

The Filipino Experts' Views of the World in the Year 2000: A Delphi Study

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Preliminary Statement

The purpose of this study is to discuss Filipino experts' opinions of the world in the year 2000. The specific objectives are (1) to identify trends in their opinions about particular world developments and (2) to test the feasibility of using the Delphi Approach for policy-planning purposes in the Philippines.

The study covers five areas of world development, namely:

1. Demography and Urban Developments
2. World Food Situation
3. Technology
4. World Economy
5. World Politics

On each of the above areas, the experts were asked the following questions:

1. What changes do you anticipate will take place during the next 25 years?
2. When do you think such changes are most likely to occur?
3. Why do you think such changes are most likely to take place in the particular year mentioned?

Methodology

The Delphi Method involved the sampling and then the interviewing, in two stages, of Filipino experts. Accordingly, a total of 100 Filipino experts representing some of the country's leading

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social and physical scientists, businessmen and policy-makers were sampled. These persons were specifically chosen because of their expertise and known sensitivity to world developments. It was assumed that top social and physical scientists would be knowledgeable and up to date in their fields of specialization and therefore would be most familiar with the developments in those fields. It was likewise felt that leading businessmen would be knowledgeable about developments in the business world both within the outside the country and would be particularly sensitive to world economic trends and changes. The same went for key policy-makers. It was considered that, because of their positions, they would be sensitive to trends and changes in world conditions, including economic and political conditions. The consensus was that these experts would be the best possible sources of information and opinion about developments in the world.

Out of the 100 Filipino experts sampled, 71 were interviewed. The 71 expert respondents were classified into specialists and nonspecialists by areas. The specialists were those who rated themselves competent or most competent and the nonspecialists were those who rated themselves less competent or least competent in the areas covered by the study. The distribution is as follows:

Table 1
Frequency and Percentage Distribution of Specialist and
Nonspecialist Respondents by Areas, Delphi I, 1975

<i>Respondents</i>	<i>Demography</i>		<i>World Food Situation</i>				<i>Economics</i>		<i>World Politics</i>	
			<i>Technology</i>							
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Specialists	36	52.0	42	61.0	51	74.0	44	64.0	35	51.0
Nonspecialists	35	48.0	29	39.0	20	26.0	27	36.0	34	49.0
Total	71	100.0	71	100.0	71	100.0	71	100.0	71	100.0

As it turned out, the specialists for each area consisted of 51.0 per cent of all respondents in World Politics, 52 per cent in Demography and Urban Development, 61 per cent in the World Food Situation, 64 per cent in Economics, and 74 per cent in Technology.

The respondents were subjected to a 2-stage interview. In the first stage, hereafter referred to as Delphi I, an open-ended questionnaire was administered. The purpose of this interview was to get trends in the opinions of experts about world developments in the five areas during the next 25 years. From the reported trends, the interview questionnaire for stage two, or Delphi II, was structured. Delphi II was conducted to get a consensus among the 71 respondents. Specifically, Delphi II tried to (1) discover whether the experts agreed with the dominant opinions expressed in Delphi I and (2) if not, whether they were willing to change their initial opinions to yield a consensus.

In Delphi II, only 66 out of the 71 respondents were interviewed. Their distribution in terms of expertise by area is as follows:

Table 2
Frequency and Percentage Distribution of Specialist and
Nonspecialist Respondents by Areas, Delphi II, 1975

<i>Respondents</i>	<i>World Food</i>						<i>World Politics</i>			
	<i>Demography</i>		<i>Situation</i>		<i>Technology</i>		<i>Economics</i>			
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Specialists	40	60.0	41	62.1	53	80.0	37	56.1	31	46.9
Nonspecialists	26	39.4	25	37.9	13	19.7	29	43.9	35	53.1
Total	66	100.0	66	100.0	66	100.0	66	100.0	66	100.0

In the respondents' self-classification for Delphi II, the specialists in Demography, World Food Situation and Technology increased by 8.6 per cent, 1.1 per cent and 6.3 per cent, respectively, while the specialists for Economics and World Politics decreased by 7.9 per cent and 5.1 per cent, respectively.

Comparing the results of Delphi I and Delphi II, the following observations can be made: (1) the number of responses increased in all areas in Delphi II, (2) the statistical bases for making concrete deductions regarding world trends for the year 2000 improved, (3) in general, there were similarities in the trends in Delphi I and II except in the political data, and (4) there were no significant differences between the responses of specialists and nonspecialists.

Findings

The opinions of experts on world developments during the next 25 years will be reported under the five areas of world developments referred to earlier. Each of the five areas will be subdivided as follows:

1. Demography and World Development
 - 1.1 Demographic Trends
 - 1.2 Trends in International Labor Migration
 - 1.3 Changes in Occupational Structure
 - 1.4 Changes in the Family Structure
 - 1.5 The City in the Year 2000
2. The World Food Situation
 - 2.1 Trends in Food Technology
 - 2.2 The World Food Supply and World Population
3. Technology
 - 3.1 Trends in Population Technology
 - 3.2 Technology to Control Human Behavior
 - 3.3 Alternative Sources of Energy
 - 3.4 Transportation and Communication Technology
 - 3.5 Weather Control Technology
4. The World Economy
 - 4.1 Trends in Technological Transfers
 - 4.2 Trends in World Trade
 - 4.3 Trends in Economic Integration
 - 4.4 Trends in Philippine Foreign Trade
 - 4.5 Degree of Industrial Pollution
5. World Politics
 - 5.1 Nation-State as Fundamental Political Unit
 - 5.2 Trends in Regional Political Organization
 - 5.3 Nuclear War, Disarmament, De-militarization
 - 5.4 Authoritarian Politics
 - 5.5 Political Developments in the Philippines
 - 5.6 Martial Law

I. Demographic and Urban Development

1.1 *Demographic Trends.* The respondents, both the specialists and nonspecialists, predict the decline in demographic trends both for the Developed Countries (DCs) and the Less Developed Countries

(LDCs) within the next ten years. The consensus on the change in trends of the various demographic variables varied from 69.0 to 88.3 per cent for the DCs and from 64.4 to 88.3 per cent for the LDCs. On the year or period as to when these changes will take place, the consensus of the various variables ranged from 74.0 to 89.0 per cent and from 66.7 to 80.7 per cent that it will be between 1975 and 1985 for both the DCs and LDCs, respectively.

The more frequent reasons given for the decline in demographic variables in the DCs are as follows: On *fertility*: (1) medical and scientific breakthroughs, (2) the impact of economic development, industrialization and urbanization, and (3) the pressure to limit the size of the family. On *nuptiality*: (1) changes in the value systems related to demographic changes, (2) the impact of economic development, and (3) economic pressures to limit the size of the family. On *mortality* and *morbidity*: (1) medical and scientific breakthroughs, (2) impact of successful government policies and programs, and (3) the impact of economic development. On *population growth*: (1) the impact of economic development, (2) the impact of successful government policies and programs, and (3) the impact of scientific and medical breakthroughs.

For the LDCs, the fall in the demographic variables is attributed to factors as follows. With respect to *fertility*: (1) the impact of successful government policies and programs, (2) changes in social values related to demographic variables, (3) impact of economic development, (4) pressures to limit the size of the family, and (5) scientific and medical breakthroughs. On *nuptiality*: (1) changes in social values, (2) impact of economic development, and (3) pressures to limit the size of the family. On *mortality* and *morbidity*: (1) scientific and medical breakthroughs, (2) impact of successful government policies and programs, (3) impact of economic development, and (4) changes in social values related to family size. And on *population growth*: (1) the impact of successful government policies and programs, (2) the impact of economic development, and (3) changes in values related to family size.

There is no significant difference between the specialists' and nonspecialists' responses on the factors contributing to the decline in population variables. In general both see that the continuous decline in demographic rates in the DCs relies on continuous improvement in medical and scientific services while in the LDCs it depends on the impact of successful government policies and programs, changes in

Table 1.1
 Percentage Distribution of Response on Expected Trends
 in Demographic Variables Between 1975-2000.

	<i>Expected Year of Change</i>			<i>Total R Total N</i>	<i>Major Reason(s)</i>
	<i>1985</i>	<i>1995</i>	<i>2000 and After</i>		
<i>DC Trends</i>					
a) Decline in nuptiality rate	74.0	26.0		$\frac{40}{58}$ 69.0	Changes in social values (29%) Impact of economic development (23%) Pressures to limit family size (16%)
b) Decline in fertility rate	81.0	17.0	2.0	$\frac{44}{53}$ 88.0	Scientific/Medical breakthroughs (21%) Impact of economic development (18%) Pressures to limit family size (17%)
c) Decline in mortality rate	88.0	7.0	5.0	$\frac{53}{60}$ 88.0	Scientific/Medical breakthroughs (33%) Successful government programs (24%) Impact of economic development (10%)
d) Decline in morbidity rate	82.0	14.0	4.0	$\frac{50}{60}$ 83.0	Scientific/Medical breakthroughs (36%) Successful government programs (22%) Impact of economic development (12%)
e) Decline in rate of population growth	89.0	7.0	4.0	$\frac{43}{59}$ 7.30	Scientific/Medical breakthroughs (17%) Impact of economic development (18%)

Table 1.1 (Continued)

	Expected Year of Change					Major Reason(s)
	1985	1995	2000 and After	$\frac{\text{Total R}}{\text{Total N}}$		
<i>LDC Trends</i>						
a) Decline in nup- tiality rate	67.0	29.0	4.0	$\frac{38}{59}$	64.0	Successful government programs (17%) Changes in social values (16%)
b) Decline in fer- tility rate	74.0	23.0	3.0	$\frac{48}{60}$	80.0	Changes in social values (27%) Impact of economic development (23%) Pressures to limit family size (15%)
c) Decline in mortality rate	81.0	14.0	1.0	$\frac{53}{60}$	88.0	Changes in social values (18%) Successful government programs (18%) Medical/Scientific breakthroughs (17%)
d) Decline in morbidity rate	72.0	25.0	4.0	$\frac{17}{60}$	85.0	Medical/Scientific breakthroughs (25%) Successful government programs (28%) Impact of economic development (12%)
						Impact of economic development (15%) Medical/Scientific breakthroughs (29%) Successful government programs (26%)

Table 1.1 (Cont'd)

	<i>Expected Year of Change</i>		<i>2000 and After</i>	<i>Total R Total N</i>	<i>Major Reason(s)</i>
	<i>1985</i>	<i>1995</i>			
e) Decline in the rate of population growth	70.0	26.0	4.0	$\frac{45}{60}$ 75.0	Successful government programs (19%) Impact of economic development (17%) Changes in social values (16%) Medical/Scientific breakthroughs (14%)

social values related to family size, and the impact of economic development, industrialization and urbanization.

The population scenario supplied by the experts is an optimistic one. They see a sharp decline in fertility and hold that declining mortality and morbidity rates will not significantly contribute to an increase in population. Indeed, they predict a decline in the rate of population growth. The acceleration of scientific and medical discoveries and the hastening of economic development, particularly industrialization and urbanization, will speed up the decline in fertility, morbidity, mortality and population growth. The changes in social values will facilitate the acceptance of methods of fertility controls (i.e., family planning devices) and thus control birth rates. Social values will also affect traditional marriage practices, like the postponement of marriage, and lead to a smaller number of children. Economic considerations will also exert pressures to limit the size of the family. The experts also see government support, in terms of policies and programs, as being effective in changing population trends.

1.2 Trends in International Labor Migration. The consensus is that there will be international movements of all types of labor within the next 25 years. From the DCs to the LDCs it will be mostly by (1) executive and managerial workers, and (2) profes-

sional, technical and related workers. From the LDCs to the DCs, it will be by all types: (1) executive and managerial, (2) professional, technical and related workers, and (3) skilled and unskilled workers. Among the DCs, the movement will be by (1) professional, technical and related workers, and (2) executive and managerial workers. Among the LDCs, it will be by all types. These trends are expected to take place within the next 25 years.

Table 1.2
Percentage Distribution of Responses on Expected Trends
in Labor Migration 1975-2000

	Expected Year of Change			$\frac{R}{N}$
	1985	1995	2000 and After	
<i>Trends</i>				
1. Increasing movement of executive and managerial workers from DCs to LDCs	75.0	18.0	7.0	$\frac{35}{83}$ 42.0
2. Increasing movement of professional, technical and related workers from LDCs to DCs	80.0	15.0	5.0	$\frac{59}{132}$ 45.0
3. Increasing movement of professional, technical and related workers between countries in the DCs	71.0	22.0	7.0	$\frac{52}{105}$ 50.0
4. Increasing movement of professional, technical and related workers between countries in the LDCs	72.0	23.0	5.0	$\frac{49}{113}$ 43.0

1.3 *Changes in Occupational Structure.* The respondents expect occupational structures to shift from agricultural to industrial types within the next 25 years. They point to the expansion of service-oriented and urban jobs. This shift is expected in both the DCs and LDCs. On the question as to when it will take place, 34.1 per cent said it will do so in the decade 1975 to 1985 while 50.9 per cent answered 1986 to 1995.

This development is related to the expected industrialization of the LDCs. Industrialization would mean the shrinkage of the

agricultural sector vis-à-vis the industrial sector (i.e., the reduction of occupations related to agriculture and the expansion of jobs related to industries. With this anticipated development during the next 25 years, the urban and service-oriented jobs are expected to expand.

1.4 *Changes in the Family Structure.* For the DCs, the experts agreed on the following changes: In *basic family structure*: (1) the shift to greater independence for children and diminishing parental authority, (2) the assumption by the husband and wife of more of the other's traditional functions, and (3) the transfer of basic family functions to public institutions. On the *role of men and women*: (1) both will share the functions of a breadwinner, (2) both will accept each other as equals, and (3) women will spend more time outside the home. And on *family types*: the consensus is that there will be a steady shift towards the nuclear family.

Almost identical changes are expected for the LDCs. On *basic family functions*: (1) the greater independence of children and the weakening of parental authority, (2) husband and wife to assume more and more of each other's traditional functions, and (3) the transfer of basic family functions to public institutions. On the *role of men and women*: (1) both to share the functions of a breadwinner, (2) general acceptance of the equality between men and women, and (3) women to be working more and more outside the home. And on *family types*: there will be a shift towards nuclear families.

On the period during which the shifts will take place, the consensus is within 1975 to 1985 for both DCs and LDCs. For the DCs, this is supported by 79.6 to 82.8 per cent while for the LDCs by 42.1 to 58.3 per cent of the respondents. On the other hand, there is also the feeling, by 20.8 to 39.6 per cent of the respondents, that the shift will occur in 1986 to 1995.

Changes in the family structure will be brought about by (1) the development of the economic environment, particularly industrialization and urbanization, (2) changes in the value systems and attitudes, and (3) developments in the political environment, like the adoption of strong government policies and their effective implementation.

The experts see the growing independence of children vis-à-vis parents and the diminishing authority of parents vis-à-vis the children. They, too, see the transfer of basic family functions to government institutions (i.e., the case of children being entrusted to

state-run nurseries), and husbands assuming more and more of the functions traditionally assumed by wives and vice-versa. The same trends are anticipated to take place in the LDCs.

Table 1.3
Percentage Distribution of Responses on Expected Changes
in the Family and Man-Woman Roles Between 1975-2000

	<i>Expected Year of Development</i>			<i>R/N</i>	<i>N</i>	<i>Major Reason(s)</i>
	1985	1995	2000 and After			
<i>DC Trends</i>						
a) Decline in parental authority <i>vis-à-vis</i> children	81.0	14.0	6.0	$\frac{44}{150}$	29.0	Impact of economic development (47%)
b) Decline in the traditional function of men <i>vis-à-vis</i> women/family	80.0	12.0	9.0	$\frac{71}{120}$	44.0	Changes in social values (71%)
c) Increase in the traditional function of men <i>vis-à-vis</i> men/family	83.0	11.0	6.0	$\frac{79}{130}$	61.0	Successful implementation government programs. (36%)
<i>LDC Trends</i>						
1. Decline in parental authority <i>vis-à-vis</i> children	42.0	40.0	18.0	$\frac{43}{164}$	26.0	Impact of economic development (42%)
b) Decline in the traditional functions of men <i>vis-à-vis</i> women/family	44.0	35.0	21.0	$\frac{75}{122}$	62.0	Changes in social values (67%)
c) Increase in the traditional functions of women <i>vis-à-vis</i> men/family	54.0	34.0	12.0	$\frac{37}{160}$	72.0	Successful implementation of government policies (46%)

Changes in the economic environment including industrialization and urbanization have great impact in changing the family and society. Pressures forcing women to work outside the home, like high cost of living and the need to contribute to the family income, can speed up the loosening of traditional and social values. Industrialization opens more opportunities for women to work outside the home. The growing permissiveness of society will loosen traditional values leading to changes in the attitudes towards men and women and their roles in society. The fact that women have become as mobile as men both socially and geographically will contribute to the loosening of the traditionally rigid values about divisional roles based on sex. Development in the political environment will also contribute to the hastening of changes in the family and in the society, like the government adopting and effectively implementing social policies on equality of the sexes, government support to family planning programs and the like.

1.5 *The City in the Year 2000.* The respondents anticipate the cities of tomorrow to be functional cities. They envision the cities of the year 2000 to be (1) educational centers, (2) centers for leisure activities, (3) economic and employment centers, and (4) administrative centers. The experts anticipate the future city to be an improved version of the present-day city. It will have (1) improved roads and integrated transport systems, and (2) more effective pollution controls. Nevertheless, the future city will still be confronted by acute problems of administration, pollution, transportation, a very high population density, and high costs of living. The city as envisioned is expected to be developed within the next ten years by 53.9 per cent of the respondents, within the next twenty years by 25.3 per cent, and after 1996 to beyond the year 2000 by 20.8 per cent.

Summarizing, the demographic scenario for the year 2000 is generally optimistic. The respondents see a declining rate of population growth caused by declining fertility, nuptiality, mortality and morbidity rates. This contention, incidentally, finds support in the estimates of world population by the United Nations.¹ The United Nations study reports that from 1960 to 1970 the average annual rate of population growth for the whole world was 1.90 per cent and from 1970 to 1975, 1.93 per cent. For the DCs, the average

¹United Nations, *Concise Report on the World Population Situation in 1970-75 and Its Long-Range Implications*, New York, 1974.

rate of population growth was 1.05 per cent for 1960 to 1970 and 0.88 from 1970 to 1975. For the LDCs, it was 2.28 per cent for 1960 to 1970 and 2.36 per cent for 1970 to 1975. The U.S. projections of the annual growth rates of population for the world are the following: for 1975 to 2000, 1.9 per cent; for 2000 to 2025, 1.4 per cent; for 2025 to 2050, 0.8 per cent; and for 2050 to 2075, 0.4 per cent. For the DCs, the rates are 1.0 per cent for the year 2000 and zero per cent by 2075. For the LDCs, the rates are 2.6 per cent by the year 2000 and 0.5 per cent growth rate of 2075.²

An increase in worldwide population movements is also anticipated by the experts, particularly in the movement of professional, technical and related workers and persons with executive and managerial skills. Not much movement is anticipated for skilled and unskilled workers. The scenario also indicates an increased demand for urban jobs and the declining need for agricultural jobs. This is of course related to the anticipation that future trends will be toward industrialization and urbanization.

The U.N. study, again, indicates that increasing world urbanization will be a future trend. The study projects that while population was

Table 1.4
Percentage Distribution of Responses on the
Images of the City Between 1975-2000

	<i>Expected Year of Development</i>			$\frac{R}{N}$
	1985	1995	2000 and After	
<i>Images</i>				
1. Growth of functional cities	71.0	16.0	13.0	$\frac{186}{371}$ 50.0
2. Growth of better administered cities	26.0	41.0	32.0	$\frac{102}{371}$ 28.0
3. Intensification of present day urban problem	49.0	26.0	25.0	$\frac{83}{371}$ 22.0

²*Ibid*, Tables 2 and 24.

1.3 billion urban in 1970 and 1.5 billion urban in 1975, by the year 2000 it will be at 3.2 billion urban and by 2025, 5.7 billion urban.³

The urbanization process will bring about changes in the family. The scenario predicts the increasing independence of children vis-à-vis parents and the declining authority of parents vis-à-vis children, the transfer of basic family functions to institutions, and the acceptance of equality between sexes. On the city of tomorrow, the scenario describes a functional city which is an improved version of today's city.

2. The World Food Situation

The respondents expect major scientific and technological advances in food production to be developed and widely used in the next 25 years. They see the discovery of new food sources and the development of technologies to exploit these new sources.

2.1. *Trends in Food Technology.* On *oceanography*, the experts are in consensus concerning the sea as a major source of future food supply. They see the development of underwater or sea farming technology, of algae and seaweed cultivation techniques, of advanced fishing technology, and the identification and extraction of more edible substances from the sea as some of the major activities of the oceanographers in the years to come. Such development, they think, will greatly increase the potentials of the sea as a major source of food supply by the year 2000.

The more extensive use of *hydroponics* for future food production is also anticipated. However, its use will be limited to a few countries where cheaper means of land-based agricultural production are not feasible. Agricultural scientists are also expected to devote their major efforts in developing *desert agriculture*. The massive irrigation of the deserts with desalinated sea water for agriculture is now being used. This, however, like hydroponics, will only be limited to countries where cheaper means of agriculture are not possible.

The discovery and wide use of *food substitutes* is also anticipated. Technology on the extraction of food and food nutrients from nontraditional sources, the discovery of more protein substitutes, and the technique of compressing foods into pills will be the focus of scientific studies and experiments of food scientists. Intensive *agricultural research* is also seen as a future trend. Agricultural

³*Ibid*, Tables 16 & 28.

scientists will be particularly occupied in improving present crop varieties and breeds and in discovering new ones. Food technologists will be busy improving food processing and food preservation techniques, and discovering more efficient food packaging and storage systems. The agricultural management scientists are expected to devise more effective and efficient farm management techniques and distribution and marketing systems.

Table 2.1
Percentage Distribution of Responses on Developments
in Food Technology Between 1975-2000

	<i>Expected Year of Development</i>			<i>Total</i>	
	<i>1985</i>	<i>1995</i>	<i>2000 and After</i>	<i>N</i>	<i>%</i>
<i>Developments</i>					
1. Specialization in some aspects of oceanography	76.0	20.0	4.0	101	100.0
2. Specialization in some particular aspects of hydroponics	87.0	12.0	1.0	82	100.0
3. Discovery and development of more food substitutes	86.0	13.0	1.0	112	100.0
4. Specialization in some particular aspects of desert agriculture	81.0	18.0	1.0	90	100.0

Most of these technologies are already existent. Scientists will only have to improve on them. Others are yet to be devised. Scientific advances and major breakthroughs in oceanography, hydroponics, desert agriculture, and in the development of food substitutes will be achieved within the next ten years (1975 to 1985). Consensus on this varies from 76.3 to 90.3 per cent among the experts.

2.2. *World Food Supply and World Population.* Scientific and technological breakthroughs in food production and the discovery of new sources of food will increase food supply. Whether the increase

in food supply generated by new sources and new technologies will be enough to support increases in world population is, however, another question.

The respondents anticipate three alternatives, namely, (1) that the increase in food supply generated by new sources and new technologies *will not be enough* to meet the needs of world population, (b) that the increases in food supply *will just be enough*, and (3) that the increase in food supply *will be more than enough* to meet the needs of the world population in the year 2000. The experts are split between food supply being *not enough* (44.4 per cent) and food supply being *just enough* (41.3 per cent) for the world population in the year 2000. The specialist respondents predict that the food supply will not be enough, while the nonspecialists anticipate the food supply to be enough.

The scenario on the relationship between food supply and population for the year 2000 is not too optimistic. The food specialists among the experts express more pessimism than the nonspecialists. Among the specialists, 43.9 per cent express insufficiency while 36.6 per cent express adequacy, whereas among the nonspecialists, 50.0 per cent anticipate adequacy and 45.5 per cent foresee inadequacy. Overall, 44.4 per cent predict inadequacy as against 41.3 per cent who predict adequacy.

Population experts predict the decline in the rate of population growth. Technology experts anticipate the discovery of new sources of food as well as the development of new food technologies which will increase world food supply. However, in the relationship between world food supply and world population, the same respondents are predicting that in the year 2000 food supply will not be enough for the needs of the world population.

3. Technology

The experts anticipate the development of various types of technologies between now and the year 2000. They see the discovery and development of techniques to improve the quality of populations, to control human behavior, and to enhance the quality of life (i.e., cheaper sources of energy, transportation and communication, and more efficient techniques of weather controls). They foresee that these will make for a better and more comfortable life for the future.

3.1 Population Technology. The respondents point to the discovery and development of technologies to improve the genetic qualities of men — like the techniques to detect and correct defective chromosomes, artificial insemination techniques, and selective breeding technologies. A number of these techniques have already been discovered and put to use. However, they need to be improved and put to more popular use in the future. The experts feel strongly that the discoveries are going to be made within the next 25 years. About 36.0 per cent predicted that these will take place within the next 10 years (1975 to 1985), 26.4 per cent from 1986 to 1995, and 19.2 per cent between 1996 and 2000. A fifth or 20.8 per cent believed that such developments will take place after the year 2000.

The technology to prolong life will consist of organ transplant, cryogenics, special diets, physical fitness, use of drugs and advances in medical sciences, techniques to prevent and control diseases, and the techniques to influence hormones and cell metabolism to prevent or delay aging. All these techniques are anticipated to be put to wide use between now and the year 2000. About 70.9 per cent of the respondents said so.

3.2 Technology to Control Human Behavior. The experts foresee the wide use of drugs and hypnotism to control and manipulate human behavior in the next 25 years. It is believed that *drugs* will be widely employed to reduce aggression and tension, prevent or relieve psychiatric ailments, control or modify social and political behavior, and increase intellectual ability and sociability. The consensus is that the use of drugs will become widespread within the next ten years. *Hypnotism* will be mainly used to control behavior and treat psychiatric ailments. Extra-sensory perception, and surgical and mechanical devices to control and manipulate human behavior are also mentioned. Like drugs, these will be used in an increasing scale within the next 10 years.

3.3 Alternative Sources of Energy. The experts identify several sources of energy for the future. There is a consensus that the following sources can be tapped for commercial use on or before the end of the year 2000, namely: (1) solar; (2) geothermal; (3) nuclear; (4) fossil, fuel and oil; (5) wind, waves and water; and (6) general and organic matter.

3.4 Trends in Transportation and Communication Technology. The experts are rather ambivalent in this area. While some see the development of new modes of transportation and communication by

the year 2000, others do not discount the possibility of old means — like walking and bicycling — being revived by many people.

For *land transportation*, the experts see the wide use of (1) monorails, (2) subways, (3) electrically operated trains, and (4) electrically and battery-operated cars or vehicles that glide on the air. However, they do not rule out (5) even going back to walking and bicycles. For *air transport*, they see the more popular use of (1) helicopters, (2) bigger planes, and (3) space vehicles. And for *water transport*, they anticipate the commercial use of (1) solar powered sailboats and (2) bigger ships. Other modes of transportation mentioned are: (1) vehicles powered by conveyors and anti-gravity belts, (2) hovercrafts, (3) suspended trains, and (4) vehicles that use no fuels. Also foreseen is the invention of a system of materialization and de-materialization by which human beings can be transformed into nonmaterial things for easier transportation and then converted back to material beings when convenient. The consensus (57.0 per cent of the respondents) is that these means of transportation will be put to wide use between 1975 and 1985; 21.3 per cent believed they will come about between 1986 to 1995.

The experts' responses to modes of transportation seem conditioned by present energy problems. They envision bigger vehicles to lower the cost of transportation, vehicles that use less or no fuels, and vehicles that are powered by gas and gas substitutes. They see that the major efforts of transportation technologists will be in discovering and devising means of transportation that will minimize the use of petroleum. Optimistically, they predict that the solution will be found within the next 10 and possibly 20 years.

3.5 Weather Control Technology. The consensus is that weather technologists will make their major contributions in the perfection of weather forecasting and weather control technologies. On *weather forecasting*, the experts see the widespread use of (1) radar equipment and (2) satellites to predict typhoons, hurricanes, earthquakes, tornadoes and cyclones. On weather control techniques, the experts anticipate the wide use of (a) techniques to control weather when accurately forecast, like deflecting the path of typhoons, hurricanes, and cyclones, counteracting earthquakes, volcanic eruptions and the like. They also see the (2) commercial use of rainmaking techniques and (3) mass use of nuclear and chemical devices to control the weather.

Meteorologists and weather technologists are anticipated to

Percentage Distribution of Responses on Expected Trends
in the Development of Various Technologies Between 1975-2000

	<i>Expected Year of Development</i>			$\frac{R}{N}$
	1985	1995	2000 and After	
<i>Developments</i>				
a) Population technology				
1. Increase use of techniques in genetics to improve the quality of population	34.0	26.0	40.0	$\frac{72}{125}$ 58.0
2. Development of the technology to increase life span	71.0	15.0	14.0	$\frac{153}{327}$ 49.0
b) Transportation technology				
1. Use of battery/electrically-operated land vehicles	50.0	34.0	16.0	$\frac{107}{326}$ 45.0
2. Use of bigger planes	79.0	15.0	6.0	36.0
3. Use of bigger ships	63.0	25.0	12.0	$\frac{40}{68}$ 59.0
c) Communication technology				
1. Communication via satellite	83.0	13.0	4.0	$\frac{60}{234}$ 26.0
2. Video/TV/radio	83.0	8.0	9.0	$\frac{48}{234}$ 21.0
3. Laser beam/computer	31.0	56.0	13.0	$\frac{39}{234}$ 17.0
d) Weather control technology				
1. Increase use of satellite for weather forecast	73.0	18.0	9.0	$\frac{59}{115}$ 51.0
2. Techniques for more effective weather control	67.0	18.0	16.0	$\frac{57}{153}$ 37.0
3. Increase reliability of weather forecast	75.0	23.0	2.0	$\frac{52}{90}$ 58.0
e) Energy sources				
1. Solar	39.0	31.0	30.0	$\frac{61}{323}$ 19.0
2. Geothermal	71.0	20.0	9.0	$\frac{61}{323}$ 19.0
3. Nuclear	65.0	26.0	9.0	$\frac{61}{323}$ 19.0

concentrate their efforts on improving the reliability of weather forecasting and the efficiency of weather control in the next 25 years. The experts also think that most of the information needed by weather technologists are already available though not yet widely used. They are in agreement that much of the weather forecast and control technologies will be developed and put to effective use within the next 10 years.

The scenario on future technology is a sanguine one. The discovery, development and perfection of all types of technologies and techniques to improve the quality of life is anticipated between now and the year 2000. An improved population, a longer life span, and a better breed of human beings are predicted. Cheaper, more effective and efficient means of transportation, communication and weather controls, and more diversified and cheaper sources of energy are anticipated as possibilities between now and the year 2000. A strong consensus is that all these can take place within the next 10 years.

4. The World Economy

The economic experts anticipate some modifications in the world economy. They see a more selective process of technological transfers, the expansion of the volume of world trade, and the adoption of some forms of economic integration in both DCs and LDCs. For the Philippines, they see the opening of new trade relations, the expansion of trade with traditional trading partners, and the diversification of exports as major preoccupations within the next 20 years.

4.1 Trends in Technological Transfers. A selective process of technological transfers is envisioned by the experts. Only technologies that are needed and proven feasible will be transferred or borrowed. They see, for instance, the LDCs borrowing from the DCs the technologies pertaining to the following: (1) breeding, (2) processing, (3) marketing and distribution, (4) food substitution, and (5) energy substitution. Breeding techniques will be borrowed to improve the quality of products and automation techniques used to speed up the production and processing of crops. Radio and computer technology will be used to speed up the determination of deficit and surplus areas as an aid in the distribution and marketing of products, coupled with new transport systems which will speed up

the delivery systems. Techniques related to the processing of food and energy substitutes will also be borrowed.

The experts speculate that borrowers of technologies will be more cautious and selective, accepting only those which will help their economy and rejecting those which they think will not be useful to their economy.

4.2 Trends in World Trade. The worldwide volume of trade is anticipated to increase in the next 25 years. There is a strong consensus among the economic experts that the volume of trade within the DCs, LDCs, DCs to LDCs and LDCs to DCs will be going up. About 90.0 per cent of the expert-respondents anticipate the increase in the volume of trade within the LDCs, 67.2 per cent within the DCs, 87.9 per cent from the LDCs to DCs, and 78.6 per cent from the DCs to the LDCs. More experts anticipate the increase in the volume of trade within the LDCs and from the LDCs to the DCs than within the DCs and from the DCs to the LDCs. One possible explanation is that they are speculating on the industrialization of the LDCs which will enable these countries to trade more with each other and still export to the DCs. They may also be anticipating that DCs will be buying more goods from the LDCs where prices will be lower.

4.3 Trends in Economic Integration. The respondents anticipate that future economic integration will take a number of forms. They envision (1) economic integration based on forms of industries, (2) cartel-like integration like the Organization of Petroleum Exporting Countries (OPEC), (3) the usual simple economic cooperation type, (4) economic complementation like the Progressive Car Manufacturing Program (PCMP), (5) complete economic integration by regions, and (6) integration by ideological blocs. For the DCs, the respondents anticipate simple economic cooperation and, may be, integration based on industries. For the LDCs, they see the adoption of economic complementation types of arrangements, simple cooperation and, may be, cartel-like integration like the OPEC. Globally, they see the adoption of a simple type of economic cooperation.

Judging from the opinions expressed, one can gather that the sentiment on the types of economic arrangements for the future will be one of simple cooperation and complementation rather than one of confrontation implied by cartel-like integration, integration by region, or integration based on ideology. It should be noted that, for

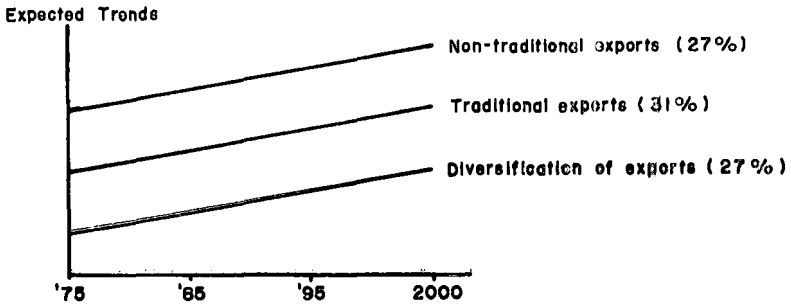


Figure 4.1 Expected trends in the composition of Philippine exports

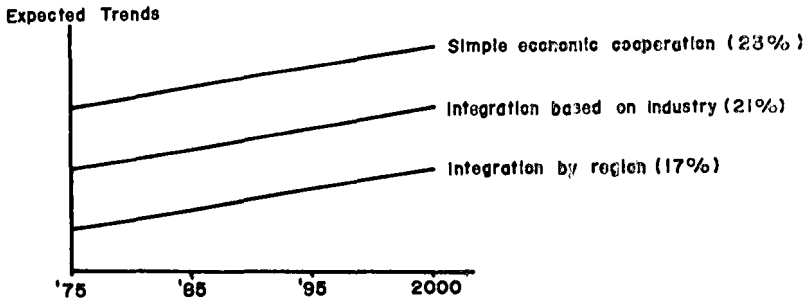


Figure 4.2 Trends in economic integration among DCs between 1975 and 2000

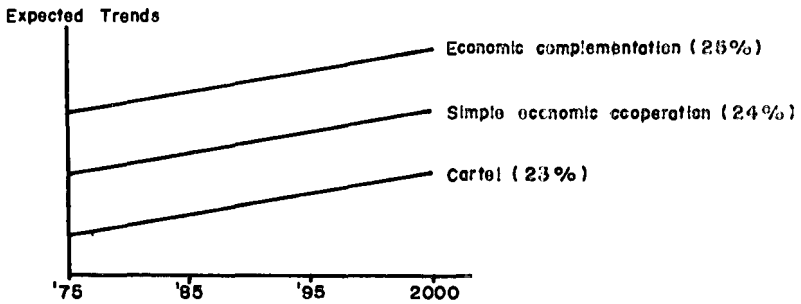


Figure 4.2a Expected trends in economic integration between 1975 and 2000 in the LDCs

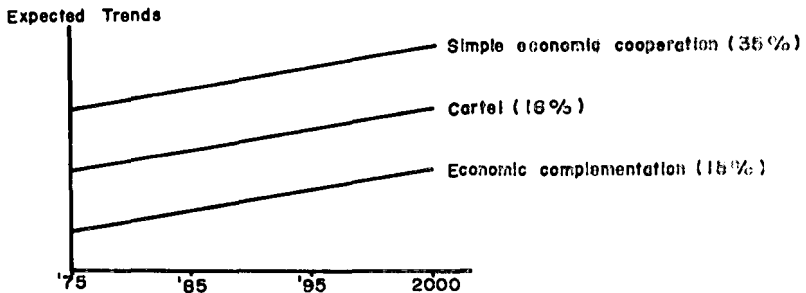


Figure 4.2b Expected trends in *global* economic integration between 1975 and 2000

the LDCs, cartel-like integration is mentioned as a possible alternative by 22.4 per cent of the respondents.

4.4 Trends in Philippine Foreign Trade. The Philippines is going to open trade relations with new countries, increase her volume of trade with current trading partners, and diversify her exports to include nontraditional products. The current and future trading partners of the Philippines are (1) the United States, Canada and Europe; (2) the USSR and the socialist countries; (3) New Zealand and Australia; (4) China; (5) Japan; (6) Thailand, Malaysia, Indonesia, Ceylon, North Korea, and South Korea; and (7) the Middle East. Among the above enumerated countries and group of countries, the experts anticipate the Philippines to be trading more and more with China, Japan, U.S.S.R. and the socialist countries, and the Middle East. On the basis of blocs, the Philippines is expected to increase her volume of trade with the Communist and Socialist blocs as well as to retain and diversify her trade with the capitalist nations. The experts also expect the Philippines to expand her traditional exports and, at the same time, to develop her nontraditional exports.

4.5 Degree of Industrial Pollution. The experts have no definite view on what will be the state of pollution in the Philippines in the next 25 years. Some think that pollution *will be controlled* – that it will not be a problem, will be minimized, or will be tolerable; but others feel that pollution *will not be controlled* – that it will be serious, dangerous and very bad. There is a strong consensus, however, that the extent of pollution *will depend on whether or not government policies will be launched to control it*. The extent of pollution in the year 2000 will depend on government policies and their effective implementation.

The economic scenario supplied by the experts is a standard one. Nothing extraordinary is anticipated for the year 2000. A selective process of technological transfers is expected as nations become more economically developed and politically sophisticated. The rise in the volume of trade follows as more nations become economically developed and industrialized. The adoption of some forms of economic integration can be anticipated as more nations become sophisticated economically and politically. Such will become a matter of survival.

With the anticipated industrialization of the Philippines, the normal expectation is that the Philippines will open up new markets, cultivate new relations, diversify her trading partners, and expand her

exports. On economic integration, two significant suggestions are made: (1) simple economic cooperation among nations, particularly between the DCs and the LDCs; and (2) economic confrontation, where the LDCs unite to withstand control from the DCs. The latter, however, is a minority scenario. The majority prefer the cooperation scenario.

5. World Politics

The respondents anticipate little changes in the world political order. While the respondents have generous visions in the other areas of world developments for the year 2000, they are quite conservative in their political view of the future. The political scenario they project is pretty much the same as today. They anticipate minor trends towards regional realignments but this will not substantially alter the present political arrangements. The experts indicate a mixed tone of political optimism and pessimism (as well as some wishful thinking) in their political view of the world to come. They speculate, for instance, on the unlikely occurrence of a nuclear warfare and the likely reduction of military expenditure vis-à-vis the total gross world product. They anticipate the growth of authoritarianism in politics and at the same time predict the lifting of Martial Law in the Philippines during the next 10 years. They do not see the achievement of general disarmament among major powers during the next 25 years and yet wish for some forms of demilitarization by the year 2000.

5.1 Nation-State as a Fundamental Political Unit. The political experts are about equally divided on whether or not the nation-state will be replaced as a fundamental political unit during the next 25 years. A total of 51.6 per cent claimed that *it will not be replaced*, while 48.4 per cent said that *it will be replaced*. Among those who anticipate the replacement of the nation-state as a fundamental political unit, (1) 50.0 per cent speculated that the shift is going to take place between 1986 and 1995, (2) 36.7 per cent between 1996 and 2000, and (3) 13.3 per cent after the year 2000. And, on the likely replacement, the experts anticipate: (a) regional blocs (78.0 per cent), (2) world state (14.6 per cent), and (3) functional organizations (7.3 per cent).

The respondents strongly feel that the nation-state will remain as a fundamental political unit. If it is going to be replaced, the shift

Table 5.1

Percentage Distribution of Responses on Expected Trends
in Political Development in the World Between 1975-2000

	<i>Expected Year of Development</i>			$\frac{R}{N}$		
	1985	1995	2000 and After			
<i>Trends</i>						
a) Likely replacement of the nation-state		50.0	50.0	$\frac{30}{60}$	48.0	Regional blocs (78%)
b) Likely use of supra-national organization in Southeast Asia	22.0	50.0	28.0	$\frac{32}{66}$	57.0	Economic types of organization (55%)
c) Likely occurrence of nuclear warfare	18.0	37.0	46.0	$\frac{22}{66}$	41.0	Asia (26%) Middle East (26%) USSR (23%)
d) Likely decrease in global military expenditures				$\frac{46}{66}$	74.0	Improvement in peace/ political tolerance
f) Likely growth of authoritarianism in politics				$\frac{57}{66}$	90.0	Need for sustained economic growth (45%)

will occur later and the possible replacement is the regional bloc rather than the world state.

5.2 *Trends in Regional Political Organization.* A majority of the respondents, 56.7 per cent, anticipate the rise of supra-political

organizations in Southeast Asia where the Philippines will be a possible member. Such development may well take place within the century: 2.19 per cent believe that it may take place between 1975 and 1985, 50.0 per cent between 1986 and 1995, and 18.8 per cent from 1996 to year 2000. Some 9.4 per cent said that it may take place after the year 2000. On the possible form of political organizations to be adopted by the region, the following alternatives are named: (1) economically motivated political arrangements, (2) arrangements concerned with military security, and (3) organizations under Japanese leadership. These may be characterized by (1) minimal political integration, or (2) a loose type of political cooperation, or (3) even complete integration where members surrender part of their political sovereignty. The experts (55.1 per cent) feel strongly for the economically motivated forms of regional arrangements, and (6.6 per cent) least strongly for organizations where members give up part of their political sovereignty. Nobody mentioned Japanese-led regional arrangements in Delphi II.

The respondents speculate on the possible rise of supra-political organizations in the region where the Philippines is a member. Such is anticipated to take place within the next 20 years. Such arrangement will be economically motivated and based on a loose type of political cooperation.

5.3 Nuclear Warfare, Disarmament and De-militarization. More than half (58.6 per cent) of the respondents do not anticipate the occurrence of *nuclear warfare* during the next 25 years. The rest (41.4 per cent) entertain such a possibility. Among the latter, (1) 19.1 per cent predict that nuclear warfare is going to break out between 1975 and 1985, (2) 36.4 per cent between 1986 and 1995, and (3) 22.7 per cent between 1996 and the year 2000. Another (4) 22.7 per cent anticipate the development to take place after the year 2000. Among the respondents who think that nuclear warfare will occur, some 26.3 per cent think that it will likely take place in the Middle East, 26.3 per cent in Asia, 23.7 per cent in U.S.S.R., 15.8 per cent in the Peoples' Republic of China, 2.6 per cent in the United States, and another 2.6 per cent in Latin America. On the *use of nuclear arms or an appropriate delivery systems*, they speculate that this will most likely be carried out by Israel (26.1 per cent), Japan (25.2 per cent), Egypt (15.1 per cent), Iran (13.3 per cent), Sweden (11.5 per cent), Pakistan (4.9 per cent), and Indonesia (3.5 per cent).

On *general disarmament*, there seems to be a strong consensus

(74.3 per cent) that there will be no disarmament among the major powers during the next 25 years. However, one-fourth (25.8 per cent) anticipates otherwise, believing that a general disarmament will take place between 1975 and 1985 (50.0 per cent). For other periods, the percentages of those anticipating disarmament are as follows: between 1986 and 1995, 31.3 per cent; between 1996 and 2000, 12.5 per cent; and beyond the year 2000, 6.3 per cent. A likely *decrease in total military expenditure vis-à-vis* the gross world product is predicted. This will be occasioned by (1) the improvement in peace, security, diplomacy and increased political tolerance among nations, (2) faster growth in the rate of the gross world product, and (3) faster rate of increase in areas other than military. About 51.2 per cent of the respondents pointed to an improvement in peace, security, and diplomacy, and an increase in political tolerance among nations as the most likely reasons.

There is a stronger feeling among the experts that nuclear warfare will not take place in the next 25 years. There is a strong consensus that no general disarmament, either, will be taking place among the major powers within the same period. However, a likely decrease in total military expenditure vis-à-vis the gross world product is anticipated due to improvements in peace, security, diplomacy and increased political tolerance among nations.

5.4 Authoritarian Politics. There is a strong consensus among experts (90.5 per cent) that the trend in the future is toward authoritarianism in politics. Such trend will be caused by (1) the need for sustained economic growth (44.9 per cent), (2) the need for national security (15.0 per cent), (3) the need for a centralized political decision-making machinery (16.7 per cent), and (4) a failure of liberal democratic political structures (23.4 per cent).

5.5 Trends in Philippine Political Development. The political experts see a number of alternatives on possible developments in the Philippines for the next 25 years. On *national development*, they anticipate the following scenarios: (1) the restoration of full constitutional processes (10.3 per cent), (2) partial and/or complete lifting of Martial Law (12.4 per cent), (3) continuation of Martial Law and of a strong government and authoritarian politics (5.7 per cent), (4) widespread political crises and political instability with the possibility of a military takeover or, even, of a popular revolution (9.3 per cent), and (5) a shift to socialism (15.6 per cent). On *foreign relations*, they speculate on the following possibilities: (1) establish-

ment of closer relations with Asian countries (10.2 per cent), and (2) the establishment of diplomatic relations with socialist and communist countries (15.6 per cent). On *internal political affairs*: (1) increasing participation of the private sector in policy-making processes (11.1 per cent), and (2) adoption of a managerial type of local governments (6.9 per cent). Others speculate on (1) general but unspecified changes taking place, and (2) the possibility of no significant changes taking place during the next 25 years (1.2 per cent). The changes are speculated to take place within the next 10 years by most respondents.

5.6 Martial Law. There is a strong consensus among the respondents that Martial Law is going to be lifted within the next 10 (66.6 per cent) to 20 (33.3 per cent) years. All the respondents anticipate the lifting of Martial Law on or before the year 1995.

It should be noted that only after Delphi II could some definite political trends be deduced. In Delphi I, the responses on the political questions were too few to yield any conclusive trends.

On the political scenario for the year 2000, the respondents see the most likely replacement (though not very strongly) of the nation-state as a fundamental political unit by regional blocs before the end of the year 2000. On regional political developments, the experts anticipate the rise of supra-political organizations in which the Philippines may be a member. These organizations, which will very likely be economically-motivated and characterized by a loose type of political cooperation, might come about on or before the year 1995. It should be noted that, on regional political arrangements, at least two suggestions are made: (1) regional political organizations where the security of the region is guaranteed by the major powers, and (2) regional arrangements based on self-reliance. The proponents of the latter suggest that, for regional arrangements to be effective for the regions, the regions must be able to guarantee their own security. This second alternative refutes the neutralization scenario suggested by most respondents.

The experts speculate on some possibilities of (1) nuclear warfare, (2) de-militarization among major powers, and (3) the reduction of military expenditure vis-à-vis the gross world product on or before the end of the year 2000. They, too, point to (4) the growth of authoritarianism in politics as a trend for the year 2000.

On the Philippine political scenario, they see at least three possible developments, namely: (1) the lifting of Martial Law and

restoration of democratic processes, (2) the continuation of Martial Law and the institutionalization of authoritarian politics, and (3) widespread political crises and instability leading to a military coup or popular revolution. The more popular sentiment, however, is the lifting of Martial Law and the restoration of democratic processes. On Philippine foreign relations, they anticipate (1) closer relations

Table 5.2

Percentage Distribution of Responses on Expected Political Developments in the Philippines Between 1975-2000

	<i>Expected Year of Development</i>			<i>R</i>	<i>N</i>
	<i>1985</i>	<i>1995</i>	<i>2000 and After</i>		
<i>Developments</i>					
a) External politics					
1. Closer ties with SEA countries	85.0	9.0	6.0	$\frac{53}{334}$	16.0
2. Diplomatic/economic relations with socialist countries	94.0	4.0	2.0	$\frac{52}{334}$	16.0
b) Internal politics					
1. Complete/partial lifting of martial law	73.0	22.0	5.0	$\frac{44}{334}$	13.0
2. Continuation of martial law/ authoritarian politics	80.0	15.0	5.0	$\frac{20}{334}$	6.0
3. Widespread political crises/ political instability	42.0	37.0	21.0	$\frac{19}{334}$	6.0
4. Shift to socialism	52.0	35.0	13.0	$\frac{23}{334}$	7.0
c) Administrative politics					
1. Increase participation of private sector in policy decision	81.0	19.0		$\frac{31}{334}$	9.0
2. Adoption of managerial government	86.0	14.0		$\frac{37}{334}$	11.0

with Asian neighbors and (2) the opening and expansion of relations with communist and socialist countries. And on local government, they see (1) the increasing participation of the private sector in government affairs and (2) the adoption of a managerial form of local government.

Summary and Conclusions

The experts' view of the world in the year 2000 is generally optimistic. They see the occurrence of changes, generally for the better. They see a declining trend in demographic variables which counter the current views of population pessimists. They anticipate the discovery of new sources of food and the corresponding development of the sciences and technologies to exploit them to increase the world food supply. However, the experts are not sure if the food supply generated will be adequate for the population in the year 2000. The experts expect the discovery, development and perfection of all types of technologies and techniques that will make life in this world easier and more pleasant, improve the quality of the population, promote longer life, and make better human beings. They see the discovery and development of a more effective and efficient transport system and of communication and weather control technologies. They anticipate the tapping of more abundant and cheaper sources of energy. In the world economy, they see an increase in the volume of trade and the adoption of some forms of economic integration based on cooperation among all nations. They, too, anticipate some changes in the world political order which are generally improvements over the existing one.

1. *On Population and Urban Development*

1.1 The rate of population growth is going to decline, along with the fertility, nuptiality, mortality and morbidity rates. The decline is predicted to take place between 1975 and 1985 in both the DCs and the LDCs.

1.2 There will be a worldwide migration of labor, particularly of professional, technical and related workers, and of those with executive and managerial skills. The movement of unskilled labor will be limited. Such trends will effectively take place within the next 10 years.

1.3 The occupational structure will become dominantly urban oriented. The demand for agricultural occupation will decline.

1.4 The worldwide family structure will be nuclear and possibly communal. A greater independence of children and the diminution of parental authority, the transfer of basic family functions like child rearing to public institutions, and the equal division of family functions between husband and wife will be the trends in the next 25 years. The institutionalization of equality between the sexes and, thus, the equitable distribution of functions and responsibilities between men and women are going to take place between 1975 and 1985 in the DCs and between 1975 and 1995 in the LDCs.

1.5 Functional cities and cities that are improved versions of present-day cities are the characteristics of the cities of tomorrow. Such changes will take place by 1985 in the DCs and by 1995 in the LDCs.

2. On Trends in World Food Supply

2.1 Major scientific and technological advances in food production will be developed and widely used during the next 25 years. Developments in oceanography, hydroponics, desert agriculture, and food technology will substantially contribute to the increase in world food supply within the next 25 years.

2.2 It is anticipated that the world food supply generated by technological advances will not be enough to meet the needs of the world population for the year 2000.

3. On Technological Trends

3.1 Population technology will improve the quality of man as well as prolong man's life expectation within the next 25 years.

3.2 The control and manipulation of human behavior through the use of drugs, hypnotism, surgery, and mechanical devices will become widespread between now and the year 2000.

3.3 The discovery and development of substitute sources of energy will be the major preoccupation of scientists during the next few years. They are expected to put solar, geothermal, nuclear and other substitute sources to commercial use on or before the turn of the century.

3.4 The discovery and development of transport systems that use less fuel and are powered by oil substitutes are anticipated between now and the year 2000. Experts see the wide use of vehicles propelled by electricity, by batteries, by air and water, and by solar energy. The invention of larger aircrafts and ships is also predicted.

The development of vehicles that use less or no fuel is also talked about. Major efforts in communication technology will be devoted to the improvement of communication systems and to making the present techniques more widely available.

3.5 More reliable weather forecasting techniques and more efficient weather control technologies are expected to be developed between now and the year 2000. Most of the weather control technologies are already available. The respondents anticipate that these are going to be put to more extensive use within the next 10 years.

4. *On Trends in World Economy*

4.1 A more cautious attitude towards technological transfers is anticipated between now and the year 2000. Only technologies that are needed and proven to be feasible will be borrowed by recipient countries.

4.2 An increase in the volume of worldwide trade is expected. The volume of trade within the DCs, LDCs, between DCs and LDCs and between LDCs and DCs will go up.

4.3 Some forms of economic integration will be developed among nations within the next 25 years. For the DCs, it will be in the form of simple cooperation. For the LDCs, it will be economic complementation (e.g. Progressive Car Manufacturing Program) and may be a cartel-like integration (e.g., OPEC). Globally, it will be a simple type of cooperation among nations.

4.4 In the Philippines, there will be an expansion of trade relations with more countries, an increase in the volume of trade, and a diversification of exports. The Philippines is expected to be trading more with Asian countries and with the communist and socialist nations.

4.5 The degree of industrial pollution in the Philippines will depend on current policies on pollution control and their successful implementation.

5. *On Trends in World Politics*

5.1 There is a possibility that the nation-state will be replaced as a fundamental political unit between now and the year 2000. Possible replacement is the regional bloc, functional organizations or world-state. The shift can take place between 1986 and 1995.

5.2 The formation of supra-political organizations is also a possibility within the next 25 years. Such will most likely take the

form of economically motivated arrangements and possibly take place on or before the year 1995.

5.3 Both nuclear warfare and de-militarization by the major powers, as well as a reduction in military expenditures vis-à-vis the gross world product, are possibilities within the next 25 years. Nuclear warfare will most likely take place in the Middle East, Asia and the U.S.S.R. and least likely in the United States and Latin America. Nuclear arms with appropriate delivery systems will be most likely developed outside the current nuclear powers, in Israel and Japan. However, there is also the possibility that these will be developed in Indonesia and Pakistan. The likely decrease in global military expenditures will be occasioned by an improvement in peace, security, and diplomacy and by an increased political tolerance among nations.

5.4 The growth of authoritarianism in politics is anticipated to be the trend in the future. The need for sustained economic growth and the failure of liberal democratic political structures are the leading factors which will likely contribute to such a development.

5.5 On the Philippine political scenario, the following contradictory possibilities are pointed out: the lifting of Martial Law and the restoration of democratic processes, the continuation of Martial Law and the institutionalization of authoritarianism, and the rise of widespread political crises and instability which can lead to a military takeover or a popular revolution.

5.6 The respondents want to see the lifting of Martial Law by 1995.

On the usefulness of the Delphi Approach to policy planning, the following observations can be made: (1) The approach is more fruitful and more meaningful if structured questionnaires are administered. However, to avoid injecting the interviewers' bias on the respondents, an unstructured questionnaire was used in Delphi I. (2) To have more fruitful and meaningful results, two more interviews should be conducted. Delphi I can serve as an exploratory phase, the findings of which can form the basis of the questionnaire for Delphi II. And Delphi III will be used to arrive at a consensus. (3) Experts tend to give opinions on things that they are most familiar with (i.e., on the Philippines) and project these as their world views. And (4) judging from the quality of responses given, the respondents tended to be highly speculative, letting their imagination really go, especially in the field of technology.