

## Building Argentina's infrastructural base

The key to any economy's development is sustained growth in productivity, and the key to productivity growth is *infrastructure*: the energy, the transportation grid, the control and development of water resources, and so forth. In Argentina, the greatest obstacle to development is population shortage and imbalance. Development therefore depends on major infrastructural projects to integrate and populate the entire country. An annual growth rate of 10-13 percent range can be achieved throughout the 20-year period.

EIR studies have come up with the following economic map of a developing Argentina:

**Northeast:** huge dam and hydroelectric projects in the Paraná River basin, where projects are now delayed, to supply the bulk of Argentina's electrical energy growth through the year 2000.

**North central:** the now depopulated Chaco-Formosa region will be given over to agriculture, as water is diverted west from the Paraná basin to irrigate this semi-arid region.

**Northwest:** natural gas, iron ore, and other minerals development to provide the basis for heavy industrial siting.

**Tucuman-Santiago del Estero:** expanded agriculture,

mining, and heavy industry.

**Mendoza:** petroleum and agriculture.

**Neuquen:** hydro-electric and natural gas projects.

**Rio Negro River Basin:** agriculture, metallurgy, and iron ore.

**Tierra del Fuego:** wool, wood, gas liquefaction, petrochemicals, and fishing.

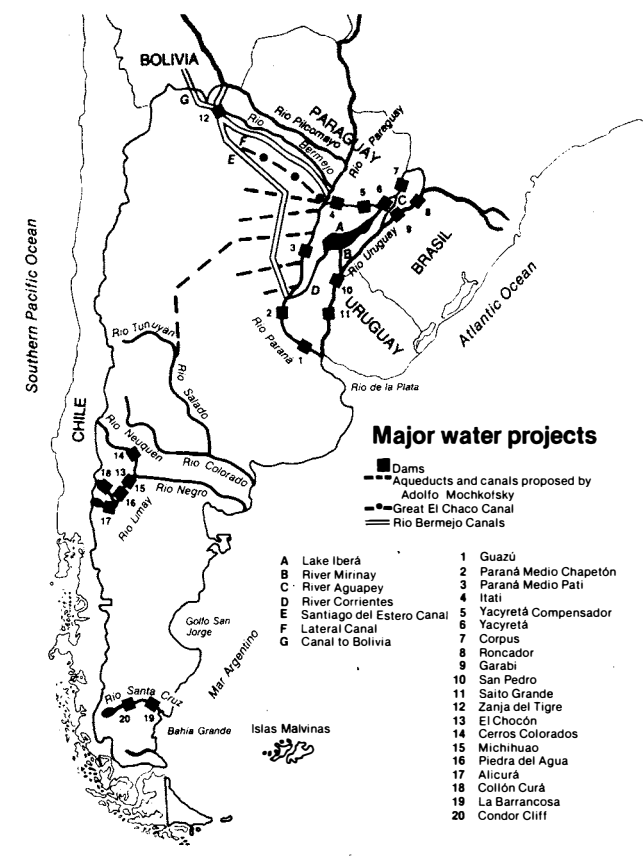
Large nuclear-energy projects will be required in all but the north central and Neuquen regions to permit such development. The centers of industry will remain those in the area of the "pampa humeda," including Córdoba, Rosario, and Bahia Blanca, while Buenos Aires maintains its status as the center of the nation's economy. However, more and more primary and secondary processing of mineral and agricultural products will be located in provincial sites where they are produced. More advanced industries will predominate in the established centers.

The enormous hydroelectric resources of the Paraná River system have been much studied, and eight major national and binational projects are under way or slated for construction before the year 2000. Today, they all face serious delays. This year's tragic floods emphasize the importance of completing these projects as rapidly as possible, and supplementing them with flood-control works. Apart from energy, these projects will give a great boost to water transportation. The city of Resistencia, in the northeastern province of Chaco, will become a major port, enabling ships to travel all the way up to the confluence of the Paraguay and Paraná rivers.

An important component of Paraná basin development is westward diversion of water to irrigate the arid and semi-arid regions of Chaco, Formosa, Santiago del Estero, and others. Two major canals are proposed. Tens of millions of hectares of land can be added to agriculture or cattle-raising. This north central region is one of the least populated areas of the country; with proper water control, it could sustain a population above 10 million, and very large agricultural and cattle industries.

The largest expanse of rich, well-watered soil is the area known as the "pampa humeda," 50-60 million hectares. However, most of the pampas is devoted to cattle-raising rather than agriculture, a very low-value utilization of rich soil. The optimal policy is to transplant the cattle industry to less fertile areas, and devote almost all the pampas to agricultural production, augmenting grain production by 100 percent by simply doubling land currently under grain cultivation, and properly fertilizing and mechanizing it.

Neuquen province in the north encompasses the southern-Andes-fed Neuquen and Limay rivers. Hydroelectric projects completed here already supply a major component of Buenos Aires's electricity requirements. Future projects will more than double the 1,600 GWH installed, with much of it being exported north, and also providing the basis for industrializing and populating the southern Cordillera region. The province also has abundant natural gas and petroleum deposits; natural gas is estimated at 447,000 million cubic meters with



more yet to be found. This should not only be tapped, shipping most of the gas out of the province, but made the basis for a petrochemical and fertilizer industry supplying vastly expanded agricultural activity in the pampas and elsewhere. There is also the basis for a strong forestry industry in 2 million hectares of good forest land stretching to the southern tip of the country. Transportation will be required to foster lumber, wood products, and pulp industries.

The key is "nuplexes," nuclear-centered agro-industrial complexes, utilizing both energy and process heat from, initially, high-temperature gas-cooled reactors. *EIR* has proposed location of such nuplex facilities in the pampa humeda, at least six (three more plants than now scheduled): Resistencia-Corrientes, a twin-plant complex; Jujuy-Salta, one plant; Tucuman, one plant; Mendoza, a twin-plant nuplex; San Antonio Oeste, one plant; and Tierra del Fuego, two plants in Ushuaia.

## Argentina can advance world science research

Argentina, with its relatively large nuclear industry and highly skilled workforce, is uniquely positioned to become a world leader in scientific research. Argentina should become capable of independent development of new technologies, and independent discovery of new scientific knowledge.

To accomplish this requires:

1) Creation of a handful of world-class scientific institutes, functioning as research institutes responsible for new basic research as well as technological applications, and education of scientists to function as teachers, consultants, and field researchers for industry and agriculture.

2) Upgrading of higher scientific education at all universities, and establishment of a National Polytechnic Institute with branches in all major population centers.

3) Encouragement of new technologies in industry and agriculture, with the example of the U.S. Agricultural Extension Services foremost in mind.

There are four areas in which Argentina could make a major scientific contribution:

**Advanced nuclear technologies:** Argentina should expand its nuclear commitment to embrace the high-temperature gas-cooled reactor, or HTGR, with its higher fuel and thermal efficiencies and benign safety and environmental properties, which make it ideal for "nuplex" facilities. The country should also expand its nuclear materials research.

**Laser and plasma technologies:** Argentina must engage in this research now, so that by 1990, when such technologies *must* be introduced, the country will have the knowledge, manpower, and resources to invest in them. Laser isotope separation; magnetohydrodynamics (MHD) using natural gas, fusion, and laser; and plasma metalworking are areas for which a basic research institute should be established.

**Agriculture and hydrology research:** Argentina sits astride one of the world's great river basins, the Río de la Plata. The study of tropical hydrology, irrigation in middle latitudes,

and livestock science (accelerated twinning, etc.) are areas in which the country is especially well positioned.

**Meteorology and oceanography:** The dynamics of global climate indicate that the interaction between large masses of water like the South Atlantic and neighboring rain-forests are the most intense energy sources for driving long-term change in the world's climate. Argentina's unique geographical position in the Southern Hemisphere enables it to study new theories of global climate formation, in which the absence of long-term, accurate data for the Southern Hemisphere is the greatest obstacle. Argentina's long Atlantic coastline, exposure in the far south, and its South Atlantic and Antarctic territories, mean that no one is positioned better for this. A major world research center in the Tierra del Fuego region would be the center for observation and research stations gathering the large mass of water and atmospheric data necessary for climate study. The project would be enhanced by collaboration with Brazil, and the combination of the Argentine and Brazilian rocketry and space capabilities, making it a complete data gathering and reduction project.

Scientific advance is the essence of national security, and a high priority should therefore be placed on the involvement of the Argentine Armed Forces in these scientific projects. This provides the proper basis for the integration of the civilian and military aspects of Argentine society, in a way in which each is contributing maximally to the nation's development.

