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THE PROBLEMS OF NUTRITION IN THE AMERICAS FROM THE POINT OF VIEW OF
CONSUMPTION

During the XVI Pan American Sanitary Conference held in 1962, the representative of the United States of America indicated the desirability of obtaining more data on food consumption in the Americas, as opposed to food production, in order to evaluate the nutritional status of populations. He pointed out that decreased food production in a given area does not necessarily indicate decreased food consumption and thus for international reporting more emphasis should be placed on food consumption trends. Following this meeting the Director of PASB recommended that this subject should be presented for discussion at the 48th Meeting of the Executive Committee in April 1963. This document is a general commentary on the present situation in Latin America with regard to food consumption data and its significance with relation to population nutrition.

With the present increase in attention given to nutrition as an important factor in achieving individual and community health, there is an urgent need to establish adequate base line data for the present situation in order to clearly identify short and long term goals and to provide precise indices for future evaluation of progress.

On an international basis various indices can be used to evaluate human nutritional status, some of which are based on the factors indirectly related to human nutrition and others of direct interpretation such as food consumption and clinical and biochemical assesment of physical status. Today some form or other of nutrition survey has been realized in every country of the Americas. These surveys have been carried out by national and international multilateral and bilateral agencies and have contributed significantly to a general knowledge of the existing state of affairs and have served to demonstrate the severity of the problem and stimulate coordinated efforts for its solution. Unfortunately such surveys have never been conducted in a coordinated fashion and thus the data collected are often not comparable for the purposes of statistical analysis, at least on an international scale. Considerable variations in terms of time and methods by which these various surveys have been carried out make impossible their direct comparison without a prolonged study of the techniques used in

collecting and processing the data of individual surveys and the application of certain corrections to make them suitable for global analysis. Some of these problems will be dealt with later in this presentation.

In order to gain a clear picture of the significance of food consumption data, it is of interest to review some of the factors involved in the process by which the food is made available to the consumer. In general, the amount of food produced in any given area is directly related to the amount of arable land available, and its percentage utilization. The productivity of such land is in turn related to its quality, the prevailing climate, to the type of seed and stock which will be raised upon it, and to the techniques employed by human agents. Once the food has been produced a series of factors operate to influence the amount of the total production that will be finally available for human consumption by the national population. National economic policy will determine the amount of food destined for exports and non-food uses such as industry, animal feed, seed supply, wastage and storage losses will further reduce the quantity available; finally, certain procedures such as milling will further diminish total quantity. The effect of all of these influences will determine the total food available to the population for consumption, however, such factors as food distribution, the purchasing power of the individual, and his dietary habits will determine the final utilization of the available product.

Table I shows the trends of total food production in fourteen countries of the Americas, expressed as a percentage of the average production between the years 1952 - 1956.

It can be observed from this Table that there has been a steady rise in total production during the eight years surveyed; a trend which is being generally reflected throughout the world today.

Total food production in any given area is, however, of little significance unless it is related to the population which it must serve. In Table II food production is presented on a per capita basis, over the same period of time, and expressed as percentage of average per capita production during the same period as for Table I.

It can be seen from Table II that, where increases in per capita production exist, they are comparatively small in most cases and are frequently inconstant in character. In a considerable number of countries, per capita production has actually declined in recent years. Without question this disparity between total and per capita food production is due to rapidly increasing populations, and it is of interest to note that, by comparison to pre-war standards which in themselves were unsatisfactory, average per capita food production in Latin America has actually declined by 1 per cent, in spite of a rise of 69 per cent in total food production. Figure I serves to demonstrate the deviation of trends in total and per capita food production.

Given the situation presented in Figure I, which would indicate that current population trends are tending to outgrow local supply, it is of interest to examine the situation of food availability. This in essence is a calculation arrived at by making allowances for the various factors mentioned previously which determine the amount of the food produced which is finally made available to the national consumer.

Table III shows food supplies available for human consumption in kilograms per capita per year. The time periods surveyed are variable, however, they serve to give an indication of gross trends.

From the data on Table III it is apparent that in the majority of the countries there has been a general improvement in food availability and of particular interest is a general increase in the consumption of pulses and vegetables and of animal products.

In Table IV the same data are presented in terms of total calories and protein per capita per day provided by these foodstuffs.

Again it can be observed that the quantity of calories and protein available per capita per day has also generally increased.

In view of the existing prevalence of protein-calorie malnutrition in Latin America, the significance of such data is worth analysis. In the first place it must be repeated that such data are arrived at by gross calculation in terms of per capita availability and it therefore make no allowances for the physical distribution of this available food within the population, nor of the distribution of wealth in the different social strata, nor does it take into account the individual's traditions and food habits which will influence his manner of purchase, nor the production of foodstuffs in family gardens and small plots of land. In brief these data do not mean that the per capita "ration" is actually physically available to the individual, nor that he has enough money to buy such a "ration", nor, finally that he wants to.

It is probable that the data shown above are significant in areas where wealth is evenly distributed and the majority are economically capable of purchasing the food available to them on a calculated basis. In certain areas of the Americas it is clear that such over all improvement suggested by data do not necessarily represent any significant change in the nutritional status of the groups in the most urgent need of improvement.

On a national scale it is important also to realize that an increase in food availability in the face of decreasing per capita production probably signifies that economic adjustments increasing food imports have served to make more food available. This situation per se may not be undesirable if and when such import purchasing is based on the production and sale of essential commodities which have a stable export market. All too often, however, such favorable trade balances are created by the production of non-essential items (e.g. coffee, bananas, sugar, even cotton) which are the first to be dispensed with in any political or fiscal

emergency of the purchasing country. Such a situation leaves the exporting country simultaneously without a market for its product and with most of its arable land occupied with the production of a cash crop of little nutritive value. Such a situation can only result in disaster, for a change in agricultural production cannot be achieved with the same rapidity as that of the changes in international markets.

Food Consumption Data

As stated previously, nutrition surveys involving food consumption studies have been carried out in all countries of the Americas in the past. However considerable variation in timing and techniques makes the interpretation of such existing data difficult without a detailed study of how the survey was effected.

In the first place, household consumption surveys became an established technique for the study of human nutrition many decades ago. Due to the lack of any coordinated effort in realizing these surveys on a continental scale, variations in the time of data collection between one area and another may be of the order of ten to fifteen years, during which time conditions may have changed considerably. Household dietary surveys are time-consuming and costly and thus in many countries only one survey has been conducted, which usually corresponds with the establishment of a national nutrition unit. Owing to economic inability to repeat these surveys, many programmes are based on the needs defined in an original study which may now be of ten or more years standing,

In recent years the Interdepartmental Committee on Nutrition in National Defense (ICNND) of the USA has contributed greatly to current information on food consumption, not only in Latin America but also throughout the world.

Thanks to considerable efforts on the part of the FAO and INCAP, there is a tendency to standardize the method of consumption surveys by the use of the seven-day register and weighing technique, and in 1962 the FAO published a manual on household food consumption surveys in an attempt to review the current situation and establish norms for techniques to be used in future surveys.^(R) In some areas, however, surveys have been based on household food inventories or carried out by questionnaires either conducted personally or by mail. The number of days through which the survey is conducted is a further variable encountered; in some it is limited to one or three days, in others, using the inventory technique, a month period may be studied. One of the severe limitations of any survey of less than seven days is that the period selected is frequently the most convenient for the surveyors (mid-week) and thus weekends, which are usually associated with a change in diet, are omitted. Another of the most widespread and serious

(R) FAO Nutritional studies No 18, Manual on Household Food Consumption Surveys, Emma Reh; Food and Agricultural Organization of the United Nations, Rome 1962.

deficiencies in existing food consumption surveys is that the group studied is rarely representative of the total population. This not only applies to the total number of families or persons surveyed but also to the variations in economic strata which they may represent. For economic reasons, small, unrepresentative populations are often chosen for study and frequently, because of lack of transportation facilities, are located only a short distance from the capital or some large town.

Again, for budgetary reasons, it is frequently impossible to repeat a survey on the same population during the various seasons of the year and thus a false impression may be gained of the real situation. One specific example of this occurred in recent years when a population, known to be severely undernourished, was surveyed shortly after harvest time with the result that the study indicated an intake of calories well in excess of optimum requirements.

Further variable factors in technique result from using different food analysis tables and calculation factors during data analysis. This aspect of the situation was considerably improved when ICNND and INCAP produced a common Latin American food table in 1961. This table was based on all available data of the countries of Latin America, and average figures were established for all commonly available foodstuffs of the continent.

In consideration of such facts it is worthwhile to analyze the variability of data in three countries of Latin America which were surveyed carefully by two different agencies within a five-year period, and in turn to compare the results with calculated food availability figures on a per capita basis, prepared by two other agencies.

Comparative Data on Food Availability and Food Consumption, Around 1958

Country	Daily per capita food availability			Daily per capita food consumption			
	FAO ¹⁾		U.S. Department of Agriculture ²⁾ Calories	National Surveys ³⁾		ICNND Surveys ⁴⁾	
	Calories	Protein (grs)		Calories	Protein (grs)	Calories	Protein (grs)
Colombia	2,200	48	2,225	1,920	48	5) 1,347	5) 34
Ecuador	2,230	56	1,935	1,792	53	5) 1,937	5) 66
Peru	2,060	52	2,040	1,997	56	6) 3,054	6) 118

- 1) FAO, The State of Food and Agriculture, 1962
- 2) U.S. Department of Agriculture, Food Balances in Foreign Countries, Part III: Estimates for 20 Republics of Latin America, FAS-M-104, November 1960.
- 3) Colombia, Ministerio de Salud Pública, SCISP, Instituto Nacional de Nutrición, Encuestas alimentarias realizadas en Colombia, 1956 a 1962
Ecuador, Ministerio de Previsión Social y Sanidad, Instituto Nacional de la Nutrición, La realidad alimentaria ecuatoriana. Un estudio de cinco encuestas alimentarias, Quito, 1956
Perú, Ministerio de Salud Pública, SCISP, Instituto de Nutrición, La alimentación y el estado de nutrición en el Perú, Marzo 1960
- 4) Interdepartmental Committee on Nutrition for National Defense, Nutrition Survey of the Armed Forces, 1959-61
- 5) Civilian population only.
- 6) Average value for military groups in three different regions.

It can be seen from this table that per capita food consumption figures tend to be appreciably lower than the calculation per capita availability. In the case of the ICNND survey in Peru which was conducted in an exclusively military group, consumption figures tend to be somewhat higher, as might be expected. With the exception of ICNND figures, total protein data are closely comparable in consumption and availability studies. With regard to the fulfillment of requirements the FAO established in 1952 a requirement of 2,540 calories per capita per day for this area. It can therefore be observed that while the total available food resources of these countries approximate to the calculated requirements in terms of calories, food consumption surveys indicate a considerable deficit.

The original object of this presentation was to define the state of nutrition in the Americas from the point of view of consumption; however, for the reasons stated previously, and because many countries have not published and distributed their survey data, it would be unwise to attempt a detailed definition of the situation without considerable research.

From the various data available, not only with regard to food consumption but also with regard to the final objective, that of human nutritional status, it is clear that there are considerable deficiencies in food consumption patterns in the majority of the populations of Latin America. To establish with precision the exact extent and distribution of these dietary deficiencies on a continental or area basis would require a careful collection of all data, published and unpublished, from the Member Countries, and on the basis of these a detailed analysis of methods of survey utilized and the years in which the surveys were carried out. In view of the emphasis at present given to nutrition programmes by national and international agencies, it is clear that accurate base line data collection would be invaluable at the present moment to define the existing situation on a continental basis and to evaluate future progress of applied nutrition programmes.

The subject of food availability and consumption data has been a subject of great interest to the Food and Agricultural Organization of the United Nations and during the past few years great emphasis on improving data collection and analysis has been stressed by that Organization at the national level. The Fourth Conference on Nutrition Problems in Latin America

noted that "... the statistical information is insufficient to permit year to year changes in consumption levels to be accurately assessed." Also it took into account the need for more data on food availability and consumption, indicating in its recommendations:

- (1) that countries should prepare food balance sheets regularly, improving both the accuracy of the statistical data on which they are based and the techniques used in establishing them.
- (2) that dietary survey programmes should be continued and expanded in countries in which they have already been undertaken and initiated as soon as possible in other countries; these should include a study of the economic and cultural background and dietary habits.

Prior to the Fifth Latin American Conference on Nutrition in Montevideo in April of this year the FAO will hold a technical meeting on food consumption surveys in Latin America and, in order to obtain complete data on a continental scale, individual Governments have been requested to compile all available data on food production, availability, and consumption at their disposal for presentation at said Conference. It is probable that, as a result of this request, and with suitable analysis of data presented, a more clear picture of nutrition in Latin America from the point of view of availability and consumption will be established. In January of this year FAO published a bibliography of food consumption surveys in Latin America, which lists all of the significant food consumption surveys carried out during the past twenty years.^(R) To date, however, no comprehensive analysis of these data have been undertaken.

The establishment of a study group to make this analysis is worthy of consideration. Such body could not only set up base lines of food consumption for Latin America but could also attempt to fill any gaps in presently available information, and to establish by international agreement a standard method for conducting consumption surveys and attempt to coordinate their realization in terms of the year or years of implementation. It would be of inestimable value, for example, if all of the Member Countries could attempt to realize standardized consumption surveys on representative populations within the period 1964-1965, and such a process be repeated regularly and simultaneously on a five-year basis. National Nutrition Units could be individually responsible for such studies and possible sources of international funds could be sought to assist such efforts.

In summary, this presentation emphasizes the need for more accurate data on food consumption in Latin America and also points out some of the problems in reviewing the present state of nutrition on an international

(R) Bibliography of Food Consumption Surveys, Part III: Latin America compiled in the Food Consumption and Planning Branch, Nutrition Division, FAO. Rome, January 1963.

basis, from the point of view of food consumption. Data presented on food production and availability provide grounds for concern with regard to future demands and resources, and underline the potential dangers of increased food imports financed by non-essential cash crops. If current efforts to improve nutrition in the Americas are to be effective, then a precise and continuing evaluation process must be set up. The establishment of a means whereby it would be possible to define in a continuing basis the existing state of nutrition in the continent is worthy of serious consideration, in view of the importance of this subject.

Annexes:

Tables I, II, III and IV
Figure I

TABLE I

INDICES OF TOTAL FOOD PRODUCTION, BY COUNTRIES AND REGIONS

	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61 (Preliminary)
..... Indices, average 1952/53-1956/57 = 100									
LATIN AMERICA	94	96	101	101	108	111	117	117	118
Central America	92	94	100	102	112	122	128	131	133
Cuba	100	98	94	98	111	114	116	115	127
Guatemala	98	97	99	99	107	107	110	114	116
Honduras	101	104	93	96	106	107	107	110	112
Mexico	86	91	104	105	114	129	139	143	140
Panama	90	101	98	105	105	114	119	119	115
South America	95	96	101	101	107	109	114	113	114
Argentina	99	95	100	98	107	107	112	102	95
Brazil	89	96	101	103	111	115	122	127	130
Chile	101	95	102	104	99	108	103	104	107
Colombia	97	99	97	104	103	103	107	109	112
Peru	100	101	102	102	96	99	105	112	112
Uruguay	94	109	101	99	97	90	83	80	90
Venezuela	93	97	101	103	106	111	112	112	119
NORTH AMERICA	99	98	97	101	104	101	109	109	111
Canada	112	105	78	99	107	91	95	101	105
United States of America	98	97	99	102	104	102	110	110	111

TABLE II

INDICES OF PER CAPUT FOOD PRODUCTION, BY COUNTRIES AND REGIONS

	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61 (Preliminary)
 Indices, average 1952/53-1956/57 = 100.....								
LATIN AMERICA	98	98	101	99	103	104	106	104	102
Central America	97	97	100	100	107	112	115	114	112
Cuba	104	100	94	96	107	107	106	103	112
Guatemala	104	100	99	96	101	98	98	98	97
Honduras	107	107	93	93	100	99	97	97	95
Mexico	91	94	104	103	108	119	124	124	116
Panama	95	104	98	103	100	105	107	104	98
South America	99	98	101	99	103	102	104	101	99
Argentina	102	97	100	97	104	102	106	95	88
Brazil	93	98	102	101	106	107	112	113	113
Chile	105	97	102	101	95	102	95	94	95
Colombia	101	101	97	102	99	97	98	98	98
Peru	104	104	102	100	91	92	95	97	95
Uruguay	98	111	101	97	93	85	78	74	82
Venezuela	100	101	101	99	98	99	97	93	95
NORTH AMERICA	103	100	97	99	101	96	101	100	99
Canada	118	107	78	96	101	84	85	88	90
United States of America	101	99	100	100	100	97	103	101	101

TABLE III

FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

Country	Period	Cereals	Starchy roots	Sugar	Pulses and Nuts	Vegetables	Meat	Eggs	Fish	Milk Fat	Milk Protein	Fats
LATIN AMERICA												
Argentina	1948	126	88	35	2	40	116	7	2	5	5	16
	1954-56	105	83	34	3	49	108	7	2	5	5	18
	1959	120	67	31	3	44	91	7	2	4	3	16
Brazil	1948-50	86	112	25	24	7	26	2	2	1	1	7
	1954-56	103	117	32	26	19	26	3	2	2	2	8
	1957	106	118	31	27	21	29	3	3	2	2	8
Chile	1948	134	80	25	6	54	38	2	7	2	2	6
	1954-56	137	76	31	8	67	31	4	9	3	3	7
	1957	129	92	37	8	77	31	4	10	3	3	7
Ecuador	1954-56	78	78	25	12	23	11	4	3	3	3	4
	1957-59	74	90	22	13	30	15	5	4	3	3	4
Mexico	1954-56	128	10	33	19	24	20	4	2	2	2	10
	1957-59	124	8	33	21	24	24	6	2	3	3	9
Peru	1952	103	169	20	9	50	20	3	2	1	1	6
	1959	87	151	26	9	78	18	1	5	1	1	8
Uruguay	1948-50	99	51	33	3	22	115	7	1	6	5	14
	1954-56	99	61	33	2	37	109	7	1	6	6	17
Venezuela	1952-53	82	89	33	15	10	19	4	6	3	3	6
	1954-56	81	78	32	13	10	20	5	6	3	3	7
	1959	82	92	37	16	16	25	4	8	4	4	9
NORTH AMERICA												
Canada	1948/49-											
	1950/51	75	75	46	7	70	70	15	6	8	9	20
	1954/55-											
	1956/57	74	68	44	5	72	81	16	6	8	9	20
	1960/61	70	...	44	5	75	79	16	8	8	9	19
United States of America	1948-50	77	52	41	8	105	82	22	5	9	8	20
	1954-56	69	49	41	7	98	92	21	5	9	9	21
	1960	66	47	41	7	97	95	19	5	8	9	21

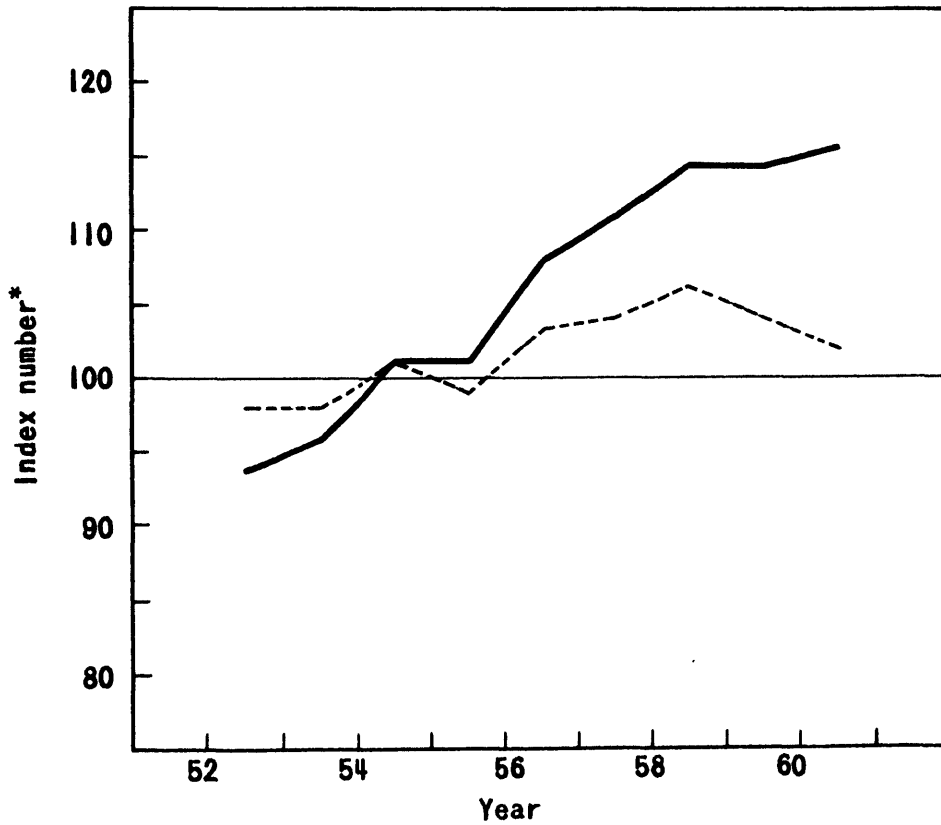
TABLE IV

CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLIES IN SELECTED COUNTRIES

Country	Period	Calories	Total protein (grams)	Animal protein (grams)	Vegetable pr (grams)
LATIN AMERICA Per caput per day.....					
Argentina	1948	3 240	110	66	
	1954-56	3 070	97	58	
	1959	2 950 -	91 -	48 -	
Brazil	1948-50	2 180	55	15	
	1954-56	2 580	65	18	
	1957	2 650 +	67 +	19 +	
Chile	1948	2 370	73	23	
	1954-56	2 540	77	26	
	1957	2 570 +	77 +	26 +	
Ecuador	1954-56	2 170	52	13	
	1957-59	2 230 +	56 +	18 +	
Mexico	1954-56	2 380	64	17	
	1957-59	2 440 +	68 +	20 +	
Peru	1952	2 070	58	10	
	1959	2 060 -	52 -	13 +	
Uruguay	1948-50	2 900	95	61	
	1954-56	2 960 +	96 +	62 +	
Venezuela	1952-53	2 030	53	19	
	1954-56	2 010	54	21	
	1959	2 300 +	64 +	27 +	
<u>NORTH AMERICA</u>					
Canada	1948/49-				
	1950/51	3 110	93	57	
	1954/55-				
	1956/57	3 150	97	63	
	1960/61	3 100	94	62	
United States of America	1948-50	3 180	91	61	
	1954-56	3 150	94	66	
	1960	3 120	92	65	

+ = increase
- = decrease

Figure 1
COMPARISON OF TRENDS IN TOTAL AND PER CAPUT
FOOD PRODUCTION IN LATIN AMERICA 1952-1961



* Average 1952/1953 - 1956/1957 = 100

— Total food production
- - - Per caput food production