

Cuba: industrialized by the year 2000

Twenty years ago, Havana was known as the Caribbean playground for U.S. idle-rich. Narcotics and sugar were the economy's main economic components; gambling and prostitution the subcomponents. The streets of Havana were filled with an army of thieves and beggars.

Ninety percent of Cuba's population of 6.2 million were officially classified as illiterate or semi-literate. Over 80 percent were enslaved in mostly foreign-owned feudal plantations such as those operated by the United Fruit Co. (now United Brands) drug-running networks.

Nearly 70 percent of the island's population lived in inadequate housing—dirt-floor dwellings with no running water. Health care was completely neglected: malnutrition, malaria, and parasites plagued most of the rural population.

Industrial development was negligible; the agricultural sector in shambles. There was no energy policy,

no energy industry to speak of; no skilled work force; no infrastructure. The total 1958 electrical generating capacity of the Cuban Electric Company—the nation's only power utility—was a mere 397 megawatts.

But now, just two decades later, Havana stands proud before the world community of nations.

Illiteracy and disease have been all but eradicated. Prostitution, gambling, and narcotics were outlawed immediately following the 1959 revolution and those engaged in these depraved practices were rehabilitated and trained to become productive and active participants in the economic life of the country—or escaped to more “favorable” territory, like Miami.

In education and health care services, which are free, Cuba now ranks among the best in the world, as acknowledged by reputable U.S. medical and educational sources. Child care services, also free of charge, far outshine those offered in Western Europe and the United States. All three fields form an integral part of the process of economic and social planning, and are given top priority.

A highly ambitious 20-year development plan calls for Cuba to evolve into an industrialized nation by the year 2000, a commitment which has the full backing of the CMEA economies. The backbone of the plan is the construction of two powerful nuclear plants to be in operation by 1990.

This highly regarded and widely publicized commitment to growth and prosperity has been supported throughout by unrelenting efforts to develop the arts and sciences, the scientific and cultural education which is beginning to give birth to the “new man, free of vices and selfishness ... the man of the 21st century,” as initially conceived by Castro and his now deceased top lieutenant, Industry Minister Ernesto Guevara.

Exemplary of this dedication to the advancement of science, technology, and society as a whole are the joint efforts currently underway by CMEA (Comecon) and Cuban scientists in the field of geodesic research, telecommunications, and aerospace. In a surprising revelation, Cuban authorities announced in February 1978 that Cuban cosmonauts had already begun training in Moscow in preparation for a historic 1980-81 space mission which will launch the first Cuban into space. In all likelihood, the Cuban public will be able to watch the event live on their TV screens, thanks to the collaborative efforts of Cuban-East bloc scientists who are close to putting together an inter-Sputnik ground station in Havana that will link Cuba's television and telephone grid to that of the socialist countries.

The road to development, however, has not been easy, or for that matter spared of grave errors and miscalculations. This is especially true of the initial years, and particularly, the 1967-70 period when a misguided economic policy of investing all the country's resources into the sugar cane harvest—depriving the

Cuba goes nuclear

The Cuban government disclosed Jan. 6, 1978 that the soon to be completed Cienfuegos nuclear power plant is now expected to generate over 1 million kilowatts of electricity, double the original 1977 estimates. The plant, now in its initial phase of construction, is expected to be completed between 1980 and 1985. Construction for a second nuclear fission plant, to go into operation by 1990, is also scheduled to begin soon.

"Nuclear fission is the most viable and immediate alternative" to natural energy resources which Cuba lacks, President Castro told a group of Cuban-born American youth who recently visited the island. In the future, "the key source of electricity generation in the country will be nuclear," announced Radio Havana Domestic Service last month.

The two plants, to be built with the aid of Soviet technology and equipment, will boost Cuba's generating capacity to nearly 4,000 megawatts by 1990, *more than 100 times the amount produced prior to Castro's takeover.*

Cuba will build a modern nuclear center in the

province of Cienfuegos. The decision is in response to the growing need to develop "solid scientific foundations and cadre" for the construction of the Jaragua nuclear plant, the Cuban news service Prensa Latina reported earlier this month.

The Cienfuegos center will have the facilities to train up to 600 Cuban technicians in such areas as nuclear maintenance and turbine repairs. It will be equipped by the Soviet Union with the most modern technology including a "zero-power reactor, an experimental research reactor, a complex to produce radioisotopes and marked compounds, work shops to produce small lots of energy equipment, and other facilities," according to a December 1978 Havana Domestic Service report.

Estimates are that the construction of each nuclear plant alone will require nearly 5,000 workers. Thousands of additional jobs are also expected to open as a result of the newly developed nuclear industry.

The nuclear power system will be backed up by an already powerful energy grid that includes a handful of 100-400 megawatt thermoelectric plants, that will be able to light the country in the event the nuclear plants break down and need repairs.

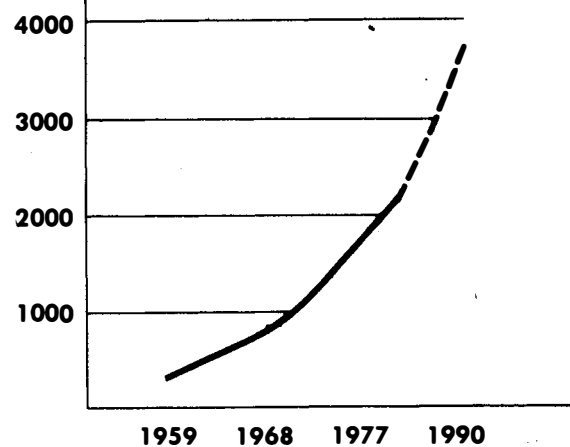
industrial sectors—led to temporary financial anarchy and disaster.

Partly as a result of these errors, but mostly because the vast majority of investments were going toward social rather than the industrial and productive sectors, the decade of the 1960s witnessed a slow growth rate averaging only 2.8 percent. However, a series of factors, including massive CMEA investment, a change in economic policies, and the fruits of the massive social investment policy of the 1960s, combined to produce an astronomic average annual economic growth rate of 14 percent from 1971 to 1975.

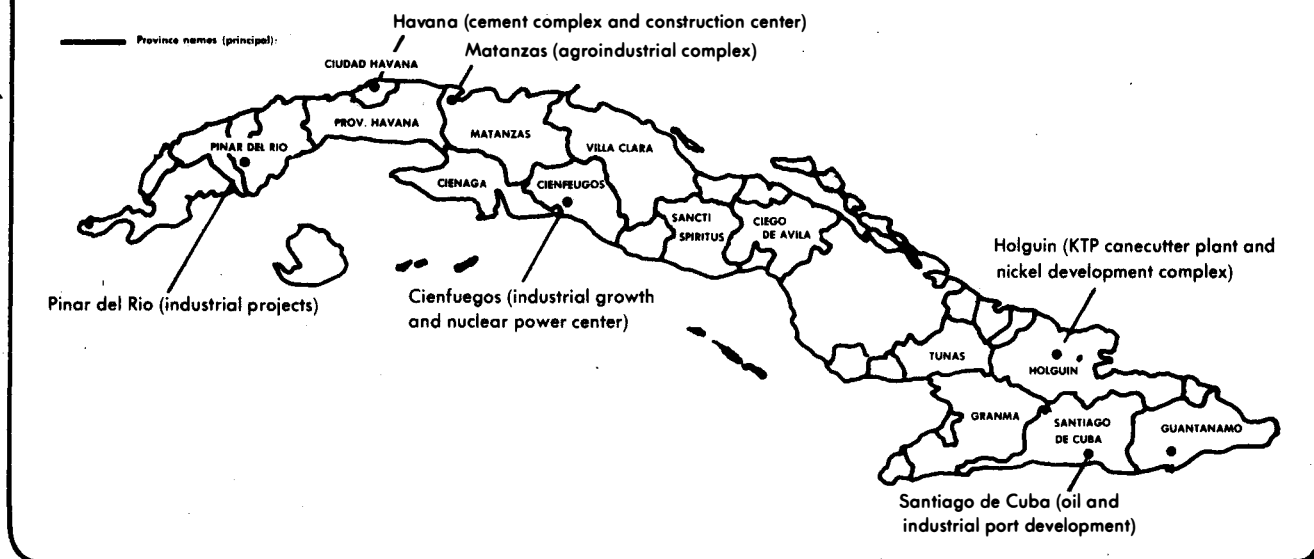
The rapid development has leveled off since then and economic adjustments are currently being made in the Cuban economy to offset the serious side effects of the world economic crisis and the continued U.S. economic blockade. This, combined with the plummeting of sugar prices and especially drastic labor shortages created with the deployment of tens of thousands of Cuban technicians to reconstruct parts of Africa and Southeast Asia, has forced Cuban economists to readjust their projected growth rate of 7.4 percent to 6 percent in the coming years. The figure nevertheless surpasses the projected U.S. growth of 4-5 percent in the coming years, and Western European figures of under 4 percent (as calculated prior to the implementation of the European Monetary System).

Cuba's energy generating capacity 1959-1990

(projected) in megawatts



Major industrial growth centers in the 20-year plan



Bringing Cuba into the advanced sector

Despite the Revolution's twists and turns, the policy favoring rapid industrialization and economic development has not changed. In fact, it has become more and more sophisticated, as evidenced by the proposed 20-year development plan unveiled by Castro last July.

The plan calls for *increasing percentages of investment in industrial production every five-year period until the end of the decade*; massive investment in higher and secondary education; and boosting annual construction levels of housing, schools, child care centers and factories through the introduction of new technologies in the construction industry. This also includes the completion of two high-power nuclear fission plants by 1990 to meet the rising energy needs which will result from this plan.

Cuba's plan, which is undergoing constant revision, will guide the island's economic growth through the year 2000. This long-term planning process is key to the determination of how best to allocate and channel the island's tight resources into the development of the economy. "During the first years, we devoted a lot of time to reforms of structures, to the revolution, to survival," said Castro on July 4, 1978. "The Revolution survived and strengthened ... but we lacked a program, a plan for economic development. ... The party and government leadership, the party militants and mass organization of the people ... must have a clear view of their country through the year 2000, of what the country wants to do. ... They must know what we want to do. ..."

The 20-year development program will also monitor the first stages of the modernization and development of the steel, nickel, and oil refining industries. Steel production, which has increased ten-fold since the prerevolutionary years, is expected to skyrocket in the 1980s as the country next year will begin the first stages toward a fully developed and modernized steel industry. The same is true for oil refining capacity, which has already doubled since 1959. Also next year, the Cubans will begin construction of a huge oil refinery in the province of Cienfuegos with a capacity of 3 million tons of oil per year, according to recent estimates.

With the help of CMEA countries, Cuba will also expand nickel production in the coming years to a high 30,000 tons per year—equal to one fourth of the world's output. Specialty steel and highly resistant nonferrous metals will be produced in nickel alloys through the modern steel plants, eventually increasing the output of nonferrous metallurgy by a minimum of 90 percent.

Industrializing the countryside

Recent breakthroughs in industrial and agricultural technologies have led to the full or partial mechanization of the nation's port facilities, livestock and poultry industry, and agriculture, with other sectors expected to be fully mechanized within the next two decades.

But most important, by the end of the 20-year development program, the Cuban sugar cane harvest will be 100 percent mechanized, freeing over 140,000 sugar workers from arduous and draining "machete" cutting practices. Already, over 200,000 Cuban sugar

workers have been freed from the fields since 1959 with the introduction of modern machinery and tractors in the Cuban countryside. The majority of these workers, many of which had already been trained as skilled workers while on the farm, have been redeployed to meet the rising labor needs of the industrial sector. With this massive drive toward mechanization, it is expected that by the year 2000, another 160,000 or so unskilled and semi-skilled workers will enter the highly skilled industrial work force. (Unlike Maoist China where up to 80 percent of the population is still bound to the land and feudal backwardness, Cuba's stated goal is to become a modern, urban-based society.)

Key to the realization of these goals has and will be the continuous introduction of new agricultural technologies. Highly modern Soviet-Cuban built canecutters such as the KTP-I are already harvesting Cuban fields and, in 1977, the Cubans announced that the ultramodern M-2 cutter—the cutter of the future—had made successful test runs on both flat and hilly terrain.

A joint Cuban-Soviet industrial complex producing KTP-I harvesters in the eastern Cuban city of Holguin was finished in 1977 and is expected to start exporting harvesters to other parts of the world by 1980. According to local specialists, the Holguin Harvester plant is the largest of its kind in the world, outproducing Massey Ferguson, Class, and International Harvester.

Special efforts are also being made in the development of sugar byproducts leading to the establishment of modern cellulose and related industrial factories in the sugar-producing interior countryside. Initial steps toward the production of pulp, paper, and boards from sugar derivatives like cane husk, have already been undertaken.

A modern infrastructure consisting of newly built and renovated highways and bridges, the most advanced railway and train facilities, and ultramodern port facilities will facilitate transportation of finished goods and services. It will also connect the vast network of new agroindustrial cities, towns and communities which have been created in the past 15 to 20 years, easing the cultural integration process between the countryside and the city.

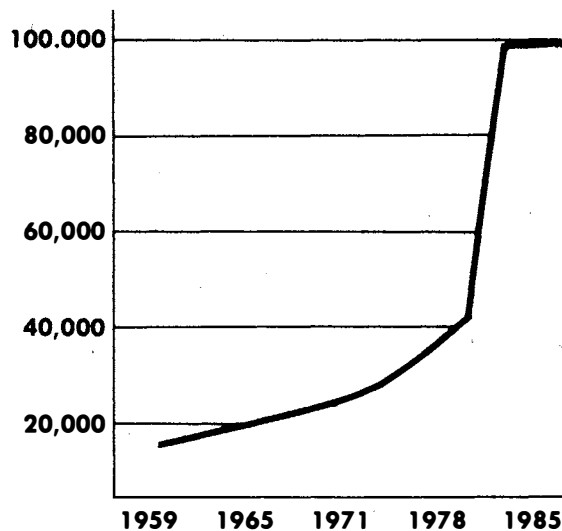
Cuba as 'one big city'

Since the time of the Revolution, the Cuban government has undertaken the construction of numbers of new towns and new urban communities furnished with modern schools, townhouse condominiums, cultural centers, theaters, and the most modern industrial and agricultural technology and equipment available.

Some of the communities are built around large industrial and agroindustrial complexes near heavily populated large urban "nuclei"; others group concentrations of previously isolated and unskilled peasants from remote areas into modern farm cooperative towns

Cuba's housing boom

New housing units constructed annually, 1959-1978, including projections under the 20-year development plan toward the year 2000.



Despite the country's foreign currency crunch, this year marks a 500 percent increase in housing construction since 1959.

'One big city' new towns and communities, 1959-1975

New towns built between 1959-1971	204
Smaller towns in the process of being incorporated into larger towns in 1975	120
New towns and communities in the process of being built in 1975	109

or a system of rural "sub-nuclei." The latter are supplied with tractors and other modern agricultural machinery as well as with technical personnel to train this new resource of skilled and semi-skilled workers.

In planning both the expansion of "urban nuclei" (main cities) through new urban communities, or the creation of new "sub-nuclei" (rural towns and farm

cooperatives), Cuban architects and engineers, as a rule of thumb, use the same conceptual approach: surround the large urban "nucleus" with many "intermediate urban nuclei" and smaller "sub-nuclei" which will, in turn, expand, helping to organize more "sub-nuclei" around the central core. Ultimately, *the aim is to turn the whole country into "one big city" using this concentric circle approach.*

The process, seriously undertaken and incorporated into the country's national development plan following the 1970 political-economic shift, "will break the city-countryside barriers ... urbanize the countryside ... (and) gradually create new forms of social organization of production, concentrating rural population in populated state farms furnished with basic equipment and the network normally associated with urban life,"

the Cuban technical magazine, *Cuba: Vivienda-Desarrollo Urbano*, reports.

This process, the magazine adds, also "strengthens the cities in the interior of the island ... limiting new industries in Havana to those which otherwise could not be built anywhere else in the country because of technological requirements."

Furthermore, "the system allows a coherent and harmonic distribution of population and economic activities in the country ... giving the whole population access to higher culture, and eliminates the barrier between the countryside and the city." This, however, does not complete the process: education and integration into the socio-economic and political life of the community must follow, the magazine concludes.

This city-building approach, which is rapidly bridging the educational and cultural gap between the rural and urban areas in Cuba, has led to the creation of dozens of medium-size cities and hundreds of new towns.

A new political-administrative system which came into effect in 1976 has changed the organizational structure of the island, opting for more smaller provinces, and fewer but larger municipalities to facilitate both the political as well as administrative integration of the city and countryside.

Credit for this massive building effort belongs to the committed skilled force of Cuban construction workers and the hundreds of thousands of workers, soldiers, students, teachers, housewives, and senior citizens who have at one point or another formed part of the over 1,100 "Construction Microbrigades."

Veterans of microbrigades, as well as hundreds of Cuban construction workers, are presently voluntarily engaged in building dozens of bridges and dams, schools and hospitals, highways and houses in African and Asian countries such as Angola, Ethiopia, and Vietnam.

"Our construction workers," Fidel proudly told a December 1978 rally, while not able to afford traveling as tourists because of Cuba's lack of foreign exchange, do "tour the world as workers, as builders, as creators." These Cuban workers, many of which now help to build other nations abroad, are also responsible for the previously mentioned vast network of highways, railways and other infrastructural transport facilities which link Cuba's growing network of cities and towns.

However, many technical and technological problems still exist. According to Cuban experts, the country's foreign currency crunch still forces the island to principally rely on the old system of nonmechanized housing construction in the countryside, and similar outdated techniques in the cities. Estimations are that the move toward more modern prefabricated housing—durable Soviet Grand Panel or IMS model-type housing—will take the Cuban economy a number of years to achieve.

Cement production for city building

Year	Production in tons	Percent increase over six-year period	Percent increase since 1959
1959	679,000	—	—
1965	801,000	17.9	17.9
1971	1,088,000	35.8	60.2
1976	2,500,000	129.7	268.1
1979	5,000,000 (est.)	100.0*	736.3

* 1976-1979 period comprises only three years. No figures are available for 1982 projections.

Cement production in Cuba speeds by other Latin countries

in kilograms per capita

	1972	1974	1979
Cuba	166	201	496
Argentina	228	210	274
Mexico	166	181	225
Colombia	134	140	N/A
Brazil	115	143	209
Chile	140	137	N/A

Source: The Cuban journal, *Viviendas y Desarrollo Urbano* and the World Bank's *World Regional Cast Summary—Economic Outlook*.

However, the construction sector will be spurred this year by the completion of two huge cement plants which will boost the nation's production capacity to 5,000,000 tons per year, double the already high rate. The Cienfuegos plant, equipped with the most modern technology from East Germany, will become the biggest in Latin America with a daily production capacity of 49,000 tons per day.

The role of education

The secret to the success of this massive city-building and industrialization project can be found in Cuban educational policy. "Once we eradicated illiteracy (in the early 1960s—ed), the next item on the agenda was the necessity to organize education in such a way that it would insure the unlimited absorption of knowledge for all Cubans, from the new-born infant to the senior citizen, facilitating the integration, fortitude and enrichment of a different society—that would create the new man," states the 1975 official Cuban educational handbook, *La Educación en La Revolución*.

The Cuban educational approach, as was best stated by former Industry Ministry Ernesto "Che" Guevara in the early 1960s, relies on a foundation of technical and scientific knowledge capable of continually producing and upgrading the quantity and quality of scientists which supply the institutes and research facilities. This approach, continued Guevara, must also be molded to "produce the men that will employ the

present technology and be capable of absorbing newly acquired technological knowledge. ... Society must be converted into a gigantic school."

Today, in a country where the population scarcely reaches 10 million, more than 1 million adult workers attend cultural and technological improvement courses. Another 2.7 million are enrolled in primary and secondary school; over 65,000 receive preschool early childhood education; 140,000 students, half of them workers, attend college, while tens of thousands more pursue skilled trades and vocational careers in the technological and vocational institutes. In short, nearly half of Cuba's total population is attending school.

In preparation for their 21st century entry into the industrialized world, strong emphasis is being placed on higher education. According to *La Educación en La Revolución*, the Cuban government plans to turn the "college-town" concept into a national phenomenon. This concept, which has dominated Cuba's higher education policy over the past decade, consists of "bringing the science and technology of the universities to the population as a whole."

Having solved the problem of illiteracy, the journal states, we decided that "the noble concept of 'university city' must give way to the concept of 'university nation.' *Every inch of our national territory would be converted into a university campus equipped with laboratories and all known subjects of learning, turning workers into students and students into workers.* The creation of these off-campus centers in the proximity of factories and

'Death to Illiteracy'

On Sept. 26, 1960, Cuban President Fidel Castro announced before the UN General Assembly: "Next year, our people propose to launch an all-out offensive against illiteracy, with the ambitious goal of teaching every illiterate person to read and write. Organizations of teachers, students, and workers—the entire population—are preparing themselves for an intensive campaign. Within a few months, Cuba will be the first country in the Americas to be able to claim that it has not a single illiterate inhabitant."

By August 1961, 105,000 city-based teachers and students completed a basic training course especially geared to educate the illiterate peasant, and were redeployed to the countryside under the banner "Death to Illiteracy." This new team of tens of thousands joined another 165,000 adult volunteers already deployed in rural areas.

By Dec. 21, 1961, which marked the end of the campaign, this army of over a quarter million

educators had taught over 700,000. Another 300,000 illiterates were to be educated in the coming years. By the mid-1960s, there was not one illiterate in Havana.

The method of organization used to teach new teachers and students throughout the campaign utilized the "concentric circle" approach. The advanced would teach the less advanced, who in turn would replicate their newly acquired knowledge in others, and so forth. The value of the approach, as one educator at the time put it, was that it began to bring culture to the remote countryside areas.

The literacy campaign marked the first mass mobilization in the country since the revolutionary takeover. However, it was not to be the last of this sort. Similar campaigns, based on the literacy campaign, were later launched to combat vagrancy and crime, machismo, and other culturally backward tendencies and customs.

work centers makes the upgrading process much simpler.”

By 1985, the Cuban government projects that it will be graduating over 300,000 students per year, more than twice the present number. Of these, a large percentage will be nurses and doctors, scientists and engineers, teachers, and other professional and technical personnel.

Although this policy was by no means cheap, nor did it produce results overnight, in the long run it has proven most efficient in rapidly solving the nation’s drastic manpower deficiencies. Today, the nation produces enough construction workers and engineers, doctors and teachers to export them to foreign countries. The many sacrifices of the 1960s and 1970s which made possible Cuba’s large investments in technology, health, education and welfare, Cuban president Castro told a nationwide TV audience on Dec. 30, 1977, “have paved the way for a new field of export for this country: its talent and intelligence.”

In a speech three days later, Castro explained his revelation. There are a number of fairly well-off Third World nations, he said, which have requested the services of our “legions of technicians” and are willing to pay for it. “It’s a new possibility,” he said, a possibility which will, in turn, allow Cuba to reinvest the returns in “economic activities, industrial and housing investments ... more schools, universities ... the quality of services, education and culture.” With that revenue, he asked, “can you imagine how many hundreds of thousands we can develop today, and skilled workers in the polytechnical and technological institutes; and how many engineers, doctors and teachers we would be able to develop?”

The president summed it all up when, in this description of Cuba’s educational objectives under the 20-year development plan, he stated: “We are going to produce engineers, technicians, economists and physicians not only for us, but for many Third World countries which have not had these opportunities.” What additional resource will the Cubans use to carry on this formidable task? “Man’s brains,” declared Castro in a recent speech. “We are not an oil-producing country, but we have brains and we are going to develop them; we are developing them!”

As a result, the country’s massive educational investment policy has given every Cuban worker today a minimum level of primary education. Every Cuban worker to date possesses at least a sixth-grade education and efforts are being made to upgrade that to the high-school level.

In addition, thousands of Cuban workers now

Cuba’s Literacy Cadre Force

Organization	No. of Educators
People’s Educators (soldiers, students, etc.)	121,000
Schoolteacher Brigades (teachers)	35,000
The Conrado Benitez Brigades (mostly schoolteachers)	100,000
Workers Brigades “Patria O Muerte”	15,000
Total Literacy Campaign Force	271,000

attending classes in their own workplaces are being offered multiskill as well as multilingual education as part of their daily routine—a process accelerated in 1968 with the nationwide implementation of the “school-city” concept of “bringing the schools to the countryside.”

So strong has been the emphasis on scientific and technical training that, by 1972, over half of the total enrollment at the University of Havana was in the natural sciences. This was made possible with the return of gifted science students who had earlier been sent to the socialist countries for postgraduate training, and an influx of East bloc visiting professors. In the years 1966-1969 alone, Cuba produced more scientists than in all its combined previous history.

Preparation of this “new Cuban man”—“the man of the 21st century”—begins at the preschool “child centers” and nurseries, which start the child from the time he or she is five months old. There is presently a vast national network of over 700 nurseries—mostly located in or near the mother’s workplace—with a capacity for schooling 65,000 children. In comparison, the City of London, with a population only slightly lower than Cuba’s, provides only 155 government centers with space for less than 8,500 children.

Our children, said Castro in the early 1970s, constitute the future of our nation. That’s why we must invest to give them a better education, a better life, and better health through the expansion of our already modern health facilities.

Wiping out illiteracy, June-December 1961

	June	July	August	October	Dec. 21 End of the campaign
Known number of illiterates	684,000	822,000	985,000	988,000	979,000
Number of students	465,000	594,000	776,000	500,000	N/A
New literates	22,000	62,000	119,000	354,000	707,000

Health care: 'man's most valuable asset'

	1958	1973	1976	1980 (est)
Rural Hospitals	1	53	56	60
Functioning clinics	0	260	336	400
Dental clinics	0	96	N/A	120
Maternity clinics	0	40	47	50
Hospital beds	28,536	40,313	46,404	53,000
Medical schools	1	3	4	N/A
Graduating doctors per year	300	900	1,300	3,500
Nursing schools	1	28	34	40
Graduating nurses per year	80	400	800	3,000
Provincial schools for medical technicians	0	7	N/A	14
Laboratories of hygiene and epidemiology	0	31	35	40
Number of doctors	6,130	8,000	12,000	18,000
Blood banks	1	21	25	28

A comparison of public health care in Cuba, before and after 1959, shows dramatic progress under Fidel Castro's tenure. In 1958 for instance, there were 161 clinics—"Auxiliary Houses"—but most of them were non-functional; half of the total number of doctors in 1958 had left Cuba by 1965 and yet by 1973 the number had increased by almost 2,000. The 20-year campaign for health care has wiped out Tubercular meningitis, poliomyelitis, diphtheria, and malaria.

Preventive health care

Cuba is the only Latin American nation today whose population does not suffer from malaria or malnutrition. The nation's overall health system, although still passing through a transitional state, already ranks with the best in the world.

However, this was not always the case. Prerevolutionary Cuba was a tropical nightmare of disease and sickness. Malaria, dysentery, epidemics, and malnutrition plagued much of the rural population. Official infant mortality figures showed an appalling 52 deaths per 100 births, even after the statistics were severely trimmed by the government of despot Fulgencio Batista. Many did not reach the age of 10, few lived over 60. There was only one rural hospital in the whole interior countryside; no clinics.

In contrast, the island's 9.5 million people today enjoy an average life span of 72 years, among the longest in the world. Infant mortality has been drastically reduced to 22 in 1,000 births—the lowest rate in all the developing world and equal to the U.S. rate 10 years ago (since then the U.S. has lowered it to about 13 per 1,000 births).

There are now over 336 clinics and rural hospitals equipped with the most modern medical technology; and more than twice the doctors and nurses than there were even before the mass flight of the medical profession in the 1960s that reduced Cuba's medical population by 40 percent!

In fact, every new housing development is accompanied by a clinic, while factories are constructed with medical facilities and safety measures incorporated into the blueprint. Every neighborhood and many workplaces have their own medical and dental clinics.

Good health is indispensable for learning, it should be encouraged and protected, and adequate health measures should be taken to prevent sickness from occurring, the Cuban government stresses. The state of an individual's health in the course of daily living is as much a concern to the Cuban health care system as the actual treatment of an illness.

The Cuban approach is an innovative version of the "preventive medicine" approach. "We should not wait for an illness to occur," former Public Health Minister Dr. Gutierrez Muniz told the Second National Forum on Hygiene and Epidemiology. "We should rather take the offensive and prevent it from happening in the first place."

"Health care is not a matter of providing service to

the sick," Gutierrez continued, "but rather avoiding sickness, taking a person's normal state of health into account and defending it. Only in exceptional cases, when sickness has broken through every barrier, should it be necessary to fight that sickness."

"A Revolution is fought for the good of man, and his health is his most valuable asset," underscored Cuban leader and party spokesman Pedro Miret.

The key to the success of Cuban medicine has been the delivery of ambulatory (outpatient) care through the neighborhood clinics, which are considered the backbone of the Cuban health care system. The clinic provides all basic outpatient services like medical examinations, prescriptions, pre- and post-natal care, dental treatment, outpatient psychiatric treatment, etc. Medical "health teams" at these institutions are also responsible for reaching out to the surrounding community, workplace, school or factory.

Another very important factor has been the educational training of doctors, based on the socialist concept of work-study—work half a day, study half a day. During the first year of medical school, the future doctor does physical maintenance labor at the health facilities; the second year, nursing, the third, clinic work, and so forth. During their internship, the doctors also work in rural areas and factories, imparting to them a better understanding of the production process through collective work. Women now make up half of all interns and medical students.

But most important, the Cuban Revolution has gained notoriety around the world for its high occupational health standards. According to the 1975 *Health Care in Cuba Journal*, "workers in shipyards, mines, certain textiles and printing plants who face occupational hazards receive periodic blood tests and other medical exams, extra rest periods, special diets and other precautionary methods." In many workplaces, the journal adds, nutritious meals are provided free or at very low cost.

In addition, reports the journal, "pollution is closely controlled ... and laboratories measure the level of noise intensity, vibration, lighting, environmental concentrations of gas and dust, 'microclimate' and ventilation at workplaces." Job monotony, which in varied circumstances could lead to carelessness resulting in job accidents, is lessened in many factories by rotating workers to different jobs and integrating them into adult education courses.

—Fernando Oliver