

SCIENCE MINISTER

## Informatics law and disorder

### São Paulo

DÉCIO Leal Zagottis is Secretary of State of the Special Secretariat for Science and Technology of the President of the Republic of Brazil. Had he taken office last year rather than this, he could have done the same job and been simply Minister of Science and Technology; the cumbersome title is the result of a political battle for control of the ministry during the first few months of this year.

The opening broadside came in January with the sudden announcement that the Ministry of Science and Technology was to be abolished and its functions shared out among other ministries.

At the same time, the president agreed to wrenching cutbacks that reduced science and technology budgets by half and would have led to the dismissal of 40 per cent of research staff at CNPq institutes. But the surprise attack was motivated not just by the desire to save money; in the vanguard of the charge were those who opposed the ministry's controversial informatics law.

As it turned out, the abolitionists did not prevail. Congress rallied to the ministry's cause and three months later it was back, albeit under a new title which left it with a little less weight than a full ministry. And Zagottis, whose support for the informatics law is well known, was appointed to head the new agency.

The controversial law was passed in 1984 to foster the local production of computers, software and peripherals by reserving the Brazilian market for 'national' companies, that is, those that are Brazilian-managed and at least 70 per cent Brazilian-owned. The law has been bitterly opposed, both by the United States which sees it as restricting access by its giant computer companies, and by local industry which sees it as forcing up its own costs by making it buy higher-priced lower-quality Brazilian equipment.

Zagottis, a professor of engineering at the University of São Paulo, entertains no doubts about the effectiveness of the informatics policy. Brazil began at the same level as Mexico, but Brazil now has an industry of 60,000 employees, twenty times larger than Mexico's, and supplying over three-quarters of the nation's computers. "Informatics is connected to so many other fields, it is a strategic economic area which must be protected", he says. Protection is intended to come to an end in the early 1990s, to ensure that an inefficient monopoly does not develop.

Zagottis does not think the same policy will work in other high-technology areas. "You cannot have a market reserve policy for biotechnology", he says, "because you cannot do reverse engineering in biotechnology." In other words, while it may be

possible to clone an IBM by 'reverse engineering' (IBM engineers might call it 'copying') it is not possible to clone a genetically engineered drug.

The immediate threat to the informatics law was nullified by the revival of the ministry, but the damage to the science and technology budgets could not be so easily repaired. For almost three months of turmoil, there had been no one to fight for science and technology. Some research institutes, such as the National Institute for Amazonian Research (INPA), that are directly attached to the ministry saw their budget appear in one agency, disappear, appear in another and then disappear again. The result is that they still do not have proper budgets for 1989. Massive cuts for the National Research Council, CNPq, and for the project research agency, FINEP, cannot now be fully restored.

Although it is too early to say what may happen after a new President of Brazil takes office early next year, Zagottis expects that the government will have no long-term investment capacity in the next few years. His solution is to turn to the World Bank and the InterAmerican Development Bank (IDB) to tide Brazil's scientific enterprise over the next next few years. Two big loans are under negotiation: one is a World Bank loan of \$330 million to continue the Programme of Support for Scientific and Technological Development (PADCT), the other an IDB loan of \$1,000 million over five years to support an integrated science and technology plan.

Zagottis says the idea is to use the money to "allow construction of new buildings for research centres, new laboratories and equipment and to train researchers and technicians". The World Bank is, however, not especially pleased with the handling of funds loaned to Brazil for PADCT I, six years ago. An official team sent to examine progress reported at the end of 1988 that if difficulties delaying the projects "are not solved urgently, they may also create serious difficulties in the renewal of the PADCT loans". Sluggish administration, "excessive" and "unjustified" delay in importation procedures, and the "enormous devaluation of allocated resources due to the current inflation rate if the money cannot be spent very quickly" were the principal complaints.

The importation delay for foreign equipment and materials is a terrible

problem. Four-year delays are not uncommon. Zagottis claims that a new law will soon complete changes already under way and ease the import problem. Responsibility for import procedures is being devolved to big universities from CNPq, which was exceedingly slow in handling requests. But there are, as Zagottis says, "problems lower down the hierarchy"; the requests must still pass through CACEX, the import control agency, whose bureaucrats mete out the same treatment on imports worth \$100 or \$1 million and insist on evidence that there is no Brazilian substitute.

But imports are just an irritant compared with the fundamental problem of lack of investment. Brazil spends only 0.7 per cent of GNP — a sum of \$2,500 million — on science and technology, as against the 2.5–3 per cent spent by the industrialized countries (\$150 million in the United States). Zagottis points out that 80 per cent of the money spent by Brazil on science and technology comes from the government, a far higher percentage than elsewhere. If Brazil can boost industry's contribution, then 3 per cent of GNP might be possible for Brazil too. Zagottis backs a short-term rise to 1 per cent of GNP by the government, followed by a steady series of small rises,

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Special secretary for Science and Technology Zagottis supports reserving the Brazilian market for nationally produced computers.

always a little above the rise in GNP. The first goal, he says, is 2 per cent by 2000.

For this to happen, a national plan is needed as well as political stability, not something Brazil seems set to enjoy. Increases in investment by industry will only come from a well thought out programme of tax incentives. At present, it is more profitable for industry to license foreign technology than develop their own. But a failure to act could jeopardize what has been achieved so far. A key strategy has been to send people abroad for advanced training — that is where a large part of CNPq's money goes. As Zagottis says, "There are 7,000 students taking PhD courses outside Brazil; if they don't have a place to come back to they will leave Brazil permanently" and the effort will have been wasted. □

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