew attention to short-term schemes which have been started in some States with 200 units of which 150 are rural and 50 urban with enumerators and informations to help provide reliable data. Even, today he said when Malaria has been controlled deaths

due to Malaria are being frequently reported. Some model registration schemes are being worked out where the Medical Officer, Primary Health Centre will be responsible in certifying the cause of every death that takes place in his area. In order to achieve more reliability of the vital statistics and data, enthusiasm and initiative must be shown on the part of various aspects of the Government machinery.

Discussion

The presentation of the above reports was followed by a very interesting discussion in which Dr. Das Gupta brought out the extreme variations observed by him in the district of Burdwan in West Bengal as to the acceptance per thousand population of I.U.C.D. This variation is observed as high as 5.5 and as low as 2.8 in the rice growing areas and in the mine areas it is only 2.3. Whereas in Durgapur area it is again high, 7.8. He ascribed the higher acceptance in the Durgapur area to more educated people in that vicinity, whereas higher acceptance in the rice growing he ascribed to the fear of further fragmentation of the land if they had large families. In contrast, in the mines areas the lower acceptance was due to the fact that every increase in family head irrespective of sex means more wage-earners in the family.

Dr. B. G. Prasad observed that among 500 families in the Urban Health Centre area attached to the Department of Preventive and Social Medicine, Lucknow the birth rate was 38 showing little change, whereas the death rate was 10 showing a steady decline.

Dr. J. R. Bhatia referring to the 94 villages which comprised the rural centre of the All-India Institute of Medical Sciences said demographic surveys revealed a variation in the birth rate from 37 to 56 with an average of 47.3 and of the death rate from 9 to 13 with an average of 11.7. The variation observed in the death rate was little but in the birth rate it was very great and this was being further explored.

Dr. W. Mathur indicated that low birth rate in villages had been observed where water supply was far away from the dwelling houses.

Dr. R. N. Sinha also emphasised that there are factors in each locality which may favour the increase of birth rate or death rate and also infant mortality rate. For example, hospitals and better maternity services attract daughter and other relatives of the people to particular areas for treatment or confinement.

Dr. Seal sounded a note of warning in pointing out the one snag in compilation of the IMR with differences in completeness in registration of births and death. The lower registration of birth and more complete registration of deaths would invariably show higher IMR. This has been seen in those places where death rate was poorly registered like in the cities of Calcutta and Bombay.

Dr. Kapur felt that the health workers should not be concerned with the basic collection of vital statistics data. This should be left to the village headman, the Panchayat Secretary etc. and the health workers should act as efficient supervisers.

The Chairman in summarising said, Medicine is a Social Science. Man is interested in health to the extent that it makes it possible for him to achieve his primary needs, i.e. feed, shelter and clothing. Health needs have therefore to be considered in the context of the total needs of the society.

From the epidemiological point of view, it is known that occupation is one of the basic indices of the elusive concept—'Socio-economic status. The term 'Socio-economic status' still awaits a clear definition as it encompasses so many variables such as occupation, social status, living conditions, and many other ethnic characteristics in a population. Yet we know that there is a deep association of disease frequency with socio-economic status.

From the point of view of disease etiology and prevalence, countries in these three stages of socio-economic development have different needs and problems. Medical education must therefore be geared to meet these needs and provide physicians and medical auxillaries who are conscious agents of the social changes taking place in the country.

In India with rising expectations of rural communities and their changing needs, inadequate resources, imperfect administration and dominant voices in political affairs of the country, there is an urgent need to re-evaluate the objectives as part of the national programme and to expand the rural health service.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

ECONOMIC ASPECTS OF COMMUNICABLE DISEASES CONTROL PROGRAMME

Chairman : Dr. C. G. Pandit,
Emeritus Scientist,
P. G. Medical Institute, Chandigarh
Rapporteur : Dr. A. K. Krishnaswamy,
Deputy Director, N.I.C.D.,
Delhi

Introducing the subject, Dr. Pandit said that the most outstanding progress made in our approach on the subject was the concept of eradication of diseases. The terms eradication and control had their own significance and had made a great impact on some of our public health problems in this country. The economic implications of such programme, could broadly be brought under four headings, viz. aspects concerning preparation, organisation, execution and evaluation.

In considering the economic impact of such a programme, due priority had to be given taking into consideration our major public health problems. While malaria, he stated, had made rapid strides and had moved more or less according to schedule and the end-point was in sight, in smallpox and trachoma progress was not so appreciable. In laying down priorities the public health importance and prevalence of any disease and its mortality and morbidity had to be taken into consideration. The success in malaria, he stated was largely due to the large amount of spade work that had been done earlier, the painstaking efforts, research and training that had gone into the subject.

Dealing with polio as an example with reference to the establishment of priortities, Dr. Pandit asked whether this disease should receive priority at this stage in our country.

The need for collection of all necessary basic data was stressed by the Chairman who focussed attention on the development of good epidemiological services in this country which had not received the consideration it deserved. Priority had to be given for the establishment of such services at the state level. Among other equally important diseases he mentioned Diphtheria as one. While it was believed that this disease was not prevalent in many areas in our country according to local information, the Schick testing had revealed a high proportion of immunity in the population. The causes for this had to be investigated and such factors given due consideration in the formulation and implementation of control programmes.

In the planning and execution of any programme, the speaker said, our knowledge had been enriched by our experience in certain activities especially those related to malaria.

In conclusion, Dr. Pandit stressed the need for proper planning to consolidate and maintain the gains that had been achieved by the execution of such programmes. In the absence of this there may be a resurgence of the problem. "Eternal vigilance", he stated, "is the price of health".

Prof, J. J. Cervenka, Short Term WHO Consultant at NICD spoke on the 'Economic Aspects of Viral Hepatitis and its Control'.

This was a disease, he said, where fundamental studies on various aspects of epidemiology, virology, immunology and thereby where

essential methods of diagnosis, active immunisation and specific therapy were still unknown.

The prevetion and control of the infection covered the fields of water supply, food hygiene, sewage disposal, personal hygiene, sterilisation and regulations regarding blood transfusion.

Being a disease with a prolonged incubation period, the quarantine period was also long, extending over 30 days. The cases required hospitalisation of about 35 days and the working incapacity averaged around a 100 days. Absenteeism of school children due to the disease was about 50 days. All these had their economic repercussions.

Another important aspect of this disease was the need for an active case finding organisation.

The passive protection against the disease opened a field for research and controlled field trials. Administration of Gamma Globulin (.02 ml. per Kg.) was costly. Apart from specialised services for reporting and notification, the case finding machinery, hospitalisation and treatment, special biochemical examinationss, loss of man-days, the need for follow-up of patients, special diets, compensation for reduced working capacity, cost of prevention and control all these factors had to be carefully taken into consideration in working out the cost of Infective Hepatitis Control.

Dr. B. Bagar, W.H.O. Consultant at NICD spoke about the 'Economic Aspects of Typhoid Control'. Typhoid, he said, was to a great extent preventable and he was recounting his experiences in the field in his own country. He referred to the studies on the analysis of the cases treated in Safdarjung Hospital in 1961, where it was stated that the cost of cases treated in this hospital was about Rs. 109,000.

Typhoid, he said, was a huge public health problem in his country in the years following the 2nd World War, when there were as many as 50 cases per 100,000 population. Planned control and improvement of environmental sanitation had brought the incidence to 5 per 100,000. With the average duration of illness about 42 days with 30-32 days in the hospital and with an average absenteeism from school or work of about 72 days, the national loss due to this disease is considerable. Typhoid, in his country, cost the society about 2,000 U.S. dollars. In addition measures of control including detection and care of food handlers, hospitalisation of suspected cases, disinfection, immunisation etc. cost about a thousand dollars.

In planning and implementation of measures of control, priority was given to communities with higher typhoid and other enteric infections. The preventive measures undertaken for the control of typhoid, he stated, resulted in not only an improvement in the health of the community but in terms of economic returns also.

Dr. N. L. Bordia, Advisor in T.B. to the Directorate General of Health Services, was the next speaker and dealt with the "Economic Aspects of Tuberculosis Control'. The cost of any disease, particularly, tuberculosis he said, could be divided as direct i.e. those due to the expenditure incurred which was measurable on the treatment and control of the cases, and indirect—those which had to be assessed based on the impact of the disease on morbidity and mortality.

This assessment, he said, was rather empirical and was difficult to calculate. The indirect loss due to tuberculosis morbidity was assessed at Rs. 2,700 million due to loss of income to the families per year in the rural areas. In the urban population, he said, the loss was even more and was about four times than in rural communities. The indirect loss due to death would be Rs. 180 crores every year if the income loss was stretched over a period of 10 years and Rs. 360 crores if the income loss was based on a duration of 20 years. There were 5 lakhs total deaths due to tuberculosis in the country and the estimates mentioned above based on this.

Coming to the direct losses, the cost of 500 TB clinics, 50,000 TB beds, 500 mobile X-ray units and 500 BGC teams, anti-TB drugs to treat 1.5 million patients was assessed at Rs. 30/- crores non-recurring and nearly Rs. 35 crores recurring per year. During 1966 the total recurring cost was rechened as Rs. 22 crores. Three per cent of the income of the 80,000 private practitioners in the country was from T.B. cases and amounted

to 1.5 crores. Training, research and rehabilitation cost about 2 crores.

Summing up he said, if only the infectious cases of T.B. whose disease is responsible for economic loss of 90 crores, deaths of 3 lac patients which cost 180 crores giving loss of 270 crores, has to be taken into consideration, it would certainly be worthwhile to invest 35 crores annually to save this loss.

Dr. A. P. Ray, Director, National Malaria Eradication Programme, the next speaker, spoke about The Economic Aspects of the N.M.E.P. Malaria, he said, was one of the important endemic diseases in the country and was responsible for high morbidity as well as mortality. According to an assessment made in 1935 by Sinton, there were 100 million cases of malaria every year with a 1 per cent mortality. After partition this had been reduced by 25 per cent. In terms of money due to losses through human suffering and economic loss in the field of agriculture and industry the total estimated cost of malaria was a 110 crores annually.

With the advances made in the field of vector control and the availability of potent residual insecticides, the malaria control programme was launched in 1935 and switched over to an eradication programme in 1958. About 52 per cent of the area in the country, with a population of about 244 millions, Dr. Ray said, had been totally freed from indigenous malaria.

The percentage of illness due to malaria diseases treated in hospitals and dispensaries had recorded a reduction by 99.5 per cent. The malaria morbidity which was estimated to be 75 million cases in 1952 has fallen to 34,127 during the current year (upto August). Then there is a reduction in the morbidity by 99.9 per cent. The morbidity figures in 1966 had been arrived at as a result of systematic house to house search for malaria from all fever cases.

It is probably premature at this stage, the speaker said, to measure the economic impact of this. But an attempt has been made on the economic returns of the campaign on agriculture, industry, mining, engineering projects and manpower gains to the extent information is available.

Fifty thousand acres of land in the U.P. Terai and over 1.3 lakh acres in the Punjab have been reclaimed and brought under the plough. In Mysore it was estimated that for every rupee invested in malaria control there was a return of Rs. 97 in the shape of increased agricultural earnings.

In the field of industry it is known that the adverse effects on health of the industrial workers in the Jute, cotton and tea estates have been reduced to a great extent and the yield and output of these have gone up. The mining industry, particularly collieries, have recorded an increase of 40 per cent in the coal output after the institution of malaria control measures. While several construction projects like railways, and other communication and irrigation projects etc. which often suffered considerable retardation due to malaria is no more impeded by the disease.

Against the loss estimated in the pre-control era of Rs. 210 million annually the loss in terms of money due to malaria during the current year on account of the 34,000 cases is only Rs. 48,000.

If the improvement in the fields of agriculture, commerce, industry, engineering projects etc. are taken into consideration in calculating the economic returns due to the M. E. P. the resultant figure is bound to be enermous.

Dr. B. G. Prasad, Professor of Social and Preventive Medicine, Medical College, Lucknow, gave an account next, of 'Intestinal Parasitic Diseases and their Control.'

A conspicuous feature in the rural areas, Prof. Prasad said, was the total lack of environmental sanitation, and lack of any attempt at safe disposal of human and animal wastes. Highest priority, he stressed, had to be given to the latrine and the hand pump. It is disappointing, that despite three plans hardly anything had been done to provide these two basic health requirements to 80 per cent of the Indian population, the lack of which was responsible for a variety of gastro-intestinal diseases of which parasitic diseases formed an important group. It has been assessed that the control of hook-worm infection alone will effect a 25 per cent increase in production by removing chronic ill-health.

Hook-worm infection was, he said, the commonest cause of anaemia. Studies in 5 villages in Lucknow where over 3000 stools had been examined had revealed an infestation rate of nearly 40 per cent.

Proper disposal of human extreta for control of hook-worm infestation and education of the people to install and utilise them is advocated. Since the latrine programme may take a considerable time, Dr. Prasad suggested another approach namely, mass drug administration. For this to be successful we had to get an effective, cheap and safe drug which would clear the infestation by a single treatment. Such a drug was not available.

Observations made in different parts of Uttar Pradesh had revealed wide variations in the prevalence of hook-worm infestation even though the chances of soil pollution remained almost similar. This was a field for research as geographical and geological factors appeared to have a role in the spread of hook-worm infestation.

The talks were followed by a lively discussion in which several speakers participated. Gen. Chakravarti spoke about the possible causes for the differences in the progress made by the malaria and smallpox programmes. He stressed the need for independent evaluation by an outside agency.

Dr. P. D. Bhave desired to know the methods of control of infective hepatitis. He stated that Gamma Glubulin was costly even if it should become available.

Dr. P. K. Sen stated that it was not easy to work out the economics of a programme for control of T. B. Seveval factors such as mass movement, effect of industrialisation and the fact that a T. B. patient can be rehabilitated to full working capacity had to be considered in working out the cost. The evaluation, therefore, though essential was difficult.

Col. Barkat Narain stressed the need for enlisting the co-operation of the people for making any programme a success. There were a large number of agencies whose help could be enlisted by proper approach. Evaluation, he said, should be done by those who were well conversant with the techniques.

Dr. Harcharan Singh stressed the need for the epidemiological approach, organisation of epidediological units and training of workers to man them.

Dr. M. S. Chadha stressed the need for continued supervision and concurrent evaluation for the success of any public health programme.

Dr. S. C. Seal stated that several epidemics he had investigated were due to contamination of water supply. The control of Infectious Hepatitis was intimately connected with the provision of protected water.

Winding up the proceedings the Chairman talked about the population explosion as a result of disease control referred to by one of the speakers. He said, the Ministry of Health & Family Planning was fully conscious of this and will deal with the situation.

Fifyfiive years back (1911) the Governing Body of the Indian Research Fund Association considered the cause for the decline of population in India, while today we are confronted with the problem of increasing population and its control. This he said, was by itself a measure of our achievement in the field of communicable diseases control. It was necessary, he said, that those who live should live happily and lead a productive life, free from disease, poverty and want.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

DEVELOPING INDICES FOR EVALUATION OF HEALTH SERVICE

Chairman, DR. M. THANGAVELU,
Dean, Medical College, Trivandrum.
Rapporteur, DR. L. RAMCHANDRAN,
Rural Health & Training Centre, Najafgarh, Delhi.

Talking on 'Health Indices' Dr. A. Bose mentioned that the concept of evaluation in our country had not reached its full significance because we are not yet in a position to evaluate scientifically the achievements in relation to the inputs. Data are being presented frequently on the progressive totals of money spent in respect of various programmes which only indicate the services that have been provided for implementation. The picture is not complete if the final achievements are not assessed and co-related to the efforts put in and also the resources that have been utilised.

The few indices that are being adopted, at present, to ensure the levels of health are purely statistical and for the same reason do not bring out the true picture existing in our country. The mortality rate or morbidity rates and similar indicators that we adopt now are not the direct results of the services and programmes alone. Various other factors like improved communication, social and economic progress, increased awareness, etc. also have a close bearing on the levels of health and the rates are actually the concomitant results of all these factors. Vital statistics cannot, therefore, be isolated and projected as true indicators of levels of health.

Statistics in our country and in developing countries have another snag about them. Fluctuations in figures are not influenced only by changing levels of health but also by the degree and amount of collection of information. Improved methods of collection of data may give a wrong picture sometimes merely because the figures have been available. Till a perfection is reachd in reporting and collection and compilation of data uniformly in all the parts of the country the rates that are interpreted have only a relative value. Spectacular changes in statistical data should not, therefore, place us on a wrong footing as to our achievements or shortcomings. Since it is accepted at the moment that the general picture of health in the country is based only on inaccurate or incomplete data for obvious administrative and technical reasons, it is better to concentrate on different specific age groups and try to limit out inferences on data connected with them. For example, life expectancy tables and expectation of life at birth are only broad indicators based on the synthesis of averages and ranges of morbidity statistics. Will it not be more rational to take up the school-going age and link up health statistics in all schools and work out physical fitness standard on this specific age group and develop fitness indices ?

Dr. Bose was then concerned about the need for classification of disease entities, cause of death and such other nomenclature in order to avoid vague groups like 'fevers' etc. At the same time he realised the limitations in depending on lower categories for the collection of information.

It was suggested by some of the members that a further refinement was needed in some of the indicators that we are now depending upon, for example, infant mortality. It may be worthwhile to develop indicators for infant deaths month-wise upto the first year of life. A point was also raised about the lack of any indices for mental health and social well-being. What should be the indices to assess the mental aspect of health?

Shri H. S. Dhillon, Central Health Education Bureau spoke on 'Sociometric Indices', He said in an attempt to evaluate the ultimate goals a variety of beharioural changes required in the community for the acceptance of and participation in the programme was lost sight of. A total evaluation of the programme will have to take into account all the complexities and working details of the programme in relation to the giver as well as the consumer. Illustrating his point Shri Dhillon mentioned that decline in birth rate can be taken as the effective relationship in attitudinal changes whereas the family planning programme cannot and should not be evaluated by the number of clinics, the amount of contraceptives consumed etc. because of the intensity of motivation and the desire to accept the programme itself. Even the attitude may be favourable but the active participation in or acceptance of the programme is really its crux. It is also necessary to evaluate the level of acceptance at different periods to ascertain whether a programme is sustained and maintained properly or whether it is giving way and if so, to find out the deficiencies responsible for this.

Shri Dhillon emphasised that indicators should, therefore, relate to the programme and its needs. A concurrent evaluation of every working detail of the programme including health education, techniques and media would help considerably in the training, service and administratnive aspects of the programme. In this connection, Shri Dhillon pointed out that we should guard ourselves against sophisticated methods of research evaluation because most of the field studies has to be carried out with field workers at low levels, for whom the process of collecting information has to be simplified to the maximum. The average field worker can do better with crude methods of collecting data than with the sophisticated questionnaires which only a professional can handle usefully and meaningfully.

In conclusion, Shri Dhillon made it clear that evaluation of the different aspects of the programme and follow up had more utilisation value in improving the programme and in better planning than the terminal evaluation of the ultimate goals alone. He mentioned that evaluation should at every state be oriented towards finding the community's reaction to the programme rather than trying to take stock of what has been provided by the health organisation.

Among the subsequent speakers Dr. Macgavren laid stress on the same point and stressed that evaluation should attempt to divine discontent or satisfaction among the people and instead of being gratified with the success, research should be directed more towards what is lacking in the programme. It is the process of looking inward which is a sure way of further improvement. Dr. Macgavaren also appreciated the mention of the crude or simpler methods of evaluation to suit the persons who have to use them and said that scientific evaluation can be evolved only by constant efforts in establishing improved methods by trial and error.

Dr. Richards reiterated these points by mentioning that WHO was requested in its last South East Asian meeting to carry out evaluation of the impact of the communicable disease control. He mentioned that unsophisticated indices could be of immense value to the administrators.

Dr. Leavell endorsed the views of Shri Dhillon for the need for evaluation of the different components of every programme from the objectives to the smallest of activities. He advised that periodic and concurrent evaluation would help the circle of planning, execution and evaluation to become an ascending spirit in which each will give a momentum to the other in its turn for more perfection.

Col. Barkat Narain sounded a note of caution regarding targets. He deprecated the target mentality. He felt that targets should not become an obsession with every worker. They should only be an aim and inspiration but not a source of frustration or disappointment.

Introducing the subject of 'Epidemic Evaluation' Dr. Seal explained the various components in the causation of disease and epidemics. He defined epidemic as the occurance of an illness in a community clearly in excess of natural expectation. He described the frequency and fluctuation in the occurance of the various epidemics and remarked that collection of information of occurance of epidemics in the past has itself helped in forecasting epidemics—'Looking back to look forward'.

Among the principles of evaluation of epidemics Dr. Seal mentioned constant vigi-

lance (surveillance) as being most important. Prompt and proper reporting, dissemination of information, and collection of information requires a sound machinery at all levels of health and connected organisation both at the national and international level. It is only by throwing effective feelers all round that the changes in the environment and the smouldering of epidemic can be sensed or perceived.

Dr. Seal mentioned the classical methods adopted in epidemic evaluation. Since it is not possible to arm oneself with accurate morbidity or mortality data for each disease for the whole country, he described the utility of sampling techniques as the means of epidemic investigation. Health and morbidity surveys are of statistically chosen sections of the population and controlled studies would provide valuable information applicable to the entire community. Long term or prospective study and experimental epidemiology were useful tools in forecasting epidemic occurances.

Dr. Seal also expressed the need for the coordination of various disciplines in the investigation in relation to epidemic valuation. The statistician, sociologist, pathologist, sanitarian and the geophysist have a large part to play in a successful epidemic evaluation study.

Dr. Ramakrishna wished to point out the change in patterns of diseases among different age groups and wanted the members to consider such shifting while undertaking evaluation.

Dr. Merril re-emphasised the points about routine reporting procedures and narrated the experience in the United States regarding the concentrated efforts that are underway in notifying some of the important diseases like cancer, heart disease etc. In the absence of reliable machinery Dr. Merril recommended resorting to sampling techniques to determine the trend in respect of any disease at any point of time.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

RECOMMENDATIONS OF THE XI ANNUAL CONFERENCE OF THE INDIAN PUBLIC HEALTH ASSOCIATION

1. The conference views with concern the delay in staffing of the Departments of Preventice and Social Medicine and provision of facilities for work in rural and urban communities.

The conference recommends to the State and Central Government that minimum staff and physical facilities recommended by successive conference on undergraduate Medical Education held under the aegies of the Indian Medical Council, provided for these departments as early as possible.

The Council further recommends that the administration and technical control of at least one Primary Health Centre area be under the principal or the Dean of the Medical College.

2. The conference discussed handicaps in the way of developing the departments of Preventive and Social Medicine and recommends that until such time as all such departments attain the status of other clinical departments a few be selected on a regional basis for additional support so as to make them capable of undertaking the responsibility of training teachers in preventive and social medicine.

3. In order to draw up more effective and economically advantageous health plans, it is recommended that a 'Health Economics Cell' be attached to the health statistics Unit at the State and Central levels.

4. In order to strengthen the preparation of the teachers undergoing a course leading to the D.P.H., the conference recommends that elective courses be introduced as a part of the Diploma Course, in order to catch up with new expansions in Public Health Administration.

5. In the preparation of teachers for Medical Colleges coverage of methods of teaching is necessary to equip them for the effective preparation of a basic doctor. This can be brought about by joint participation of teachers of pre-clinical and clinical subjects.

The conference, therefore, recommends that a summer Institute 'Methods of Teaching Community Health' may be organised with assistance from the University Grants Commission and the Ministry of Health.

6. In order to further improve the preparation of specialists in rural health, this Conference recommeds that at least three months of all post-graduate studies in clinical subjects be spent in the rural areas.

It is further recommeded that post-graduate students preparaing for research degrees should be encouraged to offer subjects with community interest for their thesis.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

PROCEEDINGS OF THE ANNUAL GENERAL BODY MEETING OF THE ASSOCIATION HELD ON MONDAY, THE 28TH NOVEMBER 1966 AT THE LADY HARDINGE MEDICAL COLLEGE, NEW DELHI, UNDER THE CHAIRMANSHIP OF DR. K. N. RAO, PRESIDENT OF THE ASSOCIATION

The chairman welcomed the members present and took up the following agenda for consideration :

1. **Confirm the proceedings of the Tenth Annual General Meeting held at Varanasi**

The proceedings were confired.

2. **Receive, consider and adopt the Annual Report of the General Secretary for the year 1966**

The Secretary read out the Report, which was approved by the General Body. In discussing the membership position a member suggested that if each existing member takes upon himself/herself to enroll atleast two members this would greatly help in increasing membership. The suggestion was welcomed and all the members present were requested to do their best in this connection.

While discussing the points raised in the Report, the President appraised the members of the developments that took place in the San Francisco Meeting regarding the formation of the World Federation of the Public Health Associations. He also observed that if the Association is to play a more effective role in the country and as a member of the World Fedration, additional funds are necessary. In this connection, he suggested organising refresher courses for various categories of Public Health personnel and to make suitable applications to the Ministry of Health and the University Grants Commission for grants to meet the expenses in connection with organising such courses.

He impressed upon the need for preparing suitable Memoranda and recommendations for submission to the Administrative Reforms Commission concering the various aspects of Public Health and particularly for conducive measures to attract doctors for work in rural areas. He also informed the members that a sub-committee with Dr. (Mrs.) Muktha Sen, Col. Barkat Narain, Dr. P. D. Bhave, Dr. M. S. Chadha and Dr. Mathur as members has been constituted for this purpose.

3. **Receive, consider and adopt the audited accounts for the year 1965 and the period 1-1-66 to 31-10-66**

The audited accounts for the periods 1-1-65 to 31-12-65 and 1-1-66 to 31-10-66 and the Statement of Assets and Liabilities of the Association as on 31-10-66 were considered and adopted by the General Body.

4. **Consider and adopt the Budget for the year 1967**

The following budget for the year 1967 was presented and approved by the General Body :—

INCOME		EXPENDITURE	
Membership (600)	Rs. 4,800.00	Establishment	Rs. 5,250.00
		Postage	Rs. 2,300.00
		Auditors's Fee	Rs. 150.00
Subscription for Journal (700) ...	Rs. 7,000.00	Journal (Paper, printing, blocks) ...	Rs. 7,000.00
Advertisement	Rs. 8,000.00	Advertisement Commission ...	Rs. 1,900.00
		Stationery & printing for office ...	Rs. 1,500.00
		Annual Meeting	Rs. 500,00
		Award of Association Prize ...	Rs. 200.00
		Miscellaneous	Rs. 1,000.00
TOTAL ...	Rs. 19,800.00	TOTAL ...	Rs. 19,800.00

5. Announce the office-bearers of the Association for the year 1967

The chairman announced that the following members were duly elected to their respective offices for year 1967 :

President-Elect

Major General N. D. P. Karnani

Vice-Presidents

1. Dr. T. R. Bhaskaran
2. Dr. S. K. Sinha

General Secretary

Dr. N. R. Ramakrishnan

Joint Secretaries

1. Dr. K. K. Sinha
2. Dr. P. R. Dutt

Treasurer

Prof. N. Majumder

6. Announce the representatives from State Branches in the Central Council

As the Association has not yet received any names of the representatives from the State Branches in the Central Council for the year 1967, this could not be announced.

7. Elect 10 members to the Central Council

The following 10 members were elected as Members of the Central Council for the year 1967 :

1. Dr. S. C. Gupta
2. Dr. B. Banerjee
3. Dr. B. Ganguly
4. Major General M. S. Boparai
5. Dr. M. L. Chugh
6. Dr. B. N. Ghosh
7. Dr. V. Hariharan
8. Dr. B. Lall
9. Dr. S. M. Marwah
10. Dr. W. Mathur

8. Consider resolutions

Four resolutions that were received from members were placed before the General Body. The chairman informed that the Council considered them and recommended that resolutions No. 1 and 4 are not appropriate at the present moment. Regarding the other two resolutions the Council suggested that more data on the points raised in the resolutions are necessary before they could be adopted.

The General Body agreed to the recommendations.

9. Suggestions regarding next Annual General Meeting

In absence of any invitation for holding the next annual session it was suggested that this may be taken up by the Council for consideration at a later date when the possibility of holding the next Session in a State where there is a State Branch is more clearly known.

10. Any other business

The President informed the members that Mrs. Das Gupta, wife of late Dr. B. C. Das

Gupta has expressed a desire to donate some money to the Association for perpetuating the memory of Dr. B. C. Das Gupta. He suggested that with this amount together with any other funds the Association may be able to collect, could be utilised to institute a 'Das Gupta Memorial Lecture Award'. The proposal was heartily welcomed by the General Body.

The following resolution proposed by Dr. D. Anand and seconded by Dr. S. C. Seal was passed: "The Association wishes to place on record its deep appreciation for the contribution by Dr. T. R. Bhaskaran, and the sincere efforts put in by him in furthering the cause and management of the Association during the tenure of his office as the General Secretary during the years 1961 to 1966."

The President welcomed the new President, Dr. (Mrs.) Muktha Sen and expressed the hope that under her leadership the Association would become more popular and useful to the cause of Public Health in the country.

Dr. D. Anand thanked the outgoing President and the members of the Central Council.

The meeting then terminated with a vote of thanks to the Chairman.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

REPORT OF THE GENERAL SECRETARY FOR THE YEAR 1966

Mr. President and Members of the Association,

I have the honour to present to you the report of the working of the Association for the year 1966. In spite of fall in membership the improvement in the working of the Association has been maintained. The financial position of the Association continues to cause anxiety because of the poor realisation of subscription from members. The administration at the headquarters has been able to meet all the needs of the Association satisfactorily.

Annual Conference

The Tenth Annual Conference of the Association was held in Varanasi from 24th to 26th December 1965. The Conference was inaugurated by Sri N. H. Bhagwati, Vice Chancellor of the Benares Hindu University. The scientific session on "Role of Education in Health Programmes" attracted many interesting papers and discussion.

The Annual General Body Meeting of the Association was held on 24th December 1965 under the Chairmanship of Dr. S. C. Seal, President of the Association. At this meeting the office-bearers for the year 1966 were elected and other business of the Association was also transacted.

Membership

In spite of all efforts there has been little improvement in realisation of arrears of subscription from the Members. Out of 496 members on the roll, only 408 have paid their subscription for 1965 and 226 for 1966. There is urgent need for more effective measures by State Branches for the collection of arrears from existing members and enroll-new members.

No new State Branch was established during the year. We have now only six branches in the States of Bihar, Delhi, Gujarat, Maharashtra, Mysore and West Bengal.Judging by realisation of subscription from members, the branches in Delhi, Bihar and Mysore are in bad shape at the present moment and some energetic efforts on the part of the branch executives are therefore necessary to revitalise them. The State Branch in Andhra Pradesh is almost defunct. Local Branches are functioning in Shimoga, Jamshedpur and Varanasi. A local Branch in Poona is being organised by the members in this region.

It is gratifying to report in this connection that in response to the President's recent appeal, Health Authorities in a number of States are now actively considering measures for formation of new State Branches.

World Federation of Public Health Associations

In pursuance of the resolution passed at the General Body Meeting at Varanasi some initiative was taken by the Association during the year to explore the possibility of formation of an International Federation of Public Health Association of different countries of the World. This idea has borne fruit and the President of the Association Dr. K. N. Rao served as Chairman of the Interim Committee of the proposed World Federation. He also represented the Association at the first meeting of the interim committee held in San Francisco.

Journal

The Indian Journal of Public Health continues to be popular and useful to Public Health Workers in the country and abroad. There has been some delay in the publication

of the different issues of the Journal in 1966 consequent to the change in the Journal Committee. The total number of subscribers to the journal stands at 650 as against 630 at the end of 1965. The journal is now being subscribed by 5 State Directorates of Health Services and 4 Railways for distribution amongst their personnel.

State Branch Activities

During the year the West Bengal State Branch organised two Symposia. The subjects of the Symposia were (i) Control of Diptheria, whooping cough and Tetanus, and (ii) Prevention of Filariasis in West Bengal. The proceedings of the first symposium have been published as Transactions of the Indian Public Health Association, West Bengal Branch. Copies of the transactions have also been distributed to all Members of the Association.

The Maharashtra State Branch has published during the year a 'Brochure' entitled "Immunisation for Medical Practioners." Since this is a useful document for all Public Health Workers in the country the contents of the Brochure were reproduced in the July 1966 issue of the Journal.

Central Council and Journal Committee Meetings :

Four Meetings of the Central Council and four meetings of the Journal Committee were held during the year 1966 to consider matters relating to the Association and the publication of the journal.

Award of Association Prize :

On the recommendations of the Judges appointed for the scrutiny of papers published in the Journal in 1965 the paper entitled "Health status of Sweepers in Lucknow" by S.C. Gupta and B.G. Prasad of U.P. published in October '65 issue of the journal has been selected for the Award of the Association Prize for 1965.

Donations and Grants :

A sum of Rs. 5000/- has been received as ad hoc grant from the Union Ministry of Health.

The National Institute of Sciences made a grant of Rs. 5000/- for meeting part of the expenses in connection with publication of the journal.

A sum of Rs. 500/- was also donated by the West Bengal State Branch to meet the deficit in publication of the 1965 Conference Number of the Journal.

Finance :

The Audited Accounts of the Association for the period 1-1-65 to 31-12-65 and from 1-1-66 to 21-10-66 are being placed before the General Body. A review of the Receipts and Payment Account show that the overall financial working of the Association during the period is satisfactory, although there is no improvement in the net assets during the year. In fact the excess of assets over liabilities which was Rs. 10,500/- at the close of October '65 has decreased to Rs. 8020/- in October 1966.

Administration :

The office of the Association continues to function at the All India Institute of Hygiene and Public Health, Calcutta.

Concluding Remarks :

The Association has now completed 11 years of life. During this period there have been many difficult situations—both financially and otherwise—to overcome. It has been possible to get over these difficulties largely due to the interest and support from many of the members.

During the last one decade the Association has rendered useful service to the cause of Public Health in the country. But considering the large number of public health workers in the country, the present membership of 550 is but meagre for an All India Association of 10 years standing. Many of the States in the country are not represented through State Branches. There is an urgent need for more effective leadership both at the centre and in the States for sustaining existing Membership, enlisting new Members and stimulating formation of State Branches. The success in these, I believe, will largely depend on being able to organise worthwhile activities through the Association which are not only interesting but useful from the prac-

tical point of view to all Health Workers in the country. In this task all Members of the Association have an active part to play. With the active support of all concerned it is not difficult for the Association to have much wider appeal in the years to come and be in a position to play a more effective role in promotion of public health activities in the country and elsewhere.

Before I conclude I wish to record my grateful thanks to our dynamic President Dr. K. N. Rao for his active interest and guidance in the working of the Association. My thanks are also due to my colleges in the Central Council and the Journal Committee for their advice and valuable help in the Management of the affairs of the Association.

(T. R. Bhaskaran)
General Secretary

A/c.

INDIAN PUBLIC HEALTH ASSOCIATION

RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1965.

RECEIPTS

		Rs. P.
TO OPENING BALANCES		
Cash in hand		425.56
Cash with State Bank of India:		
Park Street Branch ...	1,523.84	
Netaj Subhas Road Branch ...	3,187.11	4,710.95
Subscription		5,810.34
Donation (N.I.S.I.)		500.00
Advertisement		3,553.50
MISCELLANEOUS RECEIPTS		
Reprint	200.00	
Delegate Fee	10.00	
Sale of Old Journal	2.90	212.90
		Rs. 15,213.25

PAYMENTS

		Rs. P.
BY ESTABLISHMENT		3,631.10
Advertisement Commission		661.00
Printing of Journal		4,063.45
Printing & Stationery		1,204.00
Postage		1,809.70
Conveyance & Travelling		114.55
Bank Charges		40.95
Refund of Subscription to State Branch ...		70.00
Centres's Contribution to Conference—		
Delhi		500.00
Varanas		500.00
Award of 1964 Association Prize		200.00
Miscellaneous Expenses		187.44
CLOSING BALANCES:		
Cash in hand		364.16
Cash with State Bank of India:		
Park Street Branch ...	1,194.93	
Netaji Subhas Road Branch ...	761.97	
...		1,866.90
TOTAL ...		Rs. 15,213.25

Calcutta,
5, Chowringhee Approach.
The 22nd November, 1966.

Sd/- T. R. BHASKARAN.
General Secretary.

Sd/- N. MAJUMDER,
Chartered Accountants.

Examined and found correct.
Sd/- G. BASU & CO.,
Treasurer.

INDIAN PUBLIC HEALTH ASSOCIATION

RECEIPTS & PAYMENTS ACCOUNT FOR THE PERIOD FROM 1ST JANUARY, 1966 TO 31ST OCTOBER, 1966.

RECEIPTS

			Rs. P.
TO OPENING BALANCES:			
Cash in hand			364.16
Cash with State of India			
Park Street Branch	1,104.93		
Netaji Subhas Road Branch ...	761.97		1,866.90
Subscription			7,154.18
Donations:			
From N.I.S.I.	500.00		
„ West Bengal State Branch ...	500.00		
„ Union Ministry of Health	5,000.00		6,000.00
Advertisement			2,818.00
Miscellaneous Receipts			
Reprint	16.83		
Sale of Old Journal	9.00		
Delegate Fee	6.00		
Admission Fee	132.00		168.83
TOTAL ... Rs,			18,367.07

PAYMENTS

			Rs. P.
BY ESTABLISHMENT			3,868.50
Advertisement Commission			739.88
Printing of Journal			3,324.84
Printing & Stationery			500.00
Postage			1,554.63
Conveyance & Travelling			119.55
Refund of Subscription to State Branch			148.00
Bank Charges			42.00
I.M.A. Reception Committee Membership ...			200.00
Centre's contribution to 11th Annual Session ...			500.00
Miscellaneous Expenses			140.42
Closing Balances:			
Cash in hand			144.20
Cash with State Bank of India:			
Park Street Branch ...	5,856.74		
Netaji Subhas Road Branch ...	1,228.03		7,084.77
TOTAL ... Rs.			18,367.07

We have examined the above Receipts & Payments Account of Indian Public Health Association for the period from 1st January 1966 to 3st October, 1966 and our observations are as under:

BANK BALANCES: As the Statements of Account from State Bank of India, Netaji Subhas Road Branch and Park Street Branch were not made available to us we could not verify the balances lying with the two aforesaid Branches of State Bank of India as on 31st October, 1966.

Calcutta,
The 22nd November, 1966.
3, Chowringhee Approach,

Sd/- T. R. BHASKARAN,
General Secretary.

Sd/- N. MAJUMDER,
Treasurer.

Sd/- G. BASU & Co.
Chartered Accountants.

INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XI, No. 1, January 1967

NOTES & NEWS

Indian Association for Chest Diseases

The Indian Association for Chest Diseases has initiated a prize of Rs. 200/- to be given to the author of the best article published during the previous year, either in Indian or Foreign Journal on any subject in the speciality of Chest Disease. This prize is open only to these doctors who are under the age of 40 years. These who desire to be considered for this prize may send to Dr. P. U. Rao, Secretary Indian Association for Chest Diseases, Medical Superintendent Silver Jubilee Tuberculosis Hospital, Kingsway, Delhi-9 6 copies of the articles to reach not later than 31st July, 1967.

Bel Award for Research in Industrial Medicine

With a view to focus attention of the problems of Occupational Health and to stimulate the available talents in the country to undertake research work in the field of Industrial Medicine and Hygiene which will be helpful alike to the Industry and the community. Bharat Electronics Limited have announced the institution of an annual award—BEL AWARD FOR RESEARCH IN INDUSTRIAL MEDICINE—of the value of Rs. 500/- besides a certificate of merit. The award is to be given to the person presenting the best scientific paper as judged by a panel of judges on any subject in the field of Industrial Medicine And Hygiene at the Annual Conference of The Society For The Study Of Industrial Medicine—India, each year. Only Indian Nationals are eligible for the award. Two next sessions of the Annual Conference of the Society are scheduled to be held in Caucutta and Durgapur conjoint with the Nationl Congress on Occupational Health from February 7th to February 12th, 1967.

Indian Academy of Medical Sciences Membership Examination

The Indian Academy of Medical Sciences will conduct its next Postgraduate Examination in the following disciplines of medical sciences on Monday, the 3rd July, 1967 with a view to admit candidates to the Membership of the Academy.

1. Medicine
2. Surgery
3. Obstetrics & Gynaecology
4. Anatomy
5. Physiology
6. Pharmacology
7. Pathology

The Membership of the Academy is considered a hallmark of proficiency and experience and the examinations for Membership will be of a very high standard with special emphasis on the training of the candidate.

The examinations will be held in two parts. A registered medical graduate of an Indian University, or one having equivalent qualification included in the First Schedule of the Indian Medical Council Act or any other qualifications recognised by the Academy for this purpose, and who has undergone a recognised course for not less than four years (including one year's housemanship* or its equivalent) will be eligible for appearing for this examination.

Candidates who posses a postgraduate medical degree or have appeared for such examinations would have undergone the requisite courses of training and thus will be eligible to appear for the Part I of the Membership Examination. Last date for Registration for candidates for Examinations will be 15.3.67.

Further particulars about the Examinations and application forms can be obtained from the Executive Director, Indian Academy of Medical Sciences, C.H.E.B. Building, Temple Lane, Kotla Road, New Delhi-1.

Table I

Comparative effectiveness of spray applications of various concentrations of herbicidal chemicals as determined by the number of days required for complete killing of Pistia strateotes.

Strength % of Sprayed chemical.	Quantity cc.	No. of plants in pot.	Copper sulphate solution	Diesel oil-water emulsion	Crude oil-water emulsion	Simazine-water	Atrazine-water	2.4-D water.
0.1	40	20	Partial injury No. complete death even after 14 days.	Local contact injury. No complete death even after 14 days.	Local contact injury. No complete death even after 14 days.	No significant injury	No significant injury	No injury.
0.5	..	..	Severe injury noticeable. Slow death and sinking in 14 days.	Severe contact injury Destruction quite significant. No complete death.	Severe contact injury Majority of plants killed yet no complete death or sinking.	Slight injury. No No complete death or sinking.	No significant injury	No injury.
1.0	..	..	Complete death in 7 days. Debris floatfollowed by slow sinking.	Most plants died and sank in 7 days.	Destruction complete in 7 days followed by sinking.	Injury significant. Many plants killed in 14 days	Plant parts severely injured.No complete daeth in 14 days.	No significant injury.
5.0	..	..	Complete death and sinking of all plants in 7 days.	Complete death and sinking of all plants in 7 days.	Complete destruction and sinking of all plants in 7 days.	Most plants killed in 14 days. Slow sinking of plant parts.	Slow injury and sinking many plants affected.	Many plants withered. No complete death.
10.0	..	..	Complete death and sinking in 5 days.	Complete death and sinking in 5 days.	Complete death and sinking in 5 days.	Most plants destroyed and sank in 14 days. Some survived..	Many plants injured in 14 days. Many survived.	Many plants injured Many survived.

* In respect of the article entitled "Laboratory Studies on the Herbicidal Control of Pistia" by K. George, published in the October 1966 issue of the Journal.

CORRIGENDUM*

Table II

Minimum number of days required for complete destruction of Pistia grown in pots by varying doses of herbicidal mixtures

Qty. (cc.) of CuSo4 and crude oil mixture.			No. of days required when used as mixture.		Qty. (cc.) of CuSo4 or Crude oil or Diesel oil.		No. of days required when used separately		
			Saturated CuSo4 + Crude oil.	Saturated CuSo4Diesel oil.			Saturated CuSo4 solution	Crude oil.	Diesel oil.
		water				water			
10 +	10	+ 20	2	2	20	+ 20	3	6	5
5 +	5	+ 30	3	3	10	+ 30	4	6	6
2 +	2	+ 36	4	3	4	+ 36	8	14	14
1.5 +	1.5	+ 37	4	4	3	+ 37	12	No complete death.	No complete death.
1 +	1	+ 38	7	6	2	+ 38	14	Many survived.	Many survived.
0.5 +	0.5	+ 39	9	8	1	+ 39	Occasional revival. Subsequently killed.	Only local injury.	Only contact injury.
0.3 +	0.3	+ 39	No complete death upto 14 days.	No complete death upto 14 days.	0.5	+ 39.5	Many survived.	No. significant injury.	No. significant injury.
0.1 +	0.1	+39.8	No serious injury.	No serious injury.	0.2	+ 39.8	No serious injury.	Insignificant injury.	Insignificant injury.

Table III

Retention of toxicity by various herbicidal treatments.

Herbicide sprayed.	CuSo4 saturated	Crude oil	Diesel oil	CuSo4+ Crude oil.	CuSo4+ Diesel oil	Simazine	Atrazine	2.4-D.
Quantity Optimum per pot	1 cc.	4 cc.	4 cc.	0.5 + 0.5 cc.	0.5 + 0.5 cc.	4 gms.	4 gms.	4 gms.
Duration of Toxicity	> 3 months	1 month ± 10 days	1 month ± 10 days	> 3 months	> 3 months	28 days	20 days	21 days

CORRIGENDUM

ANNUAL INDEX

VOLUME X—1966

Leading Articles (LA); Special Articles (SA); Editorial (E); Reports and Reviews (RR); Notes and News (NN); Abstracts (A); Conference Proceedings (CP); Association News (AN); Book Review (BR); Symposium and Seminar (S); Obituary (O); In Memorium (IM); Corrigendum (C); Announcement (AT); Annual General Body Meeting Uroceedings (AGBP)

INDIAN JOURNAL OF PUBLIC HEALTH

(Published by Indian Public Health Association)

110, CHITTARANJAN AVENUE, CALCUTTA - 12.

Date of publication

January April July October

Advertisement tariff

Full page	.. ..	Rs. 150/ per insertion
Half page	.. ..	Rs. 80/-
2nd and 3rd cover pages	.. ..	Rs. 200/-
Back cover	.. ..	Rs. 300/-
Special positions (facing contents page and reading matter)	.. ..	Rs. 250/-
Between reading pages	.. ..	Rs. 300/-

Mechanical details

Size of publication	D/C octavo
Printing area (full page)	8″ × 6″
Printing area (half page)	4″ × 6″
Number of columns	2
Column length	8″
Column breadth	2¾″

Matrices and stereos accepted.

Only approved matter is accepted for advertisement in the Journal. For further details please write to Mrs. E. G. M. Campbell, Advertisement Manager, Indian Journal of Public Health, 110, Chittaranjan Avenue, Calcutta-12.

Printed and Published by Managing Editor DR. A. K. ROY of the Indian Public Health Association, 110, Chittaranjan Avenue, Calcutta-12, from the Press of Messrs. Lalchand Roy & Co. Private Ltd., 7/1, Grant Lane, Calcutta-12.