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Third World Industrialization, Advanced Sector Exports

A Program For Colombia, Venezuela And The Caribbean

The following draft of a regional industrialization program for the northern tier of South America and the Caribbean is now being circulated in Colombia by the Andean Labor Party, cothinker organization to the U.S. and European Labor Parties, and forms a part of that Colombia-based party's political platform.

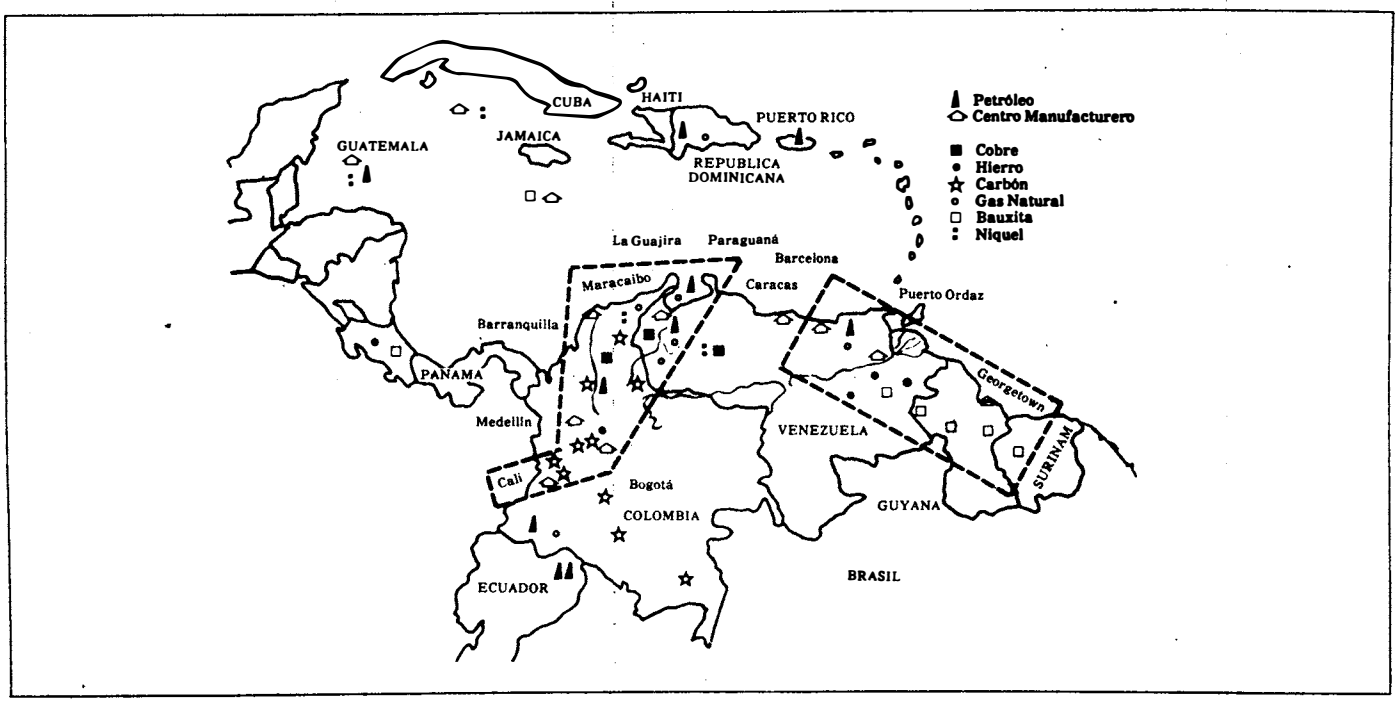
Our publication here of the Andean Labor Party platform is intended to provide prodevelopment forces in the U.S. and other advanced sector nations with a concrete picture of the opportunities for high-technology capital goods exports and expanded trade with this part of Latin America, opportunities that will be available once the world political climate is properly shaped to permit such southern hemisphere development projects.

A bare minimum of $40 billion in capital goods alone will be required during the first five years of this regional industrialization plan. This does not include the vastly expanded requirements for imports of food and agricultural technology, and other emergency *interim imports that the successful carrying out of this plan would presuppose. Taking these into account, the region's increased import demands will be on the order of $10 billion per year — and growing. This is a market potential which no growth-oriented industrial, government or labor leader in the advanced sector can afford to ignore.*

I. The Program

The purpose of the Regional Industrialization Program proposal of the Andean Labor Party (PLAN) that follows here is to make the region once known as Gran Colombia — today, the nations of Colombia, Ecuador, Venezuela, Guyana, and Surinam — and the neighboring Caribbean Islands into a modern, integrated industrial zone, enjoying a cultural and material standard of living equal to or better than that now experienced in advanced sector nations.

The Gran Colombia-Caribbean region has enormous reserves of bauxite, iron ore, coal, and oil, and a vast hydroelectric energy potential that suit it to become one of the world's major metallurgical and petrochemical production centers. Nearly one-third of the area's 20.5 million-man workforce is located within the political boundaries of Colombia. This population lives on top of the 12th largest reserve of coal in the world and on, or conveniently near to, massive iron ore resources. These circumstances dictate that the western industrial corridor (see map), including all the major cities of Colombia, focus industrialization efforts on steel production and related downstream industries, while the eastern corridor concentrates on aluminum products.



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Plastics and petrochemical production will be distributed throughout the area, as is the supply of crude oil.

Within five years, the western corridor can and must move from its pitiful current crude steel output of 400,000 tons to at least a 14-million ton capacity, coming out of two large, modern and fully automated 7-million-ton plants, together employing 35,000 workers. The skilled and semiskilled blue-collar workforce must grow by at least 20 percent per year, permitting an overall national economic growth rate of 25 to 30 percent. In Colombia alone, 1.5 million new family housing units must be built to accommodate this new workforce, with an ongoing housing construction capacity of 1 million family units per year, or an equivalent mix of housing and other types of construction. To reach an advanced sector level of electrical generation capacity of approximately 1 gigawatt per 1 million population (Colombia now has about one-seventh of that) will require an energy growth rate of 40 percent per year, carried out over five years and focusing on nuclear energy sources.

The most difficult problem in achieving these ambitious goals is how to create a skilled labor force rapidly enough to carry out the program.

II. A National Industrial Development Bank

The basis for financing an industrialization program of this scope is the concept of a national bank, precisely as that concept was first elaborated 200 years ago by United States Treasury Secretary Alexander Hamilton in the fledgling years of the American Republic. It is fitting that the ideas of Hamilton, who was born and raised in the British West Indies and became one of the most distinguished native sons of the Caribbean, should finally contribute to the industrialization of this region.

A Colombian national bank chartered on Hamiltonian principles will serve to concentrate the nation's available capital surplus for investment on a scale that private enterprise cannot hope to accomplish on its own.

The credit and loan policy of such a bank will be directed to provision of direct credit for the expansion and improvement of the nation's industrial, agricultural, scientific, technological, and infrastructural resources.

The bank will have a policy of cheap and plentiful credit for capital-intensive industrialization projects and related investment in efficient food production and provision of necessary social services. But no credit for slave-labor "employment creating" schemes of the sort typified by the current Colombian National Development Plan — no credit for speculation. Credits for genuine industrialization projects shall bear interest at 2 percent to cover the bank's administrative expenses.

Between Colombia and Venezuela, there is now a positive foreign reserve balance of over $10 billion. These funds are more than sufficient to form the seed capital for either an integrated regional development bank, or of separate national development banks capable of generating the required initial financing for industrialization. As the last section of this program elaborates, roughly $40 billion over five years will be required to cover the basic direct capital costs of industrialization.

The $10 billion in combined Colombia-Venezuela reserves is properly viewed as the *seed capital* for financing the industrialization effort. The national bank would invite additional investment from private capital sources.

The prevailing view among economists that Colombia's coffee bonanza has been at best a mixed blessing is true only if the country fails to seize on the fortunate circumstance of a $1.8 billion foreign reserve, to form a national industrial development bank, or a regional entity jointly with Venezuela.

The other principal source of long-term development financing should arise from a healthy competition among advanced sector development banks such as the U.S. Eximbank and its counterparts in West Germany, Japan, and the Soviet Union.

III. The Three-Staged Development Plan

Once such a bank is established, the region will be in a position to purchase masses of high-technology capital goods and other essential imports from the advanced sector. How will they be used, where, and by whom?

The answer can be found only by starting from a conception of how the region must look at some future point, say 10 years from now, and from there work backwards to what is necessary at each previous stage and what problems must be solved to get there.

We will look primarily at the western industrial corridor which includes the major industrial cities of Colombia (Bogota, Cali, Medellin, and Barranquilla) as well as the Maracaibo region of Venezuela. This is the part of the region where large-scale steel production, and the metalworking and metal machinery industries downstream of the steel process must be given the most emphasis. It will require a working class that is well-fed, housed, and clothed. More highways, railroads and ports to move the raw material and finished goods will be needed and vastly more electrical energy both for industry and household consumption.

Housing and Skill Levels

Accomplishing these goals will require the development of a large, skilled workforce, which does not now exist. The workers and potential workers are there among the population of nearly 25 million, but the high skill-levels are lacking. Education and on-the-job training with foreign skilled workers and a cadre force of the most developed native workers will be necessary. But still more is needed. By the 10th year, nearly 50 percent of the workforce must have developed into a modern blue-collar workforce approximating skill levels of a more developed country. Without this, none of the other goals can be achieved.

For modern labor to be productive over the long term, and to be capable of reproducing and enlarging its skill levels in the next generation, it must not only learn the work routines, but also enjoy a material standard of living allowing sufficient recreational and cultural leisure-time activities to truly become human. What is the difference between two production-line autoworkers of approximately equal skills, one living in Brazil and the other in Detroit? Their time spent on the job may look

very much the same, but off the job it is different. The U.S. auto worker is able to buy much more with his wages, the largest component being decent housing. The difference between our plan and the type of industrialization that is exemplified by Brazil, and to a lesser extent Mexico City, is, in large measure, the sums of labor and capital projected to be spent on maintenance of the human labor force in this broader sense.

How Many Workers?

Housing will be the largest single item that must be produced. Because of its size, it is quite expensive to import large quantities of ready-built housing and it is therefore best built domestically.

To build long-lasting high quality apartment housing units, providing a minimum of 25 square meters per person, 16 tons of cement and 8.5 tons of steel are required for each unit that is expected to house a four-person family. For wood housing of equivalent space, about 600 square meters of plywood per house is needed. In addition, one experienced construction worker and one semiskilled factory worker producing the materials are needed for every two housing units.

But on this basis, building 750,000 housing units a year in Colombia would exhaust virtually the entire supply of skilled labor in the country, leaving no one to work in any other activity. The materials requirements would amount to 16 times the country's current output of steel, or hundreds of times the current plywood production.

The most efficient way to get the housing built in this region will be to build the required steel and cement plants as rapidly as possible, and then make use of the output of these plants to supply the housing construction industry with its raw materials.

Using the modularized techniques practiced in the U.S., a modern cement plant can be constructed in less than six months. Large steel plants, however, will require three to four years to complete in Colombia, even using the most advanced Japanese engineering techniques. After three years, a little over half of full production could be accomplished, and full production only after four. Planning, then, on two steel plants of 7 million tons capacity each, the program projects roughly 8 million tons total steel capacity coming on line by the start of the fourth year of the plan. By dedicating the majority of this fourth-year steel output to housing construction, it would become possible to begin a housing boom in the fourth year, building at a rate of 750,000 family units per year, thus providing housing for 3 million people within one year.

But this still leaves open the question of who will build them. Using modern conventional building methods, more than 300,000 skilled construction workers would be needed. But Colombia has only 250,000 construction workers now, and of these, perhaps one worker in 10 or 20 has developed the skills needed.

The solution is twofold. The skill levels of the construction workforce must be raised as rapidly as possible. But, since we are talking about a workforce made up in large part of workers with barely a grade school education and lacking experience in advanced construction techniques, it won't be possible within three years to bring them up to the levels required.

Therefore, the second measure will be to make use of modular construction techniques of the type used on a large scale in the Soviet Union and proven suitable for local conditions by the example of Cuba. In the USSR and at some sites in Cuba, complete reinforced concrete units roughly 6 meters by 12 meters in size, are put together in a factory, and much of the interior work installed before delivery. These "building blocks" are trucked to the construction site, stacked on top of each other and welded together to form complete structures. By use of modular construction methods, the productivity of the construction workforce is magnified 25 times.

Thus, 12 to 15 thousand highly skilled construction workers backed up by 60 to 75 thousand "housing factory" workers, about 15,000 steelworkers, 12,000 cement plant workers, and an array of other supply industries, truckers, and administrative personnel, can build enough housing for 3 million people in one year.

Before the Housing Boom

The most important activities of the first three years of the program — before there is enough steel for large-scale housing construction — will be, again, construction. Among the required projects will be: two huge, fully integrated, 7-million-ton-capacity steel plants, a dozen cement plants of half million ton or greater capacity, four or five large modular housing plants, and all the highways, railroads, port facilities and other infrastructure that will be required to move the raw materials and finished products of the new industries. In addition, construction will have to begin on a vastly increased electrical production and distribution grid, and as much emergency housing as possible.

In all this activity, it will be necessary to use the most advanced equipment and techniques available, both to get the job done fast and to provide training in the modern construction skills the workforce will need *in later stages of the program*. As many foreign skilled construction workers as possible must be encouraged to come to the country to provide on-the-job training. At the same time, nearly the whole workforce must be engaged part-time in educational activity, while cadre groups of workers will undergo specialized training in particular fields.

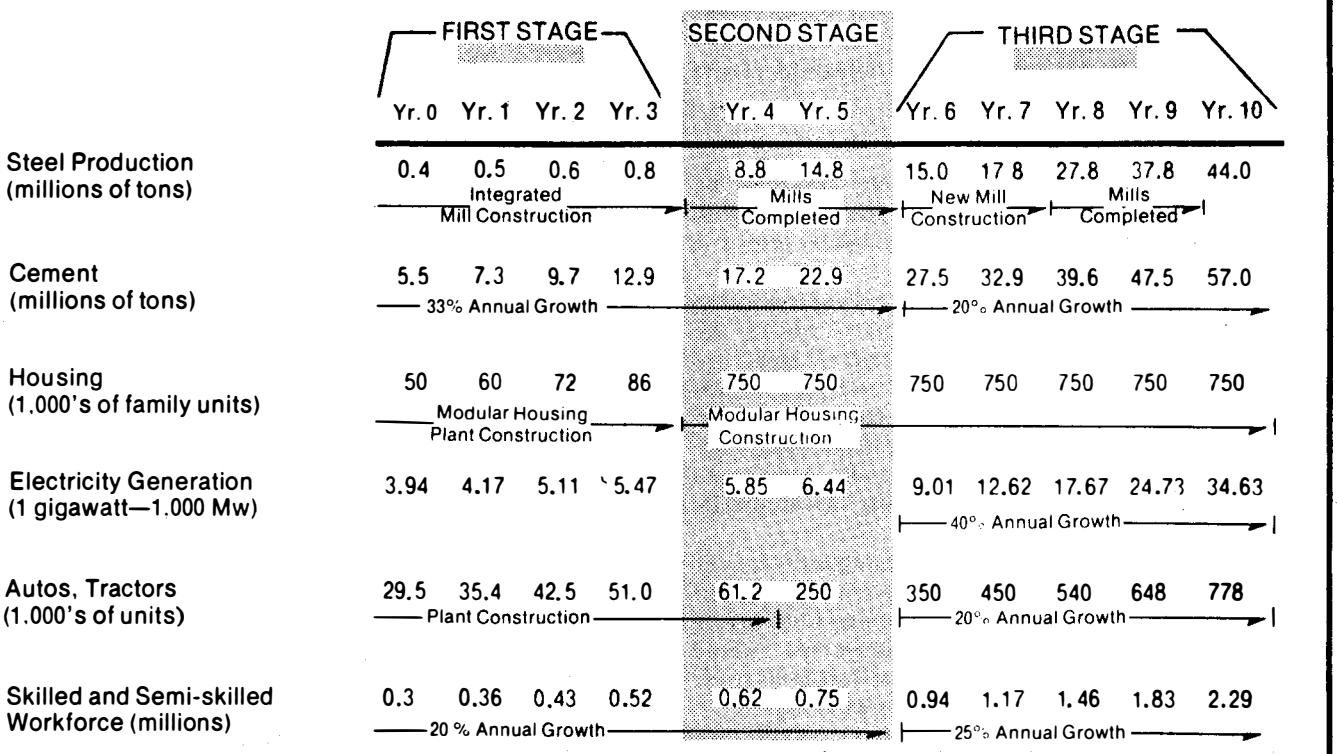
Where Will The Workers Come From?

Only 22 percent of Colombia's total workforce is made up of blue collar industrial, construction and transportation workers. The same proportions hold true for the rest of the region. Of this amount, only at most 300,000 (less than five percent) can be considered skilled or semi-skilled workers who have achieved at least a tenth-grade education or its equivalent, and some familiarity with modern industry.

To supply the hundreds of thousands of skilled workers which the new industry will require, will be a race with time.

In our favor is the reasonably high literacy rate of 78 percent in Colombia, and the fact that its workforce as a whole is urbanized, highly politically conscious, and holds education in great esteem. These are factors which contribute to the workforce's ability to absorb new skills quickly. The program projects a 20 percent annual growth rate for the skilled and semiskilled section of the workforce, increasing to 25 percent annually after five

Three-Staged Development Plan For Colombia



years, when it is anticipated that the effects of the housing construction and other social measures will first begin to be realized in a qualitatively improved population.

New skilled and semiskilled workers are added to the workforce gradually — 60,000 the first year, 70,000 the second year, and 86,000 the third (see chart). This is not the number of new jobs created — there will be far more — but represents the more critical *rate at which new skills have to be absorbed.* These more skilled workers will both come up from the ranks of the already existing workforce, and from the many already educated but unemployed layers, and new graduates from high schools.

Among the unemployed in the seven largest cities, there are 126,000 who have had some level of secondary education. Some of these will rapidly be able to become skilled workers along with many of the 150,000 students now in high school.

IV. Energy and Industry

Nuclear power must make up at least one-third of the 30 gigawatts of installed electrical generating capacity to be constructed in the western corridor during the first 10 years of industrialization. For inland cities such as Bogota, which will be the site of massive industrial growth, the Nuplex concept will be applied.

A nuplex is a fully integrated, modern, residential-industrial complex which is built right around a large nuclear generating plant — the safest and cleanest of all power systems. With a nuplex, the high cost of transmitting energy from distant hydroelectric sources is avoided, and there is absolutely no air pollution.

For the Caribbean Islands, which lack indigenous energy supplies, the solution will be the installation of one-gigawatt offshore floating nuclear plants of the sort contracted by the New Jersey Public Utilities Commission. Floating plants will also be able to supply energy for mainland port cities in the region, and even near-ports such as Cali. The mass production of such plants in the advanced sector must be a part of the world-wide fight for a high-technology export program.

The Transitional Source

As Table I shows, at current inflated costs for fossil fuels, nuclear light-water reactor systems are the cheapest means of producing a kilowatt of energy. When the inflated cost of fossil fuels is taken into account, the prices of power systems based on oil, coal, and nuclear fission power become approximately equal. In the Colombia-Venezuela region, where oil and coal are abundant, much of the electricity should be generated by these means. Hydroelectric power, which is frequently cheaper than any of the above methods, should also continue to be exploited.

It would be entirely wrong, however, to ignore nuclear power systems simply because this region has a good supply of oil and coal. The other crucial factor to consider is the transition to the next stage of power generation. Fossil fuels, after all, are finite and have important uses besides energy generation. Although exhaustion of fossil fuels would not become a problem

before the next century even at the high rates of energy generation required for a worldwide industrialization effort, new vastly more efficient energy generation methods are already on the horizon. By the year 1990, commercially available controlled thermonuclear reaction (fusion) systems should begin to replace

Table I
Comparison of Costs of Delivered Electric Power
(U.S.$ .001/kwh)

Energy Source	Cost at 1975 Fuel Prices	Cost at Non-inflated Fuel Prices
Oil	45.7	25.1
Coal	31.7	24.2
Coal Gas	55.7	24.2
Coal Liquid	58.8	46.3
Light Water Reactor	28.5	27.8
Light Metal Fast Breeder Reactor	33.9	33.7

Source: Burns and Roe Study, cited in *Campaigner Special Report No. 7.* Policy"

present systems. Fusion will not only provide unlimited energy using processed seawater as its fuel, but will allow for new materials processing technologies (e.g., the "fusion torch") which will eliminate all resource shortages for the foreseeable future.

By the time fusion systems become available, the region must have developed a core of scientists, engineers, and skilled workers who will be able to manage them. The best "training program" for such a skilled workforce is experience with current state-of-the-art nuclear fission systems, which will soon evolve into hybrid fission-fusion systems, then to full fusion. If nuclear power is not introduced now, the region would begin to fall behind the rest of the world in the 1990s, and fall back again into relative "Third World" status by the 21st century.

Energy and Steel

The keystone of the Stage One construction plans are the two modern steel plants, one to be located just outside the city of Bogota, the other in Maracaibo, Venezuela, which the program considers as integrally a part of the western industrial corridor. The Bogota location is ideal for steel production because the factors of production — raw materials, labor force, a transportation network — as well as much of the final demand are all concentrated here. Coking coal, the bulkiest raw material for steel, is conveniently located within 75 kilometers of the city, at Zipaquira. Major iron ore deposits surround the Paz del Rio complex to the north of the city, which is already connected by the Bogota-Belencito spur of the Ferrocarril Atlantico.

To handle the increase of traffic, this railroad must be upgraded and an extension built into the Zipaquira coal region.

The Japanese engineering firms which have the most advanced methods for steel plant construction in the world must be brought into the planning of Colombia-Venezuela steel plants from the very first day. Ironically, Japanese steel companies, which must import all of their coal, have already looked into the Zipaquira deposits as a possible source for their own industry. How much more sensible to use Japanese steel technology to build a plant right outside of Bogota, where the coal and iron ore are nearby!

The second major steel plant will be located in Maracaibo, Venezuela, a city of under one million population that will also see considerable growth in petrochemical processing industries. To fill in the labor shortage created when these plants open, the border will be opened to encourage immigration of skilled and potentially skilled workers.

Five hundred million tons of coking coal (enough to supply a 7-million-ton plant using the new Jordan steel process for 140 years), are located near Cucuta, Colombia, only 300 kilometers from Maracaibo. With suitable transport capabilities for the coke, possibly by way of the Zulia River down to Maracaibo, this will be an ideal location, and has already been studied by the Venezeulan government. Iron ore will come in by ship from eastern Venezuela's huge deposits of 2,500 million tons of some of the richest and most easily mined ore in the world.

"Nuclear Po

This will be one major aspect of the concrete realization of Colombian-Venezuelan integration advocated by key industrial figures and recently given eloquent expression by Venezuelan President Carlos Andres Perez (CAP) in an interview with Colombian radio. Said CAP: ". . . for me, the main problem in my country is to identify itself fully with Colombia; to eliminate all the circumstances which could become pretexts for differences between Colombia and Venezuela; because there is one inexorable reality; either we unite and accomplish the integration, or we will remain underdeveloped countries."

The Energy Bottleneck

Location of one of the two steel plants in Venezuela and integration of the Colombo-Venezuela border is absolutely essential from one last standpoint — energy supply. Production of 7 million tons of crude steel requires nearly half a gigawatt of electricity. If half of this steel is going to be fabricated, that requires nearly one gigawatt more of electricity. A look at the three-staged chart shows that by Year 5, when the first two major steel mills are completed, Colombia will have no electric power to spare.

This is not the result of any real "energy shortage" in the region. Colombia has 90 gigawatts of potential from hydroelectric sources alone. Nearly half the country is made up of potentially oil-bearing sedimentary formations, although exploratory drilling has been restricted to insignificant levels. New deposits of uranium ore are being charted at this moment, and coal is ubiquitous.

The only real energy problem is the no-growth policy imposed on the country by the World Bank, and far too complacently accepted by responsible officials. Basing their projections on so-called "demand curves," energy experts have planned for approximately a 7 percent yearly growth rate in the country's electrical generating capacity, when what is *needed right now* is a 40 percent growth rate. The fallacy in the method of determining

future energy needs by projecting energy demand curves into the future, is that it denies the very idea of development. Development, as the effect of *technology*, is inherently nonlinear. How could the transition from Third World misery to a modern industrialized economy possibly occur by plodding along at the present miserable rates of development? The World Bank's 7 percent yearly growth rate is in fact effectively a zero-growth rate. It will never allow the country to "catch up."

A competent industrialization program for the region must start by immediately planning for 40 percent annual growth rates in energy generation to continue for at least a five to six-year period. Unfortunately, there is a five-year *lead time* on construction of electrical generating plants — capacity planned now cannot become available for use until five years hence. Therefore, for the next five years the country is unfortunately locked into the inadequate 7 percent growth rates that have been tolerated to date.

This underlines the importance of waging the battle for energy development *now*, and on every front, including taking on the pagan zero-growthers and environmentalists who want to stop nuclear energy and all human development. Without massive rapid development of electrical generating capacity today there can be no industrialization tomorrow.

This is no less true for Venezuela. But Venezuela, a country with half of Colombia's population, is producing half again as much electricity. To get Colombia over the short-term electrical energy crunch that it will face in Years 4, 5, and 6, a strengthened interconnection at the Norte de Santander border with Venezuela must be established. This, in conjunction with the already-planned North-South interconnection in Colombia, should help to ease the short-term crunch.

V. How Much Will It Cost?

Although for Colombia and the Gran Colombia-Caribe Region the program means a fundamental transition from Third World backwardness to a human standard of living, in terms of capital requirements nothing that we have proposed begins to really burden the *actual capital goods export capacity* of the advanced sector, that is Western Europe, Japan, the United States and the Comecon countries. Using ballpark estimates, we see costs for the proposed principal capital construction projects over the first five years roughly as shown in Table II.

For the whole region, the Table II figures rise to a total of approximately $40,000 million in U.S. dollars, or $8 billion per year over five years. This represents regional requirements for *high-technology exports from the advanced sector.*

Table II
How Much Will It Cost?

(in U.S. dollars)

Steel (two 7-million ton mills)	$7,000 million
Electric Generation (10 gigawatts)	$6,000 million
Auto-Tractor Production (250,000 units)	$800 million
Cement Plants (20 million tons total capacity)	$65 million
Modular Housing Plants (750,000 units)	$750 million
Ports, Roads, Rails	$10,000 million
TOTAL	$24,615 million

The total cost of industrialization will be greater than this, since it will include such items as increased food imports for the growing workforce, capital for agricultural development, and provision of necessary social services. The proposed national bank will be able to fund some but not all of the total cost of industrialization. Additional loans from advanced-sector development banks, such as the U.S. Eximbank and its European and Soviet counterparts, will be required.

Long-term 5, 10, and 15-year development credits must be extended by agencies such as the U.S. Eximbank to buy the high-technology goods which the region will require. Generator turbines, bulldozers, cranes, machinery, and whole factories will be produced immediately with that money, which is then paid back over an extended time period. The ability to pay back is based on the augmented production capability that the investment has created.

Thus, Colombia's imported steel plant technology, for example, will be paid for either directly in exports of steel to the lending country, or indirectly through earnings made from exporting the new steel output to third countries, or by exports of other goods whose efficient production has been made possible by the overall industrialization.

In this way the imperialist looting cycle, in which foreign speculative capital is channeled only into extraction of mineral and agricultural wealth and low-wage, labor-intensive industry, will be broken once and for all and the dream of industrialization will become a reality.

—This program was prepared for the Andean Labor Party by Laurence Hecht