

International Cooperation in Times of Hardship

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Summary

Scientific communities and practical science.	2
Linking out	3
The adoption of Western science and technology.	4
International cooperation in times of globalization and retrenchment.	7
The future: interdependence and partnership	8

International Cooperation in Times of Hardship

Established in 1943 as the "Office de la Recherche Scientifique Coloniale" (later "l'Office de la Recherche Scientifique et Technologique d'Outre Mer"), ORSTOM was from the beginning an example of the dilemmas and tensions that emerge at the crossroads of science and government, science and empire, scientific centres and peripheries, scientific cooperation and scientific imperialism.

Created at the end of the Vichy government, ORSTOM was a project of a group of scientists - members of the "Association des Rechercheurs Scientifiques Coloniaux", and of the "Association Colonies-Science" - who wanted to define their place after the war, when France would recover its position among the European colonial powers¹. They had to be close to the authorities in the colonial administration, while establishing their autonomy from government. To be autonomous, they had to be accepted as equal to other fellow scientists, not just users of knowledge produced elsewhere.

In the succeeding decades, as the colonial empires crumbled, ORSTOM became the French Institute for Scientific Research for Development in Cooperation, and its purpose also changed. From its role of implementing and coordinating scientific research in the colonies, it strove to become an instrument for international scientific cooperation with the developing countries, and more specially with the former French overseas colonies and departments. Was this just a cosmetic change, a thin disguise covering colonial science as usual, in an updated and more acceptable dress?² I do not believe so. International scientific and technological cooperation is not as idyllic as some of its promoters would want us to believe, but the world that emerged from the breakdown of the old colonial empires was not just a replication of the past. I will leave the evaluation of ORSTOM's record in promoting effective links with the scientific communities in the developing countries to those who know better. My point here is simpler: I just want to stress how the creation of ORSTOM, as the creation of most other scientific institutions in the world, required the presence and active participation of a community of scientists and non-scientists, whose interests and perspectives may be convergent, but are different

¹See, for the history of ORSTOM, Michel Gleizes, *Un regard sur l'ORSTOM 1943-1983 - Temoignage*. Paris, CEDID - ORSTOM, 1985; and Christophe Bonneuil, *Des Savants Pour l'Empire*, Paris, ORSTOM, 1991.

²The literature on colonial, or imperial science, is vast. See, among others, W. N. Reingold and Marc Rothemberg, *Scientific Colonialism: a cross-cultural comparison*, Smithsonian Institution Press, 198. See also Roy McLeod, "Passages in imperial science: from empire to commonwealth", *Journal of World History* 1993, 4:117-150; Lewis Pyenson, "Cultural Imperialism and Exact Sciences: German Expansion Overseas 1900-1930", *History of Science*, 2-42 vol. XX, 1982, Radhika Ramasubban and Bhanwar Sing, "The Orientation of the Public Sciences in Post-Colonial Society: the experience of India," in S. Blume, J. Bunders, L. Leydesdorff and R. Whitley, eds, *The Social Direction of the Public Sciences*, Sociology of Sciences Yearbook, Reidel Publishing Co., vol. XI, 1987, 163-191; and A. Lafuente, A. Elena and M. I. Ortega (editors), *Mundialización de la ciencia y cultura nacional*, Madrid, Doce Calles, 1993.

from those in other political and administrative positions.

Scientific communities and practical science.

ORSTOM was twice removed, since its inception, from the conventional image of what the European scientific enterprise should be to be. The kind of research it expected to promote was very practical, concerned with the exploitation of natural resources and the development of agriculture in the colonies - the "mise en valeur" of local resources, to use the French expression. Their promoters did not accept, however, the subordinated role of simple users of basic knowledge developed elsewhere. They hoped to create their own scientific field, broadly defined as the one of "tropical research", "la science des regions chaudes" which could place them in equal footing with the existing agricultural research centres and other institutes of CNRS.

That science should be applied and yield practical results was widely accepted among European scientists at the time, thanks to the influence of such leaders as Frédéric Juliot-Curie in France and J. D. Bernal in England. They brought to their countries the new conceptions about the strong links between science and modern societies, propagated by Marxist theorists and practised not only in the Soviet Union, but also in Germany. If science was used to make war, it should also be applied in peace. In our case, it could help to rationalize the use of natural resources in the colonies, and extend the country's "mission civilisatrice" to the underdeveloped world.

The newly discovered strategic relevance of science drew strong support, but also resistance among scientists. It was the scientists' chance and justification to get the resources they wanted for their work, to put their findings to practical use, and to place themselves close to the ears of the powerful. It justified the creation of nationally centralized and well endowed scientific bureaucracies, of which the Soviet Academy of Sciences and the French Centre Nationale de la Recherche Scientifique are the best examples. But it brought also the spectre of external interference, the subordination of scientific to political and economic criteria and priorities, and power struggles. From now on, decisions would not depend only on scientific competence, but also on the strength of ideological and political alignments.

It was not so much a dispute about the role science played in society, as it was about the role it ought to play, and the links scientists had to keep with the powers-to-be. I would not be telling a secret if I said that most scientists wanted, and still want, the best of the two worlds: to be powerful and influential, and to be independent³. It was the old utopia of the "rational society", which, by its very nature, would grant the scientists the ideal combination of independence and authority. In practice, this proximity between scientists and power became, in extreme cases, a tragedy, as it happened with German

³For a current view on this issue, see Etel Solingen, editor, *Scientists and the State - Domestic Structures and the International Context*, The Michigan University Press, 1994.

science under Hitler and Soviet science under Stalin. At its best, it became a difficult balancing act, as it happens in most Western European societies today, and occurred whenever the international spread of science was associated with colonialism.

Linking out

ORSTOM was not the only French scientific and cultural institution reaching out to what later became known as the developing world, and France itself was not alone in its enterprise. The spread of Western science, analysed with detail in the well known (and controversial) study of Georges Basalla⁴, begun with the Portuguese and Spanish navigators of the fourteenth and fifteenth centuries, continued with the scientific expeditions of the naturalists in the seventeenth and eighteenth, and led to the creation of Western style scientific institutions and universities throughout the world in the nineteenth and twenty centuries. At first, the realities of the rest of the world entered European science as data (for instance for the drawing of maps, so vividly described by Bruno Latour in *Science in Action*⁵) to enrich the collections of the museums of natural history, and for the development of theories about nature, as with Charles Darwin with the voyages of the Beagle.

The diffusion of European science accompanied the diffusion of colonialism, and was part of an essentially predatory enterprise. For the Portuguese Navegantes and Spanish Conquistadores, the new lands were to be exploited, local cultures should give way to European civilization, local populations converted to Christianity, and sometimes exploited as serfs or slaves. The English, French, Dutch, Belgian and other European colonizers followed similar paths.

The colonial enterprise, however, proved more complex than expected. In places like Brazil, North America and Australia, local populations and cultures were exterminated or expelled to remote areas, and the colonizers created their own settlements and institutions, according to their goals: family settlements some areas, slave plantations in others. "bandit republics" elsewhere. In Mexico, Peru, India, China, and so many other regions, the European powers faced societies which were too dense and complex to be wiped out, and entered a complex pattern of interaction with the colonized. What happened with the occupation of land and reorganization of the economy also happened with scientific and technical knowledge, and the interpretations of the world. It is from these interactions that the local scientific communities emerged, and linked with the colonial science coming from the metropolis.

Confronted with the ruthlessness of colonial expansion, scholars and ideologues

⁴Basalla, George. "The spread of western science", *Science*, 5, May 1967 611-622 Vol.156.

⁵*Science in Action: how to follow scientists and engineers through society*. Harvard University Press, 1987.

have looked for forms of resistance and alternative world views that could resist the Western onslaught. In Latin America, there are those that still look for the Pre-Colombian science, forms of local wisdom and deeply rooted cultural values that could resist and replace Western intellectual and cultural imperialism. In India, China, and throughout the Islamic world, a widespread assumption is that Western culture and science are superficial, spiritually and morally empty, and therefore doomed to failure, in spite of eventual successes in the material world.

Whatever the value of such moral and cultural judgements, when research-oriented institutions were organized in the developing world - laboratories, academies, research universities - they followed the Western models and inspiration, even when, sometimes, the actual contents of Western science and scholarship remained largely inaccessible. Resistance to Western thought was often strong, and in many regions have grown dramatically in the last decades, in political parties, religious movements and literary circles. But no research universities, no research centres, no laboratories and institutes were created or maintained in the developing world which would present a credible alternative to the Western scientific tradition, in the natural or in the social science. Outside Europe, acceptance of Western religion was limited, the adoption of its economic and business practices was more widespread, but the reception of the products of Western science and technology was practically universal.

The adoption of Western science and technology.

From the cargo cult of the Pacific Islands to the sophisticated physics research institutes in New Delhi, the way peripheral societies adapted to Western science and technology varied enormously. The cargo cult was the religious worship of aeroplanes, the faith in the cargoes they would drop from the skies for the believers. It was an extreme version of the most common and widespread pattern of incorporation of Western knowledge, the acceptance, incorporation and consumption of technological objects and instruments. As we learned in the movies, American Indians were quick to change their bows and arrows for guns; and global TV tells us that societies that still kill each other for all kinds of cultural and religious pretexts share the same belief in the power of modern weaponry and their associated technologies. Nothing assures that the consumption of technological gadgetry leads to the creation of the intellectual and organizational conditions for their production⁶. The gap between producers and consumers of knowledge-based products became almost a definition of what underdevelopment means, a condition which is now emerging in the very core of industrial societies.

More complex than mere consumption was the incorporation of Western

⁶This was a central assumption of the theories of modernization in the fifties, which hoped for a gradual opening of the horizons of traditional societies through the access to modern communications and the products of Western technology. Two classic references are Karl W. Deutsch, *Nationalism and Social Communication - an enquiry into the foundations of nationality*, The M. I. T. Press, 1953; and Daniel Lerner, *The Passing of Traditional Societies - Modernizing the Middle East*, Free Press, 1958.

rationalism as an ideology, in opposition to local traditions and customs. Who did this incorporation made all the difference. In some countries, Western rationalism was the preserve of small elite groups associated with the colonizers and identified as strongly as possible with their outlooks and lifestyles. They sent their children to prestigious European universities, organized local educational and research institutions patterned on European models, and adopted English or French as their daily languages. Whenever scientific and technological institutions were organized in these countries, they would work as field stations of European institutions. Their intellectual, and often financial sources of support were in Europe, their research agenda was set at the centre, and the knowledge they eventually collected from their societies and regions was shipped out and accumulated in European capitals.

This alienation of local culture and values was only the superficial side of a subtler reality. Established in foreign soil, populated by persons with different social backgrounds, European scientific institutions translated into local cultures in wholly unexpected ways. In Europe science was usually associated with upward mobile middle sectors, or emerging elites⁷; in non-Western societies, it would be often associated with the upper strata, and translated into just another dimension of status. In this process, the very contents of Western science changed: it became often ritualized, bureaucratic and theoretical in the bad sense of the word, losing the practical, tentative and experimental elements which are present whenever empirical knowledge thrives.

From the vast literature on the adaptation of Western science to non-Western societies it is possible to derive a few theories used to explain the most important differences. Japan and India are often presented as the best examples of a first theory, linking science to colonialism⁸. In Japan, Western science was an instrument of national self-assertion and independence, while in India it came with colonial subordination; this would explain why Western science was so much more effective in the first than in the second case. With India's independence, however, Western science was adopted by the Congress Party as a key element in the construction of a modern and secular state. At the time, India's scientific capabilities were higher than Japan's; the benefits for society and the economy, however, were much smaller than expected.

This is where cultural explanations enter. Japanese culture is supposed to have the

⁷The association between modern science and rising social groups is a central tenet of Max Weber's theories on rationalization, adopted by Robert K. Merton in his dissertation on science in Seventeenth-Century England, and expanded systematically by Joseph Ben-David in *The Scientists' Role in Society - A Comparative Study*, Englewood Cliffs, N. J. Prentice Hall, 1971.

⁸Some of the earlier publications on Indian and Japanese modernization include the volumes edited by Donald H. Shively, *Tradition and Modernization in Japanese Culture* (Princeton, Princeton University Press, 1971) and Edward Shils, *The Intellectual between Tradition and Modernity* (The Hague, Mouton & Co., 1961). For a comparison, see S. Schwartzman, "La Ciencia, la Tecnología y las Universidades en los Países en Desarrollo", in Ivan Lavados Montes, editor, *Universidad Contemporánea: Antecedentes y Experiencias Internacionales*. Santiago: Corporación de Promoción Universitaria, 1980.

functional equivalent of the Protestant ethics, and an old tradition of combining local customs and values to foreign (in the past, Chinese) culture and technology. In contrast, India's culture was contemplative, and knowledge was at best an instrument for understanding, not for action. Thus, Japan was ready to absorb applied Western knowledge, stripped from the world views, values and attitudes associated with it. Westernized Indians did precisely the opposite. They absorbed Western science as a new way of knowledge and world view, but not as a practical instrument for social change and transformation.

The third explanation deals with the social groups that linked to Western science in each society, and their strategies of social mobility and self-preservation. In Japan, it was an old warrior class, the Samurai, now engaged in a movement of self-assertion linked to a project of reorganization of the nation state, after a long period of feudal decentralization and isolation. In India, it was an old aristocracy, the Brahmins, trying to preserve its positions of power and prestige in association with the colonial administration. In Latin America, Western science and European liberal ideologies were absorbed by the local elites early in the 19th century as a reaction against the Iberian colonial powers and the Catholic Church. Local versions of the Japanese Samurai and the Indian Brahmin, the emerging and the traditional aristocracies, fought for the prevalence of technical versus humanistic culture, sociological interpretations versus legal formalism, and, occasionally, applied knowledge versus academicism. In Brazil, positivists, strong among young military officers and engineers, carried the flag of technical education and rational government, and opposed the creation of universities and the introduction of modern physics in the schools of engineering⁹.

The fate of Western science and technology depended on the links of local, Westernized elites with their societies, and on their capacity to participate in a much broader process of social, political and economic transformations. After the Second World War, the amount of money spent on technical assistance programs carried on by governments and private foundations to the developing world reached several billion dollars¹⁰, ranging from complete failures, like the attempts of the Rockefeller Foundation to strengthen the National University in Zaïre, to relative success, such as the Ford Foundation support to the University of Chile in the 1960's, or the Rockefeller project of

⁹See, for Brazil, S. Schwartzman, *A Space for Science - The Development of the Scientific Community in Brazil*, University Park, Pennsylvania, The Pennsylvania University Press, 1991, chapters 4 and 5.

¹⁰In the 1960s and 1970s the Rockefeller Foundation expended over \$135 million for university staff development and institution building in developing countries. "For the same purpose, starting early in 1950s, the U. S. Agency for International Development spent more than \$1 billion - indeed, at one point it was sustaining more than 75 universities; the Ford Foundation spent more than \$250 million ; the British Inter-University Council for Higher Education Overseas was a vital source of support for an array of new universities in former British colonies; and as part of its billion-dollar-a-year aid program, the French government was providing virtually all support for new universities in Francophone Africa". James S. Coleman, "Professorial Training and Institution Building in the Third World: Two Rockefeller Foundation Experiences", *Comparative Education Review*, 28, 2, May, 1984.

medical research and education in Thailand.

It also depended, although to a lesser degree, on whom the promoters of knowledge transfer and assistance were. In some cases, it was done from government to government, bureaucracy to bureaucracy. Most of the money probably followed this path, and was usually the least productive. Some of it came through technical assistance consulting firms, with unknown consequences. The successful cases were those in which significant sectors the West could link directly with their counterparts in the South, often with the support of a private foundation and the mobilization of local resources. In these cases it was possible to create "epistemic communities"¹¹, networks of scientists and researchers sharing common views and interests, and striving to define the agenda for international cooperation in their own terms.

Success stories, however, were always limited at best. In Thailand, the Rockefeller-supported university remained limited to the Chinese population, and failed to play a broader, regional role¹². Another success story was the association between MIT and the Institute of Aeronautics Technology (ITA) in Brazil, which led to the establishment of one of the best engineering schools in the continent, an advanced research centre and an aeronautics industry. In the nineties, however, much of the old luster of ITA waned, and the aeronautics industry is nearing bankruptcy. In general, science and technology proved much less powerful than expected to change the conditions of society, and this helps to explain the current stage of skepticism regarding the ambitious projects of the past¹³

International cooperation in times of globalization and retrenchment.

The end of the cold war marks the culmination of a transition in the area of international cooperation which was taking place since the early eighties. It is not important, any more, to use technical assistance and international cooperation to keep developing countries away from the other block. But the transition started earlier, with the growing scepticism about the role of technical assistance and international cooperation to foster economic development and democracy in many developing regions.

Internal difficulties in the United States and in many European countries made

¹¹Peter M. Haas, "Introduction: Epistemic Communities and International Policy Coordination", *International Organization* 46, 1, Winter 1992, 1 - 37 (introduction to a special issue dedicated to the subject of epistemic communities, edited by Emanuel Adler and Peter M. Haas).

¹²This is analysed in detail by James S. Coleman, *op. cit.*

¹³For inventories of the impact of science and technology in Latin America, see S. Schwartzman, "The Power of Technology", *Latin American Research Review*, 24, 1, 1988; and Hebe M. C. Vessuri, "O inventamos o erramos: the power of science in Latin America", *World Development* 18, 11, 1543-1553, 1990.

them much more inward looking, and resistant to international cooperation, than in the past. The ascension of neoliberal ideologies placed governments under suspicion, and led to growing disbelief about the effectiveness of international cooperation and the role of multilateral institutions such as the UN and its organizations. Questions of proliferation of atomic and other strategic weaponry, the difficult negotiations of international debt, the programs of economic adjustment demanded and supervised by the International Monetary Fund, the pressures for enforcement of patent rights, free trade and the protection of foreign capital, and the efforts to limit the international production and smuggling of drugs to the developed countries, all these issues tended to place the relations between North and South in much more adversarial terms than in the past. The mobilization of third world countries to pressure for concessions and binding agreements in multilateral forums (from the United Nations General Assembly to the Rio de Janeiro summit on the environment) reinforced this trend. In many places, international cooperation was transferred to the private sector, and reduced to the search for new trade and investment facilities abroad, or to the creation of new opportunities in a booming market of international consulting.

The new international context is leading to a complete change in the actors involved in both sides of the cooperation link, and in their interpretation of what is taking place. In one extreme, hard-nosed government and business-oriented organizations seek to bypass the academics and link to productive, profit-making partnerships with local business interests. On the other, social-minded government agencies and militants of non-governmental organizations associate with local leadership willing to carry the banners of anti-poverty, minority rights and social empowerment.

The new actors, and some of the old ones in new robes, have their agendas shaped by social movements which are relevant to their own societies, and work to press their views and perspectives on other countries, in issues like human rights, poverty, population control, racial and gender equality, environment protection and grass-roots political participation. Most of these issues are universal today, and organizations such as International Amnesty and Greenpeace play important roles in making them more central to anyone's agenda. But the promoters of the new forms of cooperation do not know, and do not care much anymore, about long-term issues like institution building, scientific and technological development, educational reform and many others of the previous years.

In both cases traditional scientific communities are bypassed, and the new theory is that this is as it should be. Among policy makers, inspired in the "Asian miracle", the old linear model of science production and diffusion, from basic to applied, is now being replaced by a "reverse linear" perspective, which assumes research and higher education to be a byproduct of industrial modernization. For the militants on both sides, academics are at best irrelevant to their societies, and at worse users of scarce resources, and an obstacle to the empowerment of the dispossessed.

It is unlikely that these new forms of international cooperation will produce better

results than in the past. The South Asian countries developed as they did not primarily from the way they introduced technology in their productive system, but because broader factors, such as the active role of government, heavy investments in basic and secondary education, externally oriented economies and deep social reforms, introduced in some cases during or after periods of war. Without these conditions, industrial modernization in developing countries is likely to be limited to small and even shrinking enclaves of modernization, with little spillover to the rest of society. If the internal conditions are not appropriate, even the best-intended programs of assistance and knowledge transfer can backfire, and wind up strengthening local structures of inequality and stagnation.

The future: interdependence and partnership

North-South International cooperation has to be placed on a different footing, and there are indications that this is already beginning to happen. The basis for the new forms of cooperation is the growing interdependency and proximity between the countries in the world. The South always depended on the North for many things, from trade to technical assistance and access to knowledge and information. But, for the North, poor countries in the South were often treated as distant entities, sources of raw materials and cheap labour, markets for export goods, infidels in need of conversion, nasty governments in need of containment, or poor people in need of help. Now, they may still be many of these things, but their population spills to the developed world, deforestation contributes to global warming, local crises can affect international trade, and situations of misery and violation of human rights are present in anyone's living rooms through global television.

The task for the promoters of these new forms of international cooperation is to find the areas and issues where true interdependency exists, and try to build institutions, programs and activities which addresses these issues, and attracts the interests of all parts involved. Institutions geared to international cooperation should get acceptance and respectability, and this requires that they steer away from the two extremes that still sets the done in this period of transition: the ill-disguised advocacy of local interests and the ideologically-minded, interventionist approach. It is not that self-interests are illegitimate, or that the ideological issues are irrelevant. What is wrong with these approaches is their ethnocentrism, which leads to the inability to perceive the others, and to establish fruitful, long-lasting and trusted relations of partnership.

Truly cooperative undertakings require stable, competent and reliable patterns on both sides. The task for countries in the South willing to participate in this new pattern of cooperation is to create and guarantee the quality and competence of the institutions and groups which should become the local basis of international exchange. Given the differences in wealth and competency, these North-South links will never be fully symmetrical regarding resources and knowledge transfer, but they should be as symmetrical as possible in terms of the genuine effort of each side to understand the needs, the conditions and the perspectives of the other.

This new partnership should be much more modest in its ambitions than in the past, and based on a deeper knowledge of the social and cultural characteristics of the nations involved. Nobody believes anymore on the power of scientific and academic knowledge to change societies, when broader economic, political and social conditions are not present. When these conditions exist, however, access to world-class knowledge and technical cooperation can be crucial. Ultimately, the key to success in the whole adventure of international cooperation lies not in the hands of the givers, but in those of the receivers.