

the government to private industrialists for grazing purposes. Of 2 million heads of cattle, half a million are raised on these grasslands, of which the major part are scattered in Cagayan valley in northeastern Luzon, Mindoro, Masbate, Bukidnon and Cotabato in Mindanao.

Dr. Javier claimed that the emerging problem was to ascertain how the raising of cattle and other animals had affected the grasslands, tundra and savanna — and how these ecosystems could be made more productive. A study of an area's ecosystem, he added, and its rational and optimum modes of utilization and development with respect to its land could be a good start for a ecological probe. Dr. Javier suggested Mindoro island as the ideal microcosm because of its rich natural resources (marble, silica, copper, corals, logs, rattan and fish) as well as potential tourist areas, like Puerto Galera and Lake Naujan.

Task Force 3 was assigned the task, among other things, of surveying the island's net primary productivity and litter decomposition, and following up ecological changes attendant to plant succession and sedimentation rates, and ultimately, "providing guidelines for the optimal management and utili-

zation of grazing lands."

Task Force 5, on the other hand, was charged with studying municipal and domestic sewage and identifying substances entering rivers, lakes, estuaries and coastal zones by drainage or erosion. Task Force 6 would probe into the impact of human activities on the Philippine mountain ecosystems. Specifically, the unit, chairmanned by Dr. Raymundo Punongbayan, a UP geologist, would look into the ecologic effects of shifting agriculture, logging, mining, etc.

The study of effects of pollutants on terrestrial and freshwater ecosystems was assigned to Task Force 6. Its initial report that pollution was confined to cities jibed with Dr. Reynaldo Lesaca's observations.

The NWAPOC commissioner said the 150 firms located within the 30-kilometer radius from Manila dispose an average of 5 million gallons of waste water daily and an average of 750,000 pounds of organic waste, directly affecting rivers like the Pasig, Guiguinto, Balagtas, Maricao, Meycauayan, Pasolo, Polo and others.

And in a separate study, the NWAPOC found out that 15 to 20 ppm (parts per million) of carbon monoxide are emitted by some

289,232 motor vehicles daily in Greater Manila. Other pollutants from these vehicles include unburned hydro-carbon from gasoline, particulates, lead, oxidants (like ozone), alcohols (from gasoline combustion). As of June 1972, there were 281 firms surveyed and 117 factories sampled by the NWAPOC for stack emissions in the metropolis. Seventy-five factories sampled were found to have been contributing 2.55 tons of particulate and 7.55 tons of sulfur dioxide a day.

The work of Task Force 14 will be considerably boosted by a project drawn up by Mrs. Imelda Romualdez Marcos recently to salvage and beautify the Pasig river.

All task forces would be supervised by a horizontal group manned by scientists active in various scientific fields. The horizontal outfit, headed by Dr. Estela Li Zamora, dean of the UST Graduate School, would synthesize existing information and insure disciplinary approach between natural and social scientists, such that planning and integration would be feasible.

"Integration" or collective thinking

would relatively hasten ecological program. This is gleaned from the fact that ecological problems, which are common in industrialized countries though hardly surprising in underdeveloped ones, cannot be solved by biologists alone. Pollution, moreover, has become a bio-physical phenomenon heavy with social and political implications.

The MAB National Committee, likewise, headed by Dr. Zamora, was organized by the UNESCO National Commission of the Philippines on February 21 this year at the request of the UNESCO director-general. Composed of representatives from 17 government, private and academic institutions, the MAB National Committee coordinates and taps available manpower, laboratory equipment and other facilities, and maintains liaison with the Paris-based International Coordinating Council and the government for consultancy and technical support. It is to coordinate projects with the Environmental Center chairmanned by Mrs. Marcos. Created by Executive Order 342, the Center oversees environmental projects being prepared by both the government and the private sector.

POPULATION PROJECTION

The 16th most populous nation

The formulation of a country's social, economic and political policies is determined by the growth, change and distribution of its population. Statistical compilations are integral part in the drawing up of development strategies for countries that especially constitute the Third World.

On the domestic front, it is the Bureau of Census and Statistics (BCS) which collates such valuable information to serve as basis for government and private planning.

A total of 36,684,486 people were registered by the BCS on May 6, 1970, ranking thus the country as the 16th largest among the world's population, with an annual growth rate of 3.01 per thousand population.

Population density, if evenly distributed, would be 122.3 persons per square kilometer. This variation in population density ranges from a low to a high concentration and differs from one region to another. Hence, the uneven distribution of population density in the following areas: Region III-Cagayan Valley and Batanes, 54.6; Region I — Manila and suburbs, 34,746.4; Region IV-Western Luzon, 215.7; Region VII-Central Luzon, 176.4; Region VI-Bicol and Masbate, 168.3; Region II-Iloos and Mt. Province, 71.1; Region IX-Northern Mindanao, 75.7; Region X-Southern Mindanao and Sulu, 79.6 and Regions V and VIII-Southern Luzon and islands and Eastern Visayas, 148.0 and 148.8, respectively.

Manila and Rizal have the highest population densities of 34,746.4 and 1,529.7, respectively. On the other hand, the least populated provinces are: Palawan, 15.9; Kalinga-Apayao, 19.3; Agusan del Sur, 19.5 and Occidental Mindoro with 24.5.

Manila still holds the distinction as the most populated city in the Philippines, followed by Basilan City, 108.4; General Santos City, 107.9 and

Calbayog City, 104.5. The city of Puerto Princesa, in contrast, has only a 17.9 population density.

The urban population, which is about 31.8 percent of the total Philippine population, is concentrated in 1,184 poblaciones and central districts and 1,218 barrios; the rest, 68.2 percent, are scattered in the rural areas. Females predominate in the urban areas while the males abound in the rural communities. Urban population concentration in Manila, Rizal, Cebu and Negros Occidental comprise 11.39; 23.11; 5.59 and 4.31 percent of the total urban population. The least urbanized are the provinces of Ifugao, Kalinga-Apayao and Mountain Province.

The relatively young age structure of the population is due to the past levels and trends of fertility, mortality and migration. High fertility accounts for the present high proportion of children over adults. High mortality, on the other hand, indicates that only a few people managed to reach the upper age scale; low mortality shows otherwise.

The age median of 16.3 in 1972 is actually an increase over the 17.9 in 1970 because of constant fertility and a reduced rate of infant mortality. This makes the Philippines younger in terms of age composition. Ages 0-14 comprise 46.2 percent; 15-64, 51.3 percent; and 65 and over, 2.7 percent.

Literacy rate in the country is 83.4 percent. The illiterates comprise only 16.6 percent. As indicated in the report of the Bureau of Census and Statistics, females comprise 84.6 percent of the total literate population as against the 82.2 percent for the males.

Manila again holds the highest literacy rate with 96.4 percent; Rizal, 95.8; Bulacan, 93.5; and Zambales, 93.1. Provinces with a low degree of literacy are: Sulu, 41.7; Ifugao, 50.6; Mt. Province, 61.5; Lanao del Sur,



Filipino menfolk: A preponderance of youth

63.4; and Cotabato, 64.9 percent.

Over 40 percent of Philippine population are children under 0-14 years of age. Average birth rate is between 7.1 and 10.8 per thousand population. The lowest death rate is registered in Lanao del Norte with 1.3; the highest in Northern Samar with 11.6 per thousand population.

The different projections based on the actual head count of population and households are as follows: By 1980, the Philippine population will be 49.6 million under low projection; 51.0 million under medium projection; and 53.4 million under high projection. By 2000, it will have increased to 71.6 million; 83.9 million; and 96.6 million, respectively. The population projection is determined by rapid, gradual and constant fertility and a low decline in mortality. Women will continue to outnumber men until 1990 when the sex ratio will have increased between 0.74 and 0.91 percent over the males and will have, likewise, reached between 997.3 and 999.0 males per 1,000 females.

The degree of change in density will vary considerably from 122.3 persons per square kilometer in 1970 to 162, 165, and 169 by 1980 and by 2000 to

279, 328 and 332 under the low, medium and high projections, respectively.

The population under 15 years of age, according to high projection, will increase from 43.11 percent in 1970 to 43.50 percent and to 43.86 percent in 1980 but will decline from 43.13 in 1990 to 29.72 in 2000. Those within the 15-64 working age group are expected to increase significantly by 2000, the increase varying from 53.41 percent to 65.58 percent. They will be self-supporting, with those under 15 and over 65 as dependents.

What then are the implications of these changes in the age composition to the nation's social and economic development? Under high projection, fertility will remain constant with a slow decline in mortality. This indicates a high growth rate for a "young" population. This projection, however, does not augur well for the country because it affects — in fact inimical to — production. Population growth in the long run will make capital formation very difficult, thus keeping capital requirements for development in agriculture, medical and social improvement beyond the country's financial reach.