



**NEGATIVE
POPULATION
GROWTH**

**THE NPG
FORUM**

Neighbors' Problems, Our Problems: Population Growth in Central America

by Robert W. Fox

This is the seventh in a series of NPG FORUM papers exploring the idea of optimum population—what would be a desirable population size for the United States? Without any consensus even as to whether the population should be larger or smaller, the country presently creates its demographic future by inadvertence as it makes decisions on other issues that influence population change.

The approach we have adopted is the "foresight" process. We have asked specialists in various fields to examine the connection between alternative population futures and national or social objectives in their fields of interest. In this issue of the FORUM, Mr. Fox describes what has happened to Central America, a topic relevant to the United States not only because of the example it provides of runaway population growth, but also because its demographic future is closely linked with ours.

Mr. Fox has been on the staff of the Organization of American States and the Inter-American Development Bank. He is presently co-authoring a series of reports that capture world population growth issues in three dimensional computer graphics and text.

I was walking through the streets of Cartago, Costa Rica, some twenty years ago when the bells rang and the elementary schools let out. A thousand scrubbed and uniformed children flooded the streets. That Lilliputian world was a dramatic reminder that Costa Rica, like the rest of Central America, is a nation of children. Nearly half the population is under 15.

Central America's population explosion was captured for me in that incident. Today, ever larger numbers of children are pressing hard on small and shrinking economies. The 8 million Central American children (0- 15) in 1970 represented a large increase from 4 million in 1950. There are 13 million now. If projections hold true, there will be 19 million by 2025.

In one lifetime, Central America's population is just not doubling or trebling. It is rising by a factor of seven--if the ecology can support it. And growth will not stop in 2025 (Table 1).

In the first half of that 75 year period, just a third of the expected increase occurred. The much larger share, nearly two thirds, is projected between now and 2025. Past 2025, the projections call for still further increases of about one million annually. It is yesterday's, today's, and tomorrow's issue in Central America.

These amounts may seem modest next to the population size and growth in the United States, but by comparison they

**Table 1. Central America: Population Estimates and Projections
(in thousands)**

	1950	1975	1990	2000	2025
Costa Rica	862	1,968	3,016	3,711	5,250
El Salvador	1,940	4,085	5,251	6,739	11,299
Guatemala	2,969	6,022	9,197	12,221	21,668
Honduras	1,401	3,081	5,138	6,846	11,510
Nicaragua	1,098	2,408	3,872	5,261	9,219
Panama	893	1,748	2,419	2,893	3,862
Central America	9,163	19,312	28,893	37,671	62,808

Source: United Nations, *World Population Prospects, 1988*. Population Studies No. 106, ST/ESA/SER.A/106, New York, 1989. Belize, with 180,000 population, is not included in this study.

are actually massive. Applying Central America's pace of growth, it is as though the United States' population would be passing one billion in 2025.

The population explosion that began in the 1950's and continues today is arguably Central America's most significant historical event, overriding in importance the Spanish Conquest and the Independence Movement 270 years later. Never has the region experienced anything of this magnitude and force. Not only is the *amount* of growth of serious concern, but also the *speed* with which it is occurring.

It is wreaking havoc on the region's cultures, the economies, social systems and on the natural resource base. Forget the failure of political systems and civil wars as the leading issue. Likewise economic depression and unemployment, affecting as much as half the labor force. Forget old debates over land-holding systems where power is concentrated in the hands of a few export crop producers. Forget low levels of living and miserable urban slums that appear occasionally to be clusters of smoking cardboard and tin boxes strung along the arroyos. Forget the exodus of tens and hundreds of thousands headed north to cross the porous Mexican and U.S. borders in search of jobs.

Focus instead on the rise in population as the single basic issue. Redoubling every 20-25 years, it has put an incredible burden on attempts to resolve old problems and has, meanwhile, created new ones. In Central America today you truly must run faster and faster just to stay in the same place.

How did all this happen and why do we not read more about it?

Foreign writers on Central America seem genuinely unaware of the issue's strength and of the intertwining of demographic trends and political and economic issues. A glance through recently published books in English on the region turned up only a few references to the subject and they simply recite the facts of population size. Why the inattention? There are at least two reasons. Writers have little exposure or training in the basic principles of demography. It is a matter considered technical and best left to the experts. Secondly, the topic has been subjected to a concerted effort to narrow it down and find it a niche. Accordingly, it is invariably classified and bottled up in the health and family planning arena.

Largely ignoring it, writers instead focus on the visible results. They include rapid urbanization and growing slum settlements, crowded labor markets and high unemployment, declining purchasing power and falling levels of living and a rapidly deteriorating natural resource base. These major problems have been exacerbated in Central America during the "lost decade" of the 1980's. Now in the 1990's, the economies continue to lose ground while population growth relentlessly moves ahead.

Why the Population Explosion?

Central America's recent demographic history is typical of most Third World regions. Prior centuries of high fertility and high mortality and the resulting small gap between these levels allowed for very low growth—well under one percent

annually. Population grew slowly during the 16th to 19th century Colonial era and in the first century of Independence as well. By 1920, numbers had increased to 5 million and as the pace of growth quickened, to 7 million 20 years later.

By the 1940's, major health improvements were underway. The ages-old era of pestilence and plague faded and the modern one emerged. Radical changes took place in the next quarter century. Field reports of the Pan American Health Organization from the 1940's discuss matters that seem current—the positive results from the installation of sewage and potable water systems, for example, rather than reports of plague or cholera outbreaks in port cities.

Following World War II, massive resources were invested in the region to improve general health conditions including medical treatment, food processing, sanitation, education, and to control communicable and transmissible diseases. As a result, the death rate—then high—dropped sharply in a very brief period of time.

The decline in deaths depended on imported technology such as medicines, pesticides and insecticides. The birth rate, meanwhile—which depended on slowly changing cultural norms—remained high. A growing gap developed between the two rates. This gap is the rate of natural increase, the basis of the population explosion.

While mortality levels plummeted, the birth rate—exceptionally high in 1950—stayed high. Compared to 24 births annually per 1,000 population in the United States (1950), the rate was 40 in Panama, and in a higher range elsewhere from 47 to 54. By the mid-1970's, while dropping substantially in Costa Rica, it fell just modestly elsewhere. Today, the birth rate is still moderately high—ranging from two-thirds to three-quarters its 1950 level. Women in Central America in 1950 averaged 6 to 7 children. The range today is from 3 to 6. These time period differences narrow, however, in terms of *surviving* children when the sharp drop in child mortality is applied.

Population growth represents the excess of births over deaths (absent migration). There were on average 290,000 more births than deaths annually in Central America during 1950-55, the difference is about 800,000 and by 2020-25 it is projected to increase to around 1 million annually.

The answer is tied to the vast increase in the number of women of reproductive age, associated in turn with Central America's very young age structure.

In Central America in 1950, there were 2.1 million women of reproductive age. By 1990, they numbered 6.7 million; by 2000, 9.2 million are projected; and by 2025, 16.4 million. In essence, and although they are having fewer children apiece, this vastly greater *number* of women will produce many more children than before.

The population of Central America will continue to increase until these forces are played out and the number of births is equal to the number of deaths in any given interval (absent migration). The youthful age structure that has emerged, however, combined with its product—the rising numbers of females 15-49—as well as the fertility and mortality trends described, constitute the inertia that ensures this relationship will not be attained for decades in spite of a falling birth rate.

Out of this population well-spring flow enormous consequences for the deteriorating natural resource base—particularly the forests—for urbanization and labor force growth, and eventually for the pressures that lead to flight to the United States.

The Tropical Forests

To see the linkage to population growth, look at the destruction of Central America's tropical rainforest (Figure 1).

To accommodate the region's growing numbers, the pressures on natural resources are severe. With few mineral or petroleum reserves and limited amounts of good agricultural land—mostly tied up in large estates—the region is heavily dependent on its few remaining resources. Among them, the forests are prominent.

The forest resource has been increasingly drawn on to generate income in the “productive” economic sectors by supplying raw materials for manufacturing and processing industries. Precious woods are marketed abroad for making furniture, doors, beams and carved figures. Local demand for less desirable wood is high. Sawmills provide timbers and finished lumber for house construction to shelter the burgeoning urban population. Charcoal sellers ply the streets of the cities. The forests are being harvested but there is little new growth to assure the resource's regeneration.

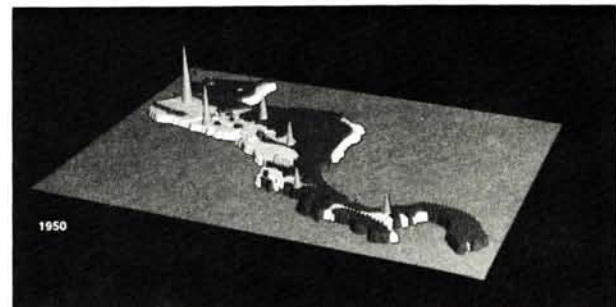
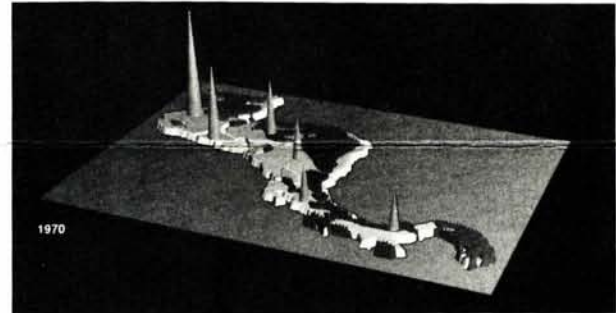
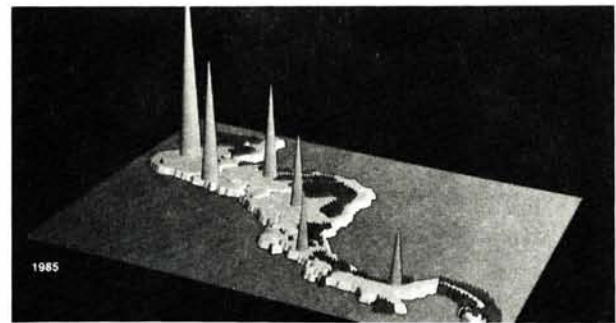
Man's forest incursions have led to a process of continuous deterioration. To bring out prized timbers such as mahogany, primitive logging roads are built. These become waterways fed by tropical downpours. The local population exacerbates the situation by harvesting the readily available wood on the slopes next to the road. Heavy erosion results, soils in a widening radius are lost, and gullies develop.

Meanwhile, the roads permit penetration into the jungle by “forest farmers” who apply slash and burn techniques to clear small plots. This has gone on for centuries, but earlier involved far fewer people who farmed a plot for only a few years, moving on as erosion and mineral leaching depleted the land's fertility. Now, under conditions of rapid rural population growth, other farmers follow in their footsteps to try and coax one or two more crops out of the soil. Rather than resting the land for many years as required to rebuild its fertility, this increased population pressure has led to even further soil deterioration.

As patches of cleared jungle coalesce and the forest line retreats it is then valued only as pasture. From the early 1960's to 1987, the United Nation's Food and Agricultural Organization (FAO) reports that land in permanent pasture nearly doubled, increasing from 7 to 13 million hectares, while land in forests and woodlands dropped from 27 to 17 million hectares. The newly cleared land has supported a vastly expanded cattle industry. Much of the beef is exported, and thus the “hamburger connection” is forged between tropical forest destruction and the economic demands of industrialized nations.

Deforestation in particular areas threatens to produce devastating results. Panama Canal operations depend on the water in Lake Gatun. Ships are raised from the Atlantic ocean to the higher lake level through one set of locks. After crossing the Isthmus they are lowered to the Pacific ocean through

The Deforestation of Central America



The spikes represent each country's population, the dark land area is the tropical forest and the light area deforested land. Less than 40 percent of the areas' original forest remains, with two-thirds of the loss occurring since the 1950's. As much as 3 percent of the remainder continues to be taken down each year.

Source: Robert W. Fox, Allen Carroll, Melvin L. Prueitt, *Population Images*, 2nd edition, United Nations Population Fund, 1987.

other locks. Enormous amounts of lake water flush out to sea with these operations. Replenishing Lake Gatun's water supply is vital and that depends on the heavy rainfalls that regularly sweep the area.

Canal authorities now worry about the amount of forest clearance taking place in the immediately surrounding watershed basin. With reduced tree cover, the hydrological cycle is disturbed. Evapotranspiration is reduced, which diminishes local water vapor recycling in the atmosphere. In the absence of tree cover, the increased reflectivity heats the atmosphere, and this in turn counteracts cloud formation and rainfall. With the forest cover intact, the ground soaks up rainfall, releasing it slowly to the lake. Without cover, water runoff increases, eroding the land, carrying soils with it that threaten to silt up the lake.

Central America faces a dilemma. The remaining forest must be preserved for its intrinsic value along with the vast genetic diversity it contains that undoubtedly will lead to future medical and scientific discoveries. The tropics harbor many more times the number of species than exist in temperate climates. Tropical forests have taken millions of years to evolve into their extremely diversified biological states. Many species—plant, animal and insect—survive symbiotically. They live in mutual interdependence. Thus the felling of one commercially desirable tree in the tropical rainforest may assure the destruction of an entire habitat and many of the distinct life forms it supports.

Yet the region's explosive population growth exerts enormous pressures on this natural resource. Given economic demands, short-term interests often prevail to the detriment of forest preservation. The Central American nations are caught up in cycles that require income for new investments and old debt repayment. Earnings are needed to maintain current investments and to satisfy basic needs of very young populations. The difficulties of meeting daily national expenses are presently compounded by economic stagnation and economic instability. Coping with these issues presses hard on the region's limited natural resource base, particularly its forests.

Urbanization

The growth of Central America's major cities since 1950 was an early sign of the population explosion. Shunning near-feudal agricultural conditions, attracted by the city lights, and bussed on good road systems in these relatively small countries, tens of thousands migrated to the cities. Voting with their feet, it continues today.

Guatemala City, with 330,000 inhabitants in 1950 is the "megalopolis" of Central America. Along with the other capitals including Tegucigalpa and Managua it was then compact and retained a distinct colonial period feel to it. Quite suddenly, and along with Panama City, San Salvador and San Jose, they all faced growth onslaughts (Table 2). Each increased three to six-fold in population size between 1950 and 1980. What had until recently been the entire city became the old "colonial" part of town just a generation later.

Burgeoning urban populations pressed for expanded services. Dusty streets, torn up for months and years at a time to place water and sewer pipes, vied with overhead power line installations for general disruptiveness. In a very new development in the 1960's, expansive squatter settlements emerged on the outskirts, particularly around the capitals of Guatemala, Nicaragua and Honduras. Here, sharp conflicts with municipal authorities arose over two very basic issues—ownership of the ground and legal recognition of the settlements—whose resolution was prerequisite to home improvements and the extension into the communities of water, sewage and electrical lines. In San Salvador, squatters built makeshift dwellings in the ravines that radiated outward from the city core, threading their way through upper and middle class residential zones. Social class in San Salvador is literally tied to one's topographical position.

Yet, that massive urban growth was but a harbinger of the much greater increases to come. Practically all cities and

towns continue to grow rapidly with no letup in sight. In roughly half the 75 year period, or from 1950 to 1990, the urban population of Central America increased from 2.8 to 13.7 million. This net gain of 11 million, however, is just over a quarter of the expected total increase during 1950-2025. The much larger proportion, 73 percent, or some 30 million additional urban dwellers, lies immediately ahead.

The major cities seem already to have reached saturation and face significant constraints to further growth. Guatemala City is crowded onto a small plateau; San Jose's and San Salvador's further physical expansion threaten to take scarce and fertile adjacent lands out of agricultural production; Tegucigalpa is wedged into a small valley; Panama City is bordered on three sides by the Pacific Ocean, the Canal, and hills to the north. Managua, its vacant downtown area converted to cow pasture after the 1972 earthquake, and now reeling from the effects of a destroyed economy, must determine how to reconstruct a city around a hollow core, should confidence in the economy be regained and funds become available.

Automobile and bus fumes, factory smoke and nearby fires burning in the fields contribute to a steady decline in the quality of the urban environment. The once clear sky over Guatemala City, for example, is often grey with smog. Generally crowded conditions are apparent, affecting the public transportation system in particular as old and overloaded busses, belching black smoke, slowly thread their way through narrow city streets. Most shocking of all is the contrast between clear upstream river and reservoir water before it passes through the cities and the black untreated sludge that pours into the stream beds at the other end—and from there is used in the agricultural fields. Unfortunately, resources to remedy these and many other deteriorating urban conditions are nowhere in sight.

The urban share of the total population in all the countries was about one-third in 1950. (Honduras was less than 18 percent urban.) It has now risen to about one-half. By 2025 it is expected to range from two-thirds to three-fourths. It will continue to increase as rural areas approach saturation in the amount of population they will absorb, and as the "redundant" rural numbers pour into the cities. In earlier times, rural "saturation" resulted from miserable rural socio-economic conditions including inequitable land ownership and tenure systems, rigid systems of social stratification and the absence of social mobility, a lack of rural schools and medical facilities, and the absence of rural credit and financing institutions. While these conditions have little changed, they have been compounded by rising rural population densities and a rapidly increasing labor force.

Growth of the Labor Force

A generation later, those children of Cartago, Costa Rica are now working or looking for work. Yet the region is in the second decade of a severe economic recession. The economies are in disarray as the value of the currencies and primary export commodities have fallen—coffee, bananas, timber, cattle, cotton and sugar. Investors, jittery over unsettled political and economic conditions, have transferred capital to safer haven abroad.

Table 2. Central America: Population of Capital Cities, Estimated and Projected (in thousands)

	1950	1980	2010	2025
San Jose, Costa Rica	146	508	1,150	1,525
San Salvador, El Salvador	213	858	2,050	3,200
Guatemala City, Guatemala	337	1,430	4,550	7,200
Tegucigalpa, Honduras	72	406	1,430	2,200
Managua, Nicaragua	109	662	2,550	3,750
Panama City, Panama	217	794	1,870	2,425

Sources: see source note, Table 1 and, Robert W. Fox and Jerrold W. Hugué, *Population and Urban Trends in Central America and Panama*, Inter-American Development Bank, Washington, D.C., 1977.

Disadvantaged by falling export commodity earnings, limited in natural resources, short on investment capital and supported by outmoded technology, few of Central America's new labor force entrants are finding meaningful employment. And those numbers are indeed large (Table 3).

Overall, this parallels the urbanization trend; that is, about three-quarters of the 1950-2025 labor force increase will occur between 1990 and 2025. But, with the agricultural labor force expected to increase by relatively small amounts, this will throw the largest burden on the cities.

As these massive urban labor force increases occur, and should the poor economic growth climate persist, unprecedented international labor force flows could result. This is already the case with El Salvador where it is estimated that up to 15-20 percent of the total population has fled to the United States. Affecting this potential, however, are other key issues, including the as yet unmeasured capacity of the informal employment sector to absorb labor increases in the cities, and the ability or desire of the United States to absorb the flow.

Other Realities

Central Americans have for decades sought to find a proper place for the population issue in their social and economic institutions. This has been a tough, uphill battle made more difficult by moral and ethical implications in predominantly Roman Catholic societies. It has been and continues to be a struggle.

Both as creed and operating mechanism, "economic development" has dominated Central America's view of its

future since the 1960's. A fast pace of economic growth was expected to more than offset the demographic reality. All this was to be fostered through export earnings, "soft" loans and grants from the multilateral banking community (World Bank and Inter-American Development Bank), by loans from OECD nations and by commercial bank funds.

National policies focused on "development" in the context of an eventual fully integrated economic union-- the Central American Common Market. This was to be supported by the Central American Bank for Economic Integration that was to attract the resources of the international lending community, then awash with petrodollars.

Policies and programs were aimed at clearing the forests, colonizing and "developing" the land and increasing export crops and livestock production levels. As the region's cities mushroomed in size, multiple urban industrialization options were advanced, some to deal with regional opportunities offered by the fledgling Central American Common Market, others to take advantage of the export market and the cheap and growing local labor force supply.

Such conscious policies for economic growth were not matched on the demographic front. Population growth was still considered a "given". The idea of slowing it down, of tampering with "natural" forces offended many and grated deeply on personal convictions. Beside, the notion of any "limitations" went completely against the grain of economic development and "growth", its corollary. Instead, commercial interests advanced the notion that growing markets would need more consumers. Rural interests stated that agricultural land remained to be developed. The military argued that more people were necessary to settle the fringes of national territory

Table 3. Central America: The Economically Active Population (in thousands)

	1950	1975	1990	2000	2025
Costa Rica	295	637	1,050	1,338	2,016
El Salvador	685	1,349	1,743	2,295	4,277
Guatemala	996	1,767	2,630	3,666	8,234
Honduras	467	911	1,582	2,256	4,564
Nicaragua	367	722	1,204	1,776	3,674
Panama	315	588	873	1,111	1,597
Central America	3,125	5,974	9,082	12,442	24,362

Sources: see source note, Table 1 and, Economically Active Population, 1950-2025, Volume III, Latin America, ISBN 92-2-005347-0, International Labour Office (ILO), Geneva, 1986.

to prevent encroachments from the neighbors. Indigenous leaders railed at the thought that their groups would be targets of population "control" efforts.

Religious orders fought against the very notion of family planning and provision of contraceptives. Many politicians behaved likewise in the male-dominated societies. Uncomfortable with the subject, they were often painfully shy to discuss it. Outright hostility to family planning was not unknown.

It was always recognized that economic growth had to keep pace with population growth. If the economies faltered, the continuing population gains would slip right on by, producing lower and lower levels of living, and wiping out the forward momentum of the 1960's and 1970's. This is precisely what has happened. Living conditions in Central America have fallen back to 1960's levels.

The struggle to convey the demographic message in Central America in overwhelmingly "growth and development" oriented societies has been difficult. The principal actors have very divergent views and interests in mind.

It was initially confined to the resolve of private family planning organizations. Later, its base broadened with acceptance as a maternal and child health care issue in the Ministries of Public Health. During the 1970's, several countries went so far as to create demographic evaluation units at the national planning level. Elevating the topic to this level was both an attempt to raise awareness and yank control of it from economists, who more often than not considered population size and growth as a given, an "externality" to their analyses.

Demographers have informed politicians they have a very major problem emerging for which there is no short term solution. Further, it is guaranteed to continue to intensify for the next half century and longer. To ameliorate it over the long term by implementing and supporting family planning programs will touch on and alter the deepest of cultural sensitivities. All this, they argue, will contribute to unrest and eventually bring about profound changes in individual and family value systems.

Slowly but surely the old attitudes are changing. The technical soundness of the population projections is recognized, and accompanied by common sense observations in the increasingly crowded streets outside, politicians realize that a serious and intractable problem has emerged. Their response has become, "I already know that (the population problem). Don't bring me problems, bring me solutions".

Central America's demographic future contains hard messages that are difficult to swallow and the subject is still viewed from many different perspectives. Generally speaking, this is where the matter rests today.

Conclusions

I have selected Central America for this brief examination since it is a typical case of the demographic forces working in the Third World. It has also been at the center of much foreign policy debate in the U.S. (including proposals recurrently made in Congress to make it possible for various Central Americans, once here, to stay here), because the demographic future of Central America is linked with the U.S.'s population future through immigration, and because the demographic trends in Central America imperil the prosperity and political stability of a region of considerable importance to the U.S.

Much of what has been said about Central America could be said also of Mexico, which is three times as populous as all of Central America, and shares a long border with the U.S. High birth and rapidly falling death rates, a young age structure and vast increases in the number of women of reproductive age are similar themes there.

The strongest distinction between Mexico and Central America is the Mexican government's deliberate decision in the 1970's to bring down its very high rate of population growth and to act quickly on this decision. Programs were drawn up and implemented and have since been reinforced by each successive national administration. While the initial target of reaching a 100 million population size by year 2000 may be overshot by some 6-10 million, this nevertheless represents a major change from the 132 million Mexicans earlier projected for year 2000.

With shared features, Mexico has long realized that the demographic "passages" in store for Central America are also inevitable there. Appreciating that they have some control *over the time required to work through these passages*, Mexican authorities have made deliberate and concerted efforts to take advantage of this and speed up the process. Accordingly, while the age structure has changed very little (the Mexican median age was slightly over 18 years in both 1950 and today), *the total fertility rate has dropped precipitously, from 6.7 children during 1950-1970 to around 3.7 today*. This represents enormous change in a very short period on the demographic scale of things. In Central America, only Costa Rica and Panama have had comparable fertility declines.

Nevertheless, with population momentum still driving their demography, neither Central America nor Mexico is likely to stabilize at a level and in time to take the pressures off their social, ecological and economic systems—or ours.

NEGATIVE POPULATION GROWTH, Inc.

210 The Plaza, P.O. Box 1206, Teaneck, N.J. 07666-1206, Telephone: (201) 837-3555

NPG, Inc., is a nonprofit organization founded in 1972. Annual dues are \$25, and are tax deductible to the extent the law allows. It publishes from time to time in the NPG FORUM articles of particular interest on population, immigration, resources and the environment. The views expressed by the authors do not necessarily represent those of NPG.