4th International Congress of the IRGR, Basel, 2-5 June 1969

Welcome Speech

By O. JAAG, Switzerland, Chairman of the IRGR

Ladies and Gentlemen,

The duty to protect our habitat involves the following particular and inevitable measures: the protection and, where necessary, the purification of our waters by treating the sewage from residential areas and industries before it is discharged into a receiving water body; the elimination of solid wastes, i.e. domestic refuse, street refuse, waste oil, various industrial wastes, animal carcasses and confiscates without harming the human environment, and finally the raw and digested sludge that accumulates in the sewage treatment plants; the protection of air and soil against excessive noise and other immissions of all kinds.

The importance of organized disposal of all waste produced in a community or in a region becomes apparent if, for some reason, such as a sanitation department strike, the waste is not cleared away, which may be harmful to the population and the community.

The necessity of garbage disposal has always existed, especially since the people as well as industries and trades which employ them are allotted only a very limited amount of space in large conglomerations. The need for order and cleanliness has, with the passing of time, undergone various changes. Thus our task must be adapted to the circumstances, particularly in times like ours, where on the one hand the need for amenities is extremely great and seems to be increasing, and on the other hand, the mass production industry floods the market with commodities of all kinds, kitchen dishes, radio and television sets, washing machines, refrigerators and cars of various makes. This entails unimaginable waste that the communities and regions must deal with in an economical way and, if possible, without polluting the human environment. The rapid economic development that became apparent after the last world war, as well as automation and the accelerated growth of the population brought about a new avalanche of waste, the end of which cannot yet be foreseen.

During the last 15 years, the volume of domestic refuse has more than doubled. This development is due particularly to an abundance of packaging material in town and country. In the Federal Republic of Germany alone, the value of this packaging material produced was 1,3 billion German marks in 1951, and 8 billion in 1965. For the year 1970, the estimated corresponding value will be already 12-13 billion German marks. A particular problem concerning garbage disposal is the throw away packaging

made of glass or plastic, which is very difficult to deal with in the processing of waste. This means that the way to treat solid waste must be adapted to the changing requirements and the given circumstances. This presupposes that the competent authorities adapt their policy to the rapid development of science and technology to the advantage of all those involved. This however requires continuous information, documentation and discussion in order to choose the best technical means that competition offers.

The problem of waste disposal is a very important one, because we must make decisions about the organization of the collection, the treatment, the processing for re-use and finally the complete disposal of the useless remaining material.

For collection and transportation, the municipal cleansing departments have found solutions which for their purposes were practicable. The problem of the disposal of collected waste is already a much more difficult one. In this respect, we have several, fundamentally different possibilities:

Open dumping, a very widespread method in recent years, which often contaminated and disfigured the countryside and even polluted the air with smells from such dumps. It has been generally recognized that this method of waste disposal can no longer be applied.

A further step in waste disposal has been taken in France and in Great Britain with the system of *Controlled Tipping* or *Sanitary Landfill*. This method is more complicated and more costly, since it requires special machines and personnel, but it protects the deposit surfaces and the surroundings from practically all immissions, and moreover, it uses land which has so far been unproductive.

A third method of effective waste disposal may be learned from the Dutch, who found a way to process the organic parts of domestic and partly also of industrial refuse. Through adequate pretreatment and composting, a substance can be produced on a large scale, which is used to improve the soil and to revalorize sterile land, opening large tracts of land agriculture. Moreover, *refuse compost* can be used to enrich the soil and to increase its fertility in the highly developed Dutch agriculture.

Similar methods have been used in the Federal Republic of Germany, where the initiatives for the use of refuse compost came especially from the school of viticulture in Weinsberg.

It has been recognized at a very early stage that big cities, particularly when they are situated in densely populated conglomerations cannot apply the above mentioned methods for their waste problem. Therefore, they chose the most radical way of waste disposal, i.e. *incineration*. In fact, numerous cities all over the world have opted for this method, which was to their advantage. This development has been considerably promoted by the availability of incinerators and powerful machinery. Suppliers of several countries have for decades been engaged in a healthy competition with each other for this market.

Depending on the local and regional circumstances, the competent authorities are left with the choice of incineration with or without utilization of the energy generated. This energy can be used for the production of heat, steam or electric power.

The fact that there are several possibilities of waste disposal serves our purpose extremely well, since the amount of waste produced today could not possibly be absorbed by agriculture. Yet, we must also take into consideration that continuous

supply of fertilizers is in many cases a substitute for the lack of humus, which could otherwise result from our exploited soil due to the excessive drain of our ground.

We have to seek the optimal solution for each individual case and its special circumstances. This requires research in various fields as well as publication of its results in the authorized groups. That is the aim of this fourth Congress of the International Research Group on Refuse Disposal.

When in 1955, we in Switzerland had to study the whole series of complex problems, a comparatively small group of the most experienced specialists of Europe convened at the Swiss Federal Institute of Technology, in order to discuss our topical problems. Probably the most important outcome of the discussion was the association of the experts represented at the convention. They formed the International Research Group on Refuse Disposal which, at present, has working groups in the Federal Republic of Germany, in France, Belgium, Italy, Israel, Austria, the Netherlands and Switzerland, which are all co-operating. Immediately, the edition of an information bulletin was started. Under the editorship of Mr. R. Braun, head of the *Section for research on refuse and for advice* at the Federal Institute of Technology, already 35 bulletins have come out and are sent in German, French, Italian and English into about eighty countries of the world.

In this way, co-operation of practically all the groups concerned with the problem of waste disposal could be achieved on an international level, and research brought about the results which have already been discussed during three very successful international congresses, i.e. 1959 in Scheveningen (Netherlands), 1962 in Essen (Federal Republic of Germany) and 1965 in Trento (Italy).

The memory of the congress of Trento is still in our minds, but since, the development of research and its application in the field of city-sanitation and waste science has gone new promising ways, which shall be gone into during the first main lecture.

As to the organization of our fourth congress, we have chosen a new procedure, which we expect to lead us to more practical results than a conference which mainly consists of speeches. We have left enough room in our program for a well-prepared discussion, and we have, as you can see, formed six working groups, each presided over by a prominent expert, who has sent us in advance a summary of the subject that shall be treated in his group. This, together with other papers, have been sent in time to the addresses of all participants. Such a procedure enables each participant to be well prepared for the general discussion and to come up with those questions which are of particular concern to him.

At the end of the conference, the group chairman will sum up the result of the work done in common. These summaries, we hope, will show the way to further successful development of research in the whole and complex field of waste disposal.

The international exhibition PRO AQUA also includes a great deal of goods from practically all fields of treatment of solid waste. Excursions to plants and installations throughout Switzerland will illustrate to the participants the various methods of treatment and disposal of refuse.

The second main lecture in our international congress should have been given by Mr. Pierre Clairgeon, the president of the INTAPUC. We were looking forward to the privilege of having such an experienced specialist talking to us on the difficult subject 'Duties of the State and the local Authorities in Maintaining the

Cleanliness of our Habitat'. Then, we got the terrible news from Paris, that Mr. Clairgeon had died on 18 November 1968 after a heart attack at the age of 66. We could hardly believe the news, because a short while ago, we had sat together with Mr. Clairgeon, who was the very expression of health, energy and activity, in order to begin with the organization of this congress.

We are most deeply grieved about the loss of this helpful, kind and active man, who had retired from his responsible position as the director of public works in Paris just a short time ago. As a chief engineer, he had planned the general sewerage project in the Paris region, as well as the giant sewage treatment plant in Achères.

The works of the director of Public Cleansing of Paris were a considerable improvement in the rapid transit network of the metropolis, as well as the construction of a storage pond to supply water and to eliminate the danger of flooding. Furthermore, he left to his successor many long-range plans to be carried out. Together with the Electricité de France, Pierre Clairgeon contributed a great deal to the construction of the refuse incineration plant of Issy-les-Moulineaux, one of the world's greatest works of this kind. His outstanding achievements, which were so essential for the re-planning of Paris, were fully appreciated and held in esteem by the competent authorities.

This bereavement is a great loss to us, but the merits of this great man, his dynamic character and his kind smile will always be in our minds.

M. Drouin has written an article in honour of Pierre Clairgeon's life and work. It has been published in the 34th information bulletin of the IRGR.

More than 700 participants have registered for our Congress. This shows the great importance of research, technology and organization in the field of waste disposal on the one hand, and on the other hand, the need for good information in this complex field of activity.

In the name of the organizing committee, I would like to thank the participants from the whole world for their interest shown in our task. Our special thanks also go to the many colleagues who worked on the congress as speakers, discussion leaders, excursion guides and administrators. Their valuable work and their specialized knowledge were not only a proof for their interest in our problems, but also a great help in organizing this congress.

Address of the author: Prof. Dr. O. JAAG, Director of the Federal Institute for Water Supply, Sewage Purification, and Water Pollution Control, Swiss Federal Institute of Technology, Physikstrasse 5, CH-8044 Zürich, Switzerland.