Science: For what, for whom and how?

By IAPC

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Roots: Why discuss science and technology politically?

Santiago: Behind every scientific and technological activity there is a policy. Behind the object, the methodology and the research agenda, there is politics (explicit or implicit). Researchers, in general, do not ask themselves about the political background of their activity; they carry it out following the fashionable topics, the trends, what their director or institute sets as a guideline. This is what Oscar Varsavsky calls *scientism*, a system where the scientist does not ask himself about the social meaning of what he does.

Discussing the political character of science has an objective, which is to put on the table the implicit decisions that lie behind all scientific-technological activity. Varsavsky stated that science and technology should be evaluated not only with a criterion of truth (i.e., how much they contribute to clarify a problem), but also with the criterion of importance: what is the purpose of what I am doing, for whom is it useful, what is the objective of what I am doing? This dual criterion of truth and criterion of importance is what allows us to discuss the orientation of the scientific-technological system. It is very elementary and yet, in the daily activity of researchers, it is not a question that is present.

Normally, the research agenda is defined by disciplinary fields that are built around internationally prestigious journals (mainly European and North American) which are mostly in the hands of private publishers. These journals

mainly deal with cutting-edge topics that address the problems of central countries, their companies, their defense systems, and social issues that affect or interest their States.

Thus, if we do not discuss policy in our countries and simply take the agenda that emanates from these private organizations, from these journals, from associations and even from subsidies from international funds and organizations, what we have as a result in the peripheral countries is the adoption of a research agenda that is alien to our context, a research agenda located in the central countries. The so-called "international agenda", the frontier topics, which are presented in each discipline, are the topics that the central countries consider necessary. Thus, the scientific systems of the peripheral countries end up acting as a subsystem integrated with the central countries. This is the problem of dependence.

A: So, what is the role of S&T in peripheral and central countries?

SL: Science and technology throughout the history of capitalism, but especially in the last fifty years, acquired a fundamental centrality in economic competitiveness and geopolitical supremacy. The forms of integration of scientific systems around the world behind global agendas have been accentuated and the scientific systems of the peripheries have lost autonomy. Why? Because the central countries increasingly need the scientific resources of the periphery. There is an international division of labor between center and periphery in the scientific field, where the periphery has a very important role in the production of scientific knowledge, but not for their contexts, not for their countries, not for the needs of their societies, but for the central needs. This is the phenomenon of decontextualization, of the disconnection of the knowledge of our scientific systems with respect to our countries.

This is the paradox that we are experiencing in countries such as Brazil and Argentina, where we have internationally recognized scientific systems, prestigious universities and researchers who win international prizes, a consolidated science in many fields of knowledge, and yet these sciences and universities contribute very little to the development of our countries. On the one hand, social exclusion, poverty and inequality are increasing, and on the other hand, at the same time, we have more and more and better universities and scientific centers.

A: In this context you describe, which peripheral countries do you consider have managed to build a virtuous science policy for their sovereign development?

SL: In the field of science policy, as in all public policy, there are relationships of forces. It is not black and white. These power relations are expressed at regional, national or even micro levels (faculties, universities, institutes). There are permanent struggles that seek to re-signify scientific activity with greater or lesser success, there are resistances and counter-tendencies. The result of the sum of forces at different levels is what ends up defining the orientation of a scientific and technological policy.

In general terms, I believe that China is the country that has achieved the most coherent strategic policy aimed at overcoming its underdevelopment. With the "Four Modernizations" policy of 1978, China established scientific-technological modernization as a pillar of the modernizations in the other three sectors: agriculture, industry and defense. Since then, it has gone through very specific phases of scientific and technological development. Starting from an initial position of learning and even copying exogenous technologies, it has reached, during the last few years, a phase of indigenous innovation.

This process implied a sustained increase in the budget for the S&T sector, the training of human resources abroad, turning a deaf ear to international legislation that tried to prevent them from copying knowledge and, fundamentally, conditioning multinational firms that settled in their territory to share part of the *know-how* and thus be able to develop their own productive forces. As a result, today China is one of the countries at the forefront of technological development in the world, becoming the first country to surpass the USA in the number of patents and scientific articles.

A: Is it important to develop more scientific collaborations in the Global South from a sovereign perspective? Why?

SL: It is fundamental. Since 2005, Latin America has made progress in regional unity, mainly through the creation of UNASUR, the expansion of MERCOSUR and then the founding of CELAC. But none of these instruments managed to define sovereign scientific and technological policies for the region, nor were funds established for development oriented according to regional priorities.

Not having our own, sovereign financing leads to dependence on funds from international credit organizations, which guide scientific forces according to the interests of economic powers.

It is necessary to advance in the creation of South-South articulations, to explore the complementarities of our research systems around key common resources. Lithium, for example, is a strategic and common resource in several countries of the region that could act as a topic of interest to structure sovereign research and

technology spaces. But we must be aware that it is not possible to achieve this articulation if there is no funding and no shared interest.

The countries of the South, which often lack a national project, or whose national project is undermined by neo-liberal forces, are linked at the international level as individuals, as isolated groups or institutions. This is a great weakness. It generates a very great asymmetry in the links, because, on the one hand, there is an agenda defined as a country or as a region (in the case of the European Union, which defines regional scientific agendas with strong funding) and, on the other hand, there is an isolated group or institution. Both South-South and traditional North-South cooperation require the existence of a national project that directs them in a strategic sense. Otherwise, the orientation is given by the most powerful actor.

A: What is the role of popular movements in science policy?

SL: In the State there are condensed relations of forces, forces that permanently permeate society and constitute it, at the same time as they shape the State and its regulations. Governments, then, express circumstantial orientations, with the limited tools offered by that deep structure of the State. In this framework, popular movements, as collective actors, play a key role. They can influence the battles around this statehood, in the construction of an agenda that disputes the hegemony of the concentrated sectors of the economy and its mediations in politics and culture.

The non-state public sphere, which from the dominant point of view is assigned to NGOs, is the place where popular movements have structured themselves as the State, with neoliberal reforms, left vacant places. This exclusion zone allowed at the same time a relative autonomy that became fundamental in the construction of popular power in the last decades. But it should not be a withdrawal, nor a distancing from the centers of power, but rather we should see it as a place where to build strength for the dispute of the point of condensation of collective interests: the State.

From this reading, the strategy of the popular movements and their agenda must go beyond the exclusive problems of marginality, and must advance in the areas considered strategic for the central actors of capitalism and the ruling classes, who reserve for themselves the niches of high added value, in which science and technology are fundamental. These reserve for themselves the niches of high added value, in which science and technology are fundamental, so the popular movements need to advance in the discussion of these elements. It would be an act of irreverence that they do not expect! The popular movements have to take on the task of participating in the discussion. Today the agendas of the

businessmen and those of the popular movements are on parallel tracks: the capitalists discuss wealth and the popular movements discuss poverty. It is necessary that the popular movements also discuss the scientific-technological agenda, which is increasingly linked to the production of value.

In Argentina, we built a network that today has about 85 researchers. It is called Red PLACTS (Red de Pensamiento Latinoamericano en Ciencia, Tecnología y Sociedad). Our aim is to influence the definition of our country's S&T policy. The next step is the construction of this network at Latin American level, always walking very close to popular movements, popular and progressive sectors. So that, in the next instances of regional integration, it will allow us to be better prepared to generate our own line in scientific-technological matters. With these objectives, we recently participated in the Assembly of ALBA Movements, held in April in Argentina, and we are already in talks with other countries, such as Chile and Cuba, for the construction of national chapters of the PLACTS Network. Once this stage is over, we will have to think about forming a network of the global South as well.

What kind of science and technology are we looking for? One that thinks in our contexts, in the link with social actors, in national projects, in sovereignty, in social commitment, embodied in what Varsavsky called a "politicized scientist". That is to say, committed to his society, especially to the social changes necessary for the resolution of the human and environmental problems that afflict us. A science and technology that adopts as a criterion the care of life and does not allow itself to be driven exclusively by the blind logic of capitalist profit. This is the objective of the PLACTS Network: to articulate and train existing politicized scientists, with a view to gaining strength in the battle of ideas towards the rest of the scientific community, towards other sectors of society, towards companies and towards the State.