REPORT OF THE "SCIENTIFIC FORUM" OF THE CONFERENCE ON SECURITY AND CO-OPERATION IN EUROPE

In accordance with the provisions of the Final Act of the Conference on Security and Co-operation in Europe and of the report of the meeting of experts representing the participating States and their national scientific institutions held in Bonn from 20 June to 28 July 1978, the "Scientific Forum" took place in Hamburg, Federal Republic of Germany, from 18 February to 3 March 1980. It was held in the form of a meeting of leading personalities in science from the participating States.

During the opening session of the "Scientific Forum" the participants were welcomed by Hans-Ulrich Klose, Lord Mayor of the Free and Hanseatic City of Hamburg, and were addressed by Dr. Hildegard Hamm-Brücher, Minister of State, Ministry of Foreign Affairs, on behalf of the Government of the Federal Republic of Germany.

During the first working session of the Plenary representatives of UNESCO and the United Nations Economic Commission for Europe (ECE) made their contributions. Opening statements were made by representatives of delegations of the participating States.

Four subsidiary working bodies were established by the Plenary on alternative energy sources, food production, medicine, and the humanities and social sciences. Representatives of UNESCO and the ECE were invited to make additional contributions in these working bodies.

The "Scientific Forum" discussed interrelated problems of common interest concerning current and future developments in science, and promotion of expansion of contacts, communications and the exchange of information between scientific institutions and among scientists.

In this context the subsidiary working bodies considered the following areas and subjects:

Exact and Natural Sciences
Scientific research, in particular fundamental research, in the field of alternative energy sources

Exact and Natural Sciences
Scientific research in particular fundamental research, in the field of food production

Medicine
Current trends in medical research, in particular in basic research and primarily on cardiovascular, tumour and virus diseases, taking into consideration the influence of the changing environment on human health

The Humanities and Social Sciences
Comparative studies on the social, socio-economic and cultural phenomena, especially the problems of human environment and urban development.

The subsidiary working bodies also reviewed written contributions submitted to the "Scientific Forum".

On the basis of their deliberations they drew up reports which were reviewed by the Plenary and are included, as amended, in Annexes 1-4.

As a result of its proceedings, the "Scientific Forum" concluded the following:

- Since the signing of the Final Act of the CSCE, there has been a significant expansion of international co-operation in research and training and in the exchange of information. Progress, however, has been greater in some areas than in others. It is observed that the present state of international scientific co-operation still requires improvements in various respects. Such improvements should be achieved bilaterally and multilaterally at governmental and non-governmental levels through intergovernmental and other agreements, international programmes and co-operative projects, and by providing equitable opportunities for scientific research and for wider communication and travel necessary for professional purposes.

- This goal can, however, be reached only by respect for all the principles and by full implementation of the relevant provisions of the Final Act. All participating States are, therefore, urged to observe the spirit and the letter of the Final Act, particularly with respect to conditions essential for international scientific co-operation.

- It is furthermore considered necessary to state that respect for human rights and fundamental freedoms by all States represents one of the foundations for a significant improvement in their mutual relations, and in international scientific co-operation at all levels.

- Appropriate support should be given to arrange advanced seminars and training courses for young scientists from participating and other States that would enable them to study new scientific methods for shorter or longer periods. Information about these activities and arrangements should be disseminated as widely as possible.

- The different levels of scientific development in particular fields in the participating States should be taken into account when pursuing scientific co-operation.

- It is recommended that the participating States study the possibility of convening a new "Scientific Forum", at a suitable date, depending on developments in science and in scientific co-operation among the participating States. The results of the "Scientific Forum" in Hamburg may be taken into account, as appropriate, by the participating States at the Madrid Meeting, scheduled for November 1980.

The participants expressed their deep gratitude to the Government of the Federal Republic of Germany for the excellent organization of the "Scientific Forum" and for the warm hospitality extended to them during their stay in Hamburg.

Annex 1: Alternative Energy Sources

1. Introduction

The working body examined the problems created by the rapid dwindling of easily accessible reserves of fossil energy and reviewed alternative solutions provided by other energy sources.

During the discussions it became apparent that delegates from different countries interpreted the term "alternative energy" in different ways. However, it was agreed that the following four main categories should be discussed as energy options for the future:

Advanced utilization of fossil energy, nuclear energy (fission and fusion), solar energy (direct and indirect forms), and energy conservation. The working body made no attempt to give priorities to the different options.

2. Need for fundamental research on various alternative energy sources

2.0 General

The working body noted that the questions of developing energy resources are today of vital importance. The further development of civilization in the economic as well as in the political field depends on the possibility of satisfying demand for energy in industry, in the residential and service sectors, in transport, in food production, and in the mining and processing of minerals.

In spite of the necessity for and possibility of the more economical use of energy, the demand for energy will continue to rise. The problem demands especially urgent solutions because of the diminishing energy resource represented by oil and gas.

That is why the task of scientific research in the field of energy is to supply during the next decade a reliable scientific basis for planning and use of all basic resources of energy. Such a basis should include forecasts of the environmental effects of the various types of energy, and in particular improved assessments of the effects on the global and regional climate.

The working body recommends governments to use international co-operation for the fulfilling of this task.

It is not possible to give universal priorities for any research objectives, as many countries have already found and applied technological solutions to problems relevant to their situation, whose relevance for other countries has yet to be investigated.

2.1 Problems of utilization of fossil fuels: efficiency and safety

The urgent need to increase utilization of low-quality fossil energy resources - coal, brown coal, oil shale and tar sand, lignite, peat, etc. - as well as at the same time to tighten the environmental requirements, make it necessary to develop ever more advanced combustion methods, in spite of the need for an intensified interest in more efficient and cleaner combustion methods, as well as in the use of synthetic liquid and gaseous fuel from coal, oil shale and tar

sands, and considering that several large

demonstration projects exist, synthetic fuel production is still on a rather narrow basis. Both fundamental and applied research are needed on a broad front before synthetic liquid or gaseous fuels are capable of substituting for natural hydrocarbons on a commercial scale.

Particular attention must be given to the problems of safety in deep mining and to the efficiency of production methods in both deep and open-cast mining.

2.2 **Nuclear energy**

The problem of energy supply for the majority of participating countries cannot be solved without using nuclear energy for producing electricity and heat. The economic efficiency of nuclear fission technology has been established, the reliability has been shown to be good, and the environmental aspects are becoming well understood. All aspects of the nuclear fuel cycle will require continuing efforts to assure its full reliability and safety, in order to ensure public acceptability.

For the guarantee of further nuclear prospects the development of breeder reactors is necessary.

The working body states that insufficient effort has so far been made in the development of unconventional types of reactors.

The working body notes that research in the field of controlled thermonuclear fusion is nearing the level of scientific demonstration. Great efforts are necessary, however, to demonstrate even more urgently the technological feasibility of fusion.

2.3 **Solar energy and other renewable energy sources**

Many ways exist for the wider application of solar energy through direct and indirect methods, and in decentralized and centralized forms. In the long term they could contribute significantly to the solution of energy problems. Some of these solar technologies are already in use, some are under development and some are still in the research stage. The same is true for geothermal and tidal sources of energy.

Apart from the scientific and technical problems, however, there are also a number of other open questions pertaining to the wider application of solar energy. Among those questions are economic, infrastructural, environmental, legal and administrative considerations. It is important that these problems are treated together with the scientific problems within a common framework in order to ensure a balanced and optimal use of solar energy.

The tentative suggestions for promising solar energy research areas in the list below do not assign priorities. Further, the selection of areas to a certain extent reflects the specialities of individual scientists in the working body. The list is therefore only indicative and is subject to revision.

- Energy storage, crucial to the small and large-scale use of solar energy and also of great general importance.

- Solar heating, including systems for integration into local or district heating schemes.

- Energy from biosystems, especially production and conversion of fuels from wood, cultivated biomass, etc.

- Solar electricity based on the industrial development of existing photovoltaic or photothermal techniques and on research on novel approaches.

- Basic research in photochemistry and photobiology.

- Scientific evaluation of future solar energy prospects on a national or regional scale.

- Integration of solar energy into existing energy systems, for different forms of energy and end-use requirements.

2.4 **Energy conservation**

Energy consumption and economic activity are very closely related. The principal way to optimize this relationship is conservation. Conservation should be aimed at minimizing energy losses, elimination of ineffective energy use, recycling of materials as well as development of energy-saving processes and technologies. Much research and development activity is needed continuously for efforts in energy conservation in industry, in transportation, in buildings and in appliances and services of many kinds and in improvements in technology. This can be achieved through fundamental as well as applied research.

In this context the working body would stress the vital role of technological innovation.

3. **International co-operation**

Special attention must be paid to the problems of exchange and assessment of scientific and technical data. Individual and institutional scientific contacts are seen here as the best means. Strengthening of existing information centres is another, e.g. within the framework of ECE and UNESCO.

The working body supports the existing forms of international and regional co-operation, increased contacts amongst research organizations, including the United Nations special organizations, e.g. International Atomic Energy Agency, UNESCO, Economic Commission for Europe etc., and non-governmental organizations, e.g. International Council of Scientific Unions.

Forms of co-operation can include the organization of international conferences, symposia, schools, exchange of scientists between different countries and bodies, discussion of research programmes on a regional or bilateral scale, and the working out and realization of joint international projects. The working body notes with approval examples of international activity such as INTOR, (International Fusion Project) carried out under the aegis of IAEA, and the energy project of IIASA.

The working body especially asks international organizations to take initiatives to promote co-operation in fields of advanced coal utilization technology, deep coal mining safety and solar energy.

The working body on alternative energy sources considers its meetings to have been useful. Since the energy problem is important and of a long-term nature, the working body proposes the continuation of this type of interdisciplinary scientific meeting.

The working body had a thorough discussion on all tasks on agenda item number 2. The content of these discussions is reflected both in this Annex and in the general conclusions

contained in the Report of the "Scientific Forum".

Annex 2: Food Production

The future demand, and for many the present demand, for food and feed in the world, emphasized by the "Scientific Forum" of the CSCE, requires sustained research and development efforts in all aspects of the food system.

The need became evident, during the discussions of the working body, for more integrated multidisciplinary research, training at undergraduate and postgraduate level, exchanges of scientists and their interaction. Although the working body recognized the limits of the mandate of the "Scientific Forum" it agreed that food production was of world importance.

In plant genetics and breeding there is a need for international co-operation on the development of more productive plants with higher photosynthetic capacity, more efficient capability to use available mineral nutrients, and better ability to withstand environmental stresses. In this research, scientists should make effective use of modern plant-breeding techniques, including haploid breeding, and various tissue culture techniques in addition to standard methods to obtain crosses, noting the importance of wide crosses. In research on crop production, there is a need for co-operation on the development of energy-efficient management systems based on biological nitrogen fixation and other ecological means as well as the conservation and management of natural resources. The importance of plant protection was stressed as a means of reducing losses.

In the area of animal production, there is a need for more co-operative research on the genetic improvement of farm livestock; the control of infectious diseases, metabolic disorders and infertility; the increased use of non-protein nitrogen in the ruminant diet; animal housing, nutrition and improvement of the efficiency of management systems; and elimination of stress susceptibility and improvement of products of animal origin.

Special attention is drawn to the need for international co-operation in identifying and preserving germ plasm of plants and animals in their natural ecosystems. This should include more, and more comprehensive, gene banks to preserve genetic materials for the benefit of plant and animal production in the future.

Fisheries contribute substantially to the food system. International attitudes should facilitate rather than hinder fisheries research. Continued international vigilance must be maintained on the effects on the stock of the size of catch and of pollution to ensure long-term benefits from this important natural resource.

Attention is drawn to the significant contribution that technology can make to the diminution of post-harvest losses and to the maintenance of the wholesomeness and nutritional quality of foods. More research is needed on alternative sources and economic production of basic food components such as proteins, essential amino acids, etc. Collective efforts should be expanded in the fight against all forms of malnutrition through the assurance of the natural quality of foods and protection against introduction of harmful contaminants during production, processing, storage and distribution. Intensified efforts are needed in the area of nutrition education both at academicand consumer levels and should include multidisciplinary behavioural studies on eating habits and food acceptance. In the final analysis, it is health and nutritional status that is the prerequisite for the well-being of all mankind.

The working body expressed confidence that existing governmental and non-governmental international organizations will be able to help in expanding research on the

subject to which attention is drawn in this report.

The working body thus had a thorough discussion on all tasks on agenda item number 2. The content of these discussions is reflected both in this Annex and in the general conclusions contained in the Report of the "Scientific Forum".

Annex 3: Medicine

The outcome of the work of the subsidiary working body is presented in the following sections on cardiovascular, neoplastic and viral diseases. The working body had a thorough discussion on all tasks on agenda item number 2. The content of these discussions is reflected both in this Annex and in the general conclusions contained in the Report of the "Scientific Forum".

Cardiovascular Diseases

The various reports presented to the "Scientific Forum", and other information available, underline that cardiovascular diseases, where atherosclerosis and/or hypertension are involved, are of major concern in most participating countries. These two main and interrelated ailments with their complications - ischemic heart disease, cerebrovascular disease and peripheral vascular disease together show a high level of incidence and account for a high death rate.

Therefore it seems imperative that special efforts of basic research should be focused on the mechanisms of atherogenesis and causal mechanisms in essential hypertension. On the other hand, it emerges from the reports that there is also great need for help from the behavioural sciences in order to improve compliance both of doctors and the public especially with respect to advice in the interest of prevention and treatment. Preventive measures in childhood are worth a special research effort.

From the various reports it is seen that marked and diverse research efforts are already being made in most countries towards illuminating the mechanisms that lie behind these groups of diseases. A main effort also appears to be directed towards their prevention and treatment.

Since the etiology and pathogenesis of these diseases are far from being fully understood and since these ailments dominate the disease pattern in so many countries, it appears that they must be looked upon as fields for international concern and that fruitful patterns of international co-operation should be encouraged. Such co-operation should be looked upon as an effort additional to the widespread research already going on in the different countries.

In order to identify projects and fields related to cardiovascular diseases where international co-operation might be fruitful one could use the following list of 'indications'.

'Indications' for making a bi- or multinational co-operative effort in the cardiovascular field[*)]

1. **Co-operative research**

1.1 International studies that exploit the transcultural differences in exposure to known or presumed risk factors (for instance in connection with migration) to draw conclusions about causality either in a qualitative or a quantitative sense.

[*)] Here efforts are meant that are distinct from research activities on a local or international co-operative basis, the results of which are then reported to audiences of scientific meetings and in the international literature.

1.2 Studies that require such large numbers of patients, in order to come to a conclusion, that these cannot be found in one single country. Large and complicated drug trials might be an example in point.

1.3 Studies that are so costly that they can only be financed by a collaborative effort.

1.4 Studies in which there is an abundance of patients of a certain kind, say with rheumatic heart disease, in one country and resources such as interested experts and/or financial support available in another country.

1.5 Study projects that can only succeed if expertise in different fields from different countries is pooled.

1.6 Study of occurrence, natural history and/or treatment of uncommon cardiovascular diseases that necessitates pooling of observations from different countries.

2. **Evaluation**

Comparative studies of the efficiency and effectiveness of different health care systems and health care practices in the fields of prevention, clinical medicine and rehabilitation.

3. **Co-operative surveillance**

Examples:
- a co-operative early warning system for the side effects of drugs
- a co-operative early warning system for failures of certain types of electronic pacemakers.

4. **Standardization of nomenclature**

Examples:
- Coronary angiogram
- congenital heart disease
- level of rehabilitation after myocardial infarction and cerebrovascular disease.

5. **Standardization of procedures**

Examples:
- determination of all blood lipids and lipoproteins used in epidemiological research
- determination of prostaglandins
- collection of epidemiological data.

6 **Transfer of techniques**

Examples:
- a systematic programme of practical courses in new and/or difficult biochemical determinations with an updated listing of such courses that is made internationally available
- exchange of computer software in the field of epidemiology and clinical cardiology
- facilitation of transfer of new or difficult techniques in the cardiovascular field.

7. **Co-operative moves by scientists in the field of prevention**

Example:

- simultaneous urging against cigarette consumption or in favour of food habits that can promote prevention.

Cancer

The group stresses that international co-operation in cancer research is necessary in order to achieve progress in the cancer problem.

Such international co-operation exists in Europe and throughout the world, and is carried out by a variety of governmental and non-governmental organizations and societies.

The group urges governments and other appropriate bodies to increase support for such organizations, so that existing programmes of international co-operation can be continued and enlarged. Due care should be taken to avoid unnecessary duplication. Progress of international collaboration in cancer research should be monitored periodically by the appropriate bodies.

The group requests that special emphasis should be devoted to the following:

(1) Free dissemination of regional and local data on cancer and related etiological factors, and assistance for field studies.

(2) Extension of cancer registries to include new regions and countries.

(3) Extension of information exchange in cancer treatment, including data on screening, testing, toxicity, drug interactions and, where applicable, exchange of drugs. Elaboration of ethical principles.

(4) Standardization of reagents, diagnostic methods and test systems.

(5) Access to research facilities and data from health care systems.

(6) Training courses, especially for young scientists in oncology and appropriate basic biology, including new methods.

(7) Increased opportunities, especially for young scientists to learn new approaches in cancer research, by short-term and long-term fellowships.

(8) Direct and rapid contact between working scientists in collaborating laboratories, by all available means of communication.

Virology

In spite of great achievements in the prevention of some of the most severe virus diseases, the relative and absolute importance of viruses as causes of acute and chronic infectious diseases has increased.

For this reason, and being aware of the utmost importance of international co-operation, for example in the eradication of smallpox, the virologists feel that such co-operation is necessary in trying to solve some of the many important problems in virology. International co-operation exists already in the field of virology both in Europe and in the world and is carried out by several governmental and non-governmental organizations.

The virologists urge that the existing programmes in the field of virology should be continued and enlarged. Unnecessary duplication should be avoided.

Although partly covered by existing organizations and arrangements further international co-operation is required in the following:

- Rapid dissemination of information on epidemiology of virus diseases in the different regions.

- Some fields of molecular virology, as for example recombinant DNA, including safety regulations and evaluation of benefits.

- Promoting channels for information on new methods in diagnostic procedures, especially rapid diagnosis of virus diseases.

- Standardization of material for diagnostic tests as well as for materials used for prevention and treatment of virus diseases.

- Study and prevention of some of the common and especially important diseases such as respiratory infections and hepatitis.

- Obtaining access to research facilities in different institutions, especially for young scientists, including training courses, and long or short-term fellowships, for example in regional institutions prepared to give training in applied clinical and epidemiological virology.

- Direct and rapid contact between working scientists in collaborating laboratories by all available means of communication.

Annex 4: Humanities and Social Sciences

1. The main issues to be faced

A. General issues

The main issues to be faced include such general phenomena as rapid demographic, social, cultural and psychological changes, the impact of the increasing sophistication of technology, the shifting role of women in society, alterations of values concerning the environment, and limitations imposed by a growing energy shortage. (A more detailed list of the problems to be faced appears in the Appendix.)

B. Urbanization

The process of urbanization has brought new possibilities and problems which have affected rural areas and open spaces as well as cities and their inhabitants. Among them are effects of internal and external migration, problems of crowding, disorder and crime, alterations to the natural environment, and pollution of the atmosphere, water resources and the land. All of this calls for an improved understanding of the processes of urbanization and their relationship to regional development.

C. Environmental quality

There has been a growing consciousness of the importance of environmental protection, but there are practical problems due to imperfect understanding of the environment. In addition, economic accounting should to an increasing extent take into consideration not only economic activity but also the social, cultural and ecological values of the environment.

D. Research methodology

The highly complex problems of urban development and environmental protection require the use of multidisciplinary approaches, comparative studies and the development of mathematical, simulation or other kinds of models. Some of the difficulties in research on these matters are due to differences in the collection, analysis of data and other materials in the various countries.

2. The tasks ahead

Based on the above considerations, six major areas of research were identified:

(1) Changes in population structures and characteristics.

(2) Present and future social, cultural, behavioural, economic and spatial problems of the process of urbanization.

(3) Preservation of national patrimony and environment.

(4) Impact of new technologies on human behaviour, natural environment and urban ecosystems.

(5) Organization of ecologically orientated urban and regional planning and management.

(6) Education, training, preparation and diffusion of information.

These areas were drawn from the detailed list of topics presented in the Appendix.

To ensure that such research is undertaken, and that its results will be put to use, two developments are needed. One is a larger allocation of funding than is presently characteristic in the social sciences and humanities, especially in the lesser developed countries with smaller resources. The other is the creation of closer co-operation between scientists, planners, the public and policy-makers.

It was emphasized that the necessary research efforts can be attained by existing institutions with the support of governments and administrative authorities. There was also agreement that promotion and expansion of international co-operation and collaboration are needed in research as well as in the training of scientists and in the exchange of information.

3. **Recommendations**

a) Scientific conferences and seminars should be organized during the coming years on the problems of urban development, cultural changes and the quality of the environment. These meetings could focus particularly upon problems in comparative studies and methodology in the interdisciplinary approach to investigations of social, socio-economic, ecological and cultural aspects of urban development and environmental change. These conferences or seminars could be organized by UNESCO or ECE, and where appropriate in co-operation with existing international scientific bodies including the European Co-ordination Centre for Research and Documentation in Social Sciences (known as the Vienna Centre) and the International Institute for Applied Systems Analysis (IIASA). A consultative body of experts should prepare the meetings on the basis of results of national studies. The latter might focus upon a number of special pilot projects on urban and/or environmental issues, the results of which would then be discussed in the international forum.

b) International, national and regional organizations operating in Europe should be encouraged by CSCE, within their field of competence, to arrange advanced training courses and seminars for scientists from States participating in the CSCE. In particular, provision should be made for young scientists to attend training courses arranged in participating States.

c) An inventory of recently completed and ongoing studies on the problems of urban development and of the human environment should be organized. A review of experience in international co-operation in research and in the exchange of information should be undertaken. These reviews could be compiled by one of the existing international bodies, for example, through UNEP, ECE or UNESCO.

d) Eco-toxicological studies connected with relevant methods in the social and health sciences should be supported and improved on an international basis, especially within the relevant projects of the Scientific Committee on Problems of the Environment (SCOPE) of ICSU, and WHO.

e) A series of comparative studies should be strengthened on the procedure in integrated urban and regional planning and management in order to determine the most effective way to link research to the process of decision-making.

f) The impact of science and technology on society; the methodology of interdisciplinary studies with special reference to behavioural, social and natural sciences; research and policy-making in social fields; the decision-making process including the involvement of the public; research in political sciences relevant to the CSCE countries; science policy and improved and more efficient forms of co-operation including the institutional framework, are themes which should be further explored in future meetings.

The working body had a thorough discussion on all tasks on agenda item number 2. The content of these discussions is reflected both in this Annex and in the general conclusions contained in the Report of the "Scientific Forum".

Appendix

General issues

1. The impact of increasingly sophisticated technology on urban development, life-styles and the environment, compared with "appropriate" technology which may be less sophisticated but more closely adapted to the environment and the preservation of social values.

2. The impact of an ageing population on the economy; requirements for social services, housing and transportation.

3. The effects of the changing role of women in the work force.

4. The effects of shifts in social values on the role the individual plays in planning and policy-making.

5. The gap between the perceptions of various groups of professionals as to what society needs and how this should be provided, and the perceptions of the public at large.

6. Finding effective means for including in planning and policy-making the results of research on human dimensions of urbanization and environmental quality.

7. Problems of undertaking and implementing truly comprehensive planning.

8. How to make research in social sciences and the humanities more relevant for planning and policy-making.

Environmental issues

1. The impact of environment on human health.

2. How to tackle the problems of environmental hazards and technological risks.

3. How to develop comprehensive environmental plans into which plans for industrial, transportation, urban and social development might be fitted.

4. Determination of the values which individuals attach to particular environments, and the extent to which such values vary over space and time.

5. Impediments to the improvement of environmental quality.

6. How to investigate objectively changes in the quality of life.

7. How to develop a broader perspective in planning so that more intensive use may be made of existing resources rather than bringing in new supplies from elsewhere, e.g. the introduction of wastewater renovation and recycling as opposed to development of water supplies at progressively further distances from the city.

8. The impact of economic development on environmental quality.

9. Sustaining an interest in the environmental question at the political level.

Methodological issues

1. The circumstances in which an interdisciplinary approach is especially appropriate, and the ways in which it can be most successfully pursued.

2. The integration of non-technical and non-economic factors in models relating to urban development and environmental quality management.

3. Problems of undertaking comparative studies, especially where cultural traits make data collection difficult, or where meanings and values attached to given phenomena are unique to a particular area.

4. How to take account of shifts in social values and new developments in technology in planning and policy-making.

5. Provision of opportunities for education on the environment.

6. How to cope with decision-making under uncertainty.

7. Inclusion of predictions of shifts in social values and development of technologies in plans and policies.

Urban development and human environment

1. **Social and cultural problems of urbanization**

Changes in population structures and their impact on urban life and development. (Professional structure, the impact of women entering the work force, new family models, youth-adult correlations, increasing ratio of old people).

2. **Urban migration and its consequences**

Social effects of migration to and from cities and its impact on areas of immigration and emigration. Increasing diffusion of urban population from cities to countryside leading up to levelling of differences between urban and rural life. The role of small and medium-sized cities. The process of concentration and of deconcentration of urban activities.

3. **The future of urbanization**

Human adaptation to changes in urban life. The impact of technical progress on the functional and spatial structure of urbanization from the ecological point of view. Prognosis of new forms of urbanization. Environment and technology. Optimum size of cities. The "human scale" in urban development.

4. **Technology and the economy confronted with human, social, cultural and ecological needs**

Human perception of urban environment. Economic value of ecological and social factors. How to integrate ecological, social, cultural and economic criteria.

5. **Preservation of national patrimony and environment**

Interdisciplinary environmental research. Preservation of the national patrimony on a local and national scale (architectural and cultural and traditional values, urban structures). Adaptation of old cities to new needs. Revalorization of old housing system.

6. **Interrelation of urban and regional development**

Correlation between urban and regional growth and national development. Urban and rural development. Structural forms of the net of settlements. Process of urban concentration and deconcentration.

7. **Methods of ecologically-orientated integrated urban and regional planning**

Principles of integrated planning. Methodology of long-term urban and regional planning presenting several strategies of development. How to compare them from economic and ecological points of view (mathematical models). The territorial integration of planning and implementation. Systems of urban management.

8. **Problems of big cities and metropolitan areas**

Comparison of various cities' growth. Internal structures of metropolia, their complex problems: housing, recreation, traffic, places of work. etc. Special problems of highly industrialized cities and regions, harbour cities and coastal urbanization.

9. **Education, training and information**

Methodology of comprehensive environmental training and education of undergraduate and postgraduate specialists. Special training of young scientists. Information on the importance of ecological, social and cultural aspects of urban development and environmental protection for decision-makers and the general public. New means: mass media, etc.

Public participation in planning and implementation decisions. Public control of the mode of complementation of the results of planning based on scientific research.