Speech of the President of the Chilean Nuclear Energy Commission

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15th International Congress on Plasma Physics (ICPP 2010)
13th Latin American Workshop on Plasma Physics (LAWPP 2010)

- Dr. Leopoldo Soto, Chairman of the 15th International Congress on Plasma Physics and 13th Latin American Workshop on Plasma Physics.
- Mr. Fernando López, Executive Director of the Chilean Nuclear Energy Commission.
- Professor Padma Shukla, Chairman of the international Union of Pure and Applied Physics.
- Dr. Günter Mank, Head of the Physics Section at International Atomic Energy Agency.
- Authorities from Chilean Universities.
- Scientists and students from Chile and abroad.
- Ladies and gentlemen.

It is my pleasure to give this speech in front of this select audience composed by world class scientists, as well as authorities, students and especial invited that have met in Santiago of Chile on occasion of this 15th International Congress on Plasma Physics and the 13th Latin American Workshop on Plasma Physics.

Our country, as well as other Latin American countries, is about to celebrate its bicentenary next month: that is, two hundred years of independent political life. This has been a long and complex process, with significant progress in some periods, and violent setbacks in others. Indeed, the vast majority most of Latin American countries, after a heroic struggle for self-determination, were no longer colonies and began a period of independent development, inspired by the ideals of liberty, equality and fraternity of the French Revolution and the participatory democracy ideals of the independence of the United States. Besides that, we had our own demands in the region: cooperation with neighbors and focus on building republics for the benefit of its people, looking for an economic development not only based in mining and farming, but also in the industries and manufacturing. In this way, to achieve these goals, our founding fathers established a number of initiatives, such as education open to all because "without it there is no opinion, public spirit nor men constitute a state", as well as other rule to encourage the entrepreneurship and proper markets. Unfortunately, early in the republic this attempt was aborted. Thus, after 200 years, the same powerful ideas still remain to be implemented. In other words, what remains is to obtain independency from the economics and technological point of view. In one word, what remains is to be a developed country.
¿What should be fulfilled in order to reach such a situation?
Of course, certainly education, science and technology are key issues in this regard. We have worked hard in order to reduce the gaps in the access to social welfare, health and culture. However, several problems persist, like in the case of education, where we have tremendous inequalities, according to

the measured by OECD's standards. Chile only spends about 4% of GDP on education, compared to the 7% of GDP recommended by the UN for developed nations, and sadly to say, our educational system maintains a huge segregation across social classes in its schools and colleges. We hope that this situation could be improved in the near future.

In the case of science, we are making efforts to move forward quickly. Our country has institutions, research centres and the proper tools to promote and finance scientific research, both basic and applied, oriented to real applications that will impact in the improvement of the life conditions of our people. There is a vigorous plan of graduate scholarships to train doctors in both Chile and abroad, as well as research grants. However, this is still insufficient. Chile spends only 0.7% of GDP in science and technology, which is clearly not enough to have a real impact in industry.

In Chile, science has developed some areas that have reached an international level. Even though our scientific production could be considered insufficient in quantity, in some cases is considerably good in quality. Therefore, we are proud that these two important events in plasma physics, highly recognized internationally and also in Latin America, are being held in our country. We consider this event as the result of the recognition of the level obtained by our scientists and institutions.

An important goal of our country - for now and in the near future - is to achieve a diversified energy matrix without risks to the environment and natural resources. This is why plasma physics research, which is related to the energy generation by means of nuclear fusion, deserves our great interest, even more due to our important lithium reserves in the Desert of Atacama in the north of Chile, being lithium crucial in the nuclear fusion fuel cycle. That is just one example of the problems we face and where we need to generate adequate public policies: lithium is a strategic resource since we have large reserves and we are the largest producers worldwide. However, incredibly, we have no institution or a systematic research program to address the study of this mineral in a multidisciplinary way. Now, we are repairing this deficiency, with the creation of a Lithium Institute in the Chilean Nuclear Energy Commission, which is part of a strategic plan that restructures the CCHEN and which is detailed in another article (see “Antecedents and perspective on the development of nuclear energy in Chile” in this issue).

We follow with great attention the studies in plasma physics and fusion around the world as well as various international collaborations for its development. One of these is the ITER project. This mega project intends to obtain energy from nuclear fusion at the experimental level. We know that this great challenge of nuclear fusion relies on the international collaboration. But from here, located in Chile, the advances of the international project ITER appear very far. Can we collaborate in this task from Latin America? In several Latin American countries it is possible to find competent scientists and adequate facilities in order to carry out research in plasma physics, material science, computer, and nuclear sciences, among others. All of these are necessary areas to face up the challenge of nuclear fusion. The collaboration from a Latin American program of nuclear fusion will allow us to obtain important advances and developments that would not be possible to obtain alone. Why not try?

Ladies and gentlemen, and dear scientists: I am here as the President of the Chilean Nuclear Energy Commission, the host of this Conference, sure that the hopes in integration of the Latin American people also depends on the integration in science and technology. We are a continent where resources are almost always in a shortage to undertake great projects for scientific development. Nevertheless, integration and common efforts will allow us to succeed in the great task of research and development. We also know that plasma physics offers opportunities of knowledge and applications in areas such as atmospheric and space physics, satellite sciences, medicine, environment, industry, materials, mining, among others fields that are interesting to the development of our country.

Let me finish by acknowledging to all the experts and scientists that are visiting our country for this special event. Receive my best wishes for the success of this congress that starts today.

Thank you very much.

Dr. Gonzalo Gutiérrez
President of Chilean Nuclear Energy Commission

Santiago, August 9th, 2010.