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Problems of Growth - The Future Population of the Philippines

Francis C. Madigan

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Problems of Growth—The Future Population of the Philippines*

FRANCIS C. MADIGAN

ONE hears conflicting statements today about the capacity of the Philippines to support continued population growth at its present rate of more than three per cent a year.

In a recent lecture at Xavier University, an eminent agricultural economist, well known for his aggressively optimistic views on world capacity to support many times its present population, attacked the opinion that the Philippines must soon cut its rate of population growth. The opinion that living standards will deteriorate if present population growth continues unchanged is erroneous, he stated. Further, he continued, a successful program of birth restriction at this time will harm rather than help the Philippine economy.

In answer to questions from the audience, however, this authority, Dr. Colin Clark of Oxford University, made two statements that raised serious doubts in the minds of some about the soundness of his position. First, he admitted that since births exceed deaths in the Philippines at present by some three per cent a year, eventually the birth rate must be brought into some kind of balance with the death rate. This, of course, implies birth limitation. Secondly, he pointed out

* This article will appear in slightly modified form as one of the chapters in a book upon the Philippines by the Reverend John Rich, M.M., for which it was originally written.

that even if by tomorrow the nation's families should initiate a thoroughly effective program of birth limitation, some 15 to 30 years would go by before population growth would be much affected. The tremendous number of persons already born, who are now between 0 and 19 years of age, will grow to adulthood during this period and will begin forming new families of their own, he said. These new families will keep the population growing rapidly for some time even if they should each have only three children.

The intelligent layman is undoubtedly confused by the pros and cons of this debate. Would it be better to follow the advice of persons like Dr. Clark, and postpone for one or several generations establishment of programs which aim to reduce the birth rate by morally good means? After all, this course of action would free our own generation of some very troublesome, even inflammatory, problems inherent in the establishment of such programs. On the other hand, would such postponement be a responsible course of action? Gnawing doubts trouble the peace of mind of many persons. Is the position represented so vigorously by persons like Dr. Clark a valid one or will it lead to disaster? Programs can be set up now for the reduction of the birth rate. They will take considerable time to gain acceptance before they become effective. What is the gain and what are the dangers of transmitting such programs to the care of a later generation? If such programs are postponed to the years 1990 or 2,000, for example, will it then have already become too late to avoid mass undernourishment and suffering among our people?

This paper will examine the present population situation of Philippine society. It will endeavor to provide materials by which the intelligent layman can reach conclusions as to the proper course of action for the nation to follow.

THE ASIAN CONTEXT

North Americans and Europeans are concerned about recent population growth in South America and the ability of this region to support itself. The region has indeed grown rapidly. In 1960, in all Latin America, from Mexico southwards,

there were 213 million inhabitants, although there had been only 163 million in 1950.

Against this background, the immensity of Asian growth compared with that of Latin America starkly stands forth in the following statistic. Between 1950 and 1960, the population of Asia grew by some 280 million persons. In only ten years Asia added considerably more to the world's population than Latin America had been able to supply in all its years of existence.

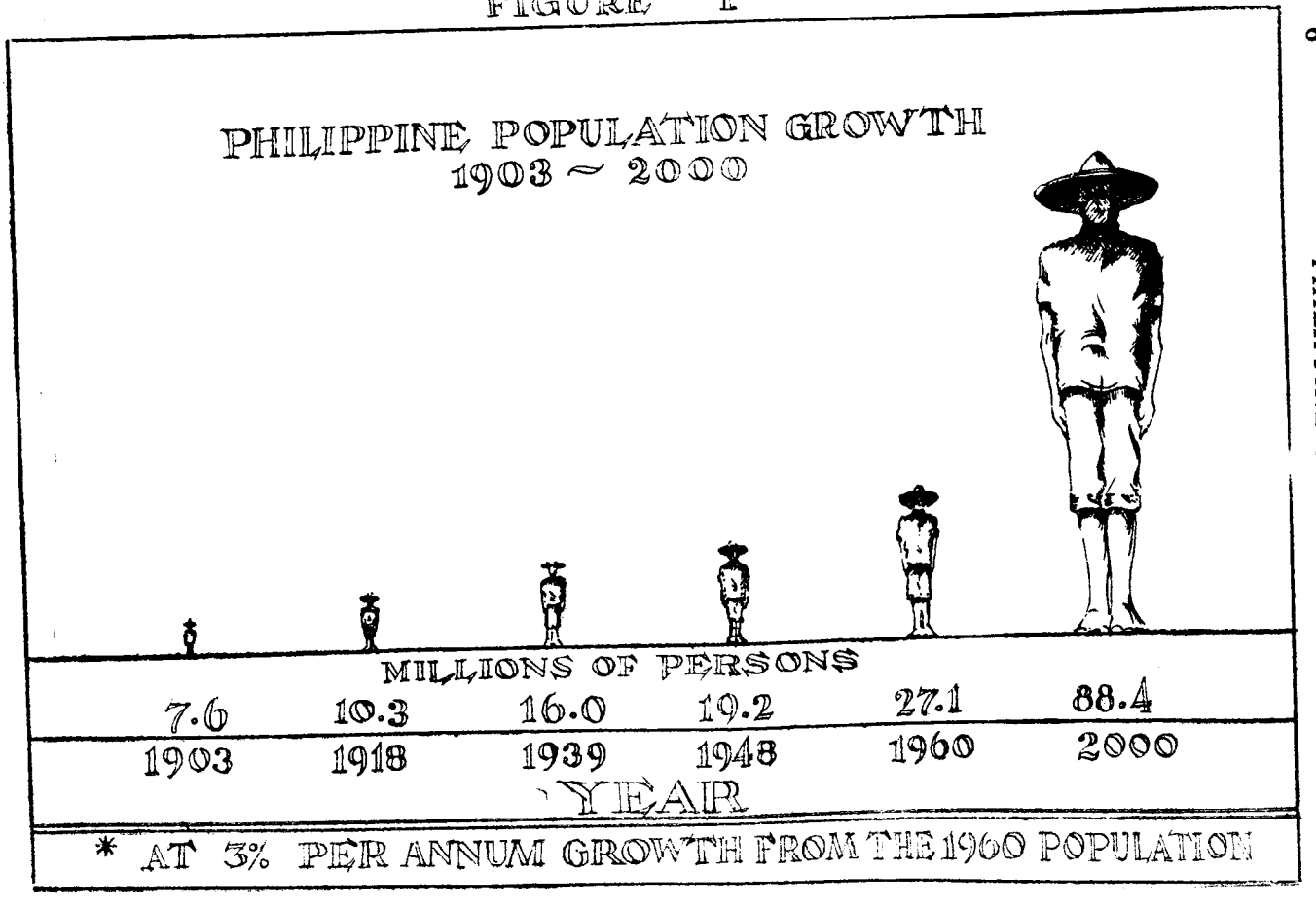
How does the population growth of the island republic of the Philippines fit into this Asian context? First, while the Philippine population is not among the larger populations of Asia, only three countries of the western hemisphere equal or surpass the Philippines in population size. These are Brazil, Mexico, and the United States. Canada, the vast territory to the north of the United States, had only 19.6 million persons in 1965, while the Philippines had more than 32 million. Secondly, the Philippine population is one of the most rapidly growing populations of all the countries of Asia. By 1939, the Philippines had more than doubled its 1903 population of 7.6 million persons. It then jumped to 19 million in 1948, and to 27 million in 1960. In a little less than 60 years, it had come close to quadrupling its size.

If the Philippine population continues to grow at 3 per cent a year (which is less than its rate of growth between 1948 and 1960), it will number 88 million inhabitants in the year 2,000, more than the present population of Brazil, the largest country of Latin America. By the middle of the 21st century, it will grow to 387 million persons, and by 2070 it will reach 700 million persons (See fig. 1).

DYNAMICS OF GROWTH

Some knowledge of Philippine medical history is necessary to understand what has caused this mushrooming of population. For centuries the country was plagued with malaria, small pox, typhoid fever, influenza, tuberculosis, cholera, and gastro-intestinal diseases. A very high birth rate was neces-

FIGURE 1


PHILIPPINE POPULATION GROWTH
1903 ~ 2000
MILLIONS OF PERSONS
7.6
10.3
16.0
19.2
27.1
88.4
1903
1918
1939
1948
1960
2000
YEAR
* AT 3% PER ANNUM GROWTH FROM THE 1960 POPULATION

sary to balance an appallingly high death rate and to permit a very slow rate of population increase.

Then within seventy years, mortality declined from more than 40 deaths per thousand persons to less than twenty. Particularly large gains were made after Word War II. Epidemiological innovations like spraying DDT in areas infested with malaria-bearing mosquitoes and other insects, widespread vaccination against cholera, small pox, and other diseases, the quarantining of persons with communicable diseases, and care to provide pure water sources have been important factors in accomplishing this result. New drugs, especially the antibiotics, a more generous supply of medical personnel and facilities, and better nutrition have also played an important part.

This mortality decline occurred too rapidly from a cultural point of view to permit a corresponding decline in the birth rate. Accordingly, an extremely large surplus of births over deaths (called "natural increase") eventuated. The necessary adjustment of thinking and of attitudes toward a lower fertility and a smaller average family size has not yet taken place. Nevertheless, the coming decades require such changes if the nation is to preserve the small but hard-won gains in standards of living it has achieved since the thirties. The following estimated birth and death rates for 1960, show how fertility, which in times past had to be high to counteract mortality, has remained at its high water mark, while mortality has fallen away to less than half its former magnitude. The result has generated an annual increase in population of more than 3 per cent.

Births per thousand	50.0	
Deaths per thousand	18.5	
Increase per thousand	31.5	3.15 per cent

DENSITY, CULTIVATED LAND, AND CROP YIELDS

One reason for lack of public concern about the high rate of Philippine growth and about the continuing high birth rate

FIGURE 2

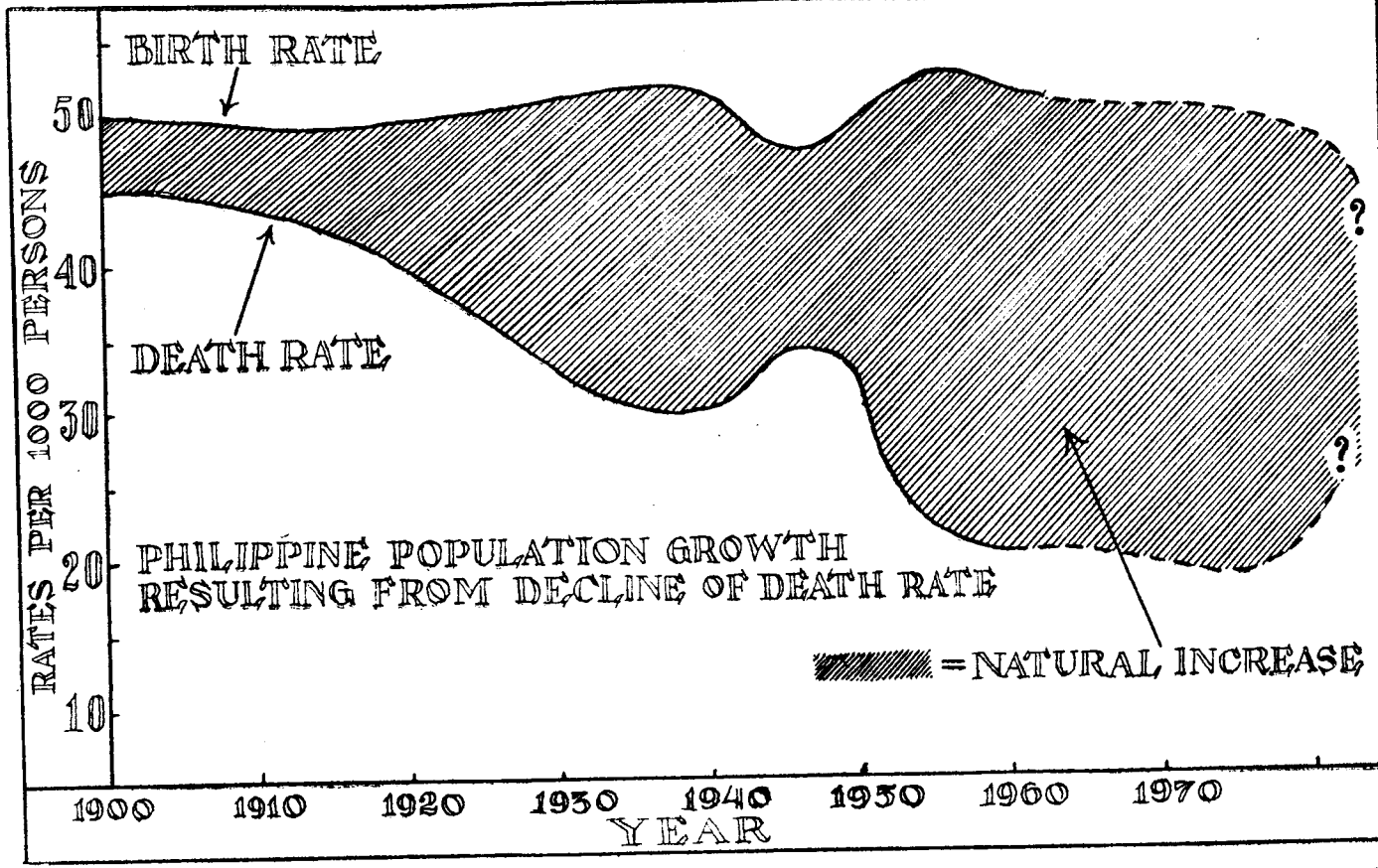


Figure 2 shows that the death rate may take an upswing in the decades after 1970; unless the birth rate declines sufficientl to relieve pressures upon standards of living.

has been the illusion of a large frontier of open agricultural land awaiting the adventurous homesteader either in the southern island of Mindanao or in the Cagayan Valley of northern Luzon.

Mindanao was indeed lightly populated during the thirties and forties. But large migrations to Mindanao since World War II have now more thoroughly peopled its lands. Slightly less than 3 million square acres of unclaimed agricultural land remained in February of 1963, chiefly in isolated locations. If divided into 14.8 acre homesteads, 200,000 new farms could be opened which would make a frugal prosperity possible for an additional 1,200,000 persons. However, the population increase of the Philippines now totals more than one million persons a year.

Unclaimed but cultivatable land in the Cagayan Valley of Northern Luzon is much less. Available data make it safe to say that not more than 40,000 new homesteads, averaging 14.8 acres in size, could be opened in the area. In fact, this figure may seriously exaggerate the potentialities. At six persons per family, this would provide for not more than additional 240,000 persons.

The Philippine national territory covers a land area of 115,848 square miles. In 1960, the density per square mile was 234 persons. This had increased to 269 persons by 1964. A glance at the following figures will show that the Philippines is already about as densely populated as Pakistan and seventy per cent as densely settled as India.

Country	*Density per Square Mile, 1964*
United States	54
Burma	93
Indonesia	179
Mainland China	186
Philippines	269
Pakistan	274
India	401

Twenty-six per cent of the national land area was cultivated in 1960. This figure means that this much land lay with-

in farms, although the figure includes pasture, idle lands, and forest cover. The number of persons supported by each square mile under cultivation, called the "nutritional density," is a good indicator of population pressures in predominantly agrarian societies. The Philippine nutritional density was 904 in 1960, while it was only 523 and 710 for Burma and India, respectively. Note that the nutritional density of the Philippines is already greater than that of India.

Only .7 acres of cultivated land are available per person in the Philippines at present. Intensive farming methods might therefore be used to obtain high yields per acre. However, two factors make this difficult. First, a substantial proportion of the Philippine land surface consists of sloping and rocky soils. With the high annual rainfall, erosion has occurred in many places, while the rocky soils are hard to plow. Secondly, antiquated methods of farming still hold sway among the mass of small, owner-operated or tenant farms, which typify Philippine agriculture.

Rice is the major staple food crop of the Philippines. Unhulled rice averages from 10.8 to 25.3 hundreds of pounds per acre in seven rice producing nations of Southeast Asia. In 1960, the Philippines had the lowest yields per acre of all seven countries. Taiwan produced two and one-half times as much rice per acre, and even Burma, a developing nation, produced 31 per cent more. Relatively low yields per acre also held true for the second crop, corn, for sugar cane, an important export, and for many other crops. This low productivity compounds the difficulty of the population problem in the Philippines.

DEPENDENCY AND EMPLOYMENT

In England in 1960, aproximately three workers supported two dependents. By way of comparison, in the Philippines for the same year every 52 workers supported 48 dependents.

Why was this? The number of aged persons in the Philippines was not large but relatively very small. It was because in 1960 persons under 15 years of age comprised 46 per cent

of the population. Close to half the population (48 per cent) were in the low-production, high-consumption groups of persons under 15 or above 64. This is a relatively heavy load of dependency. The question immediately poses itself, will this load get lighter or heavier? The answer depends upon the future course of the birth rate. If it continues at its present high level it will get heavier. If fertility declines substantially, the load of dependency will get lighter.

Note that 83 per cent of all persons were under 40 years of age. The implications for leadership by the young are evident. This sheds light on the importance of the KAMI youth movement in Indonesia, and of the "Red Guards" in Mainland China. Some 80 per cent of the population are also less than 40 years old in these countries.

The Philippine labor force includes persons 10 years of age and over. The estimated number of unemployed in 1960 was 7 per cent. This figure conceals the true extent of unemployed talent. This can be gathered from the distribution of employed persons.

About 65 per cent of the 8.5 million persons in the labor force in 1960 were engaged in agriculture. Half of these were self-employed. Forty-five per cent of the entire labor force was similarly self-employed.

These facts suggest why most self-employed farmers were engaged upon small, uneconomic farms and why most self-employed persons in the un-agricultural occupations engaged in such jobs as barbering, boot-blacking, and driving carriages. The lack of profitable alternatives which would more fully utilize their abilities is the reason.

Industrial investment has not been great. Development of industries has lagged. The result has been that the movement of workers out of agriculture into industry and the services during the past two decades has not been large.

EFFECTS OF PRESENT GROWTH ON FAMILY ATTITUDES

The Philippines is chiefly a rural nation. Most of the people live in small villages scattered through the 7,000-odd

islands that make up the archipelago. They are strongly set in their ways, and the voice of elders and of tradition carries great weight in determining the behavior and attitudes of younger people.

Yet several reasons suggest that age-old attitudes relating to large families and high fertility will change drastically over the next fifty years.

Why is this so? The death rate began to decline substantially only seventy years ago. This was chiefly due to better sanitation and epidemiological provisions by government rather than to any change in attitudes among the masses. Will it not take this mainly rural populace many generations to adopt a new outlook on something so sacred as fertility behavior and family size?

Hardships of supporting large families and population pressures upon jobs and resources will generate the change, in the opinion of the present writer. It will be impossible for the Philippines to continue growing at its current rate without generating these hardships.

Suppose the population continues to grow at 3 per cent a year. By the end of the century, density will rise to 700 persons per square mile. Only fifty years later, there will be 3,340 persons, and in 2070, 6,040 persons for each square mile.

Representative examples of very densely settled nations today are Japan and The Netherlands. The population density of these in 1964 was:

Japan	678 persons per square mile
The Netherlands	935 persons per square mile

Neither density even remotely approaches that which the Philippines will have by 2050 if it continues to grow at 3 per cent. Some very crowded cities of course are as densely settled as this. For example, Hong Kong in 1964 had a density per square mile of more than 9,200 persons. But can city conditions such as those of crowded Hong Kong be multiplied across the entire face of the Philippines? A substantial part

of the present land area would be taken up simply by residence districts.

Can the essential requirements of food, water, clothing, housing, educational necessities, employment opportunities, and recreational facilities be supplied to a population of 390 million persons from the productivity of the Philippines alone? If not, how can such a population be long maintained? The quantities necessary stagger the imagination.

FUTURE FOOD NEEDS OF THE PHILIPPINES

Food may not be the most difficult of the items mentioned above to supply. Yet it is a convenient item for attempted measurement of possibilities. To simplify the problem, rice, the nation's staple food, is taken as the unit of study.

The Philippines produced 3.6 million tons of unhulled rice in the crop year, July 1959 to June 1960. This provided each person with an average of 265 pounds per year.

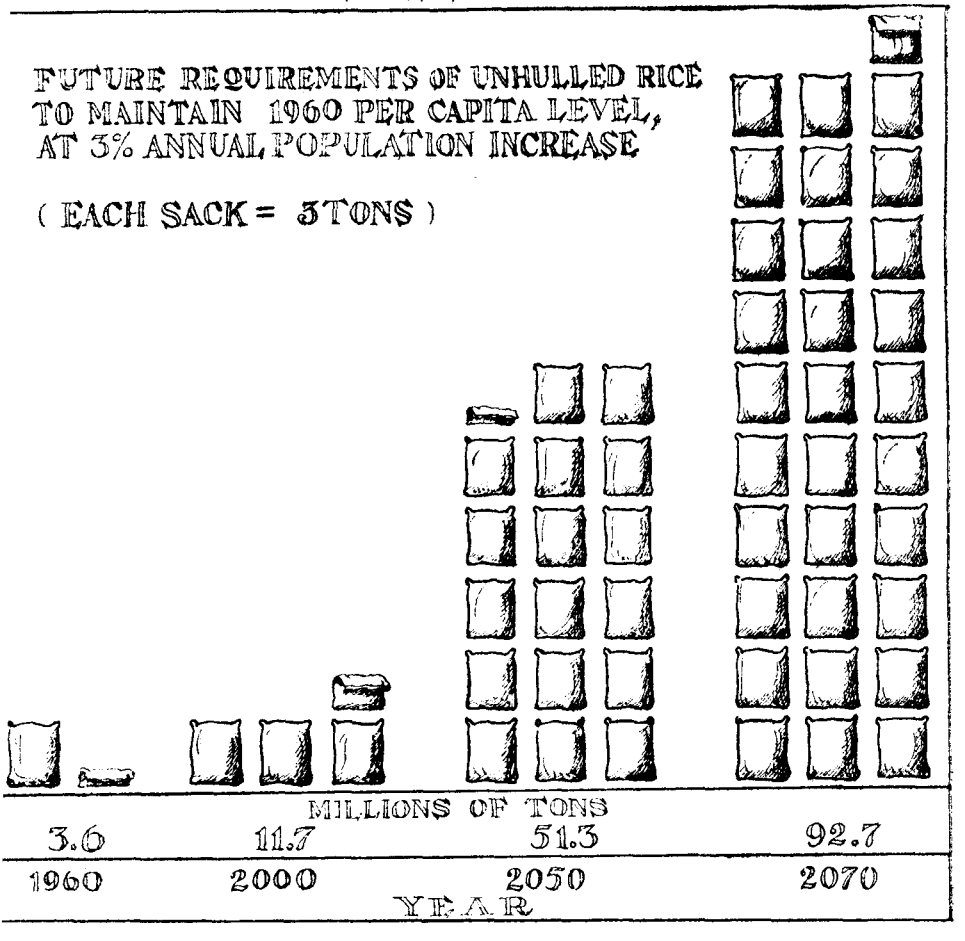
This was not an ample ration. Yet let us suppose the country continues to grow at 3 per cent. To provide the same ration per person for the 88 million people expected in 2,000 A.D., 11.7 million tons of unhulled rice must be produced on Philippine farms. A crop more than three times that of 1960 must be raised.

But producing this will be a small feat compared to required production in the year 2050. Simply to maintain present standards, 51.3 million tons of unhulled rice must be produced in that year. This amount is 14 times larger than the 1960 production.

But one cannot stop at this point. If the population continues to grow at 3 per cent, each year more and more rice must be produced. In a densely populated territory like the Philippines the extent to which rice production can be expanded during the next 70 to 100 years is limited by practical as well as technological considerations. As an example of this constantly expanding need for food, in 2070, only slightly more than 100 years from the present, 92.7 million tons of unhulled

rice will be required to supply the 700 million persons that will then inhabit the Philippines with the same ration each person had in 1960.

FIGURE 3



POTENTIALS OF PHILIPPINE AGRICULTURE

We do not know what scientific farming techniques will be available by the year 2050 or 2070. By farming all available lands with the most progressive agricultural techniques known

in those years, these crop requirements may possibly be achieved, which at present seem so staggering.

We can form an opinion by assessing present potentialities. We again limit ourselves mainly to one crop, rice, and let it stand as an example of other potentials.

To what extent can Philippine production of rice be expanded?

At once, many hopeful facts spring to our attention.

1. Average Filipino farm families work about five months of the year on their farms. Irrigation can make their lands productive all through the year.

2. Diversification of crops is not practised widely. Widespread diversification, especially with irrigation, can greatly increase both quantity and the value of farm products.

3. Average per acre yield of unhulled rice, as said before, is the lowest in seven major nations of Southeast Asia. New varieties of lowland rice yield as much as 2.4 to 3.6 tons per acre, whereas present production is only half a ton per acre. These new varieties are proving suitable for wet rice production in the Philippines.

4. Experts believe that the 7.7 million hectares of 1960 farmlands can be increased to 11.1 million. The 42.9 per cent additional area would come from present marshes, swamps, brush lands, and open country. (The percentage is based on more precise totals than shown here.)

5. Little use of fertilizers and of pesticides has been made by Filipino farmers. Advanced agricultural techniques have not been widely applied. Increased application of fertilizers and pesticides, and more widespread practice of better technologies can therefore greatly increase production.

What yields of rice can be expected if maximum advantage is taken of the above factors? Let us suppose that rice lands can also be expanded by 42.9 per cent, and that varieties of upland (dry) rice cen be developed which are as productive as the new lowland varieties. Upland rice constituted nineteen per cent of the 1960 crop.

At 3.6 tons per acre, total unhulled rice production would rise to 35.1 million tons. This is nearly ten times the 1960

output. We assume that other food crops grown at present can also be multiplied, and their yields supplemented by diversification, multiple and inter-cropping. Substitution for present crops of higher-yielding and equally nutritious foods like soy and mongo beans is also possible.

Vitamins and some amino acids can already be synthesized and put into crops or manufactured products which do not naturally have them. On-going research will make it possible to synthesize cheaply many other food elements and to add these to the diet.

By-products of agricultural production like the chaff from rice (rich in the vitamin B complex) and cornstalks and cobs can be used more extensively in animal feeds, for fertilizer, or for synthesis of vitamins.

The off-shore fisheries in Philippine waters can undoubtedly be developed to yield a much greater volume of protein food. Well-managed coastal or inland fishponds can swell this total substantially.

Finally, a period of revolution in agriculture has already begun which dwarfs previous advances in this field. Food elements have been synthesized. New high-yielding varieties of seeds have been produced. The growing of crops in water, and the use of radioactive isotopes to increase size and quality of crops are only two of the new agriculture's more spectacular potentialities. Equally radical and new procedures are revolutionizing the preservation and storage of food.

These potentialities make it hazardous to say that the farm lands and water resources of the Philippines cannot support a population of 300 to 700 million persons. The crucial questions however are: Can it do so within 80 to 100 years? Can such economic growth outdistance population increase? Is there no limit to population size for which food essentials can be provided from Philippine agriculture? Finally, will not the residential space required for a population of half a billion persons diminish land available for agriculture so much that it will set eventual limits to further population growth?

SOCIAL AND CULTURAL ROADBLOCKS

The expansion of Philippine capacity to feed, clothe, house, and educate a population of 700 million persons within about a hundred years may be theoretically possible. In fact, development of such capacity within this time will not take place, the present writer believes. Too many human obstacles stand in the way. What are some of the difficulties?

The nation's agricultural land is split into millions of small farms of uneconomical size. These are operated by owners and tenants steeped, for the most part, in unprogressive, traditional methods of farming. The difficulties of dealing with so many individualists is a major reason why little increase in per acre crop yields has been made despite many programs for this purpose since World War II.

Many of the new technologies require more work and more capital from the farmer. In many cases, the required capital is practically not available. The farmer is not easy to persuade that results of the new technology will repay additional hours beneath the broiling tropical sun. The infestation of many farmers with intestinal parasites and the weakness of many from malnutrition compound their reluctance.

Community outlook upon large crop yields due to initiative and additional hard work is not encouraging. Relatives and friends look upon such yields as due to "good luck" rather than to personal initiative. The person blessed with such a windfall is expected to share his surplus with poor relatives and friends who come to ask food. Often the farmer who has raised a large crop, is left with less surplus by relatives and friends than he obtained from ordinary crop yields. Farmers weigh this consideration against the greater yields promised.

It takes time to multiply agricultural output. Japan took about fifty years to double production when it began to modernize its agriculture. Yet Japan enjoyed advantages of national solidarity, accumulated capital, and receptivity to innovation which Philippine agriculture does not share. It is not enough for the Philippines merely to double output within 50 to 100 years. It must multiply it ten to thirty times over.

National administrations since World War II have been more concerned with showy short-range objectives which satisfy political needs than with long-range objectives to solve the country's problems of food production. The program of one administration have at times been left to wither on the vine by the succeeding administration because initiated by the rival party. Genuine leadership has not led the country to face squarely its need for increased production nor to organize effectively to meet necessary goals.

Finally, Philippine society is organized upon familial rather than community or national bases. The thinking which is genuinely concerned with pursuit of national goals is largely non-existent. Time will be required for loyalties to country and community to begin to outweigh loyalties to family and kin. Solicitude, thinking, and planning do not usually extend to wider circles at present than those made up of relatives and friends.

WHICH ALTERNATIVE?

The writer concludes that Philippine production will not be large enough within a hundred years to support a population of 390 to 700 million persons. Population growth therefore cannot continue at 3 per cent a year until the middle of the next century.

What are the alternatives?

There are only four.

First is emigration. If half a million persons emigrate from the Philippines every year for seventy years, its growth rate during this time will be almost halved. It will be easier to support a population increasing at this rate.

The condition is not possible to fulfill, however. No nation or nations will welcome 500,000 immigrants every year from another country, including the Philippines. Few countries today will admit large quotas of immigrants from any single nation, much less half a million annually.

Further, such emigration will not solve the root problem. It will merely postpone solution. It will not affect the birth

rate. At the end of the seventy year period, when the recipient countries have grown to the point where they decide to restrict immigration, the Philippines will be back in the same situation as before.

A decline in birth rates until a growth rate is reached which the country can support, is the second alternative. This alternative is preferred. It is also practicable. Parents can restrict the size of family through voluntary control over their own fertility. It is also humane. Death rates can remain at their relatively low levels of today. They can be brought even lower through further medical progress.

If the birth rates do not decline, the third alternative will solve the problem but in a most undesirable fashion. Death rates will spiral upwards to a rate of increase which the economy can support. Deteriorating standards of living will result in greater susceptibility to disease. The aged and the very young will be the principal sufferers. One cannot preclude the possibility of famine in years of drought unless developed nations lend assistance. There will be little reserve to fall back upon because of population pressures.

The fourth alternative combines a more gradual decline in birth rates with a more moderate increase in death rates. Since many combinations are possible, this alternative is actually multifold. All combinations imply deteriorating living standards and increased suffering by the population in comparison with the present.

The hard conclusion from the foregoing considerations is that the Philippines is embarked at present upon a collision course with societal shock and suffering of major proportions. Extensive economic development coupled with a large-scale decline in fertility are the only means of escape. Fortunately, the necessary change in attitudes may take place in time.

PORTENTS OF CHANGE

In 1963, the present writer made a study of fertility in Cagayan de Oro City, a medium-sized Filipino city. No decline in the over-all birth rates was noticed between 1948 and 1962.

However, modest differentials were found between birth rates of the upper social classes and the higher income groups and birth rates of the less privileged categories of people. The birth rates of the higher social categories were lower.

This finding corroborated studies made in Manila and for the Philippines in general which had found lower fertility among the more privileged social groups.

These differentials may depend less upon voluntary restriction of birth than upon greater demands upon the time and energies of husbands and wives with higher social class position. Business and social affairs which take place at night may be particularly tiring and in any case draw one's presence and attention away from the family circle. Someone once said that the electric light is one of the most effective means of birth control.

Yet reasons exist for suspecting that practice of family planning methods is growing among upper class couples. A vigorous campaign for birth limitation is being waged in the newspapers, over the radio, and through mass meetings by family planning organizations. Anovulant pills are selling very rapidly in the Philippines. Married couples are showing greater interest in learning modern methods of periodic continence ("rhythm"), and several centers for giving such instruction have been set up. Sixty-two per cent of the 2,074 wives in the 1963 Cagayan study said that they believed ideal family size to be less than six children, although average completed families had more than six children in 1960. Finally, 86 per cent of the women in the same study explained friends' desires to limit size of family by saying that economic and health motives impelled them either strongly or moderately strongly as opposed to "slightly."

The point is this. Leaders of community thought are usually found in the upper social categories. These are the men and women who generate changes in traditional behavior because they initiate the social decisions which are echoed by their friends and followers and then imitated by a wide cross-section of the people. What these leaders of thought think

and argue for, becomes translated into behavior by many others.

The evidence cited above leads one to suspect, if not to conclude, that a small but substantial number of persons in the more privileged social categories have begun to practice voluntary regulation of birth both regularly and effectively. While their numbers are too small to modify the over-all birth rate appreciably, their influence can be expected to diffuse to those in lower social categories who look to them for guidance and ideas. Eventually, attitudes toward the large family and toward fertility restriction may change to cause a substantial decline in fertility, at least in urban populations.

On the other hand, Dra. Lourdes Lapuz, a Manila psychiatrist, believes that Filipino wives are insecure without large numbers of children. She argues that there is little shoulder-to-shoulder companionship for them with their husbands. The men go out almost every night with their male friends and the wives are left at home. The wife bases her psychological security on her children and for this reason will still continue to have large numbers of them, whatever she may say in answers to questionnaires, says Dra. Lapuz.

SHAPE OF THINGS TO COME

Actual events are hard to predict. But the present situation suggests that they may take the following course.

Urban birth rates may begin to decline appreciably within one decade. Rural people however do not easily change family customs. Little decline is likely in the rural birth rate for twenty years or longer. Since the bulk of the people live in the rural areas, the Philippine population will continue to grow at a rate not far from 3 per cent a year.

Difficult conditions of life will increase in the countryside. Farms will become smaller and less economical under pressure of growing numbers. Money lenders and middlemen will accumulate more property. An increasing number of former owners will become tenants. Standards of living in the rural areas

will decline, perhaps so gradually that the ordinary person will hardly notice the change.

Because of population increases and lack of food reserves, a severe drought or disastrous crop year from other reasons will suddenly cause severe food shortages throughout the nation, urban and rural. Large numbers of people will find themselves in real difficulty. Other countries will supply relief foods and after some time the crisis will be temporarily met. Due to delay in arranging for and transporting the foodstuffs, however, death rates will rise among both the very young and the aged.

Such lean years will begin to occur with more frequency and regularity. The possibility of temporary famine on one or more of these occasions cannot be excluded.

Under impact of these events, even rural people will begin to question the desirability of large families. Government and private family planning agencies will receive a more attentive hearing. More and more rural people will begin to practice family planning. The birth rate and the rate of population growth will decline.

But the number of young people of marriageable age in the population by 1980 or later will be so large that for some time the absolute size of annual population growth will be greater than before. This will further convince people of the dangers of overpopulation, and the birth rate will fall still lower.

Once the birth rate has begun to decline substantially, it may be a very short time, relatively, until small families become ordinary, and the birth rate fall to less than half its present size. This may take place within one or two generations. After this decline has taken place, it is not unlikely that the birth rate will ever rise again to approach 1960 fertility.

HISTORICAL PRECEDENTS

Are there grounds for confidence that a fertility decline will take place before large-scale perennial hunger and under-

nutrition become prevalent and before recurring national disasters are common?

The reaction of the Irish and Japanese populations are cases in point.

The situation of Ireland during the first half of the 19th century resembles that of the Philippines at present. Further, the Philippine populace today is certainly much more literate than was the Irish population in 1845. The Philippines should be able to respond to crises more rapidly than the Irish of that time.

A Catholic nation inhabited by a largely rural population like the Philippines, Ireland had a tradition of large families and many children. Its population had grown from 2.9 million people in 1760 to about 8.5 million in 1846.

In 1846, the potato blight destroyed the basic food crop of the Irish. The number who died of starvation or of diseases brought on by undernutrition ranged somewhere between 275,000 and 1,000,000 persons. As many as 1.2 million persons felt it best to emigrate to other countries.

The reaction was almost immediate. The Irish began to control family size through late marriage. Both the birth rate and the rate of growth declined drastically. The total population decreased to 5.8 million in 1881, and in 1964 stood at only 4.3 million persons.

Different circumstances triggered the Japanese reaction. But the reaction was similar, a drastic decline in birth and growth rates.

Before World War II, history had furnished many reasons to convince thoughtful Japanese of the dangers of overpopulation. Nevertheless, between 1941 and 1943, fertility in Japan was as high as 30 births per thousand persons. In 1947, the birth rate reached as high as 34, due probably to postwar reunion of husbands with wives, and to other postwar re-adjustments.

But many associated the military adventures of World War II with overpopulation. They remembered the terrible bombings of Japanese cities. The hard economic times between 1945 and the early fifties were further arguments for the advantages of small families.

After 1947, the birth rate began to fall precipitously. By 1952, it had fallen to 23 births per thousand, and by 1961, it reached the low level of 16.1, a birth rate for that year lower than that of France, most European countries, and the United States. Since 1961, the Japanese birth rate has never risen above 18 births per thousand, and her rate of population growth for the present declined below zero.

Until unemployment, increased death rates, and other hardships are consciously associated by the common man with the effects of too high fertility, substantial decline in the birth rate will not take place. One year or two of moderate hardship and suffering may not be enough. But several recurrences of hard times should drive the lesson home. The Philippines does not lack aggresive family planning organizations, mass media, and native intelligence.

ANTICIPATED POPULATION

Whatever the circumstances of change, the Philippine population will not continue to expand indefinitely at its present rate of growth. Between the present and the early decades of the next century, rate of growth will slow down.

Plans must be made for economic development and for provision of necessary utilities and services for 1980 and 2,000. For this purpose, population size in these years must be projected as realistically as possible.

Professor Frank Lorimer has attempted this. To sketch the outside limits of the population sizes likely at these dates, he made two sets of assumptions.

First, he assumed that mortality would continue to decline to the year 2,000. The present writer is not confident of the validity of this prediction unless there is corresponding fertility

decline. But the assumption makes possible calculation of maximum population limits to be expected, and so it is useful.

Professor Lorimer does not really try to forecast the course of the birth rate. Instead he makes three projections. The first assumes that family size and the birth rate will remain unchanged. The second assumes that average family size will decline from 6.8 to 2.8 children. The third assumes a birth rate decline only half as large as that in his second assumption.

These forecasts are shown below. Note that even the lowest forecast, which assumes a decline in fertility to a rate of 24 births per thousand persons in 1997 still results in a population of 73 million persons in the year 2,000. The many young people in the population in 1960 (83 per cent below 40 years of age!) will make the leveling off of population growth a slow process even though substantial reductions in the birth rate occur before the end of the century. Later, however, large differences will be evident.

	Population in Millions			
Fertility Assumption	*1970*	*1980*	*1999*	*2,000*
Constant Fertility	37.7	53.4	76.7	111.1
Medium Fertility	37.4	51.4	69.8	91.7
Low Fertility	37.1	49.0	61.0	72.7

When fertility begins to decline, the dependency burden upon the working population will be lightened. Fewer children per family will result in a larger proportion of the total population in the working force. Lorimer's forecasts make this clear. Compare for example the number of persons of working age with the number of persons below 15 or above 64 in the following table. The number of workers is clearly larger as fertility declines.

Number of Persons Per Thousand in Age Groups

Fertility Assumption and Ages	*1970*	*1980*	*1999*	*2,000*
15-64 Years Old	513	508	503	499
Below 15 & Above 64	487	492	497	501
	1,000	1,000	1,000	1,000

Medium Fertility				
15-64 Years Old	516	527	540	565
Below 15 & Above 64	484	473	460	435
	1,000	1,000	1,000	1,000
Low Fertility				
15-64 Years Old	520	553	605	644
Below 15 & Above 64	480	447	395	356
	1,000	1,000	1,000	1,000

The dependency load upon workers should grow lighter by the end of the century, if the present writer has correctly assessed future population growth. It may not fall quite to Lorimer's low projection of 3.6 dependents for every 6.4 workers in the year 2,000. It may not even drop to 4.4 dependents for every 5.6 workers as in Lorimer's medium fertility projection. But five workers will at least support less than five dependents, if fertility has declined substantially by that time. Eventually, the dependency load will fall below Lorimer's low forecast for 2,000.

This can mean higher per caput income and higher standards of living for each family. For this, over-all economic growth must outgain population increase between 1967 and 2,000. This may be hard to accomplish, as said previously. Population is very likely to outstrip production until fertility begins to decline substantially. In any case, a lower dependency load will mark a turning point on the road to better economic conditions.

RELEVANCE TO THE CHURCH

Eighty-four per cent of all Filipinos profess Catholicism as their religion. The church, especially through Pope Paul's recent encyclical, *Progressio Populorum*, has approved fertility restriction as a good for serious reason on both national and family levels. But so far, the only means of fertility control which the Church has positively approved are delayed marriage and continence, especially periodic continence.

Catholics, through lay and religious leaders, are carefully studying the moral qualities of contraception. If these deliberations open the door to use of contraceptives for good rea-

son, then ready means are at hand for solution of the Philippine population problem. At the same time, no particular conscience problems will arise for Filipino Catholics.

But if the decision is negative, accomplishment of fertility control will be more difficult. The means will be delayed marriage and periodic continence.

Prediction of day of ovulation by simple tests would make rhythm very safe and easy to practice. Days of abstinence per cycle would be cut to five or six. Biologists have recently predicted the appearance of such a test in the near future. Whether or not they can actually deliver it remains problematical at present, as well as the time required to perfect it.

In case of a negative Church decision on contraception, the government's population policy might advisedly take several directions.

First, it might establish a national development corps to engage young men in volunteer work on development projects in rural areas of the country. Young women might similarly be engaged as volunteers in nursing and social work among city poor and rural peoples. This would be calculated to raise average age at first marriage enough to cut national fertility substantially, if terms of service were two years.

Secondly, the government might establish a first-rate training headquarters in one or more central localities to which doctors and nursing personnel from all parts of the country would be invited to come under fellowship assistance for several weeks of instruction. At headquarters, these medical personnel would be taught efficient ways of communicating the more effective forms of periodic continence to all classes of people, and also would learn how to make efficient use of available volunteer help.

Thirdly, the government might subsidize, partially or wholly, private groups established to impart instruction in periodic continence.

Finally, besides a thorough-going informational campaign on the need for control of fertility in view of the national prob-

lem, the government, through its public health clinics and other centers, might provide information and training in techniques of periodic continence. However, pressure should not be brought to bear upon families who wish to have more children than the particular average set up in governmental programs. Precautions should be built into government programs to preclude use of such pressures.

Periodic continence in its newer forms can be a very effective means of birth regulation. Effective instruction and a high level of motivation are essential for success, however. The experience of the SERENA group in Canada, of the Catholic Marriage Advisory Council (CMAC) group in the United Kingdom, and of the CLER group, both in France and in Mauritius Island, a developing area of some 700,000 persons, furnish examples of actual, large-scale success in regulation of birth by this means. The CMAC has recently carried out an experiment with proper controls which shows that temperature rhythm almost equalled anovulant pills for low percentage of method failures.

If the Church's decision on contraception is negative, it is most desirable that the Church hierarchy very positively encourage establishment of centers for family guidance with particular stress on providing instruction in periodic continence.

SWITCH TO A BUYERS' MARKET

Two of the outstanding economists of modern times, J. M. Keynes and Alvin M. Hansen, thought slowing down of population growth was one of the chief causes of the great depression of the thirties. Contraction of growth lessened expansion of demand, and caused decrease in production. This in turn increased unemployment which further decreased demand because of lowered purchasing power. A second round of production decreases was triggered by this declining demand which again led to cut-backs in employment. The result was a downward spiral into depression and widespread unemployment.

Since the Philippines must necessarily cut its rate of population growth, precautions to protect the economy by sti-

mulating consumer demand must be made. Greater per caput buying is necessary to maintain and increase production.

Continual expansion of population provided a sellers' market in the past. Dangers of overproduction were not great. Competition among buyers kept prices high and sold the product without much need of customer-centeredness.

When rate of population growth declines, increase in population, while still large at first, will not be as great in percentage terms. The essential character of the market will change. It will not continue as a sellers' market in which buyers compete for relatively rare goods (for example, bags of cement). Sellers will rather compete to secure the buyers' peso. Appropriate changes must be made by business and industry in terms of advertising, credit, and customers' services in order to stimulate buying of their products, and a greater volume than before of buying per family. The example of Japan shows that this can be done.

CONCLUSION

The Philippines is a young nation with a dynamically growing population and a land rich in agricultural and mineral resources. Paradoxically, its very strength is its source of weakness. Its rich lands and warm climate have in the past provided easy foundations for the support of life. They have also encouraged formation of an easy-going philosophy of life. With the introduction of modern methods of disease control, they have laid the grounds for a tremendous expansion of population. This expansion now threatens to reduce the nation to a chronic condition of malnutrition and impoverishment. The present writer is confident that the Filipino will solve the problem both by increasing production and by reducing rate of population growth. This will mean a higher standard of living for the man on the street. However, hardships of great magnitude may lie between that achievement and the present.

The *manner* of achievement also will be of concern to the Church. It will be tragic for the people of God if they lose this

only Christian nation in Asia to the forces of materialism and secularism in the struggle to resolve the population problem.

Whatever the Church's decision upon contraception, Catholic leaders, lay and clerical, must play an active and forceful role in seeking solution to this paramount problem of the Philippine nation during the next fifty years. Institutions capable of meeting the challenge must be planned, set up, and competently administered.

To avoid involvement, to disengage, to follow an ostrich policy will be fatal. It will put the average Filipino Catholic in a position where he must deal as an isolated individual with the moral aspects of the problem. Would it be responsible policy for Catholic leaders to put his faith to such a test?

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