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WORKSHOP ON URBANIZATION PROBLEMS IN AFRICA

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PUBLIC HEALTH ASPECTS OF URBANIZATION  
IN AFRICA

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1. Urbanization is a natural developmental process of human society and has been a biological and social evolutionary phenomenon ever since the existence of human beings. Since the industrial revolution, this process of urbanization has become exaggerated in many cities of the world and serious problems have been created as a result of the lack of the necessary social provisions and inadequate planning. With the recent rapid increase of population in many parts of the world and the lack of overall national social and economic development planning resulting in abnormal growth of the few cities serving as the only centres of attraction for employment, money-making, luxury and comfort, urbanization can become very hazardous to human civilization.
2. According to the observations made in the reports of the United Nations Missions on Urbanization organized during the last few years, the causes of many of the problems of urbanization may be summarized as being due to three major factors, namely (i) the lack of economic and social development of rural areas; (ii) the lack of adequate planning of city development; and (iii) the lack of social and educational provisions to meet the needs for adapting the urban patterns of living. A further analysis of these three factors would reveal a fundamental issue involved in the causation of all the urbanization problems. This was the inadequate and unbalanced national development resulting from insufficient effort in the past on the part of governments concerned in the fulfilling of their social responsibilities.
3. However, most of the governments today are conscious of social needs and are prepared or willing to be prepared for fulfilling their responsibilities in the social fields, such as education, health, housing and welfare, particularly in connexion with industrial or commercial development in the cities. Many of the social provisions, particularly education and health, will help to develop social consciousness and to readjust the human values involved.
4. In social evolution, the development of urban society has always been the dominating influence in the social development of a nation. It is therefore important for the countries in Africa to establish an urbanization process on a proper basis not only to prevent many of the problems of urbanization but also to evolve a new order for the development of their nations. All elements, both economic and social, for the establishment of such a process are either available or can be made available: the problem is how to assemble and organize these elements to plan for an orderly and balanced development of a human society.

5. The public health aspects of urbanization deal with some of the essential elements for the development of a modern city. Modern public health has developed in such a way as to assume an important social responsibility in the promotion, protection and restoration of the health of human beings. The development of public health services during the last half century in many parts of the world has resulted not only in the reduction of mortality and prevention of many diseases but also in the extension of human life-span. By the application of more positive approaches in public health, the health of peoples of the world can no doubt be promoted to a state of complete physical, mental and social well-being which will provide the high quality of human life essential to further progress of the world.

#### Public Health and National Development

6. The wealth of a nation depends on the quality of life of its people. If the people are healthy, industrious and properly educated, the potentialities of building up a wealthy nation would be very great. The actual development of the nation of course would require a competent and efficient government to assume the leadership in making the necessary provisions for the development of science and technology, surveying the national resources and organizing the people to work under a long-term national development plan. The progress of a human society requires a multi-disciplinary effort and all the various social and technical services needed for building a modern nation are interdependent and complementary. The maximum contribution from each of the services to the total nation-building efforts can only be expected when a well balanced and coherent long-term national development plan is available.

7. For example, an effective public health service will reduce mortality, prevent disease and prolong life. The lives thus saved will consume more food and the days of illness reduced for the people in the productive age-group as a result of disease prevention need to be employed. The additional years of life extended require special measures to make best use of them. If other economic and social development measures are not keeping up with the improvement of health conditions of the country, the contribution of public health services would seem to create more problems for the nation. This has actually happened in some countries. In such a case the question

arises whether delay in development of public health services is justified, or whether economic development in these countries should be speeded up.

8. On the other hand, if a well balanced and coherent national development plan is available, the provision of health and educational services will facilitate the economic development by preventing the spread of diseases and training people for the building up of their country. The economic improvement of the nation will provide more funds for the development of science and technology as well as for further health and social measures in order to develop the country to a still higher level of social and economic status. Similarly, if the agricultural development plan of an African state gave priority to the production of foodstuffs of high nutritive value for local consumption rather than cash crops only, the nutritional state of the population would be greatly improved and this would undoubtedly provide more impetus for social and economic development. Furthermore, the development in an agricultural plan of water resources for irrigation purposes will greatly facilitate the planning and installation of water-supplies for human consumption. Comprehensive agricultural development will improve the economic conditions of the rural population and this will undoubtedly reduce the influx of people to the cities from rural areas.

9. Another example of the value of coherent planning is in education. When the educational authorities in collaboration with the health authorities include a comprehensive health education and school health service in their general education programme, the effect on the health consciousness and the state of health of the future citizens will be very great and far-reaching. There are many other similar examples, but it may suffice to say here that public health measures are essentially economic measures when human capital is considered a fundamental economic asset. Unfortunately, as Schultz<sup>1</sup> pointed out, most economists failed to see the important role played by the increasing stocks of human capital in the national economy.

#### Planning of National Health Services

10. Since urbanization is a social and economic evolutionary process of a nation, it should be considered in the context of a national development plan. From the public health standpoint, the planning of an urban health service should constitute a part of the national health planning which is in turn a part of the overall national social and economic development plan.

<sup>1</sup> Schultz, T. (1959) Social Service Review 33, 110-117

11. The national health administration is responsible for planning the public health services of the country. It should also have a planning unit within its administration to take charge and co-ordinate the work. Usually the first thing such a unit would take up is the collection of certain essential data about the general health situation of the country. On the basis of the available data, a preliminary discussion takes place between the various technical units of the national health administration in setting up general targets to be fulfilled by the plan in a period of time. After a preliminary agreement is reached on the possible targets of the health plan by the administration, a statement is sent for comments to all the local health administrations and all the medical and health institutions in the country about the plan and its suggested targets. It may be necessary for the planning officers of the national health administration to visit the various important local health administrations and institutions to carry out a discussion on the spot concerning the possibilities of fulfilling these targets on their parts and the necessary provisions to be made. After this exchange of views on the targets of the plan, allocation of the responsibilities in preparing the draft plan is made. The draft plan will again be circulated to all the local health administrations and institutions concerned for their critical study and comments, before it is finalized.

12. For the co-ordination of the national efforts in preparing and implementing the health plan, it is very important also to discuss the draft plan with other governmental and non-governmental agencies concerned. Certain basic data may have to be collected from other governmental departments. For example, some information listed below should be secured for the planning of a national health programme:

- (1) demographic data, including the rate of population growth over the last 10 years and forecasts for the following decade;
- (2) the plan for population settlements including the development of cities, sea-ports and village market towns;
- (3) the industrial and mining development plans;
- (4) the agricultural development plans including irrigation, animal husbandry and rural co-operatives, etc.;

- (5) the plan for educational development including nurseries, kindergartens, primary and secondary schools, technical and vocational schools and universities;
- (6) the national and international communication development plans;
- (7) the exports and imports data, particularly for foods and pharmaceuticals, for the last 10 years;
- (8) the existing national per capita income figure and the expected increase at the end of the plan period; and
- (9) the organization of the public administration system throughout the country and the plan for its decentralization.

13. The Fourth Report of the WHO Expert Committee on Public Health Administration<sup>1</sup> has dealt with the subject of planning public health services and considered the following steps as necessary in preparing a long-term national health plan:

- (1) organizing a national health survey to secure the "base-line" data;
- (2) determining priorities based on the major health problems and needs in the country;
- (3) setting up targets and objectives to be fulfilled by the plan;
- (4) technical consultation and administrative co-ordination of the detailed programmes within the plan with the various medical and health organizations and local health administrations;
- (5) public information and discussion about the plan, particularly concerning the parts requiring co-operation and support of the public;
- (6) drafting the plan and allocation of responsibilities;
- (7) finalization and approval of the plan by the national legislative body; and
- (8) implementation and assessment.

14. The report went further to present a list of 14-point principles in guiding the methodology of the planning process.

15. While the planning of public health services for the country is the responsibility of the national health administration, the provision of routine services for the

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<sup>1</sup> Wld Hlth Org. techn. Rep. Ser. 1961, 215, 18-20

promotion, protection and restoration of health of the people is generally the function of the local governments. The local health service, such as the urban health service, is often operated as a function of the local or municipal government. The successful functioning of the local health service under such conditions would therefore naturally depend on the efficiency of the municipal or local administration. Experience has shown that full and effective development of local health service cannot be expected where public administration is poor or lacking even though the staff of the health service is highly competent. An inefficient public administration in a local government will have difficulties in getting the health budget approved, funds made available on time for health activities and in the employment of staff, often with deteriorating effect on the morale of the technical staff. In other words, a good local health service can hardly exist without an efficient and decentralized system of public administration.

16. The effective implementation of a health plan also depends greatly on the availability of trained personnel. In Africa, this presents a great problem. Due to the inadequate general educational facilities, particularly primary and secondary schools, the sources of student supply for the training of medical and health personnel are often very limited. At present, the training and use of medical and health auxiliary personnel has helped a great deal in providing the needed health services to many of the African people. While such an expediency measure will probably have to be continued in Africa for many years to come, definite steps should be taken to rapidly increase the primary and secondary schools in order to prepare the needed number of professional and technical personnel in medical and health fields.

#### Specific Health Problems in Urbanization

17. Many of the urbanization problems have originated as a result of rapid and disorderly growth of the cities due to the influx of people for whom no proper accommodation was available. People usually came from rural areas to the cities seeking employment, depending on their relatives or friends for material support, or as refugees. The city administration was not prepared, financially or otherwise, to accommodate this excess of population and therefore had to take a laissez-faire attitude towards their settlements. They were mostly newcomers to cities and not

accustomed to the mode of city life. Sometimes the influx of a large number of people into the city was due to immigrant workers recruited by newly established industries or by enterprises contracting labour for large constructions. In most cases the immigrants were male adults. If and when their families followed them later on, they usually settled in the fringes of the city. In all these cases, serious problems of urbanization were created.

18. Although the implementation of long-term national plans in the economic and social field should prevent in future the re-occurrence of such conditions in the newly independent and developing countries in Africa, there is no denying that problems of such a nature actually still exist and some concrete examples are given which bear more detailed analysis.

19. (a) Population. Demographic increase in Africa in general has not been a cause for concern, but the increase of urban population of certain cities requires special attention. Thus for example, the population of Nairobi has passed from 119 000 in 1948 to 221 700 in 1958, with a percentage of increase of 86 per cent. - Kampala from 24 000 in 1948 to 46 800 in 1959, an increase of 95 per cent. and during the same period Dar-es-Salaam from 69 000 to 134 000 (increase of 93 per cent.), Salisbury had 123 000 inhabitants in 1946 and 270 000 in 1959 - an increase of 120 per cent.<sup>1</sup>

20. If the rates of increase of population indicated above are maintained, the population in these four cities will double once again in the next ten years. This rate of growth of urban population is probably quite representative of most of the African cities, a trend which must be taken into consideration in planning public health services for the cities in Africa.

21. Another phenomenon which has been observed in a number of cities in Africa is the overflow of population from the city proper to the peri-urban areas. In the 1960 United Nations Demographic Year Book the difference of population between the city proper and the urban agglomerations for Salisbury, Leopoldville and Freetown was shown as follows:

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<sup>1</sup> Contribution by Dr N. R. E. Fendall - Public Health Aspects of Urbanization (Unpublished document)

	<u>Year</u>	<u>City proper</u>	<u>Urban Agglomeration</u>
Salisbury	1946	54 090	69 100
	1956	105 550	225 700
Leopoldville	1955	299 806	366 819
Freetown	1947	64 576	87 341

This aspect was specially brought out in the Report of the East Africa Royal Commission (1953-55) when they pointed out that although the estimated population in 1952 for Kampala was 16 800, the reported number of persons employed by the city totalled 30 000! The Report later stated "settlements of closely packed African huts are to be seen on the fringes of all the larger towns in East Africa". The Medical Officer of Health of Nairobi also reported in 1959 that the amount of malnutrition among children coming from the peri-urban settlements around Nairobi was much greater and more serious than that among the children in the city proper.

22. There is still another important factor relating to the movement of population into the cities. The male labourers as a rule move into the cities first. If they are married, their families are usually left in the rural areas. Their employment may be seasonal and they return to their homes when their term of work is finished. This floating male population in the city should be a cause of concern to any city health officer because they often constitute the source of spreading certain communicable diseases such as venereal infection or tuberculosis. It has also been reported quite frequently that male workers transmitted venereal diseases from city to the villages when they returned home during the off-season of their employment. They may also bring diseases such as smallpox, malaria and other parasitic infections into the city population.

23. (b) Housing. The problem of providing adequate living quarters for the new settlers in the cities has been and is still one of the most serious and difficult matters to deal with in urbanization. However, there is already considerable knowledge and experience of this subject which should be used to help solve this problem in Africa. The United Nations and the Specialized Agencies have recently agreed to consider housing as one of the programmes requiring concerted action by them all and their

present effort is to concentrate on low-cost housing and related community facilities. The experience and knowledge acquired from the pilot projects already undertaken in this domain should be very valuable to the countries in Africa.

24. From a public health standpoint, housing constitutes a very important element of human residential environment which affects intimately the physical, mental and social well-being of a person. The Expert Committee on the Public Health Aspects of Housing<sup>1</sup> convened by WHO in 1961 has defined a healthful residential environment in the following terms:

(1) A safe and structurally sound, adequately maintained, separate, self-contained dwelling-unit for each household, if so desired, with each dwelling-unit providing at least:

(a) a sufficient number of rooms, usable floor area and volume of enclosed space to satisfy human requirements for health and for family life consistent with the prevailing cultural and social pattern of that region, and so utilized that there is neither overcrowding of living or sleeping rooms;

(b) at least a minimum degree of desired privacy, both:

(i) as between individual persons within the household; and

(ii) for the members of the household against undue disturbance by external factors;

(c) suitable separation of rooms as used for:

(i) sleeping by adolescent and adult members of the opposite sex except husband and wife; and

(ii) housing of domestic animals apart from the living area of the dwelling unit;

(d) a potable and palatable water supply, piped by sanitary plumbing into the dwelling-unit or in the courtyard, in quantities ample enough to provide for all the personal and household uses essential for sanitation, comfort and cleanliness;

(e) a safe and sanitary means for the disposal of sewage, garbage and other wastes;

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<sup>1</sup> Wld Hlth Org. techn. Rep. Ser. 1961, 225, 17-18

- (f) sufficient facilities for washing and bathing;
- (g) appropriate facilities for cooking, dining and the storage of food, household goods and personal belongings;
- (h) appropriate protection against excess heat, cold, noise and dampness;
- (i) adequate ventilation and internal air free of toxic or noxious agents;
- (j) sufficient natural and artificial illumination.

(2) A neighbourhood or micro-district setting for the dwelling which conforms with sound town, country and regional planning practice and consists of:

- (a) when economically feasible, a community water supply, sewage collection and treatment, collection and disposal of garbage and other wastes, and storm-water drainage;
- (b) an atmosphere which is free of toxic or noxious gases, odours, fumes or dusts;
- (c) protective facilities of police and fire services;
- (d) industrial, commercial, cultural, social, religious, educational, recreational and health and welfare facilities connected to the residential structures by a network of roads and public transportation and a system of footpaths;
- (e) freedom from hazards to health, welfare and public morals.

25. The standard set in this definition may sound a little too high for most of the African cities. Since urbanization is a long-term process, such a standard should be valuable to aim at achieving in the course of time along with the economic development process. For the time being, if low cost houses can be designed according to a minimum standard for a healthful living and are made available to all the city dwellers at a reasonably low rent of not more than 10 per cent. of the wages of the average low income group of the city population, the urban health officer should be quite happy. According to a recent survey carried out in Nairobi<sup>1</sup> in 1957/58, the two major items of an average family expenditure were food and rent and water, constituting 58 per cent. and 13 per cent. respectively of the total.

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<sup>1</sup> The Pattern of Income, Expenditure and Consumption of Africans in Nairobi, 1957/58 - East African Statistical Department, Kenya Unit

26. This subject is more fully dealt with under a special item of this workshop. It may be sufficient to state here that while most governments in Africa may be conscious of the importance of housing as one of the fundamental requirements of urbanization and are preparing to carry out effective housing programmes along with town planning, early consultation with national or local health authorities concerned regarding public health requirements of such programmes is necessary.

27. (c) Environmental Sanitation. From a public health standpoint, sanitation problems are very serious and invariably lead to the creation of "slums", "shanty towns" and "septic fringes" if the urbanization situation is not properly controlled. The major problems are water supply, sewage disposal, collection and disposal of refuse, air pollution and vector control.

28. Water supply is the most important physiological requirement of a city. Any modern city water supply has a well designed waterworks with adequate and unpolluted source of supply, effective treatment facilities and pipes distributing the potable water to the households, under an efficient management with competent technical staff. The quantity of supply must be sufficient to provide every citizen in the urban area with enough water for drinking and washing purposes, and to meet the needs for industrial use and for emergency needs such as fire control. The quality of water must be clean, palatable and free from pollutants and pathogenic micro-organisms. For economic reasons, individual household pipes may be substituted by public stand-pipes from which families can collect water for household use. In planning water supply for a city it is very important to allow a maximum capacity of supply to cover the population increase within the next 50 years and to extend the main pipe lines according to the direction of the development of the city including the peri-urban areas if possible.

29. As the provision of adequate potable water supply is a fundamental requirement of any city, the cost of construction of a modern water supply works should not be a problem to the city administration. As a matter of fact, it should be a good economic proposition when the reduction of water-borne diseases and the increase of working efficiency of the population as a result of meeting their important physiological need, are taken into consideration.

30. Sewage disposal system is also essential to modern urban development. It not only provides water-carriage system for the disposal of human excreta but also helps to drain away the water which was brought into the city by nature or through the water supply system.
31. In many African cities, water supply systems have been in existence for many years, while sewage disposal systems are still lacking. The non-availability of funds sometimes given as the reason for such a delay in constructing sewage disposal systems, does not seem to be at all reasonable. For example, for the city of Ibadan, West Nigeria, the cost involved in transporting 75 to 100 truck-loads of human excreta daily to a 2-mile distance from the city for "conservancy" disposal must be considerable. If a capital investment were made to build a sewage disposal system for the city, the cost of construction would certainly be refunded in the course of 10 to 20 years by the savings made in the present "conservancy" method.
32. From the public health aspects the method of "conservancy", or the bucket latrine as commonly known, must be definitely condemned at least for the cities, since it is impossible to ensure all sanitary requirements. The high prevalence of hookworm infection recently found among the city dwellers of Ibadan (1958) may serve as an example of the result of using such "conservancy" methods.
33. "Oxidation lagoon" or "sewage lagoon" as a more economical system of sewage disposal has been in operation in the Republic of South Africa, in the Federation of Rhodesia and Nyasaland, and in Kenya.<sup>1</sup> This has the advantages of the water-carriage sewage system, but with much lower cost and is considered to be applicable to cities of 100 to 10 000 people. This method was given impetus in Kenya when a £ 14 000 activated sludge sewage disposal unit became overloaded and was paralleled by a sewage lagoon costing about less than one-quarter (£ 3500) of the amount needed (£ 15 000) to introduce an extension to the original unit.
34. Two other additional points have to be considered in connexion with planning sewage disposal systems. One point is the use of sewage for fertilizing purposes. This is an economic proposition. The provision of fertilizers will no doubt be an important consideration in agricultural development work in Africa. Both human excreta and animal manure are valuable organic fertilizers which ought not to be discarded in

<sup>1</sup> Fendall, N. R. E., Public Health Aspects of Urbanization (Unpublished document)

the present African economy. The use of human excreta as fertilizer in agriculture has been the practice for centuries in many parts of the world and it has nothing to do with standards of civilization or culture. The important consideration is to render the excreta free from viable pathogenic organisms. This should be easily possible in Africa by composting. Trials have been made in certain parts of West Nigeria but were not successful. But, before the method is condemned altogether there would be advantage in studying the causes of such a failure.

35. The other point is water pollution from sewers. Mistakes from some of the old industrial cities of the world in heavily polluting the water sources or rivers with city sewers ought not to be repeated. It is therefore very important to treat sewerage or human excreta in some way to render it free from any form of pollutants before it is discharged into lakes or rivers. In this respect sanitary engineers would make a great contribution to the living standards of people in Africa if they can find and design some low-cost systems of sewage disposal to meet the needs of African cities. The oxidation or sewage lagoon is a good example.

36. The collection and disposal of refuse is another very important function of an urban health service and the successful carrying out of this function will not only prevent one of the serious problems of urbanization but also earn a reputation of "clean city" which is unfortunately not possessed by many cities of the world. In many metropolitan areas or large cities, from 50-80 per cent. of the public health budget is used for this purpose and usually a huge army of "street cleaners" or scavengers is engaged in this work.

37. Experience has shown that the co-operation of the individual citizens in this work is essential to the successful carrying out of this function. In some countries through popular health education, people become conscious of their responsibilities in public health and carry out faithfully their part in keeping the city clean. Each household can be made responsible for collecting the daily refuse in some kind of container - refuse which is then collected by a garbage truck at a fixed hour. In streets with one-family dwellings each household has the responsibility for cleaning the street in front of the house. Thus, with a minimum of municipal effort and with the whole-hearted co-operation of the people, it is possible to avoid the garbage heaps

which are a favourite breeding place for flies, rats and other pests, and to give cities a degree of sanitation and of cleanliness which could not be achieved unless the people's consciousness in health and in their responsibility towards their city is awakened.

38. With the improvement of the economic situation and the rising standard of living, the system of collection and disposal of refuse should of course be further improved with the entire system built in the housing projects and in the construction of community facilities of the city where automation and mechanization processes can be applied.

39. Air pollution becomes a serious urban environmental sanitation problem when the accumulation of pollutants in the atmosphere from whatever source reaches a concentration dangerous to human health. The following types of air contaminants are known to have injurious effects on health when present in the air in certain concentrations:

<u>Group</u>	<u>Examples</u>
Solids	Carbon fly ash, ZnO, PbO <sub>2</sub>
Sulfur compounds	SO <sub>2</sub> , SO <sub>3</sub> , H <sub>2</sub> S, Mercaptans
Organic compounds	Aldehydes, Hydrocarbons, Tars
Nitrogen compounds	NO, NO <sub>2</sub> , NH <sub>3</sub>
Oxygen compounds	O <sub>3</sub> , CO, CO <sub>2</sub>
Halogen compounds	HF, HCl
Radioactive compounds	Radioactive gases, aerosols, etc. <sup>1</sup>

40. The contamination of the atmosphere with the above-mentioned pollutants happens as a result of smoke from industries, exhaust gas from automobiles and natural or artificial radiation. For example, the emission of specific pollutants from certain industries has been known, such as SO<sub>2</sub> from smelters, HCl and NO<sub>2</sub> from chemical industry, HF from aluminium plants and fertilizer factories, H<sub>2</sub>S from gas retorts and lead and zinc fumes from some metallurgical processes.

41. When industrial development takes place in Africa, it is important to consider necessary provisions to protect the health of the workers in industries and of the people living in the industrial cities from the hazards of air pollution. Experience

<sup>1</sup> Air Pollution (World Health Organization: Monograph Series, No. 46, p. 41)

has shown that the control of air pollution is most effectively and economically carried out at the source where the air pollutants are produced. Health authorities should therefore work very closely with industrial health experts or engineers in the industries to achieve effective control. At the same time, the population must be fully informed of the hazardous nature of the air pollutants including radiation, so that they are conscious of the need for protection when necessary.

42. Vector control is another important measure to prevent serious problems of urbanization. Flies, rats and mosquitos have become great nuisances to many cities, particularly in the slums and the peri-urban areas. They are also vehicles for spreading communicable diseases such as trachoma, dysentery, plague and malaria. Effective sewage and refuse disposal and drainage systems and adequate and sound housing projects will no doubt help to control these nuisances. But before these steps become effective, again health education campaigns for the control and eradication of these disease vectors must be carried out in order to cultivate public consciousness about such nuisances. Health authorities must provide the necessary means for the control and organization of the work. Such control work, however, can be successful only in conjunction with health education of the population and by obtaining the active co-operation of all the citizens.

43. Finally all the environmental sanitation activities must be planned and carried out under the direction of a competent technical staff with special training in environmental sanitation. Similar to all other branches of public health work, there must be a highly competent technical direction at the national level to plan and supervise the environmental sanitation programme for the entire nation. This will greatly facilitate the successful operation of an environmental sanitation service in a city.

44. (d) Communicable Disease Control. With the concentration of population in a limited area, urbanization provides a good opportunity for spreading the communicable diseases. Outbreaks of epidemics of smallpox, cholera, typhoid fever and poliomyelitis have occurred frequently in many cities. The incidence of tuberculosis and venereal diseases is known to be higher in cities than in rural areas. Very

frequently cities become endemic foci for spreading these communicable diseases to the rural areas. As referred to above, epidemiological studies have been reported to have traced the source of venereal infection in many rural areas from migrant workers taking seasonal employment in the cities.

45. Fortunately with the development of immunology, many of the important communicable diseases can be prevented by active immunization. For example, vaccines or toxoids against smallpox, yellow fever, cholera, typhoid, diphtheria, whooping-cough and poliomyelitis are available. BCG vaccine and therapeutic control of the infection of tuberculosis have also proved to be valuable in preventing tuberculosis. Both gonorrhoea and syphilis have very effective therapeutic remedies which are valuable means for controlling these diseases.

46. The city health administration must organize an effective communicable disease control service. With concentration of population in a limited area, it also provides a favourable situation for initiating all the effective control measures to either prevent or cure many of the important communicable diseases. To have an effective immunization programme for the urban areas it is necessary to plan the work systematically to include all the vulnerable groups of population and people living in the "slums" and in the fringes of the city or peri-urban districts.

47. In addition to the active immunization programme, facilities must be available for case reporting or finding, isolation or quarantine and treatment of the individuals suffering from communicable diseases. For port cities or communication centres, a quarantine service for suspected cases of certain communicable diseases is very important.

48. (c) Nutrition. Undernourishment and malnutrition is a serious problem in Africa. Kwashiorkor, a very serious nutritional syndrome due to extreme protein deficiency and causing retardation of growth and high mortality among children, is still common in many parts of Africa. If agricultural policy as referred to before is not changed and directed to the production of the right types of food to meet the nutritional needs of the African population and the existing situation is allowed to continue, the effect on the state of health of both present and future generations of African population would be very serious, irrespective of whatever efforts are being made to provide medical and health services.

49. Nutritional surveys of African people have shown the prevalence of vitamin and iron deficiencies which should be noted in directing preventive measures. Some processes of modern food technology of introducing food additives which have proved to be health hazards should also be carefully checked by the health authorities. Necessary control measures against the importation of contaminated or poor quality foodstuffs should also be established.

50. Most of the nutritional problems existing today could undoubtedly be prevented if, together with effective health education programmes to assist in changing some of their food habits, adequate supplies of the right foodstuffs, including animal proteins, were available at a price within the reach of the average low-income group of the population. If maternal and child health services for the cities are properly organized, the nutrition of mothers and young children, the most vulnerable groups of the population, would then have a sound basis for improvement. This action alone would not only help to reduce mortality and morbidity among mothers and children, but also promote a full physiological state of physical and mental growth and development of the future African population.

51. (f) School Health and Health Education. In all the developmental processes of a country special efforts should be directed to the young and future generations, because whatever seeds of development are sown today will depend on them to nurse or harvest. With the present speed of development of science and technology the changes in many aspects of national and international development will be rapid and many phases of future development, both economic and social, cannot very well be predicted. It is therefore always a sound policy to give top priority to programmes for preparing the next generation adequately to assume its responsibilities in continuing or readjusting and expanding the national developmental efforts initiated by their parents. As the economic situation in the cities is usually better than in the rural areas for taking the initiative in this respect, education becomes a very important issue of urbanization.

52. For many countries in Africa, in view of their recent political independence and early stages of social and economic development, education should play a double role in their national reconstruction plan, namely for both children and adults who

did not have the opportunity to receive education during their childhood. It is important to plan effective health education and school health services in both types of educational programmes.

53. The teaching of simple facts about health and disease in primary and secondary schools should be considered as one of the important elements of modern education. In many countries educational authorities accept the teaching of health as one of the objectives of general education. In these countries, health education is an obligatory subject in the curriculum of teacher-training institutions. The old argument of "no time" in the school curricula for health education is therefore no longer a valid one. The World Health Organization is at present collaborating with UNESCO in developing a guide for health education in schools. When it is published, this will no doubt be helpful in promoting health teaching in the schools in African cities.

54. Health education manuals for adult education programmes have also been produced in developing Asian countries and recently one such manual has been prepared in Egypt in connexion with its adult education campaign. Even in literacy campaigns in many parts of the world, lessons on simple facts about health and disease have been included.

55. The health services for both schoolchildren and adults attending spare time or evening classes are important means of bringing such services to the population. They not only help to detect communicable diseases and attendant important defects or illness, but also to cultivate health consciousness among students in practising health habits and having periodical health examinations. In many countries a comprehensive school health service is provided in the teacher-training institutions so that the teachers will recognize the importance of the service.

56. In a sound health education and school health programme, students are not only taught practical health knowledge and enjoy the health services but are also organized to take part in a comprehensive school health programme. For example, students take part in organizing health teams and are trained to be health monitors to supervise the practice of health habits among themselves. They also carry out school environmental sanitation work and report school absenteeism due to illness. Such a practice in the school will no doubt help to cultivate a sense of responsibility and co-operation towards

many of the public health actions of a city. When they become fully grown citizens they will no doubt understand better many of the public health measures and will actively participate in some of the health activities of the city. This is definitely an important measure for preventing some of the health problems of urbanization. The teaching and practice of health in school will also make the children the instruments of progress in families as referred to in the report of the Urbanization Survey Mission in the Mediterranean Region.<sup>1</sup>

57. (g) Industrial Health. Since urbanization is usually associated with industrialization, the health problems created by industries must also be considered. Certain health hazards from factories have already been referred to in connexion with air pollution. Other problems to be considered are those relating to water pollution and the health supervision of factory workers. Concerning water pollution from industries, as has been referred to previously under sewage disposal, sewers coming out from factories, particularly from those in chemical industry, may be heavily polluted. It is therefore the responsibility of urban health authorities to examine the effluent water from factories for possible pollutants. The factory authority is responsible for the necessary treatment or removal of the pollutants before the water is allowed to discharge into river or lake. Modern industry should have all the necessary precautions to safeguard against the contamination of effluent water, even the colouring matter. Removal of the chemical pollutants or dyes from the waste water may also be an economical proposition to the industry.

58. All factory workers should be insured against sickness, accidents, disability and death. Large modern industries should have a medical and health inspection service in the factories. In many modern industries, their medical and health services also cover workers' families and operate hospitals for their workers. When the factory is situated in a city, the city health administration must be responsible for supervising the medical and health services of the factory. On the other hand, if it is a factory town, the medical and health department of the factory may concurrently serve as the urban health service. In any such situation, full co-operation and co-ordination of medical and health services between the city and the industries must be achieved.

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<sup>1</sup> MTAO/1/60 Rev.1 - February 1960, p. 22

59. (h) Public Recreation Grounds. The provision of adequate space for public recreational purposes is another requirement of a modern city. The proportion of such a requirement to city populations varies with different localities and countries. The Master Plan of Cairo calls for two acres per 1000 population.<sup>1</sup> From a public health standpoint, sufficient open air space must be provided in a city to prevent overcrowding of buildings, for children's playgrounds, for parks and for sports. Ample green areas and parks in a city help to reduce the tension of the city and provide opportunities for relaxation of the city dwellers. Ample facilities for children to play, for sports and for other open air recreation purposes should be considered important positive health measures which will no doubt contribute to the prevention of problems of urbanization.

60. (i) Organization of Medical and Health Services. Unless the medical and health services in a city are properly and efficiently organized, none of the points so far discussed will be of much help in facilitating the physiological process of urbanization.

61. For effective and efficient organization of an urban health service, certain important policy decisions must be reached by the city government. For example, in the preamble of the Constitution of the World Health Organization, health is defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". According to this definition, the government policy must not be satisfied only with establishing hospitals and polyclinics without doing anything for the promotion of physical, mental and social well-being of the citizens.

62. The same Constitution further states: "The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social conditions." "Governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures." According to these two statements, the city government must formulate a policy to make health provisions and to ensure equal opportunity for all citizens to receive medical care and health services, regardless of their race, religion and ability to pay.

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<sup>1</sup> Master Plan of Cairo - Ministry of Municipal & Rural Affairs, Municipality of Cairo, Planning Commission

63. For carrying out this policy, city governments must take the following specific action:

- (1) Appoint a fully qualified public health officer to be the chief medical officer of health for the city;
- (2) approve the organization of the city health service with competent staff in adequate numbers;
- (3) appropriate adequate funds for meeting the annual health budget in maintaining the services and implementing specific health programmes as prepared by the city health officer for carrying out the health policy of the government.

64. In addition, the city health officer must have the full authority in dealing with other departments or offices in the city government and with non-governmental agencies for co-ordinated planning of health services. All medical care facilities including general medical practice must be put under the control of the city health administration for adequate co-ordination and planning for further development. The distribution of hospitals, polyclinics and health centres throughout the city must be planned according to the needs and to suit the convenience of the people.

65. Since there is a great shortage of medical and health personnel in most countries in Africa, in addition to the education and training programmes of the national health administrations, the city health authorities should also plan for the education and training of both professional and auxiliary personnel to meet the needs of their services.

#### Summary and Conclusion

66. This paper is prepared in order to serve as a basis for discussions on the public health aspects of urbanization in Africa. After a general orientation of the relationship between overall national development and urbanization and between public health and social and economic development of a nation, a section is devoted to the planning of national health services as the prerequisite to any urban health planning.

67. For provoking discussions, a series of specific health problems relating to urbanization is presented. These topics are brought out to facilitate discussion only and it is not intended to treat any of them in this paper in a comprehensive manner.

In raising some of the points, as far as possible examples in African countries or in countries with social and economic backgrounds similar to African conditions are used. Many other examples no doubt will be brought out in the course of discussions. Many of the practical issues are based on the experience gained elsewhere and pure theoretical consideration of any subject has been purposely avoided.

68. In view of the very nature of urbanization as a continuing, dynamic process, no country, however developed, can claim to have solved all the health problems connected with it. However, a certain amount of specific experience has been accumulating throughout the years and some of the solutions suggested above have proved successful in various countries. It is therefore hoped that solutions will also be found which are applicable and successful in Africa for the improvement of the living conditions of the populations and for the development of a healthy community of African nations.